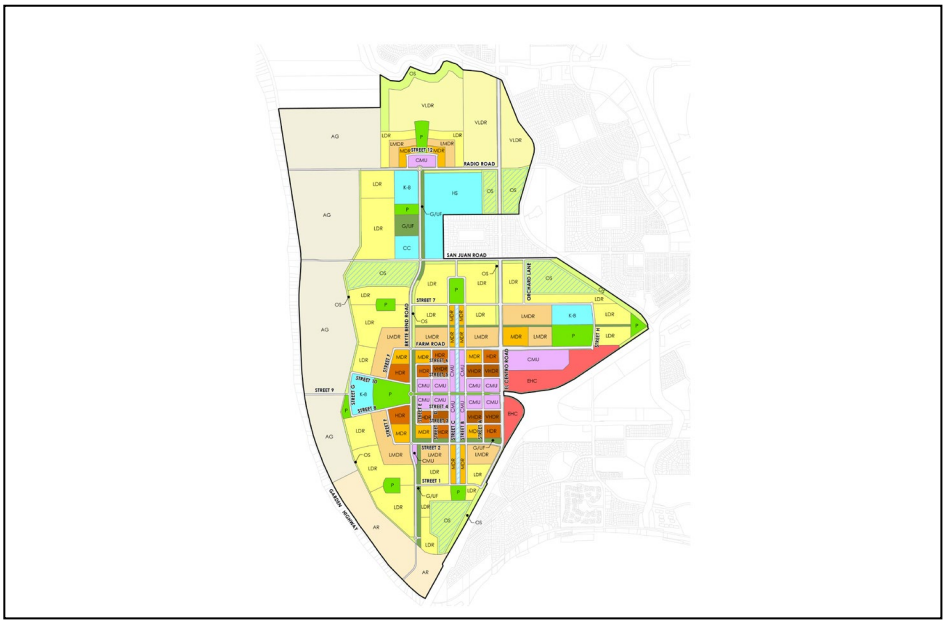
PARTIALLY RECIRCULATED FINAL ENVIRONMENTAL IMPACT REPORT

UPPER WESTSIDE SPECIFIC PLAN



Control Number: PLNP2018-00284
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April 2026

COUNTY OF SACRAMENTO
DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
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County of Sacramento
Department of Community Development, Planning and Environmental Review Division

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This environmental impact report has been prepared pursuant to the California Environmental Quality Act of 1970 (Public Resources Code Division 13). An environmental impact report is an informational document that, when this Office requires its preparation, shall be considered by every public agency prior to its approval or disapproval of a project. The purpose of an environmental impact report is to provide public agencies with detailed information about the effect that a proposed project is likely to have on the environment; to list ways in which any adverse effects of such a project might be minimized; and to suggest alternatives to such a project.

Prepared by the
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DEPARTMENT OF COMMUNITY DEVELOPMENT
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
827 7TH STREET, ROOM 225
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LIST OF ACRONYMS

ADT	average daily trips
AFY	acre-feet per year
CC	Community College land use designation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
DPS	distinct population segment
DWR	California Department of Water Resources
E/HC	Employment/Highway Commercial
EFH	Essential Fish Habitat
ESU	evolutionarily significant unit
FESA	federal Endangered Species Act
ITP	Incidental Take Permit
LDR	Low Density Residential
LOS	level of service
LTA	Local Transportation Analysis
MAF	million acre feet
MG	million gallons
mgd	million gallons per day
NCMWC	Natomas Central Mutual Water Company
NDD	North Delta Diversion
NMFS	National Marine Fisheries Service
PRC	Public Resources Code
PRDEIR	Partially Recirculated Draft EIR
RC	Regional Commercial
RCRA	Resource Conservation and Recovery Act of 1976
SCWA	Sacramento County Water Agency

SWRCB	State Water Resources Control Board
USBR	United States Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
UWSP	Upper Westside Specific Plan
VMT	vehicle miles traveled
WSCP	SCWA's Water Shortage Contingency Plan
WTP	water treatment plant
YOY	young-of-the-year

1 INTRODUCTION

PURPOSE AND LEGAL CONTEXT

As required by the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] section 21000, et seq.) and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3, section 15000, et seq.), this Partially Recirculated Final EIR (PRFEIR) discloses, analyzes, and considers the potential environmental impacts of a new alternative to the Upper Westside Specific Plan. The PRFEIR has been prepared in accordance with CEQA Guidelines Sections 15088.5 and 15132, necessitated by the addition of Alternative 5. The information contained in this PRFEIR will be reviewed and considered by the County and by any responsible agencies (as defined in CEQA) prior to a decision to approve, disapprove, or modify the proposed project.

BACKGROUND AND PROJECT OVERVIEW

The Draft Environmental Impact Report (Draft EIR) for the Upper Westside Specific Plan (UWSP) was originally published in August 2024 under State Clearinghouse Number 2020100069. The public review period for the Draft EIR lasted 45 days, from August 29, 2024, to October 14, 2024. During the public review period the County received 40 comment letters. In addition, during hearings before the Natomas Community Planning Advisory Council and Sacramento County Planning Commission on October 3, 2024, and October 21, 2024, respectively, the County received 75 oral comments and 124 written comments. Subsequently the County prepared written responses to all written and oral comments received, and on June 11, 2025, published a Final EIR containing all the comments and written responses related to the Draft EIR.

Following the publication of the Final EIR, the County received additional written comments pertaining to the merits of the project. Although there is no requirement under CEQA to address comments received following publication of a Final EIR, the County has carefully considered all comments received and has determined that potential further refinement of the proposed UWSP merits further consideration. Recirculation of the Draft EIR is prompted by the identification of a new project alternative, Alternative 5, as discussed further below. The PRFEIR provides further environmental analysis and updated information to assist the County, responsible and trustee agencies, and the public in understanding the impacts of the newly proposed changes.

This PRDEIR presents an analysis of a new Alternative 5: Revised Project Alternative, which alters the original proposed project in two key ways:

- Additional New Water Supply Source: Alternative 5 introduces Natomas Central Mutual Water District (NCMWD) as a potential domestic water supply source,

expanding the options for serving future development and potentially enhancing water supply reliability for the project area.

- Revised Circulation Network: Alternative 5 considers the removal of regular vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway, and implementation of traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic. These revisions would be intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway.

All other aspects of the proposed UWSP would remain unchanged, including land uses, densities, and plans for infrastructure and service delivery.

Scope of Recirculation

The PRFEIR focuses chiefly on those environmental issues that would be substantially affected by the changes included in Alternative 5. It presents a description of Alternative 5, refined analyses of water supply and circulation impacts, and new or modified mitigation measures. All other portions of the original August 2024 Draft EIR and the June 2025 Final EIR remain valid and unchanged, except as otherwise revised herein.

Organization of the Document

This PRFEIR republishes the entirety of the PRDEIR, published on December 12, 2025. Changes made to the text of the PREIR since publication of the PRDEIR are identified with ~~strikethrough~~ for deletions and <u>underline</u> for additions. These changes refine the analysis and conclusions of the PRDEIR but do not constitute significant new information, as defined in Section 15088.5(a) of the State CEQA Guidelines.

Public Review and Comment

Upon completion of the PRDEIR, Sacramento County filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the public review period (Public Resources Code Section 21161). The PRDEIR was distributed to responsible and trustee agencies, other affected agencies, and interested parties in accordance with Public Resources Code Section 21092(b)(3).

Consistent with the requirements of Sections 15087 and 15088.5(d) of the State CEQA Guidelines, the PRDEIR <u>was</u> made available on December 12, 2025, for public review for a period of 45 days. During this period, Sacramento County accepted written comments on the content of the PRDEIR from the public, agencies, and organizations. Pursuant to procedures set forth in Section 15088.5(f)(2) of the State CEQA Guidelines, reviewers <u>were</u> directed to limit their comments to the revised information contained in this PRDEIR. Reviewers need not resubmit comments on the previously published Draft

EIR and Final EIR. Responses to comments received on the PRDEIR are provided in Chapter 4 of this PRFEIR.

The PRDEIR was available for public review and comment as set forth in the Notice of Availability circulated by the County. During the review and comment period, written comments (including email) regarding the PRDEIR were directed to be submitted to the County at the address below.

Julie Newton, Environmental Coordinator
Department of Community Development
Division of Planning and Environmental Review
827 7th Street, Room 225, Sacramento, CA 95814
Email: CEQA@saccounty.gov

The RDEIR, Notice of Availability and other supporting documents, such as technical reports prepared by the County as part of the EIR process, were available for public review at the Division of Planning and Environmental Review at the address listed above.

In addition, electronic versions of these documents are available on the County's website at:

https://planning.saccounty.gov/PlansandProjectsIn-Progress/Pages/UpperWestsideSpecificPlan.aspx

Next Steps

Following the close of the public comment period on the PRDEIR, the County prepared this PRFEIR, which includes written responses to comments on the PRDEIR and identifies any revisions to the PRDEIR made in response to comments or new information, as applicable. Once the PRFEIR is completed, the Board of Supervisors must certify the June 2025 FEIR, together with this PRFEIR, and adopt Findings of Fact before considering approval of the proposed UWSP. As the June 2025 FEIR determined that the proposed UWSP would result in significant and unavoidable impacts, the Board of Supervisors must also adopt a Statement of Overriding Considerations.

2 ALTERNATIVE 5: REVISED PROJECT ALTERNATIVE

DESCRIPTION

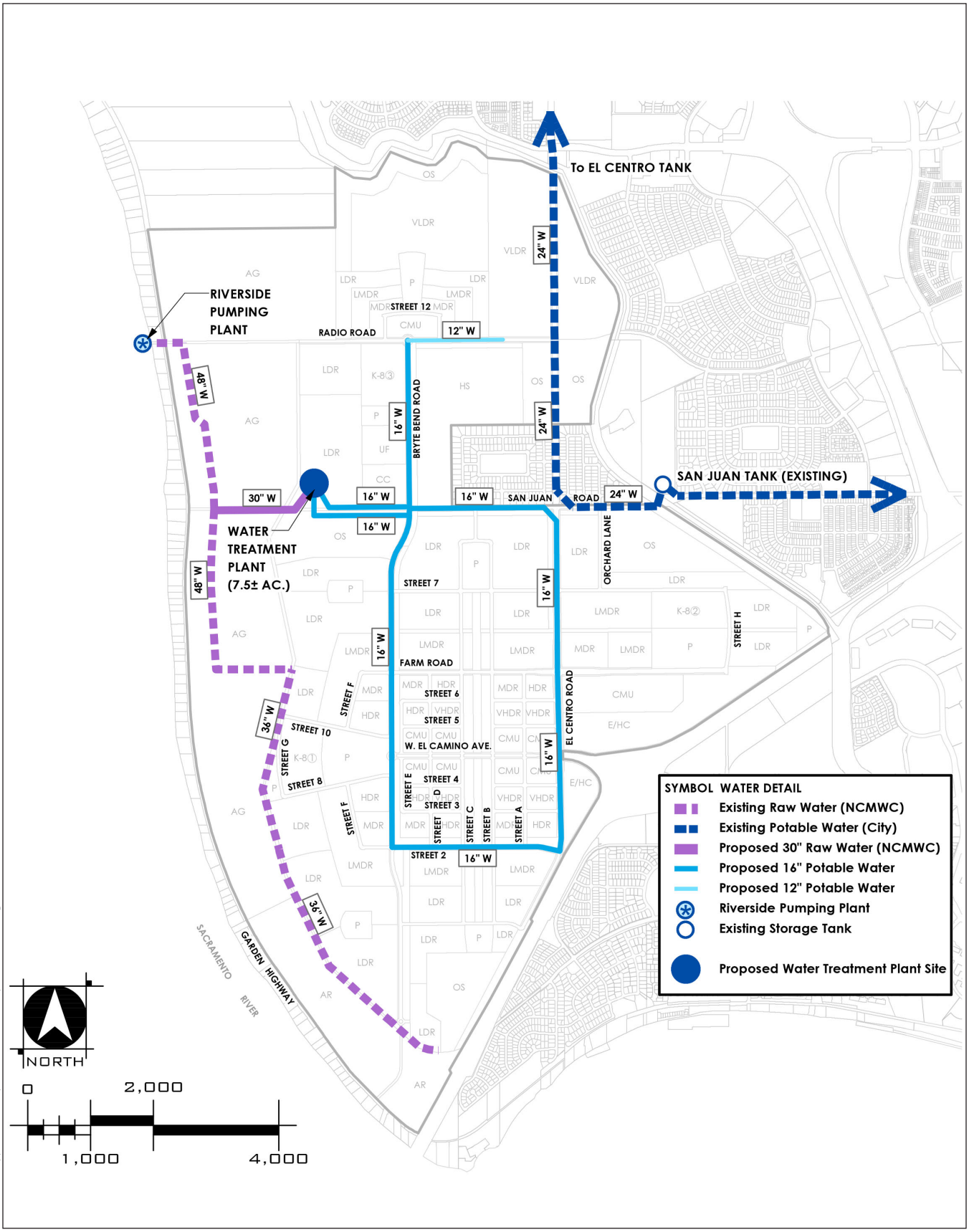
Alternative 5: Revised Project Alternative includes (i) an optional wholesale source for domestic water supply in the event that treated water from the City of Sacramento is not available, and (ii) potential changes to the circulation network intended to reduce traffic flow on Garden Highway. The Revised Project Alternative is identical to the proposed UWSP in all other respects. Land use configuration and densities, provision of infrastructure and public services, and all other characteristics of the proposed UWSP described in Draft EIR Chapter 2, *Project Description*, are the same under Alternative 5.

WATER SUPPLY OPTIONS

The proposed UWSP would be served by the Sacramento County Water Agency (SCWA) with potable water provided through a wholesale agreement with the City of Sacramento. Under Alternative 5, SCWA would instead enter into an agreement for wholesale purchase of raw water from the Natomas Central Mutual Water Company (NCMWC). The configuration and amount of residential and non-residential land uses developed under this alternative would remain the same as the proposed UWSP.

NCMWC sources its surface water supply from the Sacramento River, and NCMWC also has groundwater sources within its service area boundaries. NCMWC, through its Settlement Agreement with the United States Bureau of Reclamation (USBR) can divert and deliver up to 120,200 acre-feet (af) of surface water per year. NCMWC provides water services to 33,223 acres through pipelines, pumps and more than 50 miles of canals.

Under Alternative 5, raw water would be diverted via pumps from the existing NCMWC Riverside Pumping Plant, located on the Sacramento River adjacent to Garden Highway, immediately west of the UWSP area at Radio Road (see **Plate ALT 5-1**). Raw water would be delivered to the UWSP area via an existing 48-inch distribution main that runs along the western border of the development area. The UWSP would connect to this main where it crosses San Juan Road, approximately 600 feet east of Garden Highway, via a new 30-inch main that would extend east along San Juan Road to a proposed water treatment plant (WTP) located in the vicinity of San Juan Road and Bryte Bend Road. Construction of the new 30-inch main would occur within the San Juan Road right-of-way. After treatment and disinfection, potable water would be delivered to future uses in the UWSP area via the planned water distribution system for the UWSP presented in the Water Master Plan and described in Draft EIR Chapter 2, *Project Description*, page 2-45.



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SOURCE: Wood Rodgers, 2025

Upper Westside Specific Plan EIR

Plate ALT 5-1
Alternative 5 Water Plan

ESA

A more detailed description of the new water infrastructure required as part of Alternative 5 is presented below.

Surface Water Treatment Plant

Under Alternative 5, an approximately 7 million gallon per day WTP would be constructed on an approximately 8 acres (subject to subsequent engineering and design) on the north side of San Juan Road within the UWSP area on a parcel designated as Low Density Residential (LDR) as shown in Plate ALT 5-1. Utilities such as the proposed WTP are allowed under the LDR designation.

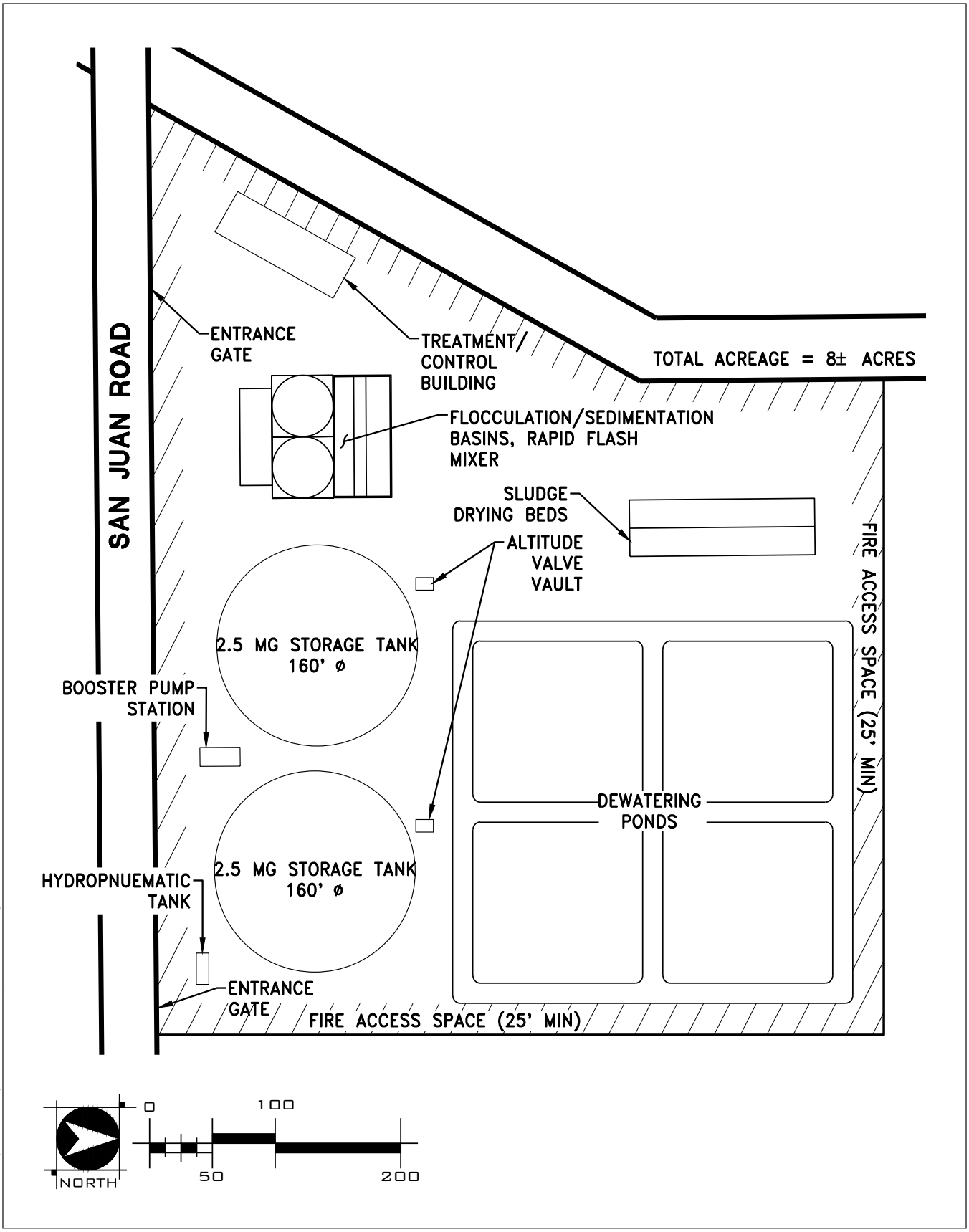
Surface water treatment plants typically consist of grit removal, followed by coagulation, flocculation, sedimentation, filtration and disinfection. In a water treatment facility, grit removal is the first step in the treatment process and reduces the solids loading of processes further downstream. A coagulant is added to the water after the grit basin and it is rapidly mixed, which is referred to as flash mix or rapid mix. This process ensures the coagulant is circulated throughout the water and relies on an injection pump for thorough dispersion. The coagulated water is either filtered directly through a medium filter (such as sand and gravel), a microfiltration or ultrafiltration membrane for higher quality waters, or it can be moved to a settling tank. In a settling tank, or clarifier, the heavy particles settle to the bottom and are removed, and then the water moves on to the filtration step of the treatment process.

It is anticipated that the UWSP WTP would include the following major aspects: raw water conveyance to water treatment plant, grit removal, rapid / flash mix, flocculation, sedimentation, filtration, disinfection, backwash storage and pumps, miscellaneous supporting electrical and site features, and other features deemed necessary to provide treated water to development allowed under the UWSP. System redundancies would be included where customary. Those redundancies would be identified in subsequent design efforts. **Plate ALT 5-2** presents a schematic layout of how the WTP may be configured.

Onsite Water Storage and Booster Pump Station

Under Alternative 5, the WTP site would include five million gallons of treated water storage and a booster pump station based on the factors shown in **Table ALT 5-1** below.

The treated water storage would be divided into two tanks of 2.5 million gallons each for redundancy and maintenance purposes. Redundancy of the booster pump station would be determined during subsequent design steps. Under Alternative 5 the booster pump would be located at or adjacent to the WTP. Proximity to the WTP would allow treated water to be discharged directly into the storage tank where it could then be pumped into the water transmission and distribution system for the UWSP. Placing the storage tank in line with the WTP would promote turnover of the treated water which maintains water quality.



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SOURCE: Wood Rodgers, 2025

Upper Westside Specific Plan EIR

Plate ALT 5-2
Schematic Water Treatment Plant Site Plan

ESA

Table ALT 5-1: Onsite Storage Sizing

Storage Criteria	Factor (gpm)	Storage (MG)
Operational Capacity: 20% of Maximum Day Demand for 24 hours	778	1.12
Fire Flow: 4,500 gpm for 4 hours[1]	4,500	1.08
Emergency: Average Day Demand[2]	1,946	2.80
Total Storage		**5.00**
Source: Wood Rogers October 15, 2025		

Transmission System Layout

The transmission and distribution system for Alternative 5 would remain largely unchanged from those described for the proposed UWSP. However, there would be two additional 16-inch transmission mains conveying water from the WTP to the distribution system. Two 16-inch transmission mains would be proposed to provide adequate capacity while simultaneously providing for redundancies that enhance reliability. The additional 16-inch transmission mains would convey potable water from the WTP to the transmission and distribution mains at the intersection of San Juan Road and Bryte Bend Road.

Circulation Options

Under Alternative 5 the UWSP circulation system would be revised to:

(1) Remove the Radio Road vehicular connection between the UWSP area and Garden Highway (other than continued access for emergency response)[3]; and

(2) Implement traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic.[4]

---

[1] While SCWA fire flow is 3,000 gpm for 3 hours, the UWSP area is served by the Natomas Fire Protection District which contracts to the City of Sacramento for fire service. Therefore, the City's higher fire flow requirement is utilized.

[2] SCWA criteria is one third of average day demand based on the assumption that groundwater pumping is available. Since the water plan does not propose to utilize groundwater, it utilizes a more conservative demand of full average day demand.

[3] Radio Road would be a paved Emergency Vehicle Access (EVA) roadway with bike/pedestrian access. Bollards or a crash gate would be utilized to control access.

[4] Specific traffic calming measures would be determined when tentative maps are prepared. Traffic calming measures that could be implemented include vertical deflections such as speed bumps and raised intersections, horizontal shifts such as traffic circles, and roadway narrowing using bulb outs and chokers.

These revisions to the roadway network are depicted on **Plate ALT 5-3**. All other characteristics of the roadway network and plans for mobility within the UWSP area would remain as described in Draft EIR Chapter 2, *Project Description*, pages 2-39 through 2-43.

EVALUATIONS OF ENVIRONMENTAL ISSUES

As described above, under Alternative 5 all characteristics of the proposed UWSP would remain unchanged except for the identification of a new source of water and minor modifications to the circulation network. As such, the analyses in the Draft EIR apply to this Alternative 5, with the exception of the following potential impacts:

- Aquatic Biological Resources: The potential effects of diverting water from the Sacramento River at the Riverside Pumping Plant on aquatic habitat and species that may be present in the river;
- Transportation: The potential effects of restricted traffic flows on Radio Road and San Juan Road that could occur under Alternative 5; and
- Utilities (water supply infrastructure and water supply): The potential effects of the UWSP on NCMWC and its water sources.

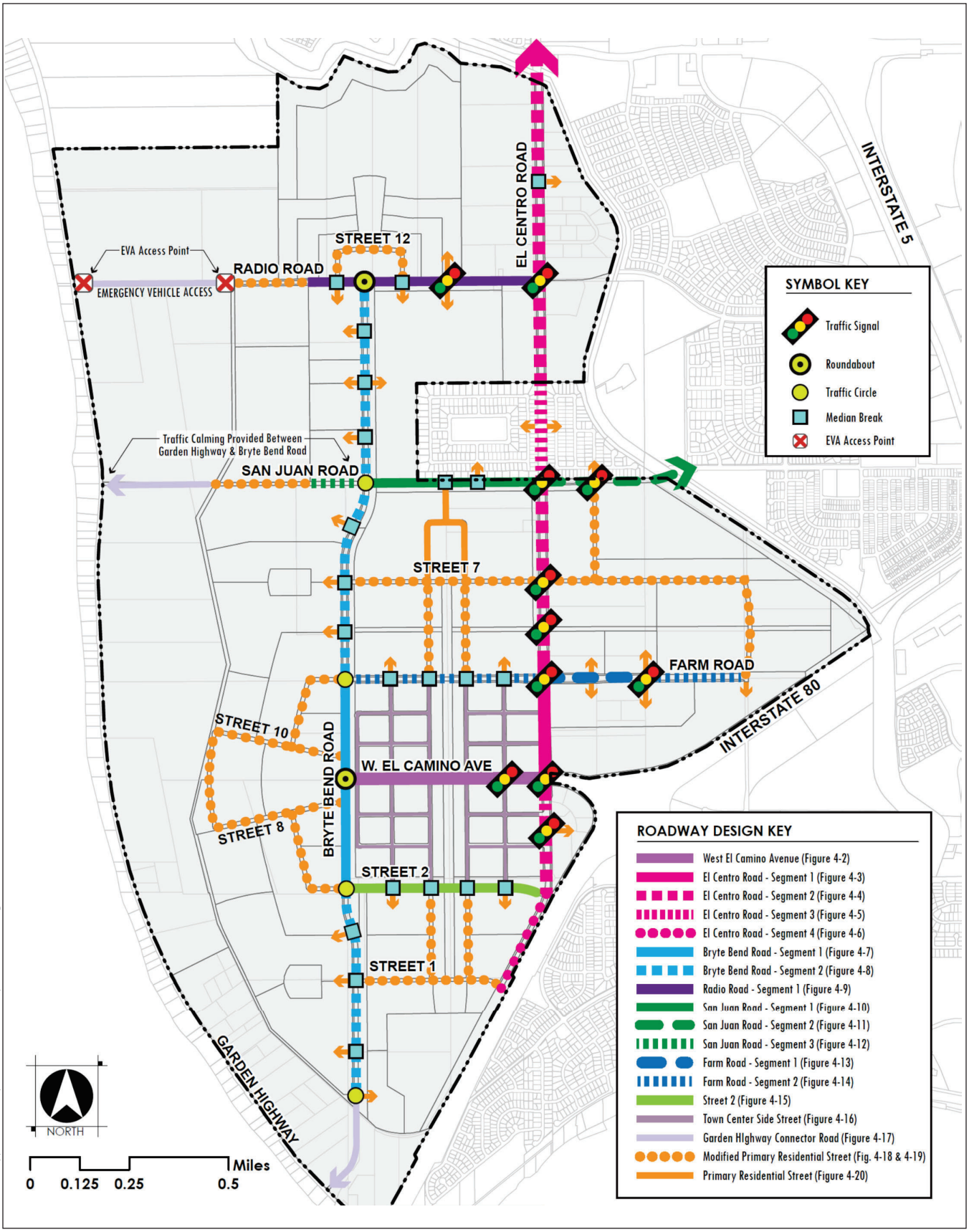
AQUATIC BIOLOGICAL RESOURCES

INTRODUCTION

The following discussion addresses the potential aquatic biological resource impacts associated with delivery of raw water from NCMWC to the UWSP as provided for under Alternative 5. The source of NCMWC's surface water supply would come from the Sacramento River at NCMWC's Riverside Pumping Plant. Water supply in excess of the existing water demand for agricultural purposes that is currently diverted at the Riverside Pumping Plant would be delivered for municipal uses for the UWSP. This change in the use of diverted water at the Riverside Pumping Plant would lead to an increase in annual diversions and a change in seasonality of diversions compared to existing conditions.

The terrestrial biological resources that could be affected by the proposed UWSP were addressed in Draft EIR Chapter 7, *Biological Resources*. The effects analysis herein evaluates the impact of changes in the operation of the Riverside Pumping Plant to special-status fish species in the Sacramento River in the vicinity of or adjacent to the plant, including an evaluation of direct effects (entrainment) and indirect effects (habitat changes due to reduced flows).

The analysis below is comprised of an Environmental Setting that includes descriptions of existing conditions relevant to aquatic biological resources. The Regulatory Setting presents existing regulations, plans, and policies relevant to aquatic biological resources associated with implementation of Alternative 5. **T**he Impact discussion presents thresholds of significance and evaluates potential impacts on aquatic biological



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SOURCE: Wood Rodgers, 2025

Upper Westside Specific Plan EIR

Plate ALT 5-3
Alternative 5 Conceptual Roadway Plan

ESA

resources that could result from implementation of Alternative 5. **Finally, a cumulative impacts analysis for aquatic biological resources is included to evaluate the combination of the project evaluated in the EIR together with other past, present, and reasonably foreseeable projects causing related impacts.**

A review of pertinent literature and database queries were conducted for the UWSP area and surrounding area. The sources of reference data reviewed for this evaluation include the following:

- Sacramento County 2030 General Plan (2011);
- CDFW California Natural Diversity Database (CNDDB) List of Regionally Occurring Special-Status Species (CDFW 2025); and
- U.S. Fish and Wildlife Service (USFWS) List of Federally Threatened and Endangered Species that May Occur in the Project Location (USFWS 2023).

Environmental Setting

A general description of the Sacramento River in the vicinity of the Riverside Pumping Plant, along with fisheries resources in the river is presented below.

Sacramento River and Delta

The Sacramento River is the largest river system in California. It originates near the slopes of Mount Shasta in northern California and flows southward to Suisun Bay in the Delta in central California. The lower Sacramento River is defined as the reach south of the Sacramento and Yolo Bypass, near the American River confluence downstream through to the City of Freeport. The lower Sacramento River is highly channelized and leveed and bordered by agricultural lands. Aquatic habitat in the lower Sacramento River is characterized by slow-water glides and pools, and has reduced water clarity and habitat diversity, compared to the upper Sacramento River. The Sacramento River is a major migration corridor that supports numerous anadromous fish species including green sturgeon, Chinook salmon, and steelhead.

The Delta lies at the confluence of the Sacramento and San Joaquin Rivers and is one of the largest estuaries in the United States. The Delta boundary extends north along the Sacramento River terminating just south of the American River, south along the San Joaquin River terminating just north of the Stanislaus River, east to the City of Stockton, and west to Suisun Bay. Runoff from Central Valley streams accounts for approximately 95 percent of Delta inflows. The Riverside Pumping Plant, a potential raw water source for the proposed USWP under Alternative 5, is located approximately six river miles upstream of the Delta boundary.

Special-Status Species

Special-status species relevant to the UWSP area are discussed and presented in Draft EIR, Chapter 7, *Biological Resources*, pages 7-10 through 7-27, including Table BR-2, *Special-Status and NBHCP and MAP HCP Covered Species Evaluated for Potential Occurrence in the UWSP Area*. The following discussion addresses aquatic special-status species that may be present in the vicinity of the Riverside Pumping Plant.

Special-status species are regulated under the federal Endangered Species Act (FESA) and California Endangered Species Act (CESA) or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified in the following categories:

- Species listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the Federal Register [FR] [proposed species])
- Species that are candidates for possible future listing as threatened or endangered under the FESA (61 FR 40, February 28, 1996)
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (California Code of Regulations, Title 14, Section 670.5)
- Animal species of special concern to CDFW
- Species that meet the definitions of rare and endangered under CEQA; a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (CEQA Guidelines, Section 15380)

A list of special-status fish species that have the potential to occur in the vicinity of Riverside Pumping Plant was compiled based on data contained in the CNDDB (CDFW 2025); the USFWS List of Threatened and Endangered Species that May Occur in your Proposed Project Location or May Be Affected by Your Proposed Project (USFWS 2025); and the National ESA Critical Habitat Mapper (NMFS 2025). **Table ALT 5-2** provides a list of special-status fish species, their general habitat requirements, and an assessment of their potential to occur in the vicinity of the Riverside Pumping Plant.

The "Potential to Occur" categories are defined as follows:

- **None:** A species is determined to have no potential to occur if (1) its specific habitat requirements are not present; **AND/OR** (2) it is outside the range or presumed to be extirpated from the area or region; **AND/OR** (3) a survey has been conducted according to agency protocol and the species was not found.
- **Low**: A species is determined to have a low potential to occur if (1) its known current distribution or range is outside of but near the study area; **AND/OR** (2) only limited or marginally suitable habitat is present.
- **Moderate**: A species is determined to have a moderate potential to occur if (1) habitat is present in the study area or immediately adjacent areas; **AND** (2) the study area is in the known range of the species, even if the species was not observed during general biological surveys.
- **High:** A species is determined to have a high potential to occur or be present if (1) habitat is present in the study area or immediately adjacent areas; **AND** (2) the study area is in the known range of the species; **AND/OR** (3) there are recent and reliable records of the species on or near the site.

Table ALT 5-2: Special-Status Species with the Potential to be Affected by Changes in Water Supply

Scientific Name	Common Name	Listing Status: Federal/ State/Other	Habitat Description	Potential for Occurrence within the Vicinity of the Riverside Pumping Plant
FISH				
Acipenser medirotris pop. 1	Green sturgeon – southern DPS	FT/SSC/--	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium-sized sand, gravel, cobble, or boulder.	High. Green sturgeon could occur in the vicinity of the Riverside Pumping Plant year-round. Spawning occurs in the upper portions of the Sacramento River and sturgeon use the lower river, adjacent to the Project, as a migration corridor.
Acipenser transmontanus	White sturgeon	--/SC/--	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium-sized sand, gravel, cobble, or boulder. Primarily reside in the San Francisco Estuary.	High. Adult white sturgeon could occur in the vicinity of the Riverside Pumping Plant during upstream migration to spawning areas on the Sacramento River. Juveniles could also occur while rearing and during their outmigration in the Project area on way to the the Delta.
Spirinchus thaleichthys	Longfin smelt	FP/ST/--	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15–30 parts per thousand but can be found in completely freshwater to almost pure seawater.	Low. While historically longfin smelt have been found as far north as Colusa, CA, the species has been experiencing rapid decline. Today, longfin smelt are known to spawn in the lower Sacramento River near or downstream of Rio Vista and are not expected to be in the Project area.
Hypomesus transpacificus	Delta smelt	FT/SE/--	Occurs in open surface waters in the Sacramento/San Joaquin Delta. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Low. While historically delta smelt have been found as far north as the Feather River, the species has been experiencing rapid decline. Recently their distribution is restricted to Suisun Bay and the north, east, and west Delta and their presence is unlikely upstream of the Delta boundary. Critical habitat for delta smelt extends upstream in the Sacramento River to just below the American River confluence, downstream of the Project area.

Scientific Name	Common Name	Listing Status: Federal/ State/Other	Habitat Description	Potential for Occurrence within the Vicinity of the Riverside Pumping Plant
Oncorhynchus mykiss irideus pop. 11	Steelhead – Central Valley DPS	FT/--/--	This DPS enters the Sacramento and San Joaquin rivers and their tributaries from July to May; spawning from December to April. Young move to rearing areas in and through the Sacramento and San Joaquin Rivers, Delta, and San Pablo and San Francisco Bays.	**High.** Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs on the upper Sacramento River. Upstream migrating adults and outmigrating juveniles would be expected to be present seasonally in the Project area,
Oncorhynchus tshawytscha pop. 7	Chinook salmon – Sacramento River winter-run ESU	FE/SE/--	Anadromous species using riverine, estuarine, and saltwater habitat. Adult migration potentially occurs from January through May. Juvenile outmigration occurs from November through mid-March.	**High.** Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs in the upper reaches of the Sacramento River. Upstream migrating adults and outmigrating juveniles would be expected to be present seasonally in the Project area
Oncorhynchus tshawytscha pop. 11	Chinook salmon – Central Valley spring-run ESU	FT/ST/--	Anadromous species using riverine, estuarine, and saltwater habitat. Adult migration potentially occurs from March through May. Juvenile outmigration occurs from November through April.	**High.** Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs in tributaries of the upper Sacramento River. Upstream migrating adults and outmigrating juveniles would be expected to be present seasonally in the Project area
Oncorhynchus tshawytscha pop. 13	Chinook salmon – Central Valley fall-/late fall-run ESU	SC/SSC/--	Anadromous species using riverine, estuarine, and saltwater habitat. Adult migration potentially occurs from June through December. Juvenile outmigration occurs from March through July.	**High.** Primarily present during in-migration (adults) and out-migration (juveniles) periods. Spawning occurs in the Upper Sacramento River. Upstream migrating adults and outmigrating juveniles would be expected to be present seasonally in the Project area
Lampetra tridentata	Pacific lamprey	SC/SSC/--	Adults need clean, gravelly riffles in permanent streams to spawn successfully. Ammocoetes live in silty backwaters and eddies with muddy or sandy substrate into which they burrow.	**Moderate.** Can occur in lower Sacramento, and San Joaquin rivers, including the Delta and is expected to be present in the Sacramento River in the Project area.

Scientific Name	Common Name	Listing Status: Federal/ State/Other	Habitat Description	Potential for Occurrence within the Vicinity of the Riverside Pumping Plant
Lampetra ayresii	River lamprey	--/SSC/--	Adults need clean, gravelly riffles in permanent streams to spawn successfully. Ammocoetes live in silty backwaters and eddies with muddy or sandy substrate into which they burrow.	**Low.** Can occur in lower American, lower Sacramento, and San Joaquin rivers, including the Delta, but are rarely captured in the Sacramento River in the Project area.
Pogonichthys macrolepidotus	Sacramento splittail	--/SSC/--	Splittail spawn in shallow water over flooded vegetated habitat with a detectable water flow. Splittail larvae and juveniles remain in riparian or annual vegetation along shallow edges on floodplains.	**Moderate.** Historically, Sacramento splittail were found as far north as Redding, CA but they are now largely confined to the Delta, Suisun Bay, Suisun Marsh, and the Napa and Petaluma rivers. Both adults and juveniles occur in the Sacramento River in the Project area.
Lavinia symmetricus spp.	Sacramento hitch	--/SSC/--	Sacramento hitch inhabit warm lowland waters including clear streams, turbid sloughs, lakes, and reservoirs.	**Low.** In the Sacramento River, hitch appear to be spread across much of their native range including the Delta, but are rarely captured in the Sacramento River in the Project area.
Archoplites interruptus	Sacramento perch	--/SSC/--	Historically found in the sloughs, slow moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young.	**None.** Extirpated from native range.
Mylopharodon conocephalus	Hardhead	--/SSC/--	Hardhead are often found at low to mid elevations in relatively undisturbed habitats of larger streams with high water quality (clear, cool).	**Moderate.** In the Sacramento River, they are common and may be present in the Delta and is expected to be present in the Sacramento River in the Project area.
Lavinia exilicauda exilicauda	Central California roach	--/SSC/--	Occurs in small, warm tributaries to larger streams that flow through open foothill woodlands of oak and foothill pine. Located in the foothills in much of the same region that contains the pikeminnow-hardhead-sucker assemblage.	**Moderate.** Occurs upstream of large reservoirs or in tributary streams and is expected to be present in the Sacramento River in the Project area.
KEY: DPS = distinct population segment; ESU = evolutionarily significant unit				

Scientific Name	Common Name	Listing Status: Federal/ State/Other	Habitat Description	Potential for Occurrence within the Vicinity of the Riverside Pumping Plant

Federal: (NMFS, USFWS)

FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FP = Proposed for listing by the Federal Government
SC = Species of Concern

State: (CDFW)

SE = Listed as Endangered by the State of California
ST = Listed as Threatened by the State of California
SC = Candidate for listing by the State of California
SSC = California Species of Special Concern

SOURCES: CDFW, 2025; NMFS, 2025; and USFWS, 2025.

Conclusions regarding habitat suitability and species occurrence are based on the analysis of existing literature and databases described previously and known habitats occurring within the vicinity of the Riverside Pumping Plant and regionally. Six special-status species have high potential to occur, and **four** special-status species have moderate potential to occur in the vicinity of the Riverside Pumping Plant. **Five** species have low or no potential to occur in the vicinity of the Riverside Pumping Plant. Only species classified as having a moderate or high potential for occurrence were considered in the impact analysis.

SPECIAL-STATUS FISH

GREEN STURGEON

The southern distinct population segment (DPS) of green sturgeon is found in North America, from Ensenada, Mexico to Southeast Alaska. Green sturgeon was classified as a Class 1 Species of Special Concern by CDFW in 1995 (Moyle et al., 1995). Class 1 Species of Special Concern are those that conform to State definitions of threatened or endangered and could qualify for addition to the official list. On April 7, 2006, National Marine Fisheries Service (NMFS) determined that the southern DPS of green sturgeon was threatened under the federal ESA (NMFS, 2006b). On October 9, 2009, NMFS designated critical habitat for the green sturgeon southern DPS throughout most of its occupied range (NMFS, 2009), including the Sacramento and American rivers.

Green sturgeon are widely distributed in the Delta and estuary areas. Historical and recent information confirms that green sturgeon occur in the Sacramento River and a few of its tributary (Feather, Yuba, and Bear) rivers. Historic and present records indicate that spawning of green sturgeon is limited exclusively to the Sacramento River watershed (NMFS, 2018). Adults typically migrate upstream into rivers between late February and late July. Spawning occurs from March to July, with peak spawning from mid-April to mid-June. Green sturgeon are believed to spawn every three to five years, although recent evidence indicates that spawning may be as frequent as every two years (NMFS, 2005c). Adult green sturgeon broadcast their eggs in deep, fast water over large cobble substrate, where the eggs settle into the interstitial spaces (Moyle, 2002). Larvae hatch from eggs between six to eight days after spawning if temperature conditions are optimal. Larvae and young-of-the-year (YOY) use riverine areas to forage and rear until they gain the ability to tolerate higher salinity concentrations.

Juvenile green sturgeon are known to live in freshwater for up to three years using riverine, subtidal, and intertidal habitats in the lower Sacramento River and Delta (Radtke, 1966; Klimley et al., 2015). Post-spawn fish behavior varies between holding for several months in the Sacramento River then out-migrating in the fall or winter or moving out of the river quickly during the spring or summer months (Heublein et al., 2009). Post-spawn outmigration through the Delta Estuary is also variable with some adults traveling to the Pacific Ocean in 2 to 10 days and others remaining in the estuary for months. Juvenile and adult green sturgeon can be present within the vicinity of the Riverside Pumping Plant year-round.

WHITE STURGEON

As with green sturgeon, white sturgeon are found from Ensenada, Mexico to Southeast Alaska. The San Francisco Estuary population of white sturgeon – the only reproducing population of white sturgeon in California – was previously classified as a Species of Special Concern by CDFW. On July 12, 2024, CDFW approved white sturgeon as a candidate species for listing as threatened under CESA. Candidate species for listing under CESA are granted full protections during the review process. Presently, there is no federal ESA listing for white sturgeon.

White sturgeon primarily inhabit estuaries of large river systems, migrating to fresh water to spawn. Spawning success has been hindered by the construction of dams, such as Shasta Dam on the Sacramento River and Oroville Dam on the Feather River. Spawning in the California Central Valley is now limited to the Sacramento River between Knights Landing and Colusa (Moyle, 2002; Moyle et al., 2015) with observations of periodic spawning occurring in the Feather and San Joaquin rivers (Beamesderfer et al., 2004; Jackson et al., 2015). Prior to spawning, white sturgeon move into the lower reaches of rivers during the winter and migrate upstream to spawning areas between December and early June (Moyle et al., 2015). Like green sturgeon, white sturgeon broadcast their eggs in deep, fast water over large cobble substrate, where the eggs settle into the interstitial spaces (Moyle, 2002). Larvae hatch from eggs between 4-12 days after spawning if temperature conditions are optimal (Wang, 1986). Larvae and YOY use riverine areas to forage and rear until they gain the ability to tolerate higher salinity concentrations (McCabe and Tracy, 1994). Recruitment success of juvenile white sturgeon is correlated with high spring flows and Delta outflow. High spring flows during juvenile rearing (i.e., between April and July) assist in moving larval sturgeon downstream into suitable rearing habitat quicker than years with low spring flows (Stevens and Miller, 1970).

White sturgeon typically inhabit deep water over soft bottom substrates, feeding on or near the bottom (Moyle, 2002). White sturgeon remain in the San Francisco Estuary throughout most of their life (Klimley et al., 2015), but more evidence is showing that white sturgeon may move into marine environments as well (Sellheim et al., 2022; Scott and Crossman, 1973). Adult and juvenile white sturgeon primarily occur in the San Francisco Estuary but can be present in the vicinity of the Riverside Pumping Plant during upstream migration as adults and downstream migration as rearing juveniles.

CENTRAL VALLEY STEELHEAD

Central Valley steelhead was federally listed as threatened on March 19, 1998 (NMFS, 1998b). The threatened status of Central Valley steelhead was reaffirmed in NMFS's final listing determination on January 5, 2006 (NMFS, 2006a). Critical habitat for Central Valley steelhead was designated by NMFS on September 2, 2005 (NMFS, 2005b) and includes the entire Sacramento River upstream to Keswick Dam and the lower American river to Folsom Dam.

Steelhead have highly variable and complex life history patterns but are broadly categorized into winter and summer reproductive ecotypes. Winter-run steelhead are the most widespread reproductive ecotype and the only type currently present in Central

Valley streams (McEwan, 2001). Winter steelhead become sexually mature in the ocean and enter fresh water from August through April, typically spawning from December through April (NMFS, 2014). Individual steelhead may spawn more than once, returning to the ocean between each spawning migration.

Juvenile steelhead typically rear one to two years in fresh water before migrating to the ocean as smolts. Juvenile migration to the ocean generally occurs from December through August, with peak outmigration from January to May (McEwan, 2001). However, some juveniles may stay and mature in fresh water without migrating to the ocean (i.e., resident rainbow trout). Resident rainbow trout can shift back to anadromy if conditions are appropriate. Juvenile steelhead tend to use bank habitat more frequently than the main channel, because bank habitat provides increased protection, shade, and food.

Central Valley steelhead occur in the vicinity of the Riverside Pumping Plant as adults migrating upstream to their spawning habitat, or as juveniles rearing and migrating toward the ocean.

SACRAMENTO RIVER WINTER-RUN CHINOOK SALMON ESU

The Sacramento River winter-run Chinook salmon evolutionarily significant unit (ESU) was listed as threatened under FESA on August 4, 1989 (NMFS, 1989). NMFS subsequently upgraded the federal listing to endangered on January 4, 1994 (NMFS, 1994). NMFS designated critical habitat for Sacramento River winter-run Chinook salmon on June 16, 1993 (NMFS, 1993) and includes the entire Sacramento River upstream to Keswick Dam.

Winter-run Chinook salmon spend one to three years in the ocean. Adult winter-run Chinook salmon leave the ocean and migrate through the Delta into the Sacramento River from December through July with peak migration in March. Adults spawn from mid-April through August (Moyle, 2002). Egg incubation continues through October. Downstream movement of juvenile winter-run Chinook salmon begins in August, soon after fry emerge.

Historically, winter-run Chinook salmon occupied and spawned in the upper reaches of the Sacramento River including Little Sacramento, McCloud, and Pit rivers and Battle Creek (Moyle et al., 1989; Lindley et al., 2007). After construction of the Shasta and Keswick dams, those habitats became unavailable due to the impassable dams and hydroelectric operations. Currently, winter-run Chinook salmon is known to occur only in the mainstem of the Sacramento River, with spawning occurring between Keswick Dam near Redding and Red Bluff Diversion Dam (Lindley et al., 2007; NMFS, 2016). The Sacramento River is the main migration route through the Delta. However, juveniles occasionally may stray into the central Delta and lower San Joaquin River system during outmigration because of entrainment into diversion channels.

Winter-run Chinook salmon adults have the potential to occur in the vicinity of the Riverside Pumping Plant during their upstream migration to spawn in the Sacramento

River near Redding. Juveniles have the potential to occur in the vicinity of the Riverside Pumping Plant during their downstream migration through the Sacramento River.

CENTRAL VALLEY SPRING-RUN CHINOOK SALMON ESU

The Central Valley spring-run Chinook salmon ESU was federally listed as threatened on September 16, 1999 (NMFS, 1999). Their threatened status was reaffirmed in NMFS's final listing determination issued on June 28, 2005 (NMFS, 2005a). Critical habitat for Central Valley spring-run Chinook salmon was designated by NMFS on September 2, 2005 (NMFS, 2005b) and includes the entire Sacramento River upstream to Keswick Dam.

Historically, spring-run Chinook salmon occupied the upstream reaches of all major river systems in the Central Valley where no natural barriers existed. By the 1950s, however, populations in the San Joaquin River had been extirpated (Yoshiyama et al., 1998). Loss of access and holding areas due to the construction of dams was a major contributing factor. Similarly, abundance of spring-run in the Sacramento River has been in decline, with only remnant runs occurring in Butte, Mill, and Deer creeks of the upper Sacramento River (Williams et al., 2016).

Adult spring-run Chinook salmon begin their upstream migration in March, with peak upstream migration occurring from May through June, and ending in September. Spring-run Chinook salmon are sexually immature during upstream migration, and adults hold in deep, cold pools near spawning habitat until spawning commences in late summer and fall. Spring-run Chinook salmon spawn in the upper reaches of the mainstem Sacramento River and tributary streams (USFWS, 2001). Spawning typically begins in late August and may continue through October. Juveniles emerge in November and December in most locations but may emerge later when water temperature is cooler. Newly emerged fry remain in shallow, low-velocity edgewater (CDFG, 1998).

A small portion of an annual year-class of juvenile spring-run Chinook salmon may emigrate as post-emergent fry (less than 1.8 inches long) and reside in the Delta undergoing smoltification. However, most are believed to rear in the upper river and tributaries during winter and spring, emigrating as juveniles (more than 1.8 inches long). Rearing takes place in their natal streams, the mainstem of the Sacramento River, inundated floodplains (including the Sutter and Yolo bypasses), and the Delta. Downstream migration of yearlings typically coincides with the onset of the winter storm season, and migration may continue through March (CDFG, 1998).

Spring-run Chinook salmon adults have the potential to occur in the vicinity of the Riverside Pumping Plant during their upstream migration to spawn in tributaries of the Sacramento River. Juveniles have the potential to occur in the vicinity of the Riverside Pumping Plant during their downstream migration from tributaries and through the Sacramento River.

CENTRAL VALLEY FALL-/LATE FALL-RUN CHINOOK SALMON ESU

Central Valley fall-/late fall–run Chinook salmon ESU are currently the most abundant and widespread salmon runs in California (Mills et al., 1997). This species is not listed under the FESA. On March 9, 1998, NMFS issued a proposed rule to list fall-run Chinook salmon as threatened (NMFS, 1998a). However, on September 16, 1999, NMFS determined that the species did not warrant listing (NMFS, 1999). On April 15, 2004, NMFS classified Central Valley fall-/late fall–run Chinook salmon as a species of concern (NMFS, 2004). However, Essential Fish Habitat (EFH) is designated for this species. EFH is defined as those waters and substrate necessary for spawning, breeding, feeding, or growth to maturity. EFH includes currently and historically accessible habitat. This species is also designated as a California Species of Concern by CDFW.

Adult fall-run Chinook salmon migrate into the Sacramento River and its tributaries from June through December in mature condition and spawn from late September through December, soon after arriving at their spawning grounds (Yoshiyama et al., 1998). The spawning peak occurs in October and November. Emergence occurs from December through March, and juveniles migrate downstream to the ocean soon after emerging, rearing in fresh water for only a few months. Smolt outmigration typically occurs from March through July (Yoshiyama et al., 1998).

Late fall–run Chinook salmon migrate upstream before they are sexually mature and hold near spawning grounds for one to three months before spawning. Upstream migration takes place from October through April and spawning occurs from late January through April, with peak spawning in February and March (Yoshiyama et al., 1998). Fry emerge from April through June. Juvenile late fall–run Chinook salmon rear in their natal streams during the summer, and they remain in some streams throughout the year. Smolt outmigration can occur from November through May (Yoshiyama et al., 1998).

Fall-/late fall-run Chinook salmon adults have the potential to occur in the vicinity of the Riverside Pumping Plant during their upstream migration to spawn in tributaries of the Sacramento River. Juveniles have the potential to occur in the vicinity of the Riverside Pumping Plant during their downstream migration through the Sacramento River.

PACIFIC LAMPREY

The Pacific lamprey is a relatively large anadromous and parasitic fish that reaches more than 80 centimeters in length (Goodman and Reid 2012). Adult Pacific lampreys enter fresh water and reside there for a few months to a few years before spawning, although spawning generally occurs in the spring after migration into fresh water, often in low-gradient stream reaches, in gravel, and at the tailouts of pools and riffles (Goodman and Reid 2012).

Pacific lampreys were historically widespread along the West Coast of the United States; because they overlap with several FESA-listed salmonids, they may be vulnerable to many of the same threats (Goodman and Reid 2012). In particular, they appear to be declining in numbers because of the reduced quantity and quality of spawning and rearing habitats; passage issues associated with hydropower and irrigation diversion such as obstruction, entrainment, and mortality; a propensity for high

predation risks; and a vulnerability to contaminants based on their life history (Goodman and Reid 2012). Pacific lamprey are designated as a Species of Special Concern in California and a Species of Concern by the USFWS due to their declining populations and restricted distribution (Moyle et al. 2015).

Pacific Lamprey have the potential to occur in the waters in the vicinity of the Riverside Pumping Plant as migrating adults or rearing juveniles.

SACRAMENTO SPLITTAIL

Sacramento splittail are not listed under the CESA or FESA but are considered a California Species of Special Concern. Sacramento splittail are a relatively large, long-lived cyprinid, endemic to the sloughs, lakes, and rivers of the Central Valley (Moyle, 2002) and most typically is found in tidally influenced freshwater and estuarine habitats (e.g., the Delta and Suisun Bay) with salinities as high as 10 to 18 ppt (Moyle et al., 2004). Nonbreeding splittail can survive wide fluctuations in temperature and low dissolved oxygen levels (less than 1 milligram of oxygen per liter), allowing them to live in slow-moving sections of rivers and sloughs (Moyle et al., 2004). Adults begin a gradual upstream migration toward spawning areas sometime between late November and late January. The migration is associated with flow events from February through April that inundate floodplains and riparian areas used for spawning and rearing (Moyle et al., 2004). Spawning is associated with conditions such as changing water levels, lower water temperatures, and increasing length of day (Moyle et al., 2004).

In the Sacramento River basin, the most important spawning areas appear to be the Yolo and Sutter Bypasses, which are extensively flooded during wet years. In the San Joaquin drainage, spawning apparently takes place in wet years where the San Joaquin River is joined by the Tuolumne and Merced rivers (Moyle et al., 2004). There are two genetically distinct populations of Sacramento splittail in the greater Estuary; a Napa and Petaluma rivers population and a Central Valley population (Baerwald et al., 2007). It is thought that current data is biased toward the Central Valley population, which consists of individuals from the Cosumnes, Sacramento, and San Joaquin rivers and their tributaries. Threats to Sacramento splittail include habitat loss and degradation, loss of access to seasonally inundated floodplains, introduction of nonnative species, entrainment in the CVP and SWP water export facilities, and harvest by recreational anglers.

HARDHEAD

The hardhead is not listed under the FESA or CESA but is considered a California Species of Special Concern. Hardhead is a native species that is widely distributed in low- to mid-elevation streams in the Sacramento and San Joaquin drainages. Although hardhead is still common, populations are generally in decline, similar to other California native species (Moyle 2002). The cause of this decline appears to be habitat loss and predation by non-native fishes (Moyle 2002).

Hardhead have the potential to occur in the waters in the vicinity of the Riverside Pumping Plant as adults or rearing juveniles.

CENTRAL CALIFORNIA ROACH

The Central California Roach is not listed under the FESA or CESA but is considered a California Species of Special Concern. Central California roach are small, stout-bodied minnows (cyprinids) that are found in tributaries to the Sacramento and San Joaquin rivers and tributaries to San Francisco Bay (Moyle 2002). Although roach are primarily benthic feeders, Moyle (2002) observed roach feeding in the Tuolumne River in swift current on drift organisms, including terrestrial insects. Juvenile roach consume large quantities of crustaceans and small chironomid midge larvae, while adult roach are more opportunistic feeders, feeding both off the substrate and from drifting insects in the water column (Moyle 2002). Roach spawn in large groups over coarse substrates where each female repeatedly deposits eggs, a few at a time, into the interstices between rocks which are immediately fertilized by one or more attendant males (Moyle 2002).

Roach are most abundant in mid-elevation streams in the Sierra Nevada foothills and in lower reaches of some San Francisco Bay streams but they may also be found in the main channels of some rivers (Moyle 2002). Although Central California Roach is still common, populations are generally in decline, similar to other California native species (Moyle 2002). The cause of this decline appears to be habitat loss and predation by non-native fishes (Moyle 2002).

Central California Roach have the potential to occur in the waters in the vicinity of the Riverside Pumping Plant as adults or rearing juveniles.

CRITICAL HABITAT

Draft EIR, Chapter 7, *Biological Resources*, discusses critical habitat as defined in Section 3(5)A of the FESA as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. While no critical habitat was identified that is relevant to the UWSP area, there are four designated critical habitats present in the vicinity of the Riverside Pumping Plant, and are described below.

NORTH AMERICAN GREEN STURGEON CRITICAL HABITAT

Designated critical habitat for the southern DPS of green sturgeon includes the Sacramento River, the Delta, and Suisun, San Pablo, and all of San Francisco Bay (NMFS, 2009).

SACRAMENTO RIVER WINTER-RUN CHINOOK SALMON CRITICAL HABITAT

Designated critical habitat for winter-run Chinook salmon includes the Sacramento River from Keswick Dam, Shasta County (River mile 302) to Chipps Island (River mile 0) at the westward margin of the Sacramento-San Joaquin Delta; all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Strait; all waters of San Pablo Bay westward of the Carquinez Bridge; and all waters of San Francisco Bay (north of San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge (NMFS, 1993).

CENTRAL VALLEY SPRING-RUN CHINOOK SALMON CRITICAL HABITAT

Designated critical habitat for spring-run Chinook salmon includes all river reaches accessible in the Sacramento River and its tributaries in California, all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Strait; all waters of San Pablo Bay westward of the Carquinez Bridge; and all waters of San Francisco Bay (north of San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge (NMFS, 2005b).

CENTRAL VALLEY STEELHEAD CRITICAL HABITAT

Designated critical habitat for Central Valley steelhead includes the stream channels in the designated stream reaches and the lateral extent as defined by the ordinary high-waterline or bank-full elevation in the Sacramento and San Joaquin rivers, their tributaries, and the Delta (NMFS, 2005b).

REGULATORY SETTING

FEDERAL

Draft EIR Chapter 7, *Biological Resources*, pages 7-28 to 7-29, includes federal regulations that address the protection of biological resources, including aquatic biological resources, including the Federal Endangered Species Act, the Migratory Bird Treaty Act, and the Clean Water Act. In addition, the following laws and regulatory instruments are relevant to the protection of aquatic biological resources in the vicinity of the Riverside Pumping Plant.

BIOLOGICAL OPINIONS ON THE COORDINATED LONG-TERM OPERATION OF THE CENTRAL VALLEY PROJECT AND STATE WATER PROJECT

On August 2, 2016, Reclamation, the lead federal agency, and the California Department of Water Resources (DWR), the applicant, jointly requested the reinitiation of FESA consultation on the coordinated long-term operation of the CVP and SWP. The USFWS accepted the re-initiation request on August 3, 2016, and NMFS accepted the re-initiation request on August 2, 2019. On January 31, 2019, Reclamation transmitted their Biological Assessment to USFWS and NMFS. Both USFWS and NMFS finalized their biological opinions on the coordinated long-term operation of the CVP/SWP on October 21, 2019.

In February 2019, state agencies announced that they would for the first time pursue a separate state Incidental Take Permit (ITP) to ensure the SWP's compliance with the CESA. In November 2019, DWR issued a draft document prepared under CEQA that identified potential operational changes to protect species and manage the SWP based on real-time conditions in the Delta ecosystem, including additional flows dedicated to the environment. After a public comment period, DWR developed an application for an ITP and submitted the application to CDFW in December 2019. DWR certified its final environmental document on March 27 and CDFW issued the ITP on March 31, 2020.

In fall 2021, Reclamation and DWR collaborated with the USFWS, NMFS, and CDFW to develop revised operating rules for the CVP and SWP (the proposed action) and

evaluate how the anticipated modifications may cause effects to ESA-listed species and/or designated critical habitat not analyzed in the 2019 biological opinions. The updated rules align operations for the Sacramento-San Joaquin River Delta and present a drought-resilient framework for operating Delta facilities and Shasta Reservoir that will provide more certainty for water users and fish and wildlife. The plan also includes a new winter-run action plan to improve viability over the next 10 years, an adaptive management approach to incorporate new science, and a federal strategy to evaluate impacts of new water infrastructure (Reclamation, 2024a). Reclamation and DWR analyzed impacts of the proposed action and alternatives under National Environmental Policy Act and CEQA, respectively. The fish and wildlife agencies also analyzed this proposed action consistent with the FESA and CESA (Reclamation, 2024a). On December 20, 2024, Reclamation signed the Record of Decision signaling approval of the revised operating rules (Reclamation, 2024b).

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Under the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (16 USC 1801 et seq.), NMFS, fishery management councils, and federal agencies are required to cooperatively protect EFH for commercially important fish species such as Pacific coast groundfish, Pacific salmon, highly migratory species, and coastal pelagic fish and squid. As defined by the U.S. Congress, EFH includes “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.”[5]

CENTRAL VALLEY PROJECT IMPROVEMENT ACT

The Reclamation Projects Authorization and Adjustment Act of 1992 (Public Law 102-575) includes Title 34, the Central Valley Project Improvement Act (CVPIA). The CVPIA amended the CVP’s authorization to include fish and wildlife protection, restoration, and mitigation as project purposes of the CVP having equal priority with irrigation and domestic uses of CVP water, and it elevated fish and wildlife enhancement to a level having equal purpose with power generation. Among the changes mandated by the CVPIA was the dedication of 800 thousand acre-feet of CVP yield annually to fish, wildlife, and habitat restoration.

The U.S. Department of the Interior’s May 9, 2003, decision on the implementation of Section 3406(b)(2) of the CVPIA explains how Section 3406(b)(2) water will be dedicated and managed. Dedication of CVPIA 3406(b)(2) water occurs when Reclamation takes a fish and wildlife habitat restoration action based on the recommendations of USFWS (and in consultation with NMFS and CDFW), pursuant to Section 3406(b)(2). Water exports at the CVP pumping facilities have been reduced using “(b)(2) water” to decrease the risk of fish entrainment at the salvage facilities and to augment river flows.

STATE

Draft EIR Chapter 7, *Biological Resources*, pages 7-30 to 7-31, includes State regulations that address the protection of biological resources, including aquatic biological resources,

[5] 16 USC 1802 – Definitions (10)

including the California Endangered Species Act, the California Fish and Game Code, the Porter-Cologne Water Quality Control Act, and the State Wetland Definition and Procedures for Discharges of Fill Materials to Waters of the State.

LOCAL

SACRAMENTO COUNTY 2030 GENERAL PLAN

Draft EIR Chapter 7, *Biological Resources*, pages 7-32 to 7-36, includes policies of the Sacramento County 2030 General Plan that are relevant to biological resources, including aquatic biological resources discussed in this analysis.

IMPACTS AND ANALYSIS

SIGNIFICANCE CRITERIA

In accordance with Appendix G of the CEQA Guidelines, an impact is considered significant if the project or alternative would cause any of the following:

- A substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS; or
- Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Impacts related to the following significance thresholds are addressed in Draft EIR Chapter 7, *Biological Resources*.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by CDFW or USFWS;
- Have a substantial adverse effect on State and federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

METHODOLOGY AND ASSUMPTIONS

This section assesses the potential for development allowed under Alternative 5 to adversely change fisheries resources in or around the vicinity of the Riverside Pumping Plant. The impact analysis focuses on foreseeable changes to existing conditions and compares those changes to the significance criteria presented below. Potential impacts are analyzed using information presented above regarding habitats present in and

around the vicinity of the Riverside Pumping Plant, and potential occurrence of special-status and protected species. Specific to this impact analysis, three principal factors were considered: (1) the magnitude of the impact (i.e., substantial/not substantial); (2) the uniqueness of the affected resource (i.e., rarity of the resource); and (3) susceptibility of the affected resource to perturbation (i.e., sensitivity of the resource). The evaluation of potential significance considered the interrelationship of these three principal factors. For example, a relatively small magnitude impact to a State or federally listed species would be considered significant if the species is exceptionally rare or believed to be highly susceptible to disturbance.

Implementation of Alternative 5 would be regulated by the laws, regulations, plans, and policies summarized under, *Regulatory Setting*, above. Therefore, the impact analysis assumes that implementation of Alternative 5 would comply with existing applicable regulatory and permitting requirements.

To evaluate whether development allowed under Alternative 5 would result in aquatic biological resource impacts, the analysis considers how water supply operations could result in changes to existing conditions for special-status and native fishes. Construction and operation activities associated with the other project components do not have in-water components and therefore would not be expected to impact fish or their habitat. See Draft EIR Chapter 7, *Biological Resources*, for analysis of effects of construction and operations (non-water supply) to terrestrial biological resources.

Changes in operations of the Riverside Pumping Plant could result in both near-field and far-field effects. Near-field effects are those that have the potential to impact fish immediately surrounding the water intakes, such as through entrainment or impingement. Far-field effects are those that have the potential to impact fish upstream and/or further downstream of the water intakes, such as flow changes that result from increased diversions at the Riverside Pumping Plant. Numerical modeling (e.g. CalSim) to evaluate changes in river flows was not warranted because project-related changes in river flows (from changes in diversions) are a fraction of a percentage and within the sensitivity bounds (e.g., model noise or error) of the best available hydrologic and habitat suitability models.

IMPACT ALT 5 BIO-1: SPECIAL-STATUS FISH SPECIES

NEAR-FIELD IMPACTS

As introduced above, near-field effects are those effects that have the potential to impact fish immediately surrounding the Riverside Pumping Plant water intakes, such as through entrainment, impingement, or in-water maintenance activities.

ENTRAINMENT AND IMPINGEMENT

Operation of the Riverside Pumping Plant at levels or during seasons that it has not been used previously has the potential to entrain or impinge listed fish species in the Sacramento River such as out-migrating juvenile salmonids. During operations, water that is pulled into the intake could entrain fish swimming or feeding in adjacent water.

However, in conformance with State and federal fish screen requirements, the Riverside Pumping Plant added a new cylindrical fish screen in 2022 to prevent entrainment of special-status fish species (Jacobs 2022). The Riverside Pumping Plant is designed to meet standards in accordance with CDFW (2010) and NMFS (2023) fish screening criteria (Jacobs 2022). More specifically, the screen is designed to meet the following guidelines that provide protection for juvenile salmonids:

- Approach velocity (water velocity perpendicular to the screen) – less than or equal to 0.40 fps where exposure time is limited to less than 60 seconds, or 0.33 fps where exposure time is greater than 60 seconds;
- Minimum sweeping velocity (water velocity parallel to the screen) – two times the approach velocity; between 0.8 fps and 3 fps is optimal;
- Screen slot opening size – 1.75 millimeters (0.069 inch); and
- Screen porosity – 27% minimum open area.

A 1.75-millimeter screen opening size is understood to be effective at excluding juvenile salmonids of 22-millimeter standard length and greater (ICF International 2016), which is the equivalent of around 25-millimeter fork length. Therefore, this would be expected to exclude all juvenile salmonids occurring in the vicinity of the intake. And because this diversion is located approximately six river miles upstream of the Legal Delta boundary, Delta smelt and longfin smelt would not be expected to be present and vulnerable to entrainment.

MAINTENANCE IMPACTS

Maintenance activities associated with the cylindrical screen at the Riverside Pumping Plant involve sediment and debris removal that may accumulate near the pump station and fish screen (Jacobs 2022). The fish screen and pump station include a pumped water jet system that prevents sediment from accumulating. The jets spray water on the fish screens and pump bays to resuspend settled and accumulated sediment to be pumped back out into the main canal or river. Furthermore, the fish screens are self-cleaning but require routine maintenance and inspection in accordance with manufacturer's recommendations. Maintenance actions involve the periodic removal of excess accumulated sediment, vegetation, or other debris around the fish screens to ensure that the system operates at its design capacity and that fish passage hydraulic criteria are being achieved.

Maintenance activities can release sediments into the aquatic environment near the Riverside Pumping Plant. Suspended sediments in the water column have the potential to affect listed fish by disrupting normal feeding behavior, reducing growth rates, increasing stress levels, and reducing respiratory functions. Increased suspended solids can also affect aquatic organisms by reducing dissolved oxygen levels and light transmission, and when the sediment in the suspended solids resettles, it could potentially smother aquatic habitats and organisms. Research with salmonids has shown that high turbidity concentrations can reduce feeding efficiency; decrease food availability; reduce dissolved oxygen in the water column; result in reduced respiratory

functions and tolerance to diseases; and cause fish mortality (Berg and Northcote 1985; Gregory and Northcote 1993; Waters 1995).

However, these maintenance activities already occur infrequently (roughly once per year) and occur during low-flow period in the summer, when special-status fish species are least likely to occur, and the use of the Riverside Pumping Plant to serve the UWSP under Alternative 5 would not affect the scheduled maintenance. Furthermore, turbidity increases are brief and generally confined to within a few hundred feet of the activity. Turbidity levels would initially be higher than baseline levels, but the sediment is dispersed and redeposited, and background levels are expected to be restored within hours of the disturbance. Therefore, use of the Riverside Pumping Plant to serve the UWSP would not alter maintenance activities associated with the Riverside Pumping Plant in a way expected to impact special-status fish species or interfere with movement of native resident or migratory fish.

FAR-FIELD IMPACTS

As introduced above, far-field effects are those effects that have the potential to impact fish upstream and/or further downstream of the water intakes. Changes in operations of the Riverside Pumping Plant in order to serve the UWSP under Alternative 5 would increase diversions from the Sacramento River and change seasonality of diversions potentially resulting in changes in river flows and alteration of habitat for special-status fishes. Reduction in river flows during those new or changed periods of operation of the Riverside Pumping Plant could decrease available habitat for special-status species and potentially impede migration of juvenile and adult salmonids and sturgeons, as evaluated further below.

NCMWC has historically provided surface water to the UWSP area for agricultural purposes. Within the UWSP area, NCMWC reports historical agricultural diversions at the Riverside Pumping Plant ranging from 1,307 acre-feet per year (AFY) to 4,860 AFY with an average of 2,703 AFY for years 2013 through 2024 (see **Table ALT 5-3**). As shown below, water diversions for agricultural uses primarily occurred during April through September (see Table ALT 5-3) with no or very limited diversions during October through March each year.

Under Alternative 5, the UWSP would be anticipated to utilize 3,139 AFY of NCMWC surface water for domestic uses (see **Table ALT 5-4**). When comparing existing water diversions at the Riverside Pumping Plant to diversions under Alternative 5, the UWSP would utilize more surface water during the cooler months between September and March, and generally less water in the warmer months between April and August (see Table ALT 5-4). As a result, there would be increased diversions of the Sacramento River during the months of September through March in the range of approximately 122 AF to 270 AF (see Table ALT 5-4). Increased diversions during cooler months would coincide with greater presence of listed fish species in the Sacramento River adjacent to the UWSP, especially juvenile salmonids that primarily emigrate during winter and spring during higher flows. However, despite greater listed fish presence, the potential entrainment rate of juvenile salmonids would be lower under seasonally higher river flows due to a smaller proportion of the flows being diverted.

Table ALT 5-3: Historical Summary of Riverside Pumping Plant Diversions (acre-feet)

Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2024					216	542	599	584	58	364	1	0	2,365
2023				0	38	712	616	353	91	75	3	2	1,892
2022			307	389	133	165	335	220	59	7			1,307
2021			145	1,085	155	312	654	730	221	127			3,284
2020				63	325	341	204	229	160				1,321
2019						227	415	458	238	10			1,335
2018					247	739	944	699	367	6			3,002
2017					217	441	555	586	245				2,045
2016				90	539	935	951	758	430	80			3,782
2015				483	653	786	760	417	94	24			3,218
2014				147	843	1,104	969	733	162	28			4,014
2013				373	1,265	1,041	865	807	237	14			4,860
Average			**38**	**221**	**386**	**612**	**656**	**548**	**197**	**61**	**0**	**0**	**2,703**
Source: Wood Rogers October 15, 2025													

Table ALT 5-4: Proposed UWSP Anticipated Net New Water Demand by Month

Month	Proposed Surface Water Demand (acre-feet)	Average Existing Surface Water Usage (acre-feet)	Average Net Change in Water Usage (acre-feet)	Additional Monthly Water Use Beyond Existing	
				Acre Feet	Average cfs
Jan	140	0	+140	140	2.3
Feb	133	0	+133	133	2.2
Mar	122	0	+122	122	2
Apr	154	221	-67	0	0
May	245	386	-141	0	0
Jun	351	612	-261	0	0
Jul	401	656	-255	0	0
Aug	430	548	-138	0	0
Sep	406	197	+209	209	3.5
Oct	331	61	+270	270	4.5
Nov	258	0	+258	258	4.3
Dec	168	0	+168	168	2.8
Total	**3,139**	**2,681**	**+458**	**N/A**	**N/A**
Source: Wood Rogers October 15, 2025					

The Riverside Pumping Plant draws water at an instantaneous rate of 33 to 47 cubic feet per second(cfs) based on the existing pump and hydraulic head required to raise water over the levee (Jacobs 2022). The pump cycles on and off throughout the day as water is required to serve NCMWC water users, including the properties within the UWSP area. Therefore, averaged over a 24-hour period, the maximum rate of diversion to serve the UWSP equates to four to nine cfs. Converting the diversion amount (acre-feet per month) needed to serve the UWSP that is in addition to diversions occurring during existing conditions to an average daily discharge equates to an average additional water diversion of 2.2 to 4.5 cfs across the months of September through March (see Table ALT 5-4).

To evaluate the effect additional diversions at the Riverside Pumping Plant may have on fish habitat in the Sacramento River, the percentage of Sacramento River flow diverted was calculated. Sacramento River flow at Verona gauge (DWR 2025) was used as a measure of flow adjacent to the Riverside Pumping Plant. The percentage diverted was calculated monthly under minimum, mean, and maximum Sacramento River at Verona flows across the recent years of 2013-2024. These 12 years present a wide range of river conditions, including four critically dry years and three wet years. Under minimum monthly Sacramento River flow conditions (6,041 cfs to 10,238 cfs), the additional diversions in September through March equates to 0.02 to 0.07 percent of the flow present in the Sacramento River (see **Table ALT 5-5**).

Table ALT 5-5: Projected Rate of Sacramento River Flow Diverted by the Proposed UWSP Under the Range of Sacramento River Flow Conditions Observed from 2013-2024

Month	Additional Water Use Beyond Existing (cfs)	Sacramento River at Verona Years 2013-2024 (cfs)			Percentage Diverted (%)		
		Min	Mean	Max	Min Flows	Mean Flows	Max Flows
Jan	2.3	6,417	22,740	57,367	0.04	0.01	0.00
Feb	2.2	10,238	23,994	72,884	0.02	0.01	0.00
Mar	2	7,043	28,330	62,471	0.03	0.01	0.00
Apr	0	5,792	22,300	57,779	0.00	0.00	0.00
May	0	5,095	15,604	40,281	0.00	0.00	0.00
Jun	0	5,500	12,018	22,705	0.00	0.00	0.00
Jul	0	5,899	11,486	16,632	0.00	0.00	0.00
Aug	0	6,296	13,087	18,417	0.00	0.00	0.00
Sep	3.5	7,095	12,992	19,380	0.05	0.03	0.02
Oct	4.5	6,041	9,166	12,306	0.07	0.05	0.04
Nov	4.3	6,268	9,185	16,470	0.07	0.05	0.03
Dec	2.8	7,777	16,351	32,552	0.04	0.02	0.01
Source: California Department of Water Resources, 2025							

These very small diversion amounts (less than 0.1 percent) under Alternative 5 are not expected to have a meaningful impact on fish habitat or fish survival. An analysis completed by Perry and Pope (2018) investigated the effect of the proposed North Delta Diversion (NDD) (located downstream of the City of Sacramento on the Sacramento River) on survival of juvenile Chinook salmon. Their analyses used the results of a Bayesian survival model that allowed them to simulate travel time, migration routing, and survival of juvenile Chinook salmon migrating through the Delta in response to NDD operations (Perry and Pope 2018). Perry and Pope (2018) determined that the constant low-level pumping scenario, which simulated a diversion of 900 cfs, led to minimal decreases in survival of Chinook salmon of less than two percent across a wide range of river flows. Therefore, diversion flows from the UWSP of up to 4.5 cfs, 200 times smaller than the 900 cfs diversion modeled in Perry and Pope (2018), would be expected to result in no discernible changes to fish survival in the Sacramento River.

NEAR-FIELD AND FAR-FIELD IMPACTS CONCLUSION

The Riverside Pumping Plant is designed to meet fish screening criteria standards in accordance with CDFW (2010) and NMFS (2023), and therefore not expected to entrain or impinge juvenile salmonids that may be present in the Sacramento River at any time of the year. Furthermore, Delta smelt are not expected to be present and vulnerable to entrainment due to the Riverside Pumping Plant being located approximately six river miles upstream of the Delta boundary and upstream of Critical Habitat for Delta smelt.

Maintenance activities associated with the Riverside Pumping Plant take place under existing conditions. They are infrequent and occur during the low-flow period in the summer when special-status fish species are least likely to occur, and would not be altered as a result of the provision of raw water for domestic purposes in the UWSP area. Therefore, changes in maintenance activities are not expected to impact special-status fish species or interfere with movement of native resident or migratory fish.

Changes in diversion of Sacramento River flows associated with provision of raw water to the UWSP under Alternative 5 are estimated to be very small, less than 0.08 percent even under minimum Sacramento River flow conditions (see Table ALT 5-5). This low level of flow diversion (less than 0.1 percent) would be expected to be indiscernible relative to existing habitat conditions for special-status and native fish species. Therefore, additional Sacramento River diversions under Alternative 5 are not expected to impact special-status fish species or interfere with movement of native resident or migratory fish. Therefore, this impact would be **less than significant**.

AQUATIC BIOLOGICAL RESOURCES CUMULATIVE IMPACTS EVALUATION

Potential cumulative impacts for aquatic biological resources are discussed below. Significance criteria, unless otherwise specified, are the same for cumulative impacts as project impacts. Below is a list of projects that were evaluated using a list of recently approved and/or proposed projects in the vicinity of the UWSP area that are not yet constructed, are not yet occupied, or are very newly constructed that have impacts on aquatic biological resources.

Table ALT 5-6: Cumulative Project List

Project Number	Project Name	Location	Description	Status
UNINCORPORATED SACRAMENTO COUNTY				
1	RiverArc project	Sacramento County	The RiverArc Project would divert water through existing modern intakes from the Sacramento River, convey to a new regional water treatment plant, and distribute potable water through a mix of new and existing pipelines to local water agencies. The RiverArc Project would increase the sustainability of regional groundwater supplies and provide additional environmental protection in the American River watershed.	Project Planning
2	Delta Conveyance Project	Sacramento County	The Delta Conveyance Project proposes to modernize aging State Water Project (SWP) infrastructure in the Delta to restore and protect the reliability of SWP water deliveries consistent with the State's Water Resilience Portfolio. The Delta Conveyance Project will also allow DWR to address sea level rise and climate change, minimize water supply disruption due to seismic risk and provide operational flexibility to improve aquatic conditions in the Delta.	Approved 2023
3	Sites Reservoir	Colusa County	The Sites Reservoir Project proposes a new surface storage reservoir located in Colusa County in the Sacramento Valley west of the town of Maxwell. Sites would be an off-stream 1.5 million acre-feet reservoir that would impound Funks Creek and Stone Coral Creek and provide storage capacity for Sacramento River diversions. The project also includes exchanges with upstream reservoirs to preserve cold water releases for fishery benefits.	Approved 2023
4	City of Sacramento Water+ Treatment Plants Resiliency and Improvements Project	Sacramento County	The city of Sacramento is proposing the Water+ Treatment Plants Resiliency and Improvements Project to provide treatment resiliency for changing water quality in both the American and Sacramento Rivers, to address reliability of facilities with infrastructure currently approaching the end of its useful life, and to meet the projected potable water demand.	Project Planning
5	El Dorado Water Reliability Project	Eldorado County	The El Dorado County Water Agency (Agency) proposes to implement the El Dorado Water Reliability Project to secure the reassignment of surface water rights (State Filed Applications 5644 and 5645) of up to 40,000 acre-feet per	Project Planning

Project Number	Project Name	Location	Description	Status
			year (afy) from the upper American River and its tributaries.	

Seven special-status fish species have either a high or moderate potential to occur in the Sacramento River adjacent to the project site, including green sturgeon, white sturgeon, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley fall/late-fall run Chinook salmon, Central Valley steelhead, pacific lamprey, Sacramento splittail, Hardhead, Central California roach. Changes in operations of the Riverside Pumping Plant could result in both near-field and far-field effects. Near-field effects are those that have the potential to impact fish immediately surrounding the water intakes, such as through entrainment or impingement and maintenance activities. The Riverside Pumping Plant is designed to meet fish screening criteria standards in accordance with CDFW (2010) and NMFS (2023), and therefore not expected to entrain or impinge juvenile salmonids that may be present in the Sacramento River at any time of the year. Furthermore, Delta smelt are not expected to be present and vulnerable to entrainment due to the Riverside Pumping Plant being located approximately six river miles upstream of the Delta boundary and upstream of Critical Habitat for Delta smelt. Lastly, changes in maintenance activities are not expected to impact special-status fish species or interfere with movement of native resident or migratory fish.

Far-field effects are those that have the potential to impact fish upstream and/or further downstream of the water intakes, such as flow changes that result from increased diversions at the Riverside Pumping Plant. Changes in operations of the Riverside Pumping Plant in order to serve the UWSP under Alternative 5 would increase diversions by less than 0.08 percent. By distributing water diversions throughout the year, the project reduces the intensity of diversion pressure during biologically critical periods for fish. While diversions from the Sacramento River could potentially result in a change in river flows and habitat, this low level of flow diversion (less than 0.08 percent) would be expected to be indiscernible relative to existing habitat conditions for special-status and native fish species.

Changes in diversion of Sacramento River flows associated with provision of raw water to the UWSP under Alternative 5 under the Project are estimated to be very small, less than 0.08 percent even under minimum Sacramento River flow conditions (see Table ALT 5-5). As stated in the impact analysis for Impact ALT 5 BIO-1, an analysis completed by Perry and Pope (2018), determined that a constant low-level pumping simulation of a diversion of 900 cfs from the Sacramento River at a diversion just a few miles downstream from the UWSP led to minimal decreases in survival of Chinook salmon of less than two percent across a wide range of river flows. Therefore, diversion flows from the UWSP of

up to 4.5 cfs, 200 times smaller than the 900 cfs diversion modeled in Perry and Pope (2018), would be expected to result in no discernible changes to fish survival in the Sacramento River.

The cumulative projects include actions that affect the timing and magnitude of flow releases and seasonal water temperatures. The types of past, present, and reasonably foreseeable projects that could result in cumulative operations-related impacts related to aquatic biological resources are those that include diversions and/or ongoing water operations and associated flow alterations. The water infrastructure projects in Table Alt 5-6 have (or would) include screens that meet fish agency criteria and diversion criteria that are protective of aquatic biological resources, including special-status fish species and their habitats. Furthermore, reasonably foreseeable projects would have to comply with the terms and conditions of regulatory permits (biological opinions and ITPs), which reduces the likelihood of substantial adverse effects to the overall Sacramento River system over its entire geography. Flows in the Sacramento River and Delta are highly altered compared to natural regimes and managed consistent with current regulatory requirements (e.g., Bay-Delta Water Quality Control Plan Update, SWP and CVP LTO BiOps, and SWP ITP). These managed flows provide essential habitat elements for a variety of species and ecological processes. Any new diversions, or ongoing operations, that have the potential to affect fish habitat resulting from a change in Sacramento River flow, would also be required to operate consistent with regulatory requirements. Flows in the Sacramento River, its major tributaries and flood bypasses, and the Delta are currently, and will continue to be, managed to meet regulatory objectives, which have been developed to be protective of fish, fish habitat, and ecological processes.

Therefore, the expected negligible changes to Sacramento River flows due to Project diversions would not result in a cumulatively considerable incremental contribution to cumulative impacts on aquatic biological resources. Thus, as a result of compliance with existing regulations, operations of the proposed UWSP and cumulative projects would not cause or contribute to a significant cumulative impact with respect to aquatic biological resources, and this potential cumulative impact would be less than significant.

Transportation

Introduction

The proposed UWSP includes expansion of and improvements to the circulation network within the UWSP area, including paving of Radio Road to open it to regular vehicular traffic between San Juan Road and Garden Highway. As discussed above, in response to concerns about the levels of future traffic on Garden Highway, Alternative 5 would:

1. Remove the Radio Road vehicular connection between the plan area and Garden Highway (other than continued access for emergency response); and

2. Implement traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic.

The following analysis addresses the potential for these circulation changes in Alternative 5 to result in impacts that are different than those from the proposed UWSP as presented in the UWSP Draft EIR, Chapter 18, *Transportation*.

The analysis below is based on a technical memorandum prepared by Fehr & Peers in August 2025 (see Appendix ALT 5-1). In order to evaluate the changes in projected future conditions that would result from the elimination of regular vehicular traffic on Radio Road between the UWSP area and Garden Highway, and the implementation of traffic calming on San Juan Road between Garden Highway and El Centro Road, traffic forecasts were developed using the same version of the SACSIM travel demand model used in the *Final Local Transportation Analysis (LTA) for Upper Westside Specific Plan.* Roadway segments were analyzed to determine the segment daily level of service (LOS) using the same analysis methods as applied in the LTA. Peak hour intersection turning movement volumes were developed and reviewed to determine whether certain critical turning movements would experience notable increases in traffic (relative to the forecasts in the LTA), which could warrant supplemental traffic operations analysis.

The analysis of roadway safety was undertaken by developing traffic forecasts for average daily conditions for 23 different roadway segments and 14 different intersections under Cumulative Plus Revised Project conditions. This scenario was chosen because, compared to Existing Plus Project conditions, it addresses conditions with greater levels of background traffic on streets to be modified and/or effected.

IMPACT TR-1: CONFLICT WITH A PROGRAM, PLAN, ORDINANCE OR POLICY ADDRESSING THE CIRCULATION SYSTEM

The proposed changes to the circulation system would not conflict with relevant General Plan policies addressing circulation as proposed roadways with the changes would continue to meet LOS operating standards with just a few exceptions where physical improvements to increase capacity have either been deemed infeasible or would be inconsistent with the UWSP's goal of creating an environment conducive to walking and bicycling. Furthermore, the UWSP would remain consistent with the Caltrans Four Pillars of Traffic Safety as the proposed traffic calming on San Juan Road between Garden Highway and El Centro Road would improve safety along this roadway. Finally, as the proposed changes would only affect vehicular circulation, the UWSP would continue to be consistent with policies addressing bicycle, pedestrian, and transit service as the proposed changes would not affect planned bicycle, pedestrian, and transit networks. Therefore, like with implementation of the proposed UWSP, Alternative 5 would not conflict with a program, plan, ordinance or policy addressing the circulation system and the impact would be less than significant with implementation of Mitigation Measures TR-1a and TR-1b.

IMPACT TR-2: VEHICLE MILES TRAVELED

The proposed changes to the UWSP circulation system would result in an overall net reduction of 800 average daily trips (ADT). As vehicle-miles traveled (VMT) is the product of daily trips and trip length, fewer daily trips would result in less VMT generated. In addition, the roadway network changes would remove travel routes that are likely more circuitous for project residents. In certain parts of the UWSP area, use of Garden Highway to access external destinations could be quicker than using El Centro Road or West El Camino Avenue but would result in longer travel lengths. Elimination of those connections effectively reduces average trip lengths, albeit very slightly. For these reasons, like with implementation of the proposed UWSP, VMT impacts under Alternative 5 would be less than significant.

IMPACT TR-3: HAZARDS DUE TO DESIGN OR INCOMPATIBLE USES

Elimination of the Radio Road connection to Garden Highway and the implementation of traffic calming along San Juan Road between Garden Highway and El Centro Road under Alternative 5 would result in Garden Highway north of Radio Road carrying considerably less traffic (a reduction of 2,900 daily trips) than the configuration of the proposed UWSP and Garden Highway south of San Juan Road carrying slightly less traffic (a reduction of 200 daily trips) than the configuration of the proposed UWSP. As such, with implementation of Alternative 5, potential hazards associated with traffic levels along and at intersections on Garden Highway would be less than with the proposed UWSP. Similarly, potential hazards associated with freeway off-ramp storage queues and on-ramp meter queues at the 1-80/West El Camino Avenue interchange and potential safety issues at I-80/West El Camino Avenue interchange associated with Sacramento 49er Travel Plaza truck stop would be less than with the proposed UWSP, as implementation of Alternative 5 would result in less traffic (a reduction of 400 daily trips) along West El Camino Avenue between I-80 and El Centro Road. Finally, as Alternative 5 would result in an overall net reduction in ADT, and thus fewer trips on area freeways, hazards associated with potential collisions on adjacent segments of I-80 and I-5 would be less than with the proposed UWSP.

With Alternative 5, there would be some roads that would experience minor increases in traffic flow, including El Centro Road and Radio Road east of Street 12 (East). El Centro Road north and south of Radio Road would experience increases of about 900 ADT southbound toward San Juan Road (which would remain LOS E) and 2,000 ADT northbound toward Arena Boulevard (which would increase to LOS F). El Centro Road is already at the maximum number of lanes allowed in both the City and County general plans (four lanes). The County Department of Transportation has indicated that an increase to six lanes would not be necessary, given that the main capacity constraint is the El Centro Road/Arena Blvd intersection, which is within the City of Sacramento's limits. The LTA prepared for the proposed UWSP identifies some operational improvements at that intersection (see Table 23 and Table 24 in the Final LTA), which have been vetted by the City. These include a second westbound left turn lane, second southbound through lane, restriping the eastbound right turn lane to a shared eastbound through/right lane, lengthening the northbound right turn lane, and adding an overlap

phase. These operational improvements would reduce the delay significantly from 131 to 109 seconds of delay, both of which still represent LOS F.

With Alternative 5, there would be a 4.3-6.5 percent increase in traffic at the El Centro/ Arena intersection, primarily in the westbound left, northbound through, northbound right, and southbound through movements. There are no additional feasible improvements to improve the westbound left and northbound through turning movements, beyond those already identified above. While a third northbound and southbound lane would improve operations, this would be inconsistent with the City of Sacramento General Plan. In addition, the City generally opposes further capacity expansion/roadway widening as a matter of policy. Thus, reclassification of El Centro Road to a six-lane roadway, whether for intersection or segment capacity, is not considered feasible or desirable.

For the segment of Radio Road between Street 12 (East) and El Centro Road, the analysis in the LTA for the proposed UWSP assumed a "low access control" roadway,[6] with a reduced capacity of 15,000 ADT (compared to 18,000 ADT capacity for a "moderate access control" roadway).[7] With development allowed under the proposed UWSP, the 17,100 ADT would exceed the 15,000 ADT threshold. The proposed operational improvement recommended in the LTA for the proposed UWSP is to design the segment of Radio Road between Street 12 (East) and El Centro Road to a moderate access control roadway standard (see LTA page 142), which would result in LOS E. With Alternative 5, which would increase traffic volumes on this segment from 17,100 to 17,700 ADT, the proposed operational improvement recommended in the LTA for the proposed UWSP would still mitigate the issue and result in LOS E.

Based on the above, the changes to roadway configurations under Alternative 5 would reduce traffic on Garden Highway north of Radio Road, as well as result in minor reductions in traffic flows at the I-80/West El Camino Avenue interchange, while resulting in some relatively minor increases in traffic flows on El Centro Road and Radio Road east of Street 12 (East). With these changes, like with implementation of the proposed UWSP, impacts to traffic hazards under Alternative 5 would remain less than significant with implementation of Mitigation Measures TR-3a through TR-3e.

IMPACT TR-4: EMERGENCY ACCESS

While Radio Road would be closed to regular vehicular use under Alternative 5, emergency vehicle access would still be provided along this roadway. As a result, impacts under Alternative 5 regarding emergency access would be less than significant, like those under the proposed UWSP.

[6] Road generally has frequent driveways and speeds of 25 to 35 miles per hour.

[7] Road generally has limited driveways and speeds 35 to 45 miles per hour.

Transportation Impacts Conclusion

As discussed above, the roadway network changes to the proposed UWSP circulation system under Alternative 5 would result in reduced projected future traffic levels on Garden Highway when compared to traffic levels under the proposed UWSP. With implementation of Alternative 5 all other transportation impact conclusions would be the same as with implementation of the proposed UWSP.

Utilities

Introduction

Under Alternative 5, NCMWC through an agreement with the Sacramento County Water Agency (SCWA), would serve as the raw water wholesaler, and the SCWA would serve as the water retailer, and would own, operate, the proposed WTP and maintain on-site storage, transmission, and distribution facilities. The analysis below includes an Environmental Setting describing existing conditions for water supply, demand, and infrastructure within the NCMWC's service area; a Regulatory Setting presenting relevant regulations, plans, and policies for water supply, conservation, and quality; and an Impact Discussion that states the thresholds of significance and addresses potential environmental effects related to the construction of water supply infrastructure (Impact UT-1) and the adequacy of water supply to meet project demands (Impact UT-2), as analyzed in Draft EIR Chapter 20, *Utilities*.

Environmental Setting

The NCMWC is a private, not-for-profit corporation representing the interests of its 280 member/shareholders. For more than 80 years, NCMWC has provided irrigation water, at cost, to its shareholders for agriculture use. NCMWC provides water services to 33,223 acres through pipelines, pumps and more than 50 miles of canals. NCMWC service area is adjacent to the Sacramento River, north to the Cross Canal, east to Natomas East Main Drainage Canal and south to the American River in Sacramento County.

Water Supply Entitlements, Water Rights And Contracts

Water Supply Sources

Background

In 1964, the NCMWC, along with hundreds of other Sacramento River water rights holders (diverters), signed a Sacramento River Settlement Contract with the USBR to purchase water from its Central Valley Project (CVP). In exchange for the right to purchase water, the diverters (contractors) agreed to limit their diversions from the Sacramento River to a monthly allocation which represented a good faith estimate of their historical use.

SACRAMENTO RIVER WATER SUPPLIES

NCMWC currently obtains surface water diversions from the Sacramento River to supply agricultural users in the Natomas Basin. As a Sacramento River contractor, it can divert up to 120,200 AFY. As discussed above, NCMWC along with several Sacramento River diverters is contracted with USBR pursuant to the Natomas Settlement Contract (14-06-200-885A-R-1). The Settlement Contract addresses portions of NCMWC's surface water rights and provides CVP water supplies for use within NCMWC's existing service area that includes the Natomas Vision Plan Area. The Settlement Contract can be amended to serve the UWSP area. Furthermore, NCMWC has sufficient capacity to serve the UWSP area as well as the broader Natomas Vision Plan Area.

As indicated in **Table ALT 5-7**, NCMWC's Sacramento River diversions have seasonal restrictions that only allow diversions and deliveries during specific months of the year. During late fall to early spring (October through March), Permit 19400 allows for direct diversion and delivery of another 10,000 AF. However, Permit 19400 is Term 91 limited (refer to detailed discussion of Critical Year Supplies, page 19) and is therefore not always available. To ensure year-round raw water deliveries, the delivery schedule of the USBR Contract entitlements would have to be modified for year-round diversions and deliveries. It should be noted that delivery of wholesale raw water from NCMWC to the UWSP area would also require a wholesale agreement between NCMWC and SCWA to allow service of M&I water to the proposed UWSP development.

SURFACE WATER DELIVERIES

In order to divert and deliver water from the Sacramento River to the urban developments within its service area, NCMWC would need to apply for or request modifications to its USBR Settlement Contract and water rights permits to change from strictly agricultural uses to also include M&I uses. Notably, NCMWC maintains specific M&I water rights for use at the Sacramento Airport and within the Metro Air Park development.

NORMAL YEAR SUPPLIES

As shown in **Table ALT 5-8**, under the USBR Settlement Agreement NCMWC can divert and deliver up to 120,200 AFY of Sacramento River water to agricultural users within its service area although delivery periods are limited to specific months pursuant to the Sacramento River Settlement Agreement and the conditions of the individual water rights permits. Separately, Water Permit 19400 (1978) allows for direct diversion and delivery of up to 10,000 AFY from October through March.

Table ALT 5-7: NCMWC Total Water Supplies

	USBR	California Water Rights Permits						
	Contract	**A000534**	**A001056**	**A001203**	**A001413**	**A015572**	**A022309**	**A025727 Permit: 19400**
Priority		3/1/1905	8/1/1918	3/1/1919	8/1/1919	10/1/1953	10/1/1965	5/1/1978
Source	CVP Settlement Contract	Sacramento River	Sacramento River	Sacramento River	Sacramento River	Sacramento River	Drain	Sacramento River and Drain (Winter)
Permit Total (AFY)	120,200	15,394.20	16,205.20	58,394.20	36,655.10	11,846.00	2,627.00	10,000.00
Delivery Period	April - October	April - October	April - October	May - October	May - October	April - June and October	March - June Sept and October	October - March
October	2,000							
November	0	0	0	0	0	0	0	
December	0	0	0	0	0	0	0	
January	0	0	0	0	0	0	0	
February	0	0	0	0	0	0	0	
March	0	0		0	0	0		
April	14,000			0	0			0
May	27,700							0
June	23,000							0
July	18,700					0	0	0
August	18,700					0	0	0
September	16,100					0		0
Totals (AFY)	**120,200**	**15,394**	**16,205**	**58,394**	**36,655**	**11,846**	**2,627**	**10,000**

Source: Natomas Central Mutual Water Company, August 13, 2025.

Note: Table adapted by ESA, October 2025.

Table ALT 5-8: USBR Contract Water Curtailments

USBR Contract Amount	25% Curtailment	Drought Protection Program 50% Curtailment
120,200 AFY	90,150 AFY	60,100 AFY
Source: Natomas Central Mutual Water Company, August 2025.		

CRITICAL YEAR SUPPLIES AND CVP DROUGHT PROTECTION PROGRAM

USBR SETTLEMENT CONTRACT CRITICAL YEAR REDUCTIONS

CVP water deliveries to Sacramento River Settlement Contractors are based on inflow quantities to Shasta Reservoir above Redding, California. Pursuant to the renewal of the USBR Settlement Agreement (May 2005), USBR may declare a Critical Year condition when the natural flows into Shasta Reservoir are equal to or less than 3.2 million acre-feet (MAF), or when total actual deficiencies below 4 MAF in the prior water year or series of successive prior water years experienced inflows of less than 4 MAF and current year forecasted inflow deficiencies exceed 800,000 acre-feet – in Critical Years, Sacramento River Settlement Contractors CVP water diversions are reduced by 25 percent.

Pursuant to the Agreement between USBR and Sacramento River Settlement Contractors for Establishment of a Drought Protection Program (January 2025), the signatories established a new program designed to improve water supply reliability and avoid severe storage deficiencies, such as the one that occurred in 2022. Under the Drought Protection Program when USBR declares a Critical Year and the Sacramento-San Joaquin Delta (Delta) is in a "Balanced Condition"[8] Sacramento River Settlement Contractors have agreed to further reduce diversions an additional 25 percent. As shown in Table ALT 5-8, NCMWC diversions of CVP water in Critical Years are reduced by 25 percent to a maximum of 90,150 AFY. Furthermore, in Critical Years an additional 25 percent reduction can be imposed under the new Drought Protection Program (January 2025). In such years, NCMWC diversions of CVP water can be reduced by up to a total of 50 percent to a maximum of 60,100 AFY.

WATER RIGHTS PERMIT CURTAILMENTS

As shown in Table ALT 5-7, Water Rights Permit 19400 was acquired after the 1963 USBR Settlement Agreement and can be used to divert and deliver water from October to March in any given year. On an annual basis, if the State Water Resources Control Board (SWRCB) determines that the Delta is in "Balanced Condition" and can declare a Term 91 condition when the natural flows in the Sacramento River are insufficient to meet the various water quality and water flow requirements in the Delta, and Supplemental Project

[8] Balanced Condition when Supplemental Project Water (SPW) releases are being made by the Central Valley Project or State Water Project (collectively Projects). The Delta is referred to be in "Balanced Condition" when the Projects are being operated to meet water quality and flow requirements in the Delta. SPW releases are releases of imported and previously stored Project water to meet in-basin entitlements, including maintenance of Delta water quality and flow requirements.

Water releases are being made by the CVP and SWP. It is likely that Term 91 will be declared more often in the future, reducing the diversions from the Sacramento River. Permit 19400 is subject to potential curtailment pursuant to Term 91. To address these potential curtailments under Term 91 during winter months, NCMWC has proposed seeking an amendment to its USBR Settlement Agreement that would allow for year-round diversions by reallocating some summer diversions to the winter period.

HISTORICAL AND EXISTING DELIVERIES – ALL WATER YEAR TYPES

As shown in **Tables ALT 5-9 and ALT-5-10**, NCMWC's historical diversions and deliveries range from as low as 29,012 AFY in 2022 to as high as 81,580 AFY in 2016. Over this 12-year time period NCMWC delivered an average of 68,099 AFY. In normal, wet or above normal water years, the average surface water delivery was 71,595 AFY. In dry and critical dry years (2014, 2015, 2021 and 2022), the surface water deliveries averaged 61,107 AFY. In 2022, NCMWC was only able to deliver to its agricultural users 29,012 AFY; in all other dry years, deliveries were above the Drought Protection Program 50 percent curtailment maximum of 60,100 AFY. Though the Drought Protection Program is designed to improve water supply reliability, decreased deliveries could potentially occur in the future, such as in 2022, when it is possible for water supplies reductions to be below the 50 percent curtailment level. Such conditions are addressed in a letter from NCMWC, included in Appendix F, which states that M&I water for the UWSP would be prioritized. Thus, under Alternative 5 the UWSP would be expected to have sufficient supplies even during these times when deliveries are below the Drought Protection Program limits.

Table ALT 5-9: Annual Surface Water Use

Year	Annual Surface Water (AFY) Deliveries
2024	60,799
2023	72,593
2022	29,012
2021	74,450
2020	75,053
2019	63,188
2018	74,879
2017	63,763
2016	81,580
2015	67,618
2014	73,348
2013	80,903

Note: Table adapted by ESA, October 2025.

Source: Natomas Central Mutual Water Company, August 13, 2025.

Table ALT 5-10: Average Surface Water Deliveries in All Year Type

Average Deliveries[1]	68,099
Average Deliveries[2]	71,595
Average Drought Year Deliveries[3]	61,107

Note: Table adapted by ESA, October 2025.

1. All water year types
2. Wet, above normal and normal years
3. 2014, 2015, 2021 and 2022

Source: Natomas Central Mutual Water Company, August 2025.

WATER DEMAND

EXISTING UWSP AREA AGRICULTURE WATER DEMAND

As shown in **Table ALT 5-11**, between 2013 and 2024 NCMWC delivered to agricultural users within the UWSP area between 1,307 and 4,860 AFY with an average of 2,703 AFY. In the drought years of 2014, 2015, 2021 and 2022, surface water deliveries for agricultural uses ranged from 1,307 AFY to 4,014 AFY with an average of 2,956 AFY. Because agricultural users demand more water for irrigation when there is less precipitation, the average water use was higher in the drought years compared to 2013-2014 average of 2,703 AFY.

Table ALT 5-11: Summary of Water Deliveries within UWSP Area (AFY)

Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2024					216	542	599	584	58	364	1	0	2,365
2023				0	38	712	616	353	91	75	3	2	1,892
2022			307	389	133	165	335	220	59	7			1,307
2021			145	1,085	155	312	654	730	221	127			3,284
2020				63	325	341	204	229	160				1,321
2019						227	415	458	238	10			1,353
2018					247	739	944	699	367	6			3,002
2017					217	441	555	586	245				2,045
2016				90	539	935	951	758	430	80			3,782
2015				483	653	786	760	417	94	24			3,218
2014				174	843	1,104	969	733	162	28			4,014
2013				373	1,265	1,041	865	807	237	14		256	4,860
Minimum					4	165	204	220	58				**1,307**
Average			38	221	386	612	656	548	197	61	0	22	**2,703**
Maximum			307	1,085	1,265	1,104	969	807	430	364	3	256	**4,860**

Source: Natomas Central Mutual Water Company, August 2025.

PROPOSED UWSP PROJECT WATER DEMAND – OPERATIONS

The estimated annual water demand for the UWSP would be 3,139 AFY and would be consistent with SCWA's 2020 Urban Water Management Plan. The proposed UWSP land uses and projected water demand for the UWSP area are presented in **Table 5-12**. It should be noted that the Agricultural Reserve, General Agriculture and Regional Commercial land uses are existing conditions and would not generate new water demands within the UWSP area[9]

Table ALT 5-12: UWSP Estimated Water Demand (AFY)

Land Uses	Corresponding Land Use Classification in WSMP(2)	Unit Water Demand (AFY/Acre)(1)(3)	Gross Acreage	Water Demand (AFY)(3)
RESIDENTIAL DESIGNATIONS				
Low Density Residential (RD-2)	Residential Low	1.47	164.5	242.3
Low Density Residential (RD-5)	Residential Low	2.29	429.2	982.8
Low Density Residential (RD-7)	Residential Low	2.29	133.0	304.5
Medium Density Residential (RD-10)	Residential Medium	3.58	62.5	102.0
High Density Residential (RD 25)	Residential Medium	3.58	36.4	130.2
High Density Residential (RD 40)	Residential Medium	3.58	22.6	164.0
NON-RESIDENTIAL				
Landscape Corridor	Park	3.01	38.2	115.1
Mixed Use	Mixed Use	5.75	82.0	471.5
Agricultural Reserve	-	n/a	410.2	n/a
General Agriculture	-	n/a	86.1	n/a
Agricultural Urban Reserve	Park	3.01	45.1	84.0
Commercial & Office (CC)	Commercial/Office	2.17	1.2	2.7
Commercial & Office (E/HC)	Commercial/Office	2.17	52.9	114.9
Roads	-	0.19	122.0	23.6
Public/Quasi-Public	Public	0.87	141.1	122.8
Public/Quasi-Public	-	0	15.0	0
Natural Reserve	-	0	141.9	0
Recreation	Park	3.01	82.3	153.0
Regional Commercial	Regional Commercial (RC)	n/a	n/a	n/a
TOTALS			**2,066**	**3,138.9**

[9] Upper Westside Water Master Plan, page 7

Notes:

1. Demand estimates per SCWA 2016 WSIP include 7.5 percent system losses
2. Proposed land use from UWS WSMP, October 2023.
3. Demands may vary slightly due to land use plan modifications.
Source: Sacramento County Water Agency, 2025.

ANTICIPATED UWSP NCMWC WATER DEMANDS

Under the UWSP, agricultural water demand would taper down as the proposed development would convert the existing agricultural land uses to developed land uses. Under existing conditions, from October through March NCMWC does not deliver raw water to meet agricultural uses in the UWSP area as existing agricultural uses do not irrigate crops during the winter months. Under Alternative 5 water use to meet M&I demand in the UWSP area between October and March would be required. As a result, NCMWC would increase monthly diversions from the Sacramento River during these months. Water supplies needed to serve the UWSP area during these months are expected to be as high as 331 acre-feet in October to as low as 122 acre-feet in March in any given year.[10]

Anticipated monthly deliveries to the UWSP area are shown in Table 8 and are consistent with the monthly water uses provided in the 2020 SCWA UWMP. In the October through March period, NCMWC would divert and deliver water to the UWSP area under its Water Right Permit 14900. As shown in **bold** in **Table ALT 5-13**, during the late fall (October) through early spring (March) NCMWC would divert 1,300 AFY more than under existing conditions to meet demand generated by the UWSP area.[11]

Table ALT 5-13: UWSP Water Demand by Month

Month	Proposed Surface Water Demand (acre-feet)
January	**140**
February	**133**
March	**122**
April	154
May	245
June	351
July	401
August	430
September[1]	**406**

[10] UWSP Alternative Water Source Memorandum, Wood-Rodgers, October 2025.

[11] UWSP Alternative Water Source Memorandum, Wood-Rodgers, October 2025.

Month	Proposed Surface Water Demand (acre-feet)
October[1]	**331**
November	**258**
December	**168**
Yearly Total	**3,139**

Notes:

1. Under existing conditions in September and October, NCMWC currently delivers 197 acre-feet and 61 acre-feet to agricultural users. Supplemental water supplies would be needed to meet the additional demand above average water use within the UWSP area.

Source: UWSP Alternative Water Source Memorandum, Wood-Rodgers, October 2025.

As shown in **Table ALT 5-14**, based on historical diversions and deliveries to existing agricultural users, the WSA estimated NCMWC's projected diversions and water supply deliveries over the next 20 years to meet agricultural and M&I within its service area including the UWSP area. Prior to serving the UWSP area with M&I water, NCMWC would be required tor modify its State water rights permits and amend its USBR Settlement Agreement.

Table ALT 5-14: Projected Water Deliveries

	2030	2035	2040	2045	2050
NCMWC – Service Area[1,2,3]	71,595	71,595	71,595	71,595	71,595
NCMWC – Service Area (Dry Years)[2,3]	61,107	61,107	61,107	61,107	61,107
UWSP – Average Annual	3,139	3,139	3,139	3,139	3,139
UWSP – Dry Years Annual	2,668	2,668	2,668	2,668	2,668

NOTES:

1 Based on average annual pumping at the Riverside Pumping Plan and annual deliveries to existing agricultural users, including the UWSP area and other proposed developments, i.e., GrandPark Southwest Specific Plan and Grandpark Trails Specific Plan.
2. Annual diversions and deliveries are expected to decrease over the next twenty years as agricultural uses within NCMWC service area are converted to urban uses. For conservative water supply planning purposes, diversions and deliveries are held constant through the 20-year planning horizon.
3. Average Annual deliveries include additional water supplies of 436 acre-feet needed to meet UWSP demands

SOURCE: Table derived by ESA from Natomas Central Mutual Water Company data and information based on demand management measures during dry years to achieve water conservation (Stage 2, up to 20%) pursuant to SCWA's Water Shortage Contingency Plan *(ver 4-19-21)*.

WATER INFRASTRUCTURE

NCMWC maintains four river pumping plants for extracting and delivery of Sacramento River water to its agricultural uses. The closest pump station to UWSP area is the Riverside Pumping Plant located west of the Garden Highway and Radio Road intersection. From there Sacramento River water is pumped into the NCMWC distribution system. While the NCMWC irrigation system is integrated throughout the Natomas Basin, there is a newly constructed raw water pipeline that conveys water south adjacent to the UWSP area.

The minimum and maximum preferred operating range for the Riverside Pumping Plant is approximately 33 and 47 cubic feet per second, respectively. This equates to a capacity of 14,800 to 21,100 gallons per minute. The pumping plant discharges into a concrete portion of the Riverside Canal.

Approximately 125 feet south of the Riverside Pumping Plant discharge point is the Riverside Canal/Pipeline Lift Station. This facility consists of valving, a 50-horsepower and 60-horesepower pump discharge into a new 48-inch HDPE pipeline. The 48-inch pipeline travels south transitioning to a 36-inch at existing Farm Road and then a 32-inch pipe at existing Parker Road. The pipeline ultimately discharges into an open canal that runs parallel to Interstate 80. The pipeline is currently utilized to serve agriculture water to existing NCMWC agricultural uses via periodic turnouts and discharges to open canals (Wood Rodgers 2025).

REGULATORY SETTING

FEDERAL

Draft EIR Chapter 20, *Utilities*, pages 20-15 to 20-16, includes federal regulations that address water quality, including the Federal Safe Drinking Water Act and the U.S. Environmental Protection Agency's role in implementing the act.

STATE

Draft EIR Chapter 20, *Utilities*, pages 20-16 to 7-20, includes State regulations that address water supply and quality, including the Urban Water Management Planning Act, California Public Resources Code requirements to prepare water supply assessments and written verification of water supply, and the State's role in implementing the Federal Safe Drinking Water Act.

LOCAL

Draft EIR Chapter 20, *Utilities*, pages 20-23 to 20-26, includes policies of the Sacramento County 2030 General Plan that are relevant to water conservation, quality and supply.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines, an impact is considered significant if the project or alternative would cause any of the following:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects; or
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;

Impacts related to the following significance thresholds are addressed in Draft EIR Chapter 20, *Utilities*, and would remain unchanged under Alternative 5.As such, effects of Alternative 5 related to these significance criteria are not further addressed herein.

- Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

METHOD OF THE ANALYSIS

SCWA's 2020 UWMP provides a table of gross unit water use factors for various land uses. The water uses are divided into six main categories of water demand factors: single-family residential; multi-family residential, commercial, government and institutional, industrial and landscape irrigation. All water demand factors are based on acre-feet per year per acre (AFY/Acre). For the proposed UWSP, dwelling units are comprised of low, medium and high density residential while nonresidential areas are comprised of commercial and offices, landscape corridors, parks and other public area. A water supply assessment, or WSA, was prepared for Alternative 5 by the SCWA in December 2025 (see Appendix ALT 5-2). The WSA assessed available water supplies and described existing and projected water demand and then calculates and systematically compares water supply reliability for the UWSP under all water year types including normal, single dry, and multiple dry years over a 20-year planning horizon.

As shown in Table ALT 5-11, land uses allowed under the proposed UWSP would generate an estimated annual water demand of 3,139 AFY. Based on the WSA, water demand for the proposed UWSP was compared to water supplies available to the NCMWC, and a determination was made regarding the sufficiency of supply for the proposed UWSP.

Development allowed under the proposed UWSP would be required to comply with water conservation, reuse, and efficiency standards under CALGreen. To this end, development would use low-flow/high-efficiency plumbing fixtures, and landscaping in the UWSP area would be designed and maintained for low water use and appropriate site conditions and methods for reducing water demand. As a result, compliance with these measures may reduce the water demand of the proposed UWSP to less than 3,139 AFY.

IMPACT UT-1: CONSTRUCTION OF WATER SUPPLY INFRASTRUCTURE COULD RESULT IN ADVERSE PHYSICAL EFFECTS

Under Alternative 5, raw water would be diverted at the Riverside Pumping Plant and then treated at a proposed WTP on the north side of San Juan Road within the UWSP area. The anticipated capacity of the WTP would be approximately 7 million gallons per day and would be located on approximately 8-acres (subject to subsequent engineering and design). The WTP would also include a booster pump station and two 2.5-million-gallon storage tanks.

Raw surface water would be delivered to the UWSP area via an existing 48-inch distribution main that runs along the western border of the UWSP area. The proposed UWSP would connect to this main where it crosses San Juan Road, approximately 600 feet east of Garden Highway, via 30-inch main that would extend east along San Juan Road to the proposed WTP.

The transmission and distribution system for Alternative 5 would remain largely unchanged from those described for the proposed UWSP. However, there would be two additional 16-inch transmission mains conveying water from the WTP to the distribution system. The additional 16-inch transmission mains would convey potable water from the WTP to the transmission and distribution mains at the intersection of San Juan Road and Bryte Bend Road.

The connection to the existing 48-inch distribution main would occur within the right-of-way of San Juan Road while construction of the WTP and distribution system would occur within the footprint of the UWSP area that was evaluated in the Draft EIR. As a result, the potential impacts associated with the construction and installation of these improvements were considered throughout the technical chapters of the Draft EIR, including Chapter 6, *Air Quality*; Chapter 7, *Biological Resources*; Chapter 9, *Cultural Resources*; Chapter 11, *Geology, Soils, and Paleontology*; Chapter 15, *Noise and Vibration*; Chapter 18, *Transportation and Circulation*; and Chapter 19, *Tribal Cultural Resources*. Project-specific mitigation measures for construction identified for each topical issue would reduce potential significant impacts associated with construction and installation of the water treatment and distribution facilities associated with Alternative 5 to the maximum extent feasible. There are no environmental impacts that would occur specifically related to the construction and installation of these facilities. In addition, these facilities would be required to comply with the County's requirements for construction projects, including but not limited to, grading permits and encroachment permits.

During operations, odors, noise and lighting generated by the WTP are not expected to adversely affect future neighboring residential uses. Modern design of surface water treatment plants include provisions for limiting odor and noise impacts. For example, odors would be controlled and limited by covering basins/tanks, use of activated carbon filters or scrubbers, and chemical treatment and/or sludge management. Noise would be limited by providing sound walls, locating pumps away from property lines, and/or potentially housing pumps within buildings. Finally, lighting would be addressed via standard shielding based on lighting studies that would demonstrate compliance with County standards. Specific details would be vetted and analyzed during the treatment plant design process and County review of improvement plans.

For these reasons, impacts from implementation of Alternative 5 would be less than significant, like from implementation of the proposed UWSP, with respect to water treatment and distribution facilities.

IMPACT UT-2: RESULT IN A PROJECT WATER DEMAND THAT CANNOT BE MET BY SUPPLY

As a result of implementation of the UWSP and conversion of land uses, (agricultural to urban) total water demand within NCMWC service area is expected to decrease over the 20-year planning horizon. A detailed discussion of water demand and supply under multiple types of water years is discussed further below.

NCMWC SERVICE AREAS – SUPPLY AND DEMAND

Table ALT 5-15 presents a water supply and demand comparison in all water year types, normal, dry and drought protection program years when supplies could be curtailed by 50 percent. Normal year supply quantities are assumed to be like historical average supplies presented in Table ALT 5-9, above. In normal water years, NCMWC has adequate water supply to meet existing and projected demand, including the proposed UWSP estimated water demand of 3,139 AFY. In normal years, NCMWC would have access to another 48,605 AFY after delivering water to UWSP and agricultural consumers.

In Critical Years (i.e., dry years) CVP supplies are assumed to be reduced by 25 percent to a maximum of 90,150 acre-feet (refer to Table ALT 5-15). In Critical Years, NCMWC has adequate water supplies to meet existing and projected demand including the UWSP area estimated 3,139 AFY of water demand. As shown in Table ALT 5-15, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC would prioritize M&I deliveries to UWSP area to meet demand during Critical Years. As a result, in Critical Years when supplies are reduced by 25 percent, NCMWC would be able to meet existing and projected demand and NCMWC would have access to another 29,043 AFY after delivering water to UWSP and agricultural consumers. This

assumes a projected 15 percent reduction in demand due to water conservation pursuant to SCWA's Water Shortage Contingency Plan (WSCP).[12]

Table ALT 5-15: NCMWC Supply and Demand in All Water Years

Year Type		2030	2035	2040	2045	2050
NORMAL YEAR						
Supply	USBR CVP Settlement Agreement	120,200	120,200	120,200	120,200	120,200
Demand	NCMWC – Service Area[1,2,3]	71,595	71,595	71,595	71,595	71,595
	Surplus/(Deficit)	48,605	48,605	48,605	48,605	48,605
CRITICAL YEAR AKA DRY YEAR						
Supply	USBR CVP (25% Curtailment)	90,150	90,150	90,150	90,150	90,150
Demand	NCMWC – Service Area (15% conservation or fallow lands and reduced planting)[1,2,3]	61,107	61,107	61,107	61,107	61,107
	Surplus/(Deficit)	29,043	29,043	29,043	29,043	29,043
DROUGHT PROTECTION PROGRAM CURTAILMENT						
Supply	USBR CVP (50% Curtailment)	60,100	60,100	60,100	60,100	60,100
Demand	NCMWC – Service Area (Dry Years 15% conservation or fallow lands and reduced planting)[1,2,3]	61,107	61,107	61,107	61,107	61,107
	Surplus/(Deficit)	(1,007)	(1,007)	(1,007)	(1,007)	(1,007)
Supply	USBR CVP (50% Curtailment)	60,100	60,100	60,100	60,100	60,100
Demand	NCMWC – Service Area (Dry Years 17% reduction or fallow lands and reduced planting)[1,2,3]	60,099	60,099	60,099	60,099	60,099
	Surplus/(Deficit)	1	1	1	1	1

NOTES:

1. Based on average annual pumping at the Riverside Pumping Plan and annual deliveries to existing agricultural users, including the UWSP area and other proposed developments, i.e., GrandPark Southwest and Grandpark Trails.
2. Annual diversions and deliveries are expected to decrease over the next twenty years as agricultural uses within NCMWC service area are converted to urban uses. For conservative water supply planning purposes, diversions and deliveries are held constant through the 20-year planning horizon.

[12] SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. SCWA Water Shortage Contingency Plan (ver 4-19-21)

3. Average Annual deliveries include additional water supplies of 436 acre-feet needed to meet UWSP demands.

Table derived by ESA from NCMWC data and information and based on demand management measures during dry years to achieve water conservation (Stage 2, up to 20%) pursuant to SCWA's Water Shortage Contingency Plan *(ver 4-19-21)*.

Source: UWSP Alternative Water Source Memo and NCMWC, October 2025

In years when the Drought Protection Program is in effect, CVP water is reduced by 50 percent or a maximum of 60,100 acre-feet for NCMWC (refer to Table ALT 5-15). Under the Drought Protection Program, NCMWC could experience a potential shortfall of 1,007 AFY as shown in Table ALT 5-15. In these Drought Protection Program years when supplies are reduced by 50 percent, pursuant to the NCMWC and SCWA water service agreement, NCMWC would prioritize M&I deliveries to UWSP area to meet demand. As a result, in Drought Protection Program Years when CVP supplies are reduced by 50 percent, NCMWC would be able to meet existing and projected demand. This assumes a projected 17 percent reduction in demand due to water conservation pursuant to SCWA's WSCP.[10]

UPPER WESTSIDE SPECIFIC PLAN SERVICE AREA - – SUPPLY AND DEMAND

Table ALT 5-16 presents a water supply and demand comparison in all water year types, including normal, Critical dry years when supplies could be curtailed by 25 percent, and Drought Protection Program years when supplies could be curtailed by 50 percent.

Table ALT 5-16: UWSP Area Supply and Demand in All Water Years

		2030	2035	2040	2045	2050
Supply	NCMWC - UWSP Deliveries	3,139	3,139	3,139	3,139	3,139
Demand	UWSP Service Area1	3,139	3,139	3,139	3,139	3,139
	Surplus/(Deficit)	0	0	0	0	0
Supply	USBR CVP (25% Curtailment)	3,139	3,139	3,139	3,139	3,139
Demand	UWSP Service Area1	3,139	3,139	3,139	3,139	3,139
	Surplus/(Deficit)	0	0	0	0	0
Supply	USBR CVP (50% Curtailment)	3,139	3,139	3,139	3,139	3,139
Demand	UWSP Service Area1	3,139	3,139	3,139	3,139	3,139
	Surplus/(Deficit)	0	0	0	0	0

NOTES:

1. For conservative water supply planning purposes, UWSP demand is held constant through the 20-year planning horizon. Under SCWA's Water Shortage Contingency Plan (ver. 4-19-21) demand would be reduced in response to applicable water conservation measures.

		2030	2035	2040	2045	2050
Table derived by ESA from NCMWC data and information and based on demand management measures during dry years to achieve water conservation (Stage 2, up to 20%) pursuant to SCWA's Water Shortage Contingency Plan *(ver 4-19-21)*.						
Source: Alternative Water Source Memo and NCMWC, October 2025						

Normal year supply quantities are assumed to be similar to historical average supplies presented in ALT Table 5-15. In normal water years, NCMWC has adequate water supply to meet existing and projected demand, including the UWSP estimated 3,139 AFY of water demand. In normal years, NCMWC has sufficient supplies to meet demand generated by the UWSP area.

In dry Critical Years, when CVP water supplies are reduced by 25 percent as presented in Table ALT 5-8, NCMWC would be able to meet existing and projected demand including demand generated by the UWSP area and would have access to another 29,043 AFY after delivering water to UWSP and agricultural consumers. This assumes a projected 15 percent reduction in demand due to water conservation pursuant to SCWA's WSCP[13]. As shown in ALT Table 5-16, pursuant to a NCMWC and SCWA water service agreement, NCMWC would prioritize M&I deliveries to UWSP area to meet demand during Critical Years. As a result, in Critical Years when CVP supplies are reduced by 25 percent, NCMWC would be able to meet existing and projected demand including demand generated by the UWSP area.

In years when the Drought Protection Program is in effect, CVP water is reduced by 50 percent or a maximum of 60,100 acre-feet (refer to Table ALT 5-8). In these years NCMWC could experience a supply shortfall. In these Drought Protection Program years, pursuant to a NCMWC and SCWA water service agreement, NCMWC would prioritize M&I deliveries to UWSP area to meet demand. This assumes a projected 17 percent reduction in demand due to water conservation pursuant to SCWA's WSCP.[14] As a result, in Drought Protection Program years when CVP supplies are reduced by 50 percent, NCMWC would be able to meet existing and projected demand including demand generated by the UWSP area.

[13] SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. SCWA Water Shortage Contingency Plan (ver 4-19-21)

[14] SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. SCWA Water Shortage Contingency Plan (ver 4-19-21)

For the reasons described above, impacts to water supply with implementation of Alternative 5, like with implementation of the proposed UWSP, would be less than significant.

Utilities Impacts Conclusion

As discussed above, impacts related to the provision of potable water supply from the NCMWC and the construction of necessary treatment and distribution infrastructure with implementation of Alternative 5 would be less than significant, the same impact conclusion as with the proposed UWSP.

Comparative Analysis of Environmental Effects

The Draft EIR included an analysis of the following CEQA topics: aesthetics, agricultural resources, air quality, biological resources, climate change, cultural resources, energy, geology, soils, and paleontology, hazards, and hazardous materials, hydrology and water quality, land use, mineral resources, noise, population and housing, public services and recreation, transportation, tribal cultural resources, utilities, and wildfire. The comparative impacts of Alternative 5 on each of these topics is addressed below.

Aesthetics

Impacts related to aesthetics under Alternative 5 would be like those described for the proposed UWSP, as the same amount of land would be converted from farmland and rural use to urban use under this alternative. As a result, impacts related to scenic views, visual character, and new sources of light would remain significant and unavoidable under Alternative 5 like the proposed UWSP.

Agricultural Resources

Impacts related to agricultural resources under Alternative 5 would be like those described for the proposed UWSP, as the same amount of farmland within the UWSP area would be converted to urban uses. Therefore, with respect to the conversion of farmland to non-agricultural uses, the proposed plan's significant and unavoidable impact with mitigation would remain the same under Alternative 5. Furthermore, impacts related to conflicts with existing agricultural use and zoning under this alternative would also remain less than significant.

Air Quality

Impacts related to air quality would be the same under Alternative 5 when compared to the proposed UWSP, as the location and amount of residential and non-residential development under this alternative would be the same as under the proposed UWSP. As a result, the proposed UWSP's significant and unavoidable impacts (with mitigation) would remain be same with respect to conflicts with an applicable air quality plan long-term, operational emissions of criteria air pollutants and precursors, and toxic air contaminants.

Biological Resources

Residential and non-residential development under Alternative 5 would occur over the same development footprint as the proposed UWSP, and therefore the effects of this alternative on biological resources, except for fish species, would not differ from the UWSP as proposed. Therefore, with respect to sensitive species, riparian habitats, wetlands, wildlife movement, wildlife nursery sites, tree preservation, and conflicts with a habitat conservation plan, the proposed plan's less-than-significant impacts with mitigation would be generally the same under this alternative.

Under Alternative 5 the source of UWSP domestic water supply would come from the Sacramento River and NCMWC's Riverside Pumping Plant and therefore could lead to direct and indirect effects to special-status fish species. Annually a total of 3,139 AFY, a net increase of 458 acre feet per year in water that has previously been delivered from the Riverside Pumping Plant to the UWSP area for agricultural purposes, would be available for development allowed under the proposed UWSP. This change in the use of diverted water at the Riverside Pumping Plant would lead to an increase in annual diversions and a change in seasonality of diversions compared to existing conditions. Importantly, a total of 1,300 AFY of water would be diverted during the September through March period when sensitive fish species are present in the Sacramento River.

As described in greater detail above, changes in diversion of Sacramento River flows associated with provision of raw water to the proposed UWSP under Alternative 5 are estimated to be very small, less than 0.08 percent of flow even under minimum Sacramento River flow conditions. This low level of flow diversion (less than 0.1 percent of river flows) would be expected to be indiscernible relative to existing habitat conditions for special-status and native fish species. Therefore, additional Sacramento River diversions from the Riverside Pumping Plant under the Alternative 5 are not expected to impact special-status fish species or interfere with movement of native resident or migratory fish. Therefore, this impact would be less than significant.

Climate Change

Impacts related to GHG emissions and climate change would be the same under Alternative 5 as under the proposed UWSP, as the amount of residential and nonresidential development under Alternative 5 would be the same as under the proposed UWSP. As a result, the proposed UWSP's less-than-significant impact (with mitigation) related to construction GHG emissions would be the same. Similarly, less-than-significant (with mitigation) impacts related to operational GHG emissions and conflicts with an applicable plan, policy, or regulation related to GHG emissions would also be the same.

Cultural Resources

Impacts related to cultural resources under Alternative 5 would also be like those described for the proposed UWSP as the project footprint would remain the same, and thus the amount of ground disturbance would remain the same under this alternative. Therefore, with respect to historical resources, archaeological resources and/or human

remains, the proposed UWSP's significant and unavoidable impacts with mitigation would remain the same under Alternative 5.

Energy

Impacts related to energy consumption would be the same under Alternative 5 when compared to the proposed UWSP, as residential and non-residential development under this alternative would be the same as under the proposed UWSP. As a result, the proposed UWSP's less-than-significant impacts related to energy use would be the same.

Geology, Soils, and Paleontology

Impacts related to geology and soils under Alternative 5 would be the same as the proposed UWSP as the same number of residents, employees, and potentially structures would be exposed to the same seismic risks, geologic hazards, and soil conditions found in the UWSP area. Therefore, the same mitigation as identified for the proposed UWSP would also be required under this alternative to reduce the impact to a less-than-significant level.

Concerning paleontological resources, the impact related to these resources would also continue to be potentially significant under Alternative 5, as the potential for the discovery of unknown paleontological resources would remain the same. As a result, the same mitigation as identified for the proposed UWSP would also be required under this alternative to reduce the impact to a less-than-significant level.

Hazards and Hazardous Materials

The location and amount of the residential and non-residential development under Alternative 5 would be the same as under the proposed UWSP. As a result, impacts with respect routine transport, use, or disposal of hazardous materials, accidental release of hazardous materials, hazardous emissions or use of hazardous materials near schools, and physically interfering with an adopted emergency response plan or emergency evacuation plan under this alternative would remain less than significant. Furthermore, with respect to potential onsite contamination, the same mitigation as identified for the proposed UWSP would also be required under this alternative to reduce the impact to a less-than-significant level.

Hydrology and Water Quality

Impacts related to hydrology and water quality under Alternative 5 would be like those described for the proposed UWSP, as the same amount of land would be developed under this alternative as the proposed plan. Therefore, impacts with respect to groundwater supplies or management; flood risk; alteration of drainage patterns; addition of impervious surfaces resulting in erosion, siltation, increased runoff, impedance, or redirection of flood flows; and conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan would remain less than significant. Furthermore, with respect to violation of water quality standards or waste discharge requirements, or degradation of surface or groundwater quality, the

same mitigation as identified for the proposed UWSP would also be required under this alternative to reduce the impact to a less-than-significant level.

Land Use

Alternative 5 includes the same development area footprint and residential and commercial densities as the proposed UWSP. As a result, impacts with respect to consistency with applicable land use plans, policies, and regulations, including the Sacramento County 2030 General Plan and the County Zoning Code, the physical division of an established community or conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would remain less than significant.

Noise

The location and amount of the residential and non-residential development under Alternative 5 would be the same as under the proposed UWSP. Therefore, impacts related to construction noise, construction vibration, traffic noise, and stationary noise would remain potentially significant but could be reduced to less-than-significant levels with the same mitigation measures proposed for UWSP. However, stationary noise impacts on offsite receptors from facilities like the high school sports stadium and parks would remain significant and unavoidable, even with mitigation. Additionally, aircraft noise exposure for future residents would be addressed similarly to UWSP through insulation and disclosure requirements.

Population and Housing

Impacts related to population and housing under Alternative 5 would be the same as those described for the proposed UWSP, as the amount of residential use under this alternative would be the same. Therefore, impacts related to the inducement of substantial unplanned population growth in the area, either directly or indirectly, would remain significant and unavoidable. Furthermore, impacts related to displacement of housing would also remain less than significant.

Public Services and Recreation

Impacts related to public services and recreation under Alternative 5 would be the same as those described for the proposed UWSP, as the amount of residential and commercial use under this alternative would be the same. As a result, impacts related to the demand for police protection service, fire protection service, public schools, parks and recreation, and libraries would remain less than significant under Alternative 5.

Transportation

As discussed above, the proposed roadway network changes to the proposed UWSP circulation system would reduce projected future traffic levels on Garden Highway and slightly increase traffic on El Centro Road and Radio Road but would not otherwise change the impact conclusions reached in the Draft EIR. Therefore, significant and unavoidable impacts (with mitigation) related to the consistency with plans, ordinances, or policies addressing the circulation system and design-related hazards such as ramp

queueing and safety issues near the Sacramento 49er truck stop would remain the same. Furthermore, impacts with respect to VMT and emergency access impacts would also continue to be less than significant for the same reason.

Tribal Cultural Resources

Impacts related to tribal cultural resources under Alternative 5 would be like those described for the proposed UWSP, as the project footprint, and thus the amount of ground disturbance, would remain the same under this alternative. As a result, the proposed UWSP's significant and unavoidable impacts would remain under this alternative even with the same mitigation required.

Utilities and Service Systems

Infrastructure

The amount and location of required wastewater, stormwater/drainage, electrical, natural gas, and telecommunication infrastructure would remain the same as those described for the proposed UWSP as the amount of the residential and non-residential development under Alternative 5 would be the same as under the proposed plan. As discussed above, the proposed water treatment and distribution infrastructure to serve Alternative 5 would either occur within an existing right-of-way or within the footprint of the USWP area that was evaluated in the Draft EIR. Therefore, the impact related to the construction of required infrastructure to serve development allowed under the proposed UWSP would remain less than significant.

Water Supply

As discussed above, the NCMWC would have adequate planned water supply to serve development allowed under the proposed UWSP during normal, single dry, and multiple dry years as confirmed by the WSA prepared by SCWA for the proposed UWSP. As a result, the impact related water supply would remain less than significant.

Sewer

The amount of the residential and non-residential development under Alternative 5 would be the same as under the proposed UWSP. Therefore, impacts related to demand for wastewater disposal would remain less than significant.

Solid Waste

The amount of the residential and non-residential development under Alternative 5 would be the same as under the proposed UWSP. Therefore, impacts related to demand for solid waste disposal would remain less than significant.

Relationship to Project Objectives

All of the objectives for the proposed UWSP would be achieved under Alternative 5.

Environmentally Superior Alternative

Because the significant impacts of Alternative 5 are essentially the same as those of the proposed UWSP, there are no changes in the conclusions of the Draft EIR regarding the Environmentally Superior Alternative. As previously presented in Chapter 3 of the Draft EIR, *Alternatives*, Alternative 4: Reduced Footprint would be the environmentally superior alternative. While none of the significant impacts of the proposed UWSP or Alternative 5 would be avoided under Alternative 4, due to its substantially reduced development footprint, this alternative would provide the greatest reduction in the magnitude of significant impacts while still meeting or partially meeting several of the proposed UWSP objectives.

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4 RESPONSE TO COMMENTS ON PRDEIR

INTRODUCTION

The Draft Environmental Impact Report (Draft EIR) for the Upper Westside Specific Plan (UWSP) was published in August 2024 (State Clearinghouse No. 2020100069). The public review period lasted 45 days, from August 29 to October 14, 2024, during which the County received 40 comment letters. Additionally, at hearings before the Natomas Community Planning Advisory Council and the Sacramento County Planning Commission on October 3 and October 21, 2024, the County received 75 oral and 124 written comments. Written responses to all comments were prepared, and on June 11, 2025, a Final EIR (June 2025 Final EIR) was published containing all comments and responses.

Following the publication of the June 2025 Final EIR, the County received additional written comments on the proposed UWSP. Although CEQA does not require responses to comments received after the Final EIR, the County reviewed all input and decided to prepare and recirculate analysis of a new project alternative to address concerns regarding water supply and transportation.

The Partially Recirculated Draft EIR (PRDEIR) evaluates a new Alternative 5, Revised Project Alternative, which would alter the proposed UWSP in two key ways:

- Additional New Water Supply Source: Alternative 5 introduces the Natomas Central Mutual Water Company (NCMWC) as a potential domestic water supply source, expanding the options for serving future development and potentially enhancing water supply reliability for the project area.
- Revised Circulation Network: Alternative 5 considers the removal of regular vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway and implementation of traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic. These revisions would be intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway.

As described in the PRDEIR, all other aspects of the proposed UWSP would remain unchanged under Alternative 5, including land uses, densities, and plans for infrastructure and service delivery. The PRDEIR focused chiefly on environmental issues that would be substantially affected by the changes included in Alternative 5. The PRDEIR presented a description of Alternative 5, a refined analyses of water supply and circulation impacts, and new or modified mitigation measures. The PRDEIR specified that all other portions of the Draft EIR and the June 2025 Final EIR remained valid and unchanged, except as otherwise discussed in the PRDEIR.

The PRDEIR was published in December 2025, with a 45-day public review period from December 10, 2025, to January 27, 2026. Pursuant to procedures set forth in Section

15088.5(f)(2) of the CEQA Guidelines, reviewers were directed to limit their comments to the revised information contained in the PRDEIR.[1] Reviewers were informed that they need not resubmit comments on the previously published Draft EIR or the June 2025 Final EIR.

During the public review period for the PRDEIR the County received 22 comment letters containing 190 individual comments. Despite the County's direction in accordance with Section 15088.5(f)(2) of the CEQA Guidelines, many comments received were not limited to the revised information contained in the PRDEIR and raised or resubmitted comments on the previously published Draft EIR that were previously addressed in the June 2025 Final EIR. Other comments submitted on the PRDEIR concerned the merits of the project and/or did not raise new significant environmental issues not previously addressed in the Draft EIR, the June 2025 Final EIR, or the PRDEIR.

This chapter provides responses to public comments received on the PRDEIR. Where comments are not limited to the revised information contained in the PRDEIR, the responses concisely refer to the Draft EIR and/or the applicable responses provided in the June 2025 Final EIR. Comments that concern the merits of the project and/or do not raise new significant environmental issues not previously addressed in the Draft EIR, the June 2025 Final EIR, or the PRDEIR are identified as such and addressed briefly and accordingly.

Each comment letter is assigned a unique number, and individual comments within each letter are labeled using a combination of the letter number and the comment number (for example, Comment 1-1 refers to the first comment in Letter 1). For each comment, the full text is provided, followed by a detailed response. To streamline the document, introductory language such as salutations and brief descriptions of the commenting organization are generally omitted. Complete versions of all comment letters can be found in Appendix ALT 5-3.

Each response addresses the environmental issues raised in the corresponding comment. Where appropriate, responses may clarify, revise, or add to the text of the PRDEIR. New or revised text is shown in **bold and underline**, while deleted text appears in ~~strikethrough~~. To maintain consistency and avoid confusion, the numbering of comment letters continues from the June 2025 Final EIR. Thus, the first comment letter is labeled as Letter 242, following the numbering of the last letter in the June 2025 Final EIR.

All comment letters, regardless of content, will be forwarded to the Board of Supervisors for their consideration of the proposed UWSP.

[1] Section 15088.5(f)(2) of the CEQA Guidelines allows a lead agency, when partially recirculating a revised Environmental Impact Report (EIR), to request that reviewers limit their comments specifically to the revised chapters or portions of the document. Under this rule, the agency is only required to respond to new comments concerning those revised, recirculated sections.

LIST OF COMMENTERS

Comments on the Upper Westside Specific Plan PRDEIR:

242. State Water Resources Control Board (SWRCB), State of California statewide water resources agency
243. California Department of Fish and Wildlife (CDFW), State of California natural resource agency
244. California Department of Conservation, Geologic Energy Management Division (CalGEM), State of California natural resources agency
245. Sacramento Local Agency Formation Commission (LAFCo), local regulatory body
246. City of Sacramento, Department of Community Development, local government entity
247. Natomas Unified School District, local school district
248. Environmental Council of Sacramento (ECOS), non-profit organization
249. Garden Highway Community Association (GHCA), community organization
250. Best Best & Krieger LLP, on behalf of the Natomas Basin Conservancy
251. Amanda Burnitt, member of the community
252. Justine Bradley, member of the community
253. Melanie Herman, member of the community
254. Melissa Fogarty, member of the community
255. Wayne Herman, member of the community
256. Harriet Steiner, member of the community
257. Steve and Melva Arditti, members of the community
258. Tony Wall, member of the community
259. Tony Wall, member of the community
260. Arthur Gibson Howell, member of the community
261. Chris Rufer, member of the community
262. Melissa Brown, member of the community
263. David Brady, member of the community

LETTER 242

State Water Resources Control Board (SWRCB); State of California statewide water resources agency; written correspondence; dated January 27, 2026.

COMMENT 242-1

SACRAMENTO COUNTY (COUNTY), PARTIALLY RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT (PRDEIR), FOR THE UPPER WESTSIDE SPECIFIC PLAN (PROJECT), STATE CLEARINGHOUSE #2020100069

Dear Ms. Julie Newton:

Thank you for the opportunity to review the PRDEIR for the proposed Project. The State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW), issues domestic water supply permits under the Safe Drinking Water Act. This Project falls under DDW's Sacramento District jurisdiction. The Sacramento District issues permit amendments according to the Title 22, California Code of Regulations (Cal. Code Regs.) chapter 16. Public water systems need a permit amendment for modification of the water supply including new sources, new reservoirs with 100,000-gallon capacity or greater, service area expansions of twenty percent or more, and treatment design capacity or process changes as per Cal. Code Regs. § 64556.

Please note: The existing County public water system that would oversee the proposed infrastructure for the Project is still unclear (e.g. Laguna / Vineyard [3410029], Mather-Sunrise [3410704], Arden Park Vista [3410002], Metro Air Park [3400473], Northgate 880 [3400173], Southwest Tract [3400156], Hood Water Maintenance District [3400101], or East Walnut Grove [3400106]).

RESPONSE 242-1

The comment identifies that the proposed UWSP falls under the jurisdiction of the DDW Sacramento District regarding issuance of domestic water supply permits under the Safe Drinking Water Act for modification of public water systems. The comment states that the existing County public water system that would oversee the proposed infrastructure for the UWSP is still unclear.

Sacramento County understands that the proposed UWSP would fall under the jurisdiction of the DDW Sacramento District and while the existing County water system would oversee the proposed infrastructure (i.e., a new water treatment and distribution system), the proposed UWSP would apply for a new public water system permit under the Safe Drinking Water Act. As discussed on page 28 of the WSA, included as Appendix Alt-5-2 of the PRDEIR, prior to implementation, the new surface water facilities would require a range of permits, new contracts, and contract modifications. The engineering and design of any new production, water treatment, transmission and storage facilities would require review and approval by DDW.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 242-2

If the County will instead create a new public water system, an application must be submitted, and a permit must be obtained from the DDW Sacramento District before water can be provided for human consumption. “Human consumption” means the use of water for drinking, bathing or showering, hand washing, oral hygiene, or cooking, including, but not limited to, preparing food and washing dishes.” Health & Saf. Code § 116275 subd.(e).

RESPONSE 242-2

The comment notes that if the County were to create a new public water system to serve the proposed UWSP, an application must be submitted, and a permit must be obtained from the DDW Sacramento District before domestic water could be provided for human consumption.

Sacramento County understands that creation of a new public water system would require submittal of an application and issuance of a permit from the DDW Sacramento District. As discussed on pages 13 and 28 of the WSA included as Appendix Alt-5-2 of the PRDEIR, to receive municipal and industrial (M&I) water services, the UWSP area would need to be designated as a new benefit zone within SCWA’s service area. As a new SCWA benefit zone, the proposed UWSP would apply for a new public water system permit under the Safe Drinking Water Act. Prior to issuance of a new public water system permit, it would be the responsibility of DDW to review and approve the engineering and design of any new water treatment, transmission, storage, and/or distribution systems.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 242-3

Health & Saf. Code § 116527 subd. (b) requires that any person submitting a permit application for a proposed new public water system must first submit a technical report at least six months before initiating construction of any drinking water-related improvements. The technical report must include an examination of the possibility of connecting to or being annexed by an existing adjacent community water system.

RESPONSE 242-3

The comment describes the California Health and Safety Code requirement that prior to submitting a permit application for a proposed new public water system the applicant

must first submit a technical report at least six months before initiating construction of any drinking water-related improvements.

Sacramento County understands this requirement.

As discussed on page 28 of the WSA, included as Appendix Alt-5-2 of the PRDEIR, the proposed UWSP would be required to submit engineering and design documentation for any new production, water treatment, transmission, and storage facilities to DDW for review and approval.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 242-4

If Alternative 5 is implemented, the County will need to apply for a new public water system permit or water supply permit amendment for treatment changes and new storage reservoirs.

RESPONSE 242-4

The comment notes that if Alternative 5 is implemented, the County would be required to apply for a new public water system permit or water supply permit amendment for treatment changes and new storage reservoirs.

As discussed on pages 13 and 28 of the WSA included as Appendix Alt-5-2 of the PRDEIR, to receive municipal and industrial (M&I) water services the UWSP area would need to be designated as a new benefit zone within SCWA's service area. As a new SCWA benefit zone, the proposed UWSP would apply for a new public water system permit under the Safe Drinking Water Act. Prior to issuance of a new public water system permit, DDW would have the responsibility to review and approve the engineering and design of any new water treatment system, transmission, storage and distribution system.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 242-5

The State Water Board, DDW, as a responsible agency under the California Environmental Quality Act (CEQA), has the following comments on the PRDEIR:

- The August 2024 DEIR presented a Project water demand of 4,313 AFY, based on a 2022 City of Sacramento Water Supply Assessment (PDF page 837). The PRDEIR presents a Project water demand of 3,139 AFY based on a 2025 County Water

Supply Assessment (PDF pages 102-103). What are the differences in these demand calculations?

Response 242-5

The differences in the water demand calculations noted in the comment result from different water demand factors per land use category used in the City of Sacramento and SCWA adopted 2020 UWMPs.

As discussed on pages 20 through 21 of the WSA included as Appendix Alt-5-2 of the PRDEIR, the SCWA WSA relied on water demand factors in SCWA's 2016 Water System Infrastructure Plan Update, consistent with SCWA's adopted 2020 UWMP, to estimate water demand for the proposed UWSP. Based on this methodology, total water demand was calculated at 3,139 AFY. Throughout California, water providers may use different water demand factors for water use categories (i.e., residential, multi-family, commercial, industrial, institutional/governmental, and landscape) that take into account historical uses in each category, service area geographies, local climate, infrastructure and water use efficiency, and water losses. Given these variances, it is not uncommon that neighboring water providers have different water demand factors that could result in different total water demand for similar developments as is the case between the City and County.

Comment 242-6

- Alternative 5 allows for an optional domestic water supply wholesale source from Natomas Central Mutual Water Company (NCMWC) in the event the treated water from the City of Sacramento (City) is not available (PDF page 10). Explain the criteria that will be used to determine if the City water is available or not. Does the proposal allow for a combination of both City water and NCMWC water or, if needed, just MCMWC water?

Response 242-6

As discussed in the WSA included as Appendix Alt-5-2 of the PRDEIR, Alternative 5 would use surface water diverted by NCMWC at its Riverside Pumping Plant and delivered on a wholesale basis to the proposed UWSP for treatment and distribution by SCWA. Pursuant to approvals and agreements, a combination of water supply sources is not an option; the proposed UWSP would either receive treated water from the City or surface water from NCMWC for treatment and distribution. The final plan for water service for the proposed UWSP will be determined based on whether the City and SCWA can reach an agreement to provide treated water to the UWSP, which is consistent with the UWSP as proposed. In the event that wholesale water from the City is not available, the applicant team has indicated that it would implement a system based on purchase of wholesale water supplied by NCMWC as described in the PRDEIR and WSA Appendix Alt-5-2. The proposed UWSP may have an intertie with the City for redundancy and emergency purposes, but this arrangement would not constitute a combined water supply system.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 242-7

- The Sacramento Valley-North American groundwater basin is designated as a high priority groundwater basin by the Department of Water Resources (Sustainable Groundwater Management Act Basin Prioritization Dashboard). The PRDEIR indicates that municipal and industrial demand will have priority in critical years and Drought Protection Program (DPP) years and that the NCMWC could experience a potential shortfall of 1,0007 AFY in DPP years (pdf pages 54-56). NCMWC has five wells (PDF page 254). The PRDEIR indicates Alternative 5 will not use NCMWC groundwater to serve the Project (PDF page 92). Please discuss:
    - If NCMWC will extract groundwater over their current baseline to serve existing non-priority users (e.g. agricultural users) in critical years and DPP years, to make up for NCMWC surface water supply shortfall.

RESPONSE 242-7

Groundwater conditions vary considerably across the North American Subbasin. Groundwater levels have been high and relatively stable in the northern and western portions of the North American Subbasin. Historical data shows declining groundwater levels in much of the central, eastern, and southern portions of the North American Subbasin. In recent years, groundwater pumping from storage has ceased and the underlying groundwater levels have stabilized.[2] An assessment of groundwater use is available in the Groundwater Sustainability Plan for the North American Subbasin and updated pursuant to SGMA.

As discussed in the WSA included as Appendix Alt-5-2 of the PRDEIR, NCMWC would use surface water diverted by NCMWC at its Riverside Pumping Plant and delivered to the proposed UWSP for treatment and distribution. In years of potential water supply shortfalls, NCMWC would prioritize surface water deliveries to the proposed UWSP to meet demand (WSA Appendix F, NCMWC Letter of Interest to provide wholesale water to the SCWA for the UWSP area). As further described on pages 15 and 16 of the WSA, NCMWC would commit to prioritize surface water deliveries for M&I use during drought and critical drought years at current market prices[3], a defining feature of the California water market which encourages water rights holders, including agricultural users, to buy, sell or lease water to others who need it, helping allocate water more efficiently during droughts or shortages.

Landowners with existing groundwater wells within NCMWC's service area could use groundwater to meet agricultural demands; however, during critical years and DPP years, it may not be economical to plant crops when agricultural insurance may offset

[2] Grandpark SW SP, Groundwater Conditions Assessment, LSCE, August 2025.

[3] NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

actual sales of crops. In addition, raw water sales at current market prices[4] to development allowed under the UWSP in critical years and DPP years may be more profitable for NCMWC and its shareholders. The voluntary fallowing or idling of agricultural lands during extreme dry years would have an economic effect but would not constitute an indirect significant impact on important farmland beyond previous dry year conditions.

Given the multitude of factors that could affect water diversions and groundwater pumping, including the individual financial considerations of landowners, it is not possible to predict a particular magnitude of any change in groundwater pumping during drought years. Thus, a quantitative estimate would be purely speculative. Pursuant to CEQA Guidelines section 15145, if an impact is speculative "the agency should note its conclusion and terminate discussion of the impact." In fact, the court's ruling in *Joshua Tree Downtown Business Alliance v. County of San Bernardino* (the case referenced in Comment 7-9) emphasizes that an EIR must address impacts that are reasonably foreseeable and affirms that lead agencies are not required to analyze speculative scenarios that lack a factual foundation. As such, no further consideration of this issue is appropriate.

COMMENT 242-8

- If it is anticipated that nonpriority water users may use private or other non-NCMWC groundwater wells to fulfill lost supply for their existing demand.

RESPONSE 242-8

The WSA included as Appendix Alt-5-2 of the PRDEIR, assessed the use of surface water diverted from the Sacramento River by NCMWC and conveyed to the proposed UWSP to meet demand in all water year types. In critical and DPP years, agricultural users within NCMWC's service area may voluntarily fallow their land or leave it idle and not plant crops as it may not be economical when agricultural insurance[5] could offset lack of sales of crops; in addition, raw water sales to development allowed under the UWSP during critical and DPP years may be more profitable for NCMWC and its shareholders.

Please see Response 242-7 above for a discussion of the speculative nature of predicting quantitative changes in groundwater pumping by individual private landowners.

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[4] NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

[5] Several sources of agricultural insurance are potentially available through programs pursuant to the US Department of Agriculture's Federal Crop Insurance Program. See Insurance Curator, *How Agricultural Insurance Supports California's Farming Industry*, https://insurance curator.com/how-agricultural-insurance-supports-californias-farming-industry/. Sourced March 2, 2026. Also see US Department of Agriculture, Economic Research Service, R. Aaron Hrozencik and Marcel Aillery, Economic Information Bulletin Number 229, *Trends in U.S. Irrigated Agriculture: Increasing Resilience Under Water Supply Scarcity,* December 2021.

COMMENT 242-9

- Based on the discussions above, what direct or indirect impacts (positive or negative) Alternative 5 would have on the North American groundwater basin compared to the Project.

RESPONSE 242-9

As discussed in the WSA included as Appendix Alt-5-2 of the PRDEIR, NCMWC would use surface water diverted by NCMWC at its Riverside Pumping Plant and delivered to the proposed UWSP for treatment and distribution. Therefore, NCMWC would not use groundwater as a water supply source to meet demand associated with the proposed UWSP. As development proceeds within the UWSP area and agricultural uses are converted to urban uses, groundwater would no longer be pumped by overlying landowners for those agricultural uses. As a result, groundwater levels are likely to increase and positively benefit the North American Subbasin. Further, as agricultural land is converted to urban development, and surface water deliveries to agricultural users are reduced, groundwater recharge potential could be reduced; however, open space, retention and detention areas combined with new water features within the UWSP would still provide recharge to the underlying groundwater basin. Therefore, similar to the proposed UWSP, Alternative 5 would not result in direct or indirect impacts to the North American groundwater basin beyond those impacts already analyzed in the Draft EIR.

For a discussion of the potential impacts of the proposed UWSP on groundwater supplies, recharge, and groundwater management, please see June 2025 Final EIR, Chapter 13, *Hydrology and Water Quality*, Impact HYD-2. For a discussion of the potential impacts of Alternative 5 on groundwater conditions, please see the discussion of Hydrology and Water Quality on page 2-51 of the PRDEIR.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088. The comment will be included as a part of the record and made available to the decision makers prior to making a final decision on the proposed UWSP.

COMMENT 242-10

When the CEQA process is completed, please forward the following items with the permit application to the State Water Board, DDW Sacramento District at DWPDIST09@waterboards.ca.gov:

- The PRDEIR;
- The Resolution or Board Minutes certifying the PREIR, and approving the Project; and
- The Notice of Determination filed at the County Clerk's Office and the State Clearinghouse.

RESPONSE 242-10

The commenter's request to receive the identified items with the permit application to the DDW Sacramento District is acknowledged.

LETTER 243

California Department of Fish and Wildlife (CDFW); State of California natural resource agency; written correspondence; dated January 13, 2026.

COMMENT 243-1

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code, § 1802.) Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

RESPONSE 243-1

The comment identifies CDFW's roles and responsibilities as California's Trustee Agency for fish and wildlife resources and as a Responsible Agency under CEQA. The comment states that the proposed UWSP may be subject to CDFW's lake and streambed alteration regulatory authority and may require related take authorization as provided by the Fish and Game Code. These regulations have been considered in the EIR. For a discussion of the proposed UWSP's potential need for incidental take permits and a Streambed Alteration Agreement, please see Responses 3-4, 3-5, and 3-6 in the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 243-2

PROJECT DESCRIPTION SUMMARY

The Project site is located is located in unincorporated Sacramento County adjacent to the existing City of Sacramento communities of North and South Natomas. The Upper

Westside Specific Plan (UWSP) area is bounded by Fisherman's Lake Slough to the north, the West Drainage Canal (Witter Canal) to the east, I-80 to the south, and Garden Highway to the west.

The Project consists of construction of a new development on 2,066 acres of unincorporated land in northwestern Sacramento County. The UWSP would provide a mix of residential and non-residential land uses to accommodate 9,356 housing units with a mixture of densities that support all population segments, and over 3 million square feet of commercial, retail, and office uses that serve the community's needs. Key features of the UWSP would include a mixed-use Town Center, 10 active parks, and an extensive system of greenbelts and multi-use trails with linkages to downtown Sacramento. Development would be limited to a 1,532-acre Development Area while the remaining 534 acres would serve as an agricultural buffer (Ag Buffer) along the western edge of the UWSP area.

The PDEIR presents an analysis of a new Alternative 5: Revised Project Alternative which introduces Natomas Central Mutual Water Company (NCMWC) as a potential domestic water supply source and considers the removal of regular vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway, and implementation of traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic.

Response 243-2

The comment summarizes the UWSP project description and PRDEIR analysis of a new Alternative 5: Revised Project Alternative. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 243-3

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County of Sacramento in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, CDFW concludes that an Environmental Impact Report is appropriate for the Project. CDFW is primarily concerned with the project impacts to the water availability of the Sacramento River for fish species.

Response 243-3

The comment conveys CDFW's conclusion that an EIR is appropriate for the proposed UWSP and states that CDFW is primarily concerned with potential UWSP impacts to the water availability of the Sacramento River for fish species. Please see Responses

243-4, 243-5, and 243-6 below, which address CDFW's specific concerns related to this topic.

COMMENT 243-4

COMMENT 1: Cumulative Effects on the Sacramento River, Far-Field Impacts, pages 2-26 – 2-29

Issue: The Project's Alternative 5 aims to divert an additional 3,139 acre-feet per year from the Sacramento River using the nearby NCMWC's Riverside Pumping Plant with a majority of the diversion occurring during the months of September to March when a majority of fish species (e.g., Sacramento River winter-run Chinook salmon ESU (Oncorhynchus tshawytscha pop. 7), Central Valley spring-run Chinook ESU (Oncorhynchus tshawytscha pop. 11), California Central Valley steelhead DPS (Oncorhynchus mykiss irideus pop. 11), Southern DPS of green sturgeon (Acipenser medirostris pop. 1), white sturgeon (Acipenser transmontanus), etc.) are more prevalent in the river due to their migration period. This additional diversion from the Sacramento River may compound other reasonably foreseeable major diversions on the Sacramento River, such as the Sites Reservoir Project, Water + Treatment Plants Resiliency and Improvements Project, the Delta Conveyance Project, and the RiverArc Project. With the potential for several significant and compounding new diversions along the Sacramento River, the PRDEIR does not analyze how the Project will add to the cumulative effects that these other diversions will have on fish species reliant on the Sacramento River. Low water levels in the Sacramento River create deadly conditions for fish species by increasing water temperatures, reducing habitat, stranding juveniles, blocking migration, and concentrating predators, leading to high egg/fry mortality and threatening fish species populations. The cold water needed for spawning becomes scarce, while shallow, clear, warm water increases native fish mortality.

RESPONSE 243-4

The comment asserts that the proposed UWSP would divert an additional 3,139 acre-feet per year, however, the data on the proposed UWSP water demand provided in Table ALT 5-4 in Chapter 2, *Alternative 5: Revised Project Alternative*, of the PRDEIR indicates an average net change in water usage of only 458 acre-feet per year. When comparing existing water diversions at the Riverside Pumping Plant to diversions under Alternative 5, the proposed UWSP would utilize more surface water during the cooler months between September and March, and generally less water in the warmer months between April and August (see Table ALT 5-4). As a result, there would be increased diversions of the Sacramento River during the months of September through March in the range of approximately 122 AF to 270 AF, and less diversions during April through August of approximately -67 AF to -261 AF, for average net increase of 458 AF across all months (see Table ALT 5-4). And even under minimum monthly Sacramento River flow conditions (6,041 cfs to 10,238 cfs), the additional diversions in September through March equate to 0.02 to 0.07 percent of the flow present in the Sacramento River (see Table ALT 5-5). Therefore, these very small diversion amounts (less than 0.08 percent)

under Alternative 5 are not expected to have a meaningful impact on fish habitat or fish survival.

The comment also asserts that the increased diversions associated with the proposed UWSP may compound the effects of other foreseeable major diversions on the Sacramento River, and therefore a cumulative analysis for aquatic biological resources is required. In response to this comment, a cumulative analysis section for aquatic biological resources is now added to the end of the Aquatic Biological Resources section of Chapter 2, *Alternative 5: Revised Project Alternative*, of the PRDEIR, and the conclusion is provided in this comment response below. This clarifying analysis does not alter the conclusions of the PRDEIR, nor does it meet any criteria requiring recirculation pursuant to CEQA Guidelines section 15088.5.

The cumulative projects include actions that affect the timing and magnitude of flow releases and seasonal water temperatures. The types of past, present, and reasonably foreseeable projects that could result in cumulative operations-related impacts related to aquatic biological resources are those that include diversions and/or ongoing water operations and associated flow alterations. The water infrastructure projects in Table Alt 5-6 have (or would) include screens that meet fish agency criteria and diversion criteria that are protective of aquatic biological resources, including special-status fish species and their habitats. Furthermore, reasonably foreseeable projects would have to comply with the terms and conditions of regulatory permits (biological opinions and ITPs), which reduces the likelihood of substantial adverse effects to the overall Sacramento River system over its entire geography. Flows in the Sacramento River and Delta are highly altered compared to natural regimes and managed consistent with current regulatory requirements (e.g., Bay-Delta Water Quality Control Plan Update, SWP and CVP LTO BiOps, and SWP ITP). These managed flows provide essential habitat elements for a variety of species and ecological processes. Any new diversions, or ongoing operations, that have the potential to affect fish habitat resulting from a change in Sacramento River flow, would also be required to operate consistent with regulatory requirements. Flows in the Sacramento River, its major tributaries and flood bypasses, and the Delta are currently, and will continue to be, managed to meet regulatory objectives, which have been developed to be protective of fish, fish habitat, and ecological processes.

Therefore, the expected negligible changes to Sacramento River flows due to Project diversions would not result in a cumulatively considerable incremental contribution to cumulative impacts to aquatic biological resources. Thus, as a result of compliance with existing regulations, operations of the proposed UWSP and cumulative projects would not cause or contribute to a significant cumulative impact with respect to aquatic biological resources, and this potential cumulative impact would be less than significant.

Pursuant to PRC section 21092.1 and CEQA Guidelines section 15188.5, the addition of this cumulative analysis does not require recirculation of the EIR since the additional analysis does not result in new significant impacts or substantially increase the severity of an impact from the June 2025 EIR. As such, this additional analysis represents an insignificant modification of the existing cumulative analysis section of the June 2025 FEIR to include additional water supply projects that have an aquatic biological

resources nexus, and under CEQA Guidelines section 15088.5(b) does not require further recirculation of the EIR.

COMMENT 243-5

In addition, NCMWC is also the water supplier for the Natomas Basin Conservancy's aquatic habitats (including aquatic agriculture) created under the NBHCP. CDFW is concerned that the additional water delivery to the Project would impact the delivery level of needed water to sustain the aquatic habitat mitigation during extreme drought years (water delivery may be reduced) and impact the viability of the giant garter snake (Thamnophis gigas) population within the Natomas Basin.

RESPONSE 243-5

This comment asserts that additional water delivery to the proposed UWSP would adversely affect the delivery level of needed water to sustain giant garter snake habitat in the Natomas Basin.

As described in the WSA included as Appendix Alt-5-2 of the PRDEIR, in Critical Years (aka, dry years) CVP supplies are assumed to be reduced by 25 percent to 90,150 acre-feet (refer to Table 3). In Critical Years, NCMWC has adequate water supplies to meet existing and projected demand including the UWSP area estimated 3,139 AFY of water demand. Furthermore, in Critical Years when supplies are reduced by 25 percent, NCMWC can meet existing commitments, i.e. deliveries to sustain the aquatic habitat mitigation along with projected demand. NCMWC would have access to another 29,043 AFY after delivering water to development allowed under the proposed UWSP and agricultural consumers.

In years when the DPP is in effect, CVP water is reduced by 50 percent or 60,100 acre-feet (refer to WSA Table 3). Under the DPP, NCMWC could experience a potential shortfall of 1,007 AFY. However, as described in the WSA when CVP supplies are reduced by up to 50 percent under the DPP[6], NCMWC can still meet existing commitments, i.e. deliveries to sustain the aquatic habitat mitigation along with projected demand. This assumes a projected 17 percent reduction in demand due to water conservation pursuant to SCWA's WSCP. Therefore, the proposed UWSP is not expected to impact water availability to giant garter snake habitat within the Natomas Basin, even in extreme drought years.

As discussed in the WSA[7], the DPP, developed and approved in 2025, was designed, at least in part, to avoid conditions like those that occurred in 2022 when early year projections resulted in water releases that, when followed by drought conditions,

[6] The Drought Protection Program is a water reduction and infrastructure improvement agreement between the Reclamation and the Sacramento River Settlement Contractors and implements a voluntary water conservation and water acquisition program over the next two decades in response to drought conditions at Shasta Lake. As the DPP is implemented and Shasta Lake is operated to meet 2.0 million acre-feet of storage at the end of September, the Settlement Contractors will receive at least 50 percent of total contract supply.

[7] See PRDEIR, Appendix ALT 5-2, pages 18-19.

resulted in depleted reservoir capacities and greater than 50 percent cutbacks. Based on the agreements reflected in the DPP, such conditions would not occur in the future. Because the DPP was adopted in 2025, there is no evidence that a water year like 2022 would result in water curtailments greater than 50 percent. Any suggestion otherwise is speculative and not based on evidence in the record. Pursuant to Public Resources Code section 21159 and CEQA Guidelines section 15064(f)(5) speculation does not constitute substantial evidence upon which to determine if a project has a significant effect. Pursuant to CEQA Guidelines section 15145, if an impact is speculative "the agency should note its conclusion and terminate discussion of the impact." As such, no further consideration of these issues is appropriate.

COMMENT 243-6

Recommendation or Recommended Mitigation Measure: CDFW suggests the PRDEIR evaluate the cumulative impacts the additional water diversion from the Sacramento River may have on fish and wildlife species and provide sufficient information for meaningful review based on contemporary, foreseeable, large-scale Sacramento River projects and operations. CDFW also suggests that the PRDEIR provides evaluation on whether the Project's need for water from the NCMWC alternative will deprive the Natomas Basin Conservancy of its ability to provide water to its aquatic habitat mitigation during extreme drought years and therefore negatively impact the giant garter snake population in the Natomas Basin. Further, CDFW recommends that the PRDEIR include minimization or mitigation measures that will reduce project impacts to fish and wildlife species due to the additional water diversion to a less than significant level. Mitigation may be in the form of providing for the acquisition, permanent protection, and perpetual management of off- channel rearing habitat and wetland bench habitat for the Chinook salmon and tidal habitat for steelhead, and/or providing spawning area supplementation of gravel to boulder sized substrate with the potential to improve egg survival in areas of known sturgeon spawning.

RESPONSE 243-6

The comment asserts that the increased diversions associated with the proposed UWSP may compound the effects of other foreseeable major diversions on the Sacramento River. As discussed above in Response 243-4, a cumulative analysis for aquatic biological resources was prepared and has been added to the Aquatic Biological Resources section of Chapter 2, *Alternative 5: Revised Project Alternative*, of the PRDEIR. The analysis is summarized in Response 243-4.

This comment also asserts that additional water delivery to development allowed under the proposed UWSP would impact the delivery level of needed water to sustain giant garter snake habitat in the Natomas Basin. As discussed above in Response 243-5, the proposed UWSP is not expected to impact water availability to giant garter snake habitat within the Natomas Basin, even in extreme drought years.

This comment also recommends that the PRDEIR include minimization or mitigation measures that will reduce project impacts to fish and wildlife species due to the

additional water diversion to a less than significant level. However, the low level of flow diversion from the Sacramento River (less than 0.08 percent) would be expected to be indiscernible relative to existing habitat conditions for special-status and native fish species. Therefore, additional minimization and mitigation measures beyond those included in the June 2025 FEIR are not necessary to reduce impacts to fish and wildlife species that are already at de minimis, less-than-significant levels. Flow reductions of less than 0.08 percent would not be expected to alter the availability of off-channel rearing habitat for salmonids or alter sturgeon habitat in ways discernible to fish.

COMMENT 243-7

COMMENT 2: Continued Viability and Re-analysis of the Incidental Take Permits (ITPs) for Natomas Basin Habitat Conservation Plan (NBHCP) and the Metro Airpark Conservation Plan (MAP HCP), Comparative Analysis of Environmental Effects, pages 2-49 – 2-50

Issue: CDFW has concerns regarding the integrity and viability of NBHCP and MAP HCP and the biological viability of the HCPs being compromised by the failure of other Potential Permittees to participate in the NBHCP and execute the Implementation Agreement (IA). CDFW has expressed these concerns in past comment letters provided for the draft Environmental Impact Reports of Airport South Industrial Project and Upper Westside Specific Plan, and the Notice of Preparation for GrandPark Southwest Specific Plan. These concerns are of even greater importance in regard to the ongoing lawsuit Advocates for the Environment v. Sacramento Local Agency Formation Commission, et al. CDFW's concerns about the future development projects and their impacts are summarized below:

- Persistence of NBHCP and MAP HCP Covered Species in the Natomas Basin;

RESPONSE 243-7

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is fully addressed in the June 2025 Final EIR in Chapter 7, *Biological Resources*, Impact BR-14: Conflict with Natomas Basin HCP and Metro Air Park HCP, Biological Resources section of Chapter 22, *Cumulative Impacts*, and Response 15-19. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 243-8

- Impacts to established reserve land managed by the Natomas Basin Conservancy (TNBC), specifically adding urban land uses adjacent to open space. These urban uses could introduce additional pesticides, trespass, vandalism, trash, noise, other pollutants, and excess light to existing reserves potentially reducing the reproductive success of Covered Species within the existing reserves;

Response 243-8

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is addressed in Response 15-19 of the June 2025 Final EIR. Operational impacts on established reserve lands managed by the Natomas Basin Conservancy (TNBC) are addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) in the Draft EIR. Please also see Response 15-41 and Master Response AR-2: Interface Between Agricultural and Urban Uses in the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 243-9

- Reduction of available reserve land in the Natomas Basin under the NBHCP and MAP HCP (with appropriate buffers and setbacks as detailed in the NBHCP);

Response 243-9

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is fully addressed in the June 2025 Final EIR, Chapter 7, *Biological Resources*, Impact BR-14: Conflict with Natomas Basin HCP and Metro Air Park HCP, the Biological Resources section of Chapter 22, *Cumulative Impacts*, and Response 15-19. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 243-10

- Reduction of available agricultural land in the Natomas Basin that serves as buffers for habitat reserves and supporting ecological functions of the Covered Species that rely on agricultural resources (Natomas Basin Habitat Conservation Plan, Page IV-11 through Page IV-13);

Response 243-10

The comment does not address the content of the PRDEIR. Please see Master Response BR-2 of the June 2025 Final EIR for an analysis of reductions in available agricultural land available to NBHCP-covered species. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 243-11

- Reduction of ability for TNBC to establish or enhance Covered Species range and habitats in the southern Natomas Basin;

RESPONSE 243-11

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is fully addressed in the June 2025 Final EIR, Chapter 7, *Biological Resources*, Impact BR-14: Conflict with Natomas Basin HCP and Metro Air Park HCP, the Biological Resources section of Chapter 22, *Cumulative Impacts*, and Response 15-19. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 243-12

- Continued viability of the land uses in the Natomas Basin as detailed in the NBHCP and MAP HCP, specifically adding more urban development instead of habitat preserve or agricultural uses. This could result in increased disturbance, pollution, and/or disruption to ongoing habitat management and agricultural practices. In addition, existing habitat preserves and agricultural lands could be affected by additional pollution, trash, and other effects from developed lands;

RESPONSE 243-12

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is fully addressed in the June 2025 Final EIR, Chapter 7, *Biological Resources*, Impact BR-14: Conflict with Natomas Basin HCP and Metro Air Park HCP, the Biological Resources section of Chapter 22, *Cumulative Impacts*, and Response 15-19. Please see Master Response BR-1 and the Biological Resources section of Chapter 22, *Cumulative Impacts*, of the June 2025 Final EIR, for a full analysis of available reserve land following build-out of the proposed UWSP. Operational impacts on established reserve lands managed by TNBC are fully addressed in Impact BR-14 and the Biological Resources section of Chapter 22, *Cumulative Impacts*, in the June 2025 Final EIR. Please also see Response 15-41 and Master Response AR-2: Interface Between Agricultural and Urban Uses of the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 243-13

- Financial impacts to TNBC and feepayers under the NBHCP and MAP HCP; and

RESPONSE 243-13

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is fully addressed in the June 2025 Final EIR, Chapter 7, *Biological Resources*, Impact BR-14: Conflict with Natomas Basin HCP and Metro Air Park HCP, the Biological Resources section of Chapter 22, *Cumulative Impacts*, and Response 15-19. This comment raises

neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 243-14

- Cumulative impacts of the projects, in combination with other development in the Natomas Basin approved since 2003 that are outside of the City of Sacramento (the City) and Sutter County's permitted area under the NBHCP (e.g., levee improvements by the Sacramento Area Flood Control Agency and the Greenbriar project).

RESPONSE 243-14

The comment does not address the content of the PRDEIR. This comment, which was included in the NOP scoping letter from CDFW, dated November 6, 2020, is fully addressed in the June 2025 Final EIR, Chapter 7, *Biological Resources*, Impact BR-14: Conflict with Natomas Basin HCP and Metro Air Park HCP, the Biological Resources section of Chapter 22, *Cumulative Impacts*, and Response 15-19. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 243-15

Although not a Permittee, Sacramento County is the CEQA Lead Agency for projects carried out in the MAP HCP and as such, the County has vested interest in the success of the MAP HCP. The two plans are linked, such that MAP HCP cannot be implemented without the structure of the NBHCP. The MAP HCP and the related ITP authorization under CESA serve as a regulatory platform for development of 1,892 acres of mixed use and industrial uses directly adjacent to the Sacramento International Airport, with over 1,000 acres still to be built out under the MAP HCP, providing significant economic benefit to the County. The Project's potential effect on the continued success of the MAP HCP should be an important consideration for the County as it considers the proposed developments, and the MAP HCP's reliance on structure provided by the NBHCP.

The Natomas Basin continues to serve as an important habitat for many special-status species, which speaks to many documented successes of both HCPs in their over 20 years of implementation; however, those successes do not detract from the effort that is still needed over the next 20 years to ensure the HCPs and the associated Covered Species populations to remain viable. The County, while not signatory to either HCP, plays an integral role in ensuring that both the NBHCP and MAP HCP are successful for both the species and residents of the Sacramento Region.

Recommendation or Recommended Mitigation Measure: CDFW suggests the PRDEIR further evaluate the Project's impact to the viability of both the NBHCP and MAP HCP.

Response 243-15

As discussed in Master Response BR-1 in the June 2025 Final EIR, the EIR carefully considers the potential for the proposed UWSP to conflict with the provisions of the MAP HCP and/or the NBHCP at the project level and in the context of reasonably foreseeable cumulative development and concluded that impacts would be less than significant. This analysis was specifically undertaken to address the CEQA threshold related to the potential for a conflict between the proposed UWSP and an adopted HCP or NCCP. The comment includes a broad suggestion that the PRDEIR "further evaluate" the effect of the proposed UWSP on the viability of the Natomas Basin and Metro Air Park HCPs, but does not provide any specific suggestion about the nature of what would be included in such additional analysis. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 243-16

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/ CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

Response 243-16

The comment conveys the CEQA requirement that information developed in environmental impact reports and negative declarations are to be incorporated into a database which may be used to make subsequent or supplemental environmental determinations and requests the County to report any special-status species and natural communities detected during project surveys to the California Natural Diversity Database (CNDDB). Sacramento County, the lead agency for this EIR, understands this requirement. Please see the Response 3-7 of the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 243-17

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination

by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

RESPONSE 243-17

Sacramento County understands the requirement related to the payment of filing fees. Please see the Response 3-8 of the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088. The comment will be included as a part of the record and made available to the decision makers prior to making a final decision on the proposed UWSP.

COMMENT 243-18

CONCLUSION

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW appreciates the opportunity to comment on the PRDEIR for the Upper Westside Specific Plan to assist the County of Sacramento in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Harvey Tran, Senior Environmental Scientist (Specialist) at (916) 358-4035 or harvey.tran@wildlife.ca.gov.

RESPONSE 243-18

The comment conveys CDFW's request for written notification of proposed actions and pending decisions regarding the proposed UWSP pursuant to Public Resources Code sections 21092 and 21092.2. Sacramento County understands this requirement and has included CDFW on distribution of all public documents related to the proposed UWSP. Please see the Response 3-7 of the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088. The comment will be included as a part of the record and made available to the decision makers prior to making a final decision on the proposed UWSP.

LETTER 244

California Department of Conservation, Geologic Energy Management Division (CalGEM); State of California natural resources agency; written correspondence; dated January 6, 2026.

COMMENT 244-1

Public Resources Code (PRC) section 3208.1 establishes re-abandonment responsibility when previously plugged and abandoned oil, gas or geothermal wells will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near previously abandoned oil, gas, and geothermal wells.

The California Geologic Energy Management Division (CalGEM) has received the above-referenced project dated <<date>>. To assist local permitting agencies, property owners, and developers in making safe and practical land use decisions regarding potential development near oil, gas, or geothermal wells, CalGEM provides a table in the attached enclosure of the wells within the parcel boundary or in its vicinity, based on CalGEM's Well Finder database (https://maps.conservation.ca.gov/doggr/wellfinder/).

RESPONSE 244-1

As described in June 2025 Final EIR, Chapter 12, *Hazards and Hazardous Materials*, one previously plugged and abandoned well is in the UWSP area, consistent with the enclosure provided by CalGEM. The project applicant would be required to comply with all applicable CalGEM requirements, including not constructing structures over and maintaining access to the well. CalGEM's well location information and guidance have been reviewed and will be incorporated into project planning as appropriate.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 244-2

CalGEM categorically advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access including, but not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, roadways, and decking at the landowner's expense if there is a need to access a well. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment (consisting of well servicing rig, pumping equipment, pipe trailer) to reach a well from a public street or access way, solely over the parcel on which the well is located. A well servicing unit, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well

without disturbing the integrity of surrounding infrastructure. Impermeable barriers such as asphalt, concrete, and plastic may trap hazardous gases and liquids underneath and could create a safety hazard if built over a well that later develops a leak.

Response 244-2

The identified well in the UWSP area would be required to remain accessible for potential servicing in accordance with CalGEM standards, and site development must avoid creating conditions that would obstruct access or trap gases or fluids. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 244-3

CalGEM recommends that any well for which access is impeded or built over, against CalGEM's advice, should be evaluated by a qualified petroleum professional for compliance with the statutory objectives of isolating all hydrocarbon-bearing strata; protecting underground and surface waters; prevention of subsequent damage to life, health, property, and other resources; and prevention of loss of oil, gas, or reservoir energy. CalGEM recommends that wells that do not meet these standards are abandoned or re-abandoned prior to construction. The well information can be accessed through CalGEM's Well Finder database mentioned above. PRC section 3208, subdivision (a), provides the primary statutory authority for CalGEM to oversee adequate abandonment of wells. Additionally, CalGEM has developed the regulatory guidance for operators to be followed during well abandonment, which are listed within California Code of Regulation, title 14 (CCR) section 1723 and associated sub-sections (for onshore wells), and section 1745 and associated sub-sections (for offshore wells).

Response 244-3

Please see Response 244-2 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 244-4

There is no guarantee that a well abandoned in compliance with current Division requirements as prescribed by law will not start leaking in the future. Due to the inability to predict all subsurface conditions or changes, it always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. CalGEM acknowledges wells plugged and abandoned to the most current Division requirements as prescribed by law have a lower probability of leaking in the future, however there is no guarantee that such abandoned wells will not leak.

Response 244-4

The potential for well leaks despite compliance with CalGEM requirements is speculative. Pursuant to Public Resources Code section 21159 and CEQA Guidelines section 15064(f)(5) speculation does not constitute substantial evidence upon which to determine if a project has a significant effect. Pursuant to CEQA Guidelines section 15145, if an impact is speculative "the agency should note its conclusion and terminate discussion of the impact." As such, no further consideration of these issues is appropriate.

Comment 244-5

CalGEM advises that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations in Latitude and Longitude, NAD 83 decimal format, and leak testing results should be provided to CalGEM. CalGEM expects any wells found leaking to be reported to CalGEM immediately.

Response 244-5

Please see Response 244-2 above.

If, in the future, the project applicant observes leakage from this well, the applicant will report the leaking well to CalGEM immediately, consistent with State requirements.

Comment 244-6

PRC section 3208.1 gives CalGEM the authority to order or permit the re-abandonment of any well where it has reason to question the integrity of the previous abandonment. Responsibility for re-abandonment costs may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general advice set forth in this letter. The PRC continues to define the person or entity responsible for re-abandonment as:

1. The property owner - If the well was plugged and abandoned in conformance with Division requirements at the time of abandonment, and in its current condition does not pose an immediate danger to life, health, and property, but requires additional work solely because the owner of the property on which the well is located proposes construction on the property that would prevent or impede access to the well for purposes of remedying a currently perceived future problem, then the owner of the property on which the well is located shall obtain all rights necessary to re-abandon the well and be responsible for the re-abandonment.
2. The person or entity causing construction over or near the well - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and the property owner, developer, or local agency permitting the construction failed either to obtain an opinion from the supervisor or district deputy as to whether the previously abandoned well is required to be re-abandoned, or to follow the advice of the supervisor or district deputy not to

undertake construction that impedes access, then the person or entity causing the construction over or near the well shall obtain all rights necessary to re-abandon the well and be responsible for the re-abandonment.

3. The party or parties responsible for disturbing the integrity of the abandonment - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and after that time someone other than the operator or an affiliate of the operator disturbed the integrity of the abandonment in the course of developing the property, then the party or parties responsible for disturbing the integrity of the abandonment shall be responsible for the re-abandonment.

Should any wells require abandonment or re-abandonment, the responsible party must submit a Notice of Intention (NOI) to CalGEM through WellSTAR. The NOI form can be accessed in the 'Plugging and Abandonment' section of the following link:

https://www.conservation.ca.gov/calgem/for_operators.

Response 244-6

The comment provides an overview of the statutory responsibilities for well abandonment pursuant to PRC section 3208.1. Any required abandonment or re-abandonment activities due to development allowed under the proposed UWSP would be conducted in accordance with CalGEM regulations, including submission of a Notice of Intention (NOI) through WellSTAR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 244-7

No well work may be performed on any oil, gas, or geothermal well without written approval from CalGEM. Well work requiring approval includes, but is not limited to, mitigating leaking gas or other fluids from abandoned wells, modifications to well casings, and/or any other re-abandonment work. CalGEM also regulates the top of a plugged and abandoned well's minimum and maximum depth below final grade. CCR section 1723.5 states well casings shall be cut off at least 5 feet but no more than 10 feet below the surface of the ground. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this regulation, a permit from CalGEM is required before work can start.

Response 244-7

The comment outlines the regulatory authority of CalGEM regarding changes to or work on wells, including well abandonment. Any well-related activities that may occur with the UWSP area during site development—including mitigation of leaks, casing modifications, or re-abandonment—would require written approval from CalGEM, consistent with state regulations. The project applicant will not build over or disturb the

well. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 244-8

CalGEM makes the following additional recommendations to the local permitting agency, property owner, and developer:

1. To ensure that present and future property owners are aware of (a) the existence of all wells located on the property, and (b) potentially significant issues associated with any improvements near oil or gas wells, CalGEM recommends that information regarding the below identified well(s), and any other pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property.
2. CalGEM recommends that any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

RESPONSE 244-8

Development allowed under the proposed UWSP would rely on CalGEM's regulatory framework to communicate information to the Sacramento County recorder and to ensure the proper disposal of contaminated soil. In the event that the proposed UWSP is approved, the recommendations included in this comment would be included in the Conditions of Approval required by the County. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 244-9

As indicated in PRC section 3106, CalGEM has statutory authority over the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to CalGEM's authority to order work on wells pursuant to PRC sections 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC sections 3236, 3236.5, and 3359 for violations within CalGEM's jurisdictional authority. CalGEM does not regulate grading, excavations, or other land use issues.

RESPONSE 244-9

The comment summarizes the provision of PRC section 3106 regarding the statutory authority of CalGEM related to the drilling, operation, maintenance, and abandonment of oil, gas, and/or geothermal wells and attendant facilities. The abandoned well within

the UWSP area would remain subject to CalGEM's jurisdiction, including enforcement and compliance requirements under the Public Resources Code. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

LETTER 245

Sacramento Local Agency Formation Commission (LAFCo); local regulatory body; written correspondence; dated January 27, 2026.

COMMENT 245-1

Thank you for the opportunity to respond to the Partially Recirculated Draft Environmental Impact Report (PRDEIR) and appended evaluations of water supply for the Upper Westside Specific Plan (UWSP) project in an unincorporated area of Sacramento County.

Sacramento County, as lead agency for CEQA compliance for the UWSP project, has prepared and circulated both a Draft EIR and a Final EIR to evaluate the environmental effects of implementing the proposed project. As a responsible agency pursuant to CEQA, LAFCo has previously submitted comments on the Notice of Preparation of a Draft EIR and the Draft EIR itself prepared by the County.

As described in the Draft EIR, the proponents of the UWSP seek to obtain a Specific Plan as the overarching land use permit for a 2,066-acre project. Additionally, a number of County General Plan amendments are sought as well. The proposed Specific Plan would encompass a multi-use development located in the northwest portion of unincorporated Sacramento County outside of the County's Urban Policy Area (UPA) and Urban Services Boundary (USB). The site is bounded on three sides by the City of Sacramento, adjacent to the existing City of Sacramento communities of North and South Natomas.

Subsequent to completion and circulation of the FEIR for the project, the project applicants have sought to modify the proposed UWSP. These modifications consist of:

Additional New Water Supply Source: This project modification introduces Natomas Central Mutual Water District (NCMWD) as a potential domestic water supply source, expanding the options for serving future development and potentially enhancing water supply reliability for the project area.

The potential environmental effects of this modification has not been previously evaluated in the DEIR/FEIR, and therefore would require additional CEQA review. LAFCo's comment requests the discussion of the following to be included in the DEIR/FEIR:

- Timely Supply of Water, Part 1: Prior to serving the UWSP area with M&I water, NCMWC will need to apply for modifications to its State water rights permits and amend its USBR Settlement Agreement. This modification of rights is expected to take multiple years to complete. There should be a discussion on how this timeline would impact the project schedule as well as how it could impact the supply of water to homes.

RESPONSE 245-1

The County evaluated the NCMWC as a potential domestic water supply source through the analysis of Alternative 5: Revised Project Alternative in the PRDEIR. In compliance with Water Code sections 10910 et seq, the PRDEIR includes a WSA (Appendix Alt-5-2) prepared by the Sacramento County Water Agency (SCWA), that evaluates a water supply scenario under which SCWA would serve as the retail public water purveyor, with NCMWC providing wholesale surface water supplies that would be treated at a new SCWA-owned and operated treatment facility and distributed to the UWSP.

With regard to timing, as discussed on page 27 and 28 of the WSA included as Appendix Alt-5-2 of the PRDEIR, Table 12 presents a proposed timeline, estimated cost and permits including new contracts/agreement, and USBR contract modifications. CEQA does not require a lead agency to secure final water service contracts or demonstrate absolute certainty regarding future water delivery at the EIR stage. While noting the potential schedule effects that can be associated with the timeline necessary to acquire approvals from the SWRCB, the comment does not address or suggest any potential environmental consequences associated with such a timeline. Under CEQA an EIR must provide a good-faith, reasoned analysis demonstrating that the identified water supply sources bear a reasonable likelihood of being available when needed (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432–435). Both the June 2025 Final EIR and the PRDEIR satisfy this standard by relying on adopted plans, documented water rights, and existing infrastructure, while disclosing the City's stated position regarding future service commitments. The County is unaware of any potential environmental impacts that would be different from or more severe than those disclosed in the June 2025 Final EIR and the December 2025 PRDEIR as a result of any potentially extended timeline associated with securing approvals from the SWRCB.

COMMENT 245-2

- Timely Supply of Water, Part 2: NCMWC was subject to severe curtailment of water from the State during the last drought. There should be discussion on the impact to the future residents if the State implements similar supply cutbacks in future droughts.

RESPONSE 245-2

As described in the WSA included as Appendix Alt-5-2 of the PRDEIR, during Critical Years CVP water supplies are reduced by 25 percent, bringing the total supply down to 90,150 acre-feet. Even with this reduction, the NCMWC is able to meet both existing and projected water demand, including UWSP demand. According to the agreement between NCMWC and SCWA, during these Critical Years NCMWC would prioritize M&I water deliveries to the UWSP area. After meeting all demands, NCMWC would still have access to an additional 29,043 AFY, assuming a 15 percent demand reduction due to water conservation measures under SCWA's Water Shortage Contingency Plan (WSCP).

In years when the DPP is in effect, CVP water supplies are reduced by 50 percent, to 60,100 acre-feet. Under these conditions, NCMWC could face a potential shortfall of 1,007 AFY. However, as described in the WSA, pursuant to the water service agreement with SCWA during these severe drought years NCMWC would continue to prioritize M&I deliveries to the UWSP area. This agreement would include a commitment to prioritize surface water deliveries for M&I use during drought and critical drought years at current market prices[8], a defining feature of the California water market which encourages water rights holders, including agricultural users, to buy, sell or lease water to others who need it, helping allocate water more efficiently during droughts or shortages. With a projected 17 percent demand reduction due to conservation measures in the WSCP, the WSA shows that NCMWC could still meet existing and projected water demand.

COMMENT 245-3

- Water Treatment Plant: The UWSP would connect to a main crossing San Juan Road, approximately 600 feet east of Garden Highway, via a new 30-inch main that would extend east along San Juan Road to a proposed water treatment plant (WTP) located in the vicinity of San Juan Road and Bryte Bend Road. There should be a discussion on the financing plan for this proposed WTP.

RESPONSE 245-3

The comment accurately states the information regarding the proposed UWSP WTP provided in the PRDEIR and asserts that there should be a discussion on the financing the plan for the proposed WTP.

Under CEQA the consideration of public services and utilities impacts is limited to only those significant environmental impacts that would arise from the provision of new or physically altered facilities, the construction of which could cause significant environmental effects. CEQA focuses on identifying and mitigating physical environmental impacts, not on the financial viability or funding mechanisms associated with the implementation of a proposed project. The UWSP EIR fully evaluates the physical environmental effects that could result with implementation of the proposed UWSP, including physical effects related to the provision of public services, in accordance with the requirements of CEQA. Because under CEQA the purpose of the EIR is to disclose the physical adverse environmental effects of the proposed project, it does not address the financing of these facilities and services.

Separate from the EIR process, the County requires proposed projects similar to the UWSP to submit to the County a plan for the financing of public facilities. The Upper Westside Public Facilities Financing Plan (PFFP) prepared for the proposed UWSP is intended to outline the funding and financing mechanisms for construction of public

[8] NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

facilities within the UWSP area, including water supply infrastructure.[9] It also summarizes the envisioned phasing of facilities needed to support the development plan, as well as the programs to be employed for on-going public services and maintenance. More specifically, the PFFP includes an Urban Services Plan (USP) which addresses the costs of and funding programs for ongoing provision of public services and infrastructure required to serve the proposed, including costs for ongoing maintenance of public facilities. The PFFP is part of the package of proposals included in the UWSP and made available for public review prior to being presented to the Board of Supervisors for its consideration and potential approval.

[9] Economic & Planning Systems, Inc. (EPS), 2025. Upper Westside Specific Plan Public Facilities Financing Plan. Public Review Draft. EPS #202053. Prepared for Sacramento County. July 2025.

LETTER 246

City of Sacramento Department of Community Development; local government entity; written correspondence; dated January 27, 2026.

COMMENT 246-1

We have reviewed the topics analyzed in the PRDEIR and have the following comments:

Revised Circulation Network

The PRDEIR continues to rely on fair share contributions toward intersections within City limits that have increased traffic congestion due to Cumulative Plus Revised Project conditions. While the PRDEIR does acknowledge the City's current transportation policies and goals, and that the identified operational improvements reduce delay, the PRDEIR acknowledges the proposed project's fair share contributions will still result in delayed LOS F operations where added project volumes exceed roadway capacities within the City limits. The City looks forward to working with the County collaboratively to ensure traffic congestion is adequately addressed as the project develops.

RESPONSE 246-1

The City's comment regarding ongoing congestion at intersections within City limits and the PRDEIR's discussion of fair-share contributions is acknowledged. Pursuant to Senate Bill 743 (SB 743), LOS-based delay at intersections is not treated as a CEQA impact and CEQA does not require mitigation to address LOS. Accordingly, the LOS-based/operational fair shares are not part of CEQA. However, the County will work with the City, consistent with the principles in the 2011 Sacramento County–City Cross Jurisdictional Memorandum of Understanding, to mutually agree on addressing the transportation needs and funding of future growth in both jurisdictions.

COMMENT 246-2

Additional New Water Supply Source

The City has reviewed the PRDEIR's revised Project Alternative 5, which includes an optional wholesale source for domestic water supply from Natomas Central Mutual Water Company (NCMWC) to serve the UWS project. Alternative 5 proposes to partially convert neighboring Natomas Central Mutual Water Company (NCMWC) federal water contract(s) from agricultural use to municipal and industrial (M&I) use. This proposal represents a further departure from the 2002 Joint Vision MOU approved by both Sacramento City Council and the Sacramento Board of Supervisors by proposing an overlapping M&I water entitlement for the Project area.

RESPONSE 246-2

To the County's knowledge the 2002 Joint Vision MOU did not address the nature of water entitlements in Natomas other than recognizing the importance of secure water supplies for land preserved as farmland. The WSA prepared by SCWA and included in the PRDEIR addresses the cumulative 20-year demand for water from NCMWC, including all existing and ongoing agricultural uses, and concludes that water supplies would be adequate. The concerns raised by the City regarding the relationship of the additional new water supply source identified and evaluated in Alternative 5 in the PRDEIR to the 2002 Joint Vision MOU are potential points of future discussion between the County and the City. However, this comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 246-3

In preparing the PRDEIR, the County identifies that additional discretionary approvals are necessary to implement Alternative 5, including 1) change in water rights with State Water Rights Control Board (SWRCB), 2) changes in water contract with the United States Bureau of Reclamation (USBR) to supply surface water for municipal and industrial uses and modify its delivery schedule; and 3) negotiation of a wholesale agreement between NCMWC and Sacramento County Water Agency (SCWA) to allow priority service of M&I water to the proposed UWSP development. The City requests clarification of the timing of environmental review of the additional steps necessary to secure a reliable water supply and seeks clarity in understanding the applicability and timing of National Environmental Policy Act (NEPA) review to analyze the effect of the federal action.

RESPONSE 246-3

The PRDEIR evaluates the alternative water supply scenario under Alternative 5: Revised Project Alternative in compliance with Water Code sections 10910 et seq. The PRDEIR includes a WSA (Appendix Alt-5-2) prepared by the SCWA, that evaluates a water supply scenario under which SCWA would serve as the public water purveyor, with NCMWC providing raw surface water supplies that would be treated at a new SCWA owned and operated treatment facility and distributed to the UWSP.

CEQA does not require an EIR to identify precise timing or details of NEPA compliance regarding future water delivery at the EIR stage. Instead, an EIR must provide a good-faith, reasoned analysis demonstrating that the identified water supply sources bear a reasonable likelihood of being available when needed. See also Response 245-1 above. Both the June 2025 Final EIR and the PRDEIR satisfy this standard by relying on adopted plans, documented water rights, and existing infrastructure, while disclosing the City's stated position regarding future service commitments.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 246-4

The PRDEIR makes the following statement “NCMWC would have adequate planned water supply to serve development allowed under the proposed UWSP during normal, single dry, and multiple dry years as confirmed by the WSA prepared by SCWA for the proposed UWSP”. This approach toward articulating a reliable water supply appears to the City to rest upon hypothetical decisions by Federal and State decision makers and is at risk of being perceived as predecisional.

RESPONSE 246-4

The sentence quoted in the comment simply restates the conclusion of the SCWA WSA that is required under CEQA and was included in the PRDEIR. It represents SCWA’s conclusion regarding the adequacy of water supplies from NCMWC, and does not represent the conclusions of any other agency.

As discussed in the WSA included as Appendix Alt-5-2 of the PRDEIR, NCMWC would use surface water diverted by NCMWC at its Riverside Pumping Plant and delivered to the proposed UWSP for treatment and distribution. In years of potential water supply shortfalls, NCMWC would prioritize surface water deliveries to the proposed UWSP to meet demand (WSA Appendix F, NCMWC Letter of Interest to provide wholesale water to the SCWA for the UWSP area). In addition, NCMWC[10] has successfully petitioned the SWRCB for changes to its existing water rights and attained modifications to its USBR contract, as such, it is reasonable that NCMWC would be successful in petitions and modifications to provide water service to the proposed UWSP. Pursuant to SB 221, specifically, Government Code section 66473.7, any tentative map for a subdivision that requires verification of sufficient water supply must include, as a condition of approval, written verification from the water supplier to the [requesting] agency within in 90 days. Furthermore, CEQA does not require a lead agency to secure final water service contracts or demonstrate absolute certainty regarding future water delivery at the EIR stage. Instead, an EIR must provide a good-faith, reasoned analysis demonstrating that the identified water supply sources bear a reasonable likelihood of being available when needed (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432–435). Both the June 2025 Final EIR and the PRDEIR satisfy this standard by relying on adopted plans, documented water rights, and existing infrastructure, while disclosing the City’s stated position regarding future service commitments.

COMMENT 246-5

The City suggests the PRDEIR clarify the status of Alternative 5 water supply as guided by CA Water Code §10910 and the principle of transparent decision making. If the County finalizes the CEQA process with its governing body before the steps to create a

[10] As an example, NCMWC previously amended its water rights to allow service to Sacramento International Airport and Metro Air Park.

reliable water supply are taken, then the status of the water supply portfolio should be clear to all interested parties.

Response 246-5

See Response 246-3, above.

Comment 246-6

The City of Sacramento has provided comments throughout the UWSP planning process since the application was initiated with the County on February 26, 2019. The most recent City comment letters provided to the County in August 2025 are attached. The Board of Supervisors' hearing on August 20, 2025, to consider the UWSP was cancelled to allow County staff and the applicant additional time to review and consider public comments received which raised concerns about the project. Since that time, County staff have held several meetings with City staff about the concerns we've raised. We appreciate the meetings being held and the open dialogue.

Response 246-6

The City's comment is acknowledged. The County appreciates the collaborative engagement of the City in discussions of planning issues in Natomas and elsewhere in the County.

Comment 246-7

Apart from PRDEIR analysis being limited to water supply and the revised transportation circulation, the PRDEIR notification states that all other aspects of the proposed Specific Plan would remain unchanged, including land uses, densities, and plans for infrastructure and service delivery. Regardless of the CEQA process and the PRDEIR limited analyses, it would be in the best interest of both the County and City to prioritize working together with a focus on mutually acceptable solutions as the project progresses.

Response 246-7

The City's comment is acknowledged. The County concurs with the City that multi-jurisdictional collaborative planning is an optimal approach to planning throughout the Sacramento region.

LETTER 247

Natomas Unified School District; local school district; written correspondence; dated January 26, 2026.

COMMENT 247-1

Thank you very much for your ongoing collaboration with the Natomas Unified School District (NUSD) on the Public Facilities Financing Plan and the opportunity to provide comments on the Partially Recirculated Draft Environmental Impact Report (EIR). We appreciate the clarifying revisions included as a part of the Final EIR published in May of last year. However, we do have outstanding comments, which are detailed as follows. Some of these comments relate to topics we raised in our previous comment letter on the original Draft EIR, which we have attached.

Comment and Response to Comment 13-1. In this comment, NUSD summarized pertinent aspects of the County's policy framework, including the Policy PC-6 requirement for an Infrastructure Master Plan and Financing Plan that includes funding for schools and other public facilities and infrastructure and the Policy PF-29 requirement for schools as a focal point of neighborhood activity. The Final EIR Responses to Comments 13-1 and 13-10 characterize the NUSD comments as policy issues and economic effects that are not treated as significant effects on the environment. However, as detailed in our comment letter on the initial Draft EIR, the greenhouse gas emissions, transportation noise, and criteria air pollutant emissions impacts presented in the EIR are sensitive to, and reliant upon the placement of school sites near the students that would be served by these schools. Therefore, finding mutually agreeable language requiring adequate school funding *is not only* a policy consistency issue for Policy PC-6, Policy PF-29, and Policy PF-30, but also an environmental issue. As noted in our previous comments, the presence of neighborhood-serving school sites is identified in the EIR as a strategy to reduce vehicular travel demand and associated greenhouse gas emissions. As described in *Chawanakee Unified School Dist. v. County of Madera* (2011) 196 Cal.App.4th 1016, Government Code section 65996, subdivision (a), as amended by Senate Bill 50 (SB 50) mitigates direct impacts on school facilities and buildings, but an EIR is required to disclose and mitigate a project's indirect impacts related to transportation, air quality, and noise levels associated with school attendance. Without the planned school sites, indirect effects would be higher than reported in the Draft EIR.

RESPONSE 247-1

NUSD’s appreciation is acknowledged. The County also appreciates the collaborative engagement of NUSD in discussions of school and infrastructure planning issues.

The County would also like to note that, pursuant to procedures set forth in section 15088.5(f)(2) of the CEQA Guidelines, the Notice of Availability published for the PRDEIR directed reviewers to limit their comments to the information contained in the PRDEIR. Reviewers were informed that they need not resubmit comments on the

previously published Draft EIR or the June 2025 Final EIR. Nonetheless, additional clarification related to NUSD's previously submitted comments on the August Draft EIR, as referenced in the comment, is provided below.

The issue of funding of school development in the proposed UWSP is addressed in June 2025 EIR, Response 13-10. To reiterate, under CEQA, the consideration of public services impacts, including impacts related to schools, is limited to only those significant environmental impacts that would arise from the provision of new or physically altered facilities, the construction of which could cause significant environmental effects. CEQA focuses on identifying and mitigating physical environmental impacts, not on the financial viability or funding mechanisms associated with the implementation of a proposed project. The UWSP EIR fully evaluates the physical environmental effects that could result with implementation of the proposed UWSP, including proposed future school uses identified in the UWSP, in accordance with the requirements of CEQA. Because under CEQA the purpose of the EIR is to disclose the physical adverse environmental effects of the proposed UWSP, it does not address the financing of these facilities and services.

Moreover, CEQA requires the EIR to evaluate the physical impacts of the project as proposed and does not require a precise year-by-year prediction and analysis of how a long-term project like the proposed UWSP will develop. This issue was addressed by the California Supreme Court in *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 457–458. The Court explained that CEQA does not require analysis of impacts at multiple interim points in time, stating:

> CEQA does not require an EIR to analyze the project's impacts at every point in time between the existing conditions and the conditions anticipated when the project is completed and in operation.
>
> Rather, the selection of a baseline involves a determination of which conditions will serve as a realistic measure of a project's impacts, and agencies have discretion to select conditions that will be informative rather than misleading.

In the case of the UWSP EIR, the County determined that the optimal scenario to address was the full buildout of the proposed UWSP. The timing and order of development of uses planned for within the proposed UWSP is subject to economic conditions in the local development market. The development of schools and other public infrastructure would be affected by a variety of factors, including but not limited to regulatory permitting, funding availability, and other factors. Which schools parents opt to enroll their children in school would depend on factors outside of the control of the developer, County, or school districts, and could include private schools, schools within the NUSD which have capacity, or public schools outside of the NUSD. The most recent data from the California Department of Education (for school year 2024-25) indicates that there is sufficient enrollment capacity at the nearest schools in the NUSD to meet the needs of Phase 1 development or beyond.

School	2024-25 Enrollment	Available Capacity
Two Rivers Elementary (TK-5)	612	252
Bannon Creek School K-8	491	458
Natomas High School (9-12)	1,157	547

Source: California Department of Education DataQuest, *Assigned and Nearest School Enrollment, 2024-25 School Year Enrollment Data.* Web retrieved January 20, 2026 www.cde.ca.gov

Should proposed future development of the UWSP include development scenarios that differ from what was analyzed in the EIR, those proposals would be subject to a subsequent review process that would determine whether the modifications would require a new EIR, a supplemental document, or an addendum based on the nature and extent of any new or unconsidered environmental impacts.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 247-2

Comment and Response to Comment 13-15: In this comment, NUSD noted that the placement of electric vehicle chargers, based on the California Air Resources Board Scoping Plan, can represent a greenhouse gas emissions mitigation strategy. The Final EIR response to this comment characterizes this comment as related to funding for electric vehicle charging infrastructure at school sites. The comment was a suggestion for feasible mitigation, *not* a reference to the need for funding for electric vehicle charging infrastructure at the proposed school sites. Since the school sites would be publicly accessible places, the Specific Plan could fund electric vehicle charging infrastructure at one or more of the school sites as an aspect of the Specific Plan's Greenhouse Gas Reduction Plan.

RESPONSE 247-2

The commenter suggests that installing electric vehicle charging stations (EVCS) at school sites could serve as a feasible greenhouse gas (GHG) mitigation strategy consistent with the California Air Resources Board Scoping Plan. The commenter also notes that the Final EIR's prior response characterized the comment as relating to funding needs, whereas the commenter intended it as a proposed mitigation measure. This clarification is acknowledged and the suggestion is addressed below.

As discussed in Chapter 8, *Climate Change*, of the June 2025 Final EIR, the UWSP's GHG impacts would be less than significant with implementation of the adopted mitigation measures. As the project's GHG impacts are already mitigated to a less-than-significant level, CEQA does not require the adoption of additional mitigation measures such as installing EVCS at school sites.

However, the suggestion is consistent with measures already incorporated into the project. Mitigation Measure CC-1c requires all development, including schools, to meet CalGreen Tier 2 voluntary EV charging standards. In addition, Mitigation Measure CC-1b requires each future development to prepare a GHG Reduction Plan demonstrating achievement of the 1.42 $MTCO_2e$/ksf performance standard. This standard is needed to comply with SMAQMD's BMP 1 and will achieve GHG reductions equivalent to the natural gas GHG emissions associated with nonresidential development within the proposed UWSP. The performance standard was developed by dividing the annual nonresidential GHG emissions from natural gas by the square footage of nonresidential development within the proposed UWSP. These GHG Reduction Plans may include installation or funding of additional on-site or off-site EVCS beyond the requirements found in Mitigation Measure CC-1b, provided the EVCS installations are additional (i.e., not already required by some other program, regulation, or mechanism) and the GHG reductions resulting from the EVCS installations are quantifiable. Therefore, while not required as CEQA mitigation, additional EVCS at school sites remain an available strategy for proponents of projects within the proposed UWSP to use in meeting their performance obligations.

The UWSP must also comply with CAP Measure GHG-17: Carbon Neutral New Growth. This means that the proposed UWSP must achieve carbon neutrality for all construction and operational GHG emissions. Installing EVCS beyond CalGreen Tier 2, whether at school sites or elsewhere within the UWSP area, could contribute to achieving carbon neutrality and may be considered during future project-level planning.

In summary, GHG impacts of the proposed UWSP are already mitigated to a less-than-significant level and the suggested measure is recognized as a potential project-level step to achieve implementation of Mitigation Measure CC-1b and consistency with CAP Measure GHG-17. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 247-3

NUSD Comments on School Parking Lot, Playground, Stadium, and Sports Field Noise: NUSD provided several comments related to possible effects of noise generation at future school sites relative to planned noise-sensitive uses, seeking clarity on what parties would be responsible for mitigation. The Final EIR responses to comments explain that NUSD should prepare a future acoustical study and implement feasible mitigation, and that if buffers or noise barriers are required, NUSD should provide the land required for buffering and funding for noise barrier/s. The Final EIR references the County's Policy NO-7, which assigns responsibility to the "last use there." This policy seems to apply in the context of individual projects that may generate noise or may be noise sensitive, not to a Specific Plan for undeveloped property that is proposing both noise-generating and noise-sensitive uses. If a noise barrier is required to achieve noise levels consistent with the County's Noise Ordinance in areas adjacent to future school sites, additional funding for the schools may be required. If large areas of land are required within NUSD property to attenuate noise via distance, the school

sites may need to be larger. It may not be possible in all cases to provide for a buffer on the school sites. It may or may not be feasible to use buildings or constructed barriers to attenuate noise. However, it *would* be feasible to consider site planning and design standards in the Specific Plan that apply to adjacent noise-sensitive land uses and would reduce noise exposure impacts, such as requirements that would apply to building orientation and the location of outdoor gathering spaces for future residential development in areas adjacent to school sites.

Response 247-3

The issues that are addressed in this comment are consistent with the issues addressed in the letter NUSD sent on the Draft EIR and which are responded to in the June 2025 Final EIR Responses 13-6 through 13-9. Pursuant to procedures set forth in section 15088.5(f)(2) of the CEQA Guidelines, the Notice of Availability published for the PRDEIR directed reviewers to limit their comments to the information contained in the PRDEIR. Reviewers were informed that they need not resubmit comments on the previously published Draft EIR or the June 2025 Final EIR. The County's position on the interpretation and implementation of General Plan Noise Policy NO-7, as explained in Response 13-6, has not changed.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 247-4

Again, NUSD is very appreciative of the County's collaborative approach on the Public Facilities Financing Plan, and we appreciate the opportunity to review the Recirculated Draft EIR. NUSD looks forward to continued collaboration with the County to find mutually agreeable language related to school funding for this ambitious and important development Plan.

Response 247-4

NUSD's comment is acknowledged. The County also appreciates the collaborative engagement of NUSD in discussions of school planning for the proposed UWSP.

LETTER 248

Environmental Council of Sacramento (ECOS); non-profit organization; written correspondence; dated January 27, 2026.

COMMENT 248-1

1. Traffic

The PRDEIR shifts responsibility to the City for road widening to accommodate additional traffic from the UWSP.

In spite of the population increase of UWSP, with its 9,356 housing units, the PRDEIR notes that El Centro Road is already at the maximum number of lanes states that it won't need to be increased because the main capacity constraint (at the El Centro Road/Arena Blvd intersection) is within the City of Sacramento's limits(2-31 and 2-32, PRDEIR).

How the project will address the addition of 2,000 additional cars to already congested roads (El Centro and Arena) is not clear. Rather than outlining a feasible plan to address the traffic impacts that would result from the County project, the UWSP PRDEIR states that the responsibility would be deferred to the City, with no indication of collaboration or County involvement. The EIR should include details of any joint plans created between the County and the City to address traffic constraints in the areas impacted by the UWSP. Such plans should also state who will provide the funding for infrastructure changes.

RESPONSE 248-1

This comment restates several conclusions on pages 2-31 and 2-32 of the PRDEIR. Per SB 743, LOS and other forms of delay/congestion measurement are not permitted to be used in EIRs. Accordingly, the addition of traffic to an intersection resulting in longer vehicle wait time is not considered an impact, and therefore no mitigation is required. There is currently no agreement between the City and County to jointly fund other improvements along El Centro Road. However, the County and City have a Memorandum of Understanding (MOU) that provides a high-level framework for collaborating on transportation planning. The MOU leaves implementation responsibility to individual projects, which would require project specific funding agreements. Provided that the County and City reach such an agreement for the proposed UWSP, fair share costs would be included in UWSP's finance plan.

As noted on Page 2-32, Map M-2a of the Mobility Element of the City of Sacramento 2040 General Plan shows El Centro Road as four lanes within the City limits. Widening to six lanes would require a General Plan Amendment and is typically contrary to city policies that favor balanced multi-modal planning.

COMMENT 248-2

The PRDEIR does not address concerns regarding emergency access and services. "While Radio Road would be closed to regular vehicular use under Alternative 5, emergency vehicle access would still be provided along this roadway. As a result, impacts under Alternative 5 regarding emergency access would be less than significant, like those under the proposed UWSP" (2-32).

Members of the communities surrounding the proposed UWSP have expressed concern regarding current access to emergency services and the significant delays that the increased traffic associated with the UWSP would likely cause. However, the UWSP and PRDEIR assert that impacts related to emergency access would be less than significant. Several critical points have been left out of the discussion, such as a description of the access routes to UWSP and the existing neighborhoods for both City-provided and County-provided emergency services. In addition, there is no discussion of whether roads are sufficient for the emergency evacuation of the combined traffic of UWSP and existing communities. The EIR thus lacks the evidence necessary to conclude that the UWSP would have less than significant impact on emergency access in the proposed area.

RESPONSE 248-2

Under both the proposed UWSP and Alternative 5, all existing emergency response corridors, including El Centro Road, Powerline Road, West Elkhorn Boulevard, and Radio Road (for emergency vehicles only), remain available and unobstructed. These are the same routes currently used by City and County emergency services to reach the UWSP area, and the proposed UWSP does not remove, narrow, or restrict any of them. In addition, all internal UWSP roadways must comply with Natomas Fire Protection District standards for width, turning radii, secondary access, and emergency vehicle circulation, ensuring that emergency responders retain full access to the project site and adjacent neighborhoods.

Regarding evacuation, as discussed in Chapter 12, *Hazards and Hazardous Materials*, of the June 2025 Final EIR, an inundation and evacuation analysis was completed for the UWSP area within the Natomas Basin. This analysis evaluated whether development under the proposed UWSP would affect emergency response and evacuation during a catastrophic levee breach, using updated basin-wide inundation modeling. The results indicate that changes in evacuation times would be minor or favorable, multiple evacuation routes would remain available, and implementation of the UWSP would not materially impair emergency response or evacuation capabilities. Furthermore, the County is required to periodically update its emergency response and evacuation plans to reflect growth and changing conditions within the UWSP area, ensuring that implementation of the UWSP does not interfere with emergency planning or evacuation procedures.

COMMENT 248-3

2. Water

Under Alternative 5, the PRDEIR identifies the Natomas Central Mutual Water Company (NCMWC) as the water source for UWSP (e.g., 2-33-2-53, PRDEIR). The NCMWC is primarily an agricultural water supplier. The Settlement Agreement between the NCMWC and the US Bureau of Reclamation (USBR) provides the NCMWC with water when supplies allow for the typical valley growing season – April to October. This water is strictly provided for agricultural use. The NCMWC also maintains permits with the State Water Resources Control Board (SWRCB), only one of which extends through the winter months (Permit 19400, Table ALT 5-6, 2-35, PRDEIR). All water rights are subject to curtailment when "natural flows in the Sacramento River are insufficient to meet the various water quality and water flow requirements in the Delta" (2-36, PRDEIR).

Alternative 5 proposes that the NCMWC provide year-round, Municipal & Industrial-use (M&I) water services to the UWSP. This arrangement would require that the NCMWC request the amendment of its Settlement Agreement with the USBR and its permits with the SWRCB to allow year-round diversions for M&I use. Additionally, Alternative 5 proposes to address potential curtailments under Term 91 during winter months by seeking an amendment to its USBR Settlement Agreement that "would allow for year-round diversions by reallocating some summer diversions to the winter period" (2-37, PRDEIR).

RESPONSE 248-3

In compliance with Water Code section 10910 et seq., the PRDEIR includes a WSA (Appendix Alt-5-2) prepared by the SCWA. As described in the WSA included as Appendix Alt-5-2 of the PRDEIR, the WSA evaluates a wholesale water supply scenario under which Natomas Central Mutual Water Company (NCMWC) would provide raw surface water supplies to SCWA for treatment and distribution to the UWSP area.

The WSA documents in detail:

- Existing agriculture water demand in the UWSP area, and anticipated UWSP water demand in combination with existing and project demand with NCMWC service area;
- Establishment of a new benefit zone within SCWA service area to treat and distribute domestic water supplies;
- NCMWC's surface water rights, CVP settlement contract entitlements, and historical deliveries;
- The anticipated amendment of NCMWC's settlement contract with the U.S. Bureau of Reclamation to allow M&I deliveries and to ensure year-round raw water deliveries to the proposed UWSP for treatment and distribution;

- The requirement for, and feasibility of, a wholesale agreement between NCMWC and SCWA and establishment of a benefit zone within SCWA's service area;
- NCMWC's express commitment to prioritize M&I deliveries to the UWSP area during constrained water years; and,
- An evaluation of the sufficiency of water supplies available to serve the proposed UWSP over the next 20 years under normal, dry, critical dry, and multiple-dry-year conditions.

Consistent with Water Code section 10910, subdivision (d), the WSA includes written documentation of water rights and contractual entitlements, identifies required federal and state approvals, and evaluates infrastructure and operational requirements necessary to convey and treat the identified supplies.

CEQA does not require all future agreements or regulatory approvals to be finalized prior to project approval, nor does it prohibit reliance on future actions where the EIR discloses assumptions, evaluates environmental consequences, and avoids speculation (CEQA Guidelines section 15145; *Toward Responsibility in Planning v. City Council* (1988) 205 Cal.App.3d 421, 439). The analysis provided in Alternative 5 and Appendix ALT 5-2 satisfies CEQA's requirement for a reasoned analysis and distinguishes this case from situations involving improper deferral of mitigation or complete failure to analyze water supply impacts (*Gray v. County of Madera* (2008) 167 Cal.App.4th 1099; *Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48).

COMMENT 248-4

The Water Plan conflicts with the General Plan and Water Forum discussions for regional water use.

The UWSP lies outside regional water supply plans for the urban area. Sacramento region water supply planning focuses on long-term reliability through integrated strategies like the Regional Water Reliability Plan[1], emphasizing conjunctive use (the coordinated use of surface water and groundwater; e.g., storing water underground in wet years for dry years) via programs like the Sacramento Regional Water Bank[2], and collaborative efforts such as the Water Forum 2.0[3], all aimed at balancing supply, environmental needs (like lower American River flows), and climate change impacts. Key projects include the Water Bank for groundwater storage, RiverArc[4], and the Harvest Water recycling project, supported by state funding and Department of Water Resources initiatives. The multi-government and multi-level planning effort does not support the PRDEIR proposed water plan.

Regional water supply planning has focused on providing water supplies to existing planned growth areas both within Sacramento and Placer Counties. Water Forum agreements have not included unplanned growth outside of the Urban Services Boundary and a similar planning boundary in Placer County. Because the UWSP is not in the approved planning area for urban development, it has not been considered as a part of regional water demand planning. For the project impact to be less than

significant in all water years, it must be consistent with regional water demand planning. For example, a restriction on development to a project of a like size elsewhere in the City or County's 2030 General Plan would be needed. This is obviously not practical. The EIR must acknowledge the significant impact on regional water planning and identify an unavoidable impact or explain how the project's impacts on regional water planning could be mitigated to "less than significant."

Response 248-4

See Response 248-3

Furthermore, the WSA for the UWSP satisfies the Water Code section 10910 and CEQA requirements, therefore, no further water supply planning analysis is required or necessary.

Similar to the discussions of many other regional plans addressed in this EIR, the Regional Water Reliability Plan is not a land use plan, but rather it is a plan to promote reliable water supply for existing and future planned growth. It does not speculate about future growth where a local land use agency has not approved such growth through amendment of its general plan. However, like other regional plans including SACOG's MTP/SCS, when a local agency amends its general plan, such new growth is addressed in a future update of the regional plan. In this case, in the event that the proposed UWSP is approved, future updates of the Regional Water Reliability Plan would appropriately include the growth projections and demand estimates for the UWSP. The comment does not raise new significant environmental issues or specific questions about the analyses or information in the PRDEIR or those not previously addressed in the June 2025 Final EIR.

Comment 248-5

Additionally, the PRDEIR does not acknowledge the cost of updating regional water plans to include the proposed alternative and does not identify a mitigation measure to offset that cost to various public water agencies participating in regional water planning. The EIR must outline the costs associated with updating regional water plans to include Alternative 5, and it must explain how those costs would be paid.

Response 248-5

The comment asserts that there should be a discussion of the costs associated with updating the regional water plan(s). Under CEQA the consideration of provision of water supply, treatment and distribution to serve the UWSP is limited to only those significant environmental impacts that would arise from the provision of new water sources, analysis of water supplies, or physically altered facilities, the diversion, delivery and construction of which could cause significant environmental effects. CEQA focuses on identifying and mitigating physical environmental impacts, not on the financial viability or funding mechanisms associated with the implementation of a proposed project. The UWSP EIR fully evaluates the physical environmental effects that could result with implementation of the proposed UWSP, including physical effects related to the

provision of utilities and service systems, in accordance with the requirements of CEQA. Because under CEQA the purpose of the EIR is to disclose the physical adverse environmental effects of the proposed project, it properly does not address the financial or fiscal aspects of regional water resources planning.

COMMENT 248-6

Inadequate information regarding the required contractual amendments and water supply impacts.

Alternative 5 requires the modification of existing agricultural water supply contracts to include a year-round M&I water supply. The PRDEIR does not disclose the full process required to amend existing contracts and acquire additional permits, as would be necessary to allow year-round delivery of water for M&I use. Expecting these regulatory and contractual changes to be negotiated and approved by regulatory agencies within two years is not a prudent assumption and calls into question the viability of this alternative.

RESPONSE 248-6

Please see Response 248-3 above.

COMMENT 248-7

In addition to the unrealistic timeline for contractual amendments, the PRDEIR includes a risky estimate for NCMWC water supply and demand. The PRDEIR states that NCMWC would be able to meet existing and projected demand in normal, critical, and drought protection years (2-45 to 2-47, PRDEIR). Although Table ALT 5-14 (2-46, PRDEIR) indicates that there would be a surplus in acre-feet per year (AFY) in all conditions, the surplus noted in drought years (with 50% curtailment) would be 1 AFY. This surplus provides a very narrow buffer between the estimated water demand and the water rights available to serve all NCMWC users. A note in Table ALT 5-11 (2-39 and 2-40, PRDEIR), stating that estimated “demands may vary slightly due to land use plan modifications,” casts further uncertainty as to the NCMWC’s ability to provide water for all of its users, through all conditions. On a regional basis, there is an increasing need for water management to adapt to climate change-precipitated drought and the associated uncertainty of water availability. The EIR must address the impact the project would have on other NCMWC users, should the UWSP’s actual demands push the NCMWC’s total water demand past the 1 AFY surplus buffer.

RESPONSE 248-7

Please see Responses 245-2 and 248-3 above.

COMMENT 248-8

Inadequate analysis regarding impact to the NCMWC agricultural users.

The NCMWC is a private non-profit corporation, established in 1921, representing the interests of 280 member/shareholders who hold water rights in the Basin. It provides agricultural water services to 33,223 acres. The 1964 Sacramento River Settlement Agreement with the USBR requires NCMWC to limit its annual diversions from the Sacramento River to 120,000 AFY. Actual water deliveries have ranged from 29,012 AFY (drought) during 2022 to 81,580 AFY in 2016.

Severe droughts, like the conditions experienced in 2022, cause major reductions in the water available for agriculture. New climate assessment data from the State of California projects more frequent and potentially severe climate changes that may be more severe than those faced in 2022 and may occur with more frequency. And, while the project's M&I water customers continued water supply (during severe droughts) seems to hang on a brief letter from the NCMWC, stating its intent to maintain M&I water supplies at the expense of agricultural users, the PRDEIR fails to disclose the impact on agricultural users if this approach is implemented during a drought. Should the NCMWC receive less than 50% of a full supply, the agricultural users will suffer a loss due to the prioritization of the UWSP. This threat to agricultural users is real, as a Sacramento Bee article released in 2025 (Attachment 1) reveals that the NCMWC supply was slashed by 82% in the last drought (2022). Table ALT 5-8: Annual Surface Water Use (2-37, PRDEIR) details the impact of drought on water deliveries by the NCMWC in 2022. As extreme conditions and droughts become more frequent and severe, the likelihood that agricultural users – including signatories of the NBHCP – will suffer a loss due to the prioritization of the UWSP only grows. The FEIR must acknowledge the impact that the water supply plan would have on other NCMWC water recipients in the case of a drought.

Response 248-8

The WSA, included as Appendix Alt-5-2 of the PRDEIR, assessed the use of surface water diverted from the Sacramento River by NCMWC and conveyed to the proposed UWSP water treatment plan to meet demand in all water year types. In critical and DPP years, agricultural users within NCMWC's service area may voluntarily fallow their agricultural lands and not plant crops as it may not be economical when agricultural insurance[11] could offset lack of sales of crops; in addition, raw water sales at current market prices[12], to development allowed under the UWSP during critical and DPP years may be more profitable for NCMWC and its shareholders. This is a defining feature of the California water market which encourages water rights holders, including agricultural users, to buy, sell or lease water to others who need it, helping allocate water more

[11] Several sources of agricultural insurance are potentially available through programs pursuant to the US Department of Agriculture's Federal Crop Insurance Program. See Insurance Curator, *How Agricultural Insurance Supports California's Farming Industry*, https://insurance curator.com/how-agricultural-insurance-supports-californias-farming-industry/. Sourced March 2, 2206. Also see US Department of Agriculture, Economic Research Service, R. Aaron Hrozencik and Marcel Aillery, Economic Information Bulletin Number 229, *Trends in U.S. Irrigated Agriculture: Increasing Resilience Under Water Supply Scarcity,* December 2021.

[12] NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

efficiently during droughts or shortages. Private landowners within NCMWC service area may or may not forfeit their water supplies, are not likely to irrigate fallowed land and would not need agricultural water supplies during these years and there would be no impact to agricultural users.

Furthermore, as described in the WSA included as Appendix Alt-5-2 of the PRDEIR, in Critical Years (aka, dry years) CVP supplies are assumed to be reduced by 25 percent to 90,150 acre-feet (refer to Table 3). In Critical Years, NCMWC has adequate water supplies to meet existing and projected demand including the UWSP area estimated 3,139 AFY of water demand. Furthermore, in Critical Years when supplies are reduced by 25 percent, NCMWC can meet existing commitments, i.e. deliveries to sustain the aquatic habitat mitigation along with projected demand. NCMWC would have access to another 29,043 AFY after delivering water to development allowed under UWSP and agricultural consumers.

In years when the DPP, CVP water is reduced by 50 percent or 60,100 acre-feet (refer to WSA Table 3). Under the DPP, NCMWC could experience a potential shortfall of 1,007 AFY.

Under the DPP, NCMWC could experience a potential shortfall of 1,007 AFY. However, as described in the WSA when CVP supplies are reduced by up to 50 percent under the DPP[13], NCMWC can still meet existing commitments, i.e. deliveries to sustain the NBHCP, along with projected demand. This assumes a projected 17 percent reduction in demand due to water conservation pursuant to SCWA's WSCP. Therefore, the proposed UWSP is not expected to impact NBHCP, even in extreme drought years.

Under CEQA the purpose of the EIR is to disclose the physical adverse environmental effects of the proposed project. Moreover, CEQA requires the EIR to evaluate the physical impacts of the project as proposed; it does not require exploration of hypothetical or speculative scenarios.

COMMENT 248-9

PRDEIR fails to acknowledge and mitigate to less than significant impacts on the Natomas Basin Habitat Conservation Plan, the Metro Airpark Habitat Conservation Plan, and the Natomas Basin Conservancy operations.

We have reviewed and incorporate by reference the content of the comment letter submitted on January 23, 2026, by attorneys Best, Best, and Kreiger (signed by Ethan Walsh) on behalf of the Natomas Basin Conservancy (NBC). We also incorporate by reference the letter of the Natomas Basin Conservancy, dated April 10, 2025, which was submitted to the County and signed by its Board Chair, Chandra Chilmakuri. These

[13] The Drought Protection Program is a water reduction and infrastructure improvement agreement between the Reclamation and the Sacramento River Settlement Contractors and implements a voluntary water conservation and water acquisition program over the next two decades in response to drought conditions at Shasta Lake. As the DPP is implemented and Shasta Lake is operated to meet 2.0 million acre-feet of storage at the end of September, the Settlement Contractors will receive at least 50 percent of total contract supply.

letters make clear that the Upper Westside Project would substantially harm the NBC preserves and the conservation strategy of the NBHCP, adopted to comply with The Endangered Species Act and the California Endangered Species Act.

Response 248-9

The PRDEIR evaluates a new Alternative 5, Revised Project Alternative, which would introduce the NCMWC as a potential domestic water supply source and include a revised circulation network intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway. As described in the PRDEIR, all other aspects of the proposed UWSP would remain unchanged under Alternative 5, including land uses, densities, and plans for infrastructure and service delivery. The PRDEIR specifies that all other portions of the 2025 Final EIR remain valid and unchanged, except as otherwise discussed in the PRDEIR.

Impacts of the proposed UWSP related to the Natomas Basin and Metro Air Park HCPs are fully addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) in Chapter 7*, Biological Resources*, and Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan in the June 2025 Final EIR. The comment does not specify what impacts related to the NBHCP, the MAP HCP, or TNBC operations the PRDEIR fails to address or mitigate. Comments on the PRDEIR submitted by Best Best & Krieger LLP on behalf of TNBC are addressed in the responses to Letter 250 in this chapter. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-10

i. City development in the Swainson's Hawk Zone would conflict with the 2035 City General Plan and violate the City's obligations to the NBHCP.

   The original UWSP identifies the City of Sacramento as the water source to serve the UWSP. Although Alternative 5 adds the NCMWC as a potential water source for the project, the City of Sacramento has not been removed from the UWSP as a potential source. Comment letters submitted by and on behalf of the City of Sacramento (October, 2024, and August, 2025) in response to the original UWSP express that the City of Sacramento opposes the Upper Westside Project and will not make City water available for the project on unincorporated farmland in Sacramento County due to various conflicts.

   The 2035 City General Plan, ER 4.2.2, requires that the City work with the County, NBC, and other entities to protect and permanently preserve a one-mile buffer alongside the Sacramento River to preserve agricultural activities. The 2003 NBHCP prohibits the City from expanding urban development within one mile east of the toe of the levee alongside the Sacramento River levee designated as the Swainson's Hawk Zone (NBHCP pp D-9, IV-28). The great majority of the project site is within the one-mile zone, and development by the City – including placement of a water

treatment plant, which is urban infrastructure – would place the City in violation of its obligations under the NBHCP.

RESPONSE 248-10

While impacts of the proposed UWSP related to land use and planning, including the consistency of the proposed UWSP with regional and County visions and plans, are fully addressed in Chapter 14, *Land Use*, of the June 2025 Final EIR, the proposed UWSP is not subject to City of Sacramento plans and policies. Moreover, Alternative 5, evaluated in the PRDEIR, introduces the NCMWC as a potential domestic water supply source, expanding the options for serving future development and potentially enhancing water supply reliability for the UWSP area, in the event that treated water from the City of Sacramento is not available. Alternative 5 is one of a range of alternatives to the proposed UWSP considered in the EIR in accordance with CEQA. The evaluation of Alternative 5 in the PRDEIR does not entail or result in the removal of the City of Sacramento as a water provider for the UWSP. Under the proposed UWSP, the City would provide water through a wholesale agreement with the SCWA and as described under Impact UT-1 (Construction of Infrastructure Could Result in Adverse Physical Effects), the Draft EIR concluded that no additional treatment capacity would be needed. Finally, the potential for the proposed UWSP to conflict with the provisions of the NBHCP, including provisions regarding the one-mile buffer zone along the Sacramento River, are fully addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) and Impact BR-7 (Swainson's Hawk) in the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088. See also Final EIR Response to Comment 15-22.

COMMENT 248-11

ii. Inadequate compatibility analysis with permitted and proposed development in the Natomas Basin

The PRDEIR fails to disclose that 7,467 acres of farmland in Sutter County's part of Natomas Basin is permitted for urban development by the NBHCP, that the entire 7,467 acres is approved by Sutter County for development as the Sutter Pointe Specific Plan, and that an ADDITIONAL ~7,418 acres in unincorporated Sacramento County's part of the Basin – all outside of the NBHCP Permit Areas and assumed by the NBHCP to provide additional species habitat – is being processed for urban development entitlement. These projects, Grand Park Trails, Grand Park Southwest, and Upper West Side, currently plan to use M&I surface water, to be provided by NCMWC. The PRDEIR does not acknowledge the development of the UWSP and the prioritized use of NCMWC water in the context of surrounding development. Without evaluating the UWSP in this context, the development and prioritization of service to the UWSP may undermine the NBHCP's permits and Sutter County's development plans.

RESPONSE 248-11

The PRDEIR evaluates a new Alternative 5, Revised Project Alternative, which would introduce the Natomas Central Mutual Water Company (NCMWC) as a potential domestic water supply source and include a revised circulation network intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway. As described in the PRDEIR, all other aspects of the proposed UWSP would remain unchanged under Alternative 5, including land uses, densities, and plans for infrastructure and service delivery. The PRDEIR specifies that all other portions of the 2025 Final EIR remain valid and unchanged, except as otherwise discussed in the PRDEIR.

The Biological Resources section of Chapter 22, *Cumulative Impacts*, in the June 2025 Final EIR discloses and assesses the cumulative impact of all reasonably foreseeable projects in the Basin, including tabulation of Existing and Reasonably Foreseeable Development in the Natomas Basin (Table CI-3) and Proportion of Available Reserve Lands Remaining After Build-out of Existing and Planned Development (Table CI-4), and concluded that the proposed UWSP would not contribute to a cumulatively considerable impact to the conservation strategies core to the HCPs, including the ability to secure future reserve lands in the basin.

As described in the WSA included as Appendix Alt-5-2 of the PRDEIR, the WSA evaluates a wholesale water supply scenario under which Natomas Central Mutual Water Company (NCMWC) would provide raw surface water supplies to SCWA for treatment and distribution to the UWSP area. The discussion on pages 21 and 22 of the WSA describes NCMWC's water supplies to meet existing and future uses including other proposed developments within its service area. Table 9 shows the projected demand throughout NCMWC service area including agricultural and proposed developments. As discussed in Section 7 and shown in Tables 10 and 11, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC will prioritize M&I deliveries to the UWSP area to meet demand during Critical Years. As a result, in Critical Year when CVP supplies are reduced by 50 percent, NCMWC can meet existing and projected demand including demand generated by the UWSP area. Therefore, in all water years including Critical Years and under the DPP years water supplies delivered through NCMWC's water service systems for treatment and distribution by SCWA in the UWSP area would be able to meet existing and projected demand including demand generated by the UWSP area.

The County is currently evaluating applications for the Provenance Specific Plan (formerly Grandpark Southwest Specific Plan) and the Grandpark Trails Specific Plan. Those project applicants have not as of yet provided complete descriptions of the proposed water supply systems that will be proposed in those plans. Prior versions of proposed plans for the planning areas of the two specific plans indicated use of both groundwater and surface water, with the intended use of both sources in a conjunctive use approach that could provide certainty of water supply and sensitivity to changing water years. As part of the review of those plans and compliance with CEQA, the County

will ensure that Water Supply Assessments are prepared and the environmental effects of the actual proposed water supply plans are disclosed.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 248-12

iii. Significant development of agricultural lands in the Natomas Basin would threaten the viability of the NBHCP.

The NBHCP relies upon the existence of over 15,000 acres of agriculture (excluding the mitigation lands managed by the NBC) continuing in the Basin in perpetuity to support threatened species. This includes the UWSP area, which is core to the NBHCP's strategy to maintain the Swainson's Hawks in the Basin. The UWSP, along with other permitted and proposed development, would urbanize these agricultural lands and thus threaten the viability of the NBHCP.

RESPONSE 248-12

The comment does not address the content of the PRDEIR. Impacts of the proposed UWSP related to agricultural land in the Natomas Basin that serves as buffers for TNBC reserves and supports ecological functions of covered species reliant on agricultural lands are fully addressed in Impact BR-3 (Giant Garter Snake), Impact BR-7 (Swainson's Hawk), Impact BR-14, Master Response BR-1, and Master Response BR-2: Reductions in Agricultural Land Available to NBHCP Covered Species in the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 248-13

iv. Significant development of agricultural lands in the Natomas Basin would threaten the viability of the MAPHCP.

Like the NBHCP, MAPHCP requires that over 15,000 acres of agricultural land remain in the Basin, in addition to the NBC and MAP preserves. The UWSP, along with other permitted and proposed development, would urbanize these agricultural lands and thus threaten the viability of the NBHCP.

RESPONSE 248-13

The comment does not address the content of the PRDEIR. Impacts of the proposed UWSP related to the Natomas Basin and Metro Air Park HCPs are fully addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) in Chapter 7*, Biological Resources*, and Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan in the June 2025 Final EIR. The comment does not specify what impacts related to the NBHCP, the MAP HCP,

or TNBC operations the PRDEIR fails to address or mitigate. See also Response 248-12, above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-14

The PRDEIR fails to adequately assess the cumulative impacts that the UWSP and all proposed and permitted developments in the Basin would have on agriculture and its critical role in the NBHCP. We have attached the US Fish and Wildlife Service, US Department of the Interior, June 24, 2003, "Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to the City of Sacramento and Sutter County for Urban Development in the Natomas Basin, Sacramento and Sutter Counties, California" (Attachment 2). This document explains the scientific and legal basis for preserving existing agricultural uses in the Basin.

Response 248-14

The comment does not address the content of the PRDEIR. In accordance with CEQA, cumulative impacts of the proposed UWSP related to agricultural resources and biological resources, including potential conflicts with the Natomas Basin and Metro Air Park HCPs, are fully addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) and Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan in the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-15

In summary, the UWSP would threaten both the viability of agriculture and the habitat conservation plans in the Natomas Basin. The prioritization of water deliveries to the UWSP over agricultural users would undermine multiple habitat conservation properties and plans in the County. The impacts would include and extend beyond the irredeemable degradation of the agricultural lands and protected habitat immediately surrounding the UWSP. The impact to the immediate Fisherman's Lake preserve of the NBC and SAFCA's mitigation properties within the UWSP by adjacent urbanization would diminish their value as habitat mitigation for already permitted projects in the Basin. Approval of the UWSP would create a cumulative, precedent-setting, and growth-inducing impact to further conversion of the remaining open space in the Natomas Basin to non-agricultural uses.

Response 248-15

See Response 248-12, above, regarding potential impacts on agriculture and the Natomas Basin and Metro Air Park HCPs. The commenter states that water delivery under Alternative 5, described in the PRDEIR, would negatively impact agricultural lands, Fisherman's Lake, and SAFCA's mitigation lands. The potential impacts identified

by the commenter are speculative, and no substantial evidence is provided or cited to show how water delivery to the proposed UWSP would directly impact the water requirements of these lands and Fisherman's Lake. Pursuant to Public Resources Code section 21159 and CEQA Guidelines section 15064(f)(5) speculation does not constitute substantial evidence upon which to determine if a project has a significant effect. Pursuant to CEQA Guidelines section 15145, if an impact is speculative "the agency should note its conclusion and terminate discussion of the impact." As such, no further consideration of these issues is appropriate.

COMMENT 248-16

Treatment Plant Siting

The treatment plant is proposed to be sited on land owned by the Los Rios Community College District (LRCCD) (Parcel APN 22501900220000). This land was acquired with public funds that were intended for provision of educational facilities. The proposed use conflicts with the authority underlying the land ownership. Does this landowner agree that the treatment plant can be sited there? Is this government agency authorized to allow urban services on its property to serve a project that is inconsistent with air quality, habitat, transportation and water regional planning?

RESPONSE 248-16

The comment asserts a incorrect premise that the proposed USWP would be inconsistent with air quality, habitat, transportation, and water regional planning. Moreover, CEQA does not require a discussion of the ownership of land uses proposed because the focus of the review is on the physical, environmental impacts of the project, not the economic or social aspects of land ownership. The physical environmental effects of implementation of Alternative 5, including physical effects related to construction and operation of water treatment and distribution facilities, are fully evaluated in the PRDEIR. Regardless, the facilities could alternatively be located to the south of San Juan Road, which would require only minor adjustments to the adjacent detention basin and the required supporting infrastructure would remain the same. As both locations fall within the overall development footprint of the proposed UWSP, each option is equally viable from both a design standpoint and an environmental impact perspective. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 248-17

The PRDEIR must acknowledge the land ownership and provide information on the LRCCD's authority to make the site available for water treatment to serve urbanization that conflicts with the State adopted habitat conservation plan, as well as the air quality, transportation and water planning documents adopted by the State. The feasibility of this water option is belied by the network of local, state, and federal agreements and plans for this area to continue in agricultural use.

Response 248-17

See Response 248-16, above.

Comment 248-18

Infrastructural costs should be borne by the beneficiaries.

One major project in the planning process (RiverArc) envisions a large diversion of Sacramento River Water (replacing upstream diversion of American River water), transmission pipelines, and water treatment facilities that will service existing and planned growth areas in both counties. The cost of these additional water facilities will be borne throughout the region by those who will benefit from them.

Response 248-18

The comment concerns funding of region-serving water facilities. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-19

Likewise, the expense and need for the additional infrastructure envisioned for the UWSP should only be borne by the residents and commercial/industrial businesses that are a part of and will reside within this project. This should be stated in the FEIR.

Response 248-19

Under CEQA the consideration of public services and utilities impacts is limited to only those significant environmental impacts that would arise from the provision of new or physically altered facilities, the construction of which could cause significant environmental effects. CEQA focuses on identifying and mitigating physical environmental impacts, not on the financial viability or funding mechanisms associated with the implementation of a proposed project. The UWSP EIR fully evaluates the physical environmental effects that could result with implementation of the proposed UWSP, including physical effects related to the provision of public services, in accordance with the requirements of CEQA. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-20

Flood Risk and Climate Readiness

2025 is reported by the World Meteorological Organization as either the second or third warmest year globally, following 2024 and 2023, which were the warmest years recorded.[5] A January, 2026, article in the Sacramento Bee (Attachment 3) notes that

higher temperatures and early snow melt will continue to lead to increased winter flooding and low water supply in the spring and summer for our region. This temporal shift in water supply emphasizes the need for greater water storage, flood protection, and strategic water delivery services. However, the UWSP would reduce natural water storage and create flood-vulnerable communities by paving over farmland, which naturally captures and stores water, and developing housing in a known floodplain. The EIR should prepare a climate readiness strategy and flood-impact analysis, as well as include details around flood protection plans and affordability for future residents.

Response 248-20

Impacts of the proposed UWSP related to climate change are fully addressed in Chapter 8, *Climate Change*, of the EIR. Impacts of the proposed UWSP related to flood risk are fully addressed in Chapter 12, *Hazards and Hazardous Materials*, and Chapter 13, *Hydrology and Water Quality*, of the June 2025 Final EIR. See Response 248-19 for a discussion of CEQA's focus on identifying and mitigating physical environmental impacts and not on the financial viability, funding mechanisms, of affordability associated with the implementation of a proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-21

Water efficiency and landscaping

The state of California has promulgated water use standards for residential water use and commercial/residential landscape use to name a few. Regional water purveyors are moving to develop and enhance programs to achieve or exceed these standards. It is not clear that the use of local native plants in landscaping and common areas as well as other water efficiency measures are being utilized in the project to ensure efficient water use. Requirements for water efficient landscaping and other demand management programs should be included as mitigation measures for water supply impacts to less than significant.

Response 248-21

As discussed in the June 2025 Final EIR, Chapter 14, *Utilities,* Impact UT-2 (Result in a Project Water Demand that Cannot be Met by Supply), the proposed UWSP would be regulated by the various State and federal laws, regulations, and policies governing water the use of water, including water conservation, reuse, and efficiency standards under CALGreen. In addition to this regulatory compliance, the proposed UWSP would include specific water quality and water conservation policies aimed at increasing the overall sustainability of the development, while also reducing environmental impacts. These policies include; (1) required use of low flow fixtures (e.g., faucets, toilets, shower heads, etc.) and water efficient appliances; (2) the requirement that landscaped areas be planted with drought tolerant materials (i.e., groundcovers and shrubs); (3) the consideration of artificial turf for ballfields that must tolerate heavy use and foot traffic

(e.g., soccer fields utilized for league play); (4) the use of untreated or reclaimed water, if available; and (5) the encouragement that development with High Density Residential (HDR), Very High Density Residential (VHDR), CMU, and E/HC areas install underground cisterns to capture rainwater so that it can be re-utilized for landscape irrigation or in-building wastewater systems. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 248-22

3. Persisting Inadequacies and Conflicts

The PRDEIR, consisting of Alternative 5, focuses on addressing concerns that were raised in response to the original UWSP's water supply plan and traffic impacts. Beyond the viability and significant impacts of the proposed alternative, there remain outstanding issues that must be resolved for the project to be considered for approval.

The City of Sacramento submitted multiple letters expressing their concerns about, and opposition to, the UWSP. The letter submitted by Buchalter on August 19, 2025, on behalf of the City of Sacramento, raised the following concerns regarding the UWSP, particularly as it would impact the City of Sacramento:

- “The Upper Westside Project conflicts with the provisions of the adopted NBHCP.”
- “The Upper Westside Project is inconsistent with the County’s General Plan land use, agricultural resources and conservation resources policies concerning the preservation of agricultural land and habitat in the Natomas Basin.”
- “The UWSP would result in the loss of GGS habitat in conflict with the NBHCP and the conservation strategy for the preservation of wetland habitat.”
- “The UWSP proposes urban development in the Swainson’s Hawk Zone that would remove Swainson’s Hawk habitat in conflict with the NBHCP and in violation of General Plan Policy CO-138.”
- “Substantial evidence does not support the UWSP EIR’s conclusion that cumulative biological resources impacts will be less than significant with the conversion of over 7,600 acres of agricultural land to urban development.”
- “The Final EIR analysis of water supply impacts does not comply with SB 610 and violates CEQA.”

RESPONSE 248-22

Pursuant to procedures set forth in CEQA Guidelines section 15088.5(f)(2), the Notice of Availability published for the PRDEIR directed reviewers to limit their comments to the information contained in the PRDEIR. The letter submitted by Buchalter, on behalf of the City of Sacramento, was submitted following the publication of the Final EIR prior to a scheduled September 2025 Board of Supervisors hearing on the merits of the

proposed UWSP. That hearing was postponed. The comments in that letter are addressed and responded to in the County's Board of Supervisors staff report related to the consideration of the UWSP dated April 29, 2026. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-23

The City of Sacramento's October 2024 comments on the UWSP DEIR, as well as the City Council's August 2025 letter to the Sacramento County Board of Supervisors, cite the following additional concerns:

- The EIR assumes City responsibility for mitigation relating to UWSP traffic impacts and does not provide a financial plan to implement necessary traffic mitigation.
- The EIR does not sufficiently evaluate the potential environmental, economic, physical, and traffic-related impacts of the UWSP's proposed commercial development along the westerly extension of El Camino Avenue, nor its alignment with the 2002 City/County MOU.
- The EIR is inconsistent with long-range plans (e.g., the Region's Sustainable Communities Strategy) related to urban infrastructure and potential growth-inducing effects and fails to provide quantitative analyses regarding the positive growth and benefits that would extend beyond the project to the City of Sacramento.
- The EIR contains no evaluation of impact on public services (police, fire, parks) and it does not provide a plan outlining how the County would provide those services.
- The UWSP would remove natural water reservoir areas that are important for flood protection.
- Plans to develop schools remain inadequate. A signed school mitigation agreement must be signed between the Natomas Unified School District and the developer.
- The EIR does not address concerns related to sewer capacity, nor does it include financing plans for infrastructural improvements.
- The EIR does not address the project's potential conflicts with the airport.
- Sprawl development on the edge of the City would threaten the City's infill development strategy and tax base.

The City has thus raised issues that extend far beyond the traffic and water concerns that Alternative 5 attempts to address. Until all of these issues are resolved, the EIR remains inadequate and in conflict with regional planning goals.

Response 248-23

See Response 248-22, above. The City of Sacramento's October 2024 letter related to the Draft EIR was addressed and responded to in the June 2025 Final EIR (see

Responses 12-1 through 12-36). The City of Sacramento's August 2025 letter was submitted following the publication of the Final EIR prior to a scheduled September 2025 Board of Supervisors hearing on the merits of the proposed UWSP. That hearing was postponed. The comments in that letter are addressed and responded to in the County's Board of Supervisors staff report related to the consideration of the UWSP dated April 29, 2026. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 248-24

4. Conclusion

In summary, the PRDEIR does not address or rectify critical inadequacies raised by ECOS and others to the Draft EIR or Final EIR. This proposal continues to conflict with all known local and regional plans. The proposal continues to ignore the requirements of CEQA and of the NBHCP. While all these environmental concerns and requirements were previously raised by the community and the City of Sacramento, they continue to be ignored. Further, the PRDEIR omits crucial details that would be necessary to ensure the viability of Alternative 5.

The very siting of the UWSP conflicts with various regional plans, as well as the County's own General Plan. Finally, the approval of this project would threaten the viability of agriculture in the Natomas Basin and the viability of the NBC and NBCHCP. The PRDEIR must be rejected as inadequate.

Thank you for considering our comments. We appreciate the opportunity to engage in planning for our community.

Response 248-24

The comment summarizes issues addressed in the preceding responses. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

LETTER 249

Garden Highway Community Association (GHCA); community organization; written correspondence; dated January 26, 2026.

COMMENT 249-1

While the modest revisions in the Partially Recirculated Draft Environmental Impact Report (PRDEIR) are acknowledged, the GHCA continues to oppose the UWSP. In addition to our previous opposition dated August 19, 2025 (attached and incorporated by reference), the revisions fail to resolve the project's serious and significant traffic impact. In addition, the proposed water source has not been secured, will require modifications to existing federal contracts, approval by the State Water Resources Control Board, will adversely impact the surrounding community, and will continue to threaten species, wildlife, and the environment.

RESPONSE 249-1

The PRDEIR evaluates a new Alternative 5, Revised Project Alternative, which includes consideration of the Natomas Central Mutual Water Company (NCMWC) as a potential wholesale domestic water supply source and a revised circulation network intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway. As described in the PRDEIR, all other aspects of the proposed UWSP would remain unchanged under Alternative 5, including land uses, densities, and plans for infrastructure and service delivery. The PRDEIR focuses chiefly on environmental issues that would be substantially affected by the changes included in Alternative 5. The PRDEIR specifies that all other portions of the Draft EIR and the June 2025 Final EIR remained valid and unchanged, except as otherwise discussed in the PRDEIR.

Pursuant to procedures set forth in CEQA Guidelines section 15088.5(f)(2), the Notice of Availability published for the PRDEIR directed reviewers to limit their comments to the information contained in the PRDEIR. Reviewers were informed that they need not resubmit comments on the previously published Draft EIR or the June 2025 Final EIR. Impacts of Alternative 5 related to transportation and water supply are fully addressed in Chapter 2, *Alternative 5: Revised Project Alternative*, of the PRDEIR. The comment does not specify what impacts the PRDEIR purportedly fails to address. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 249-2

1. Traffic

It is noted that the Revised Circulation Network (RCN) eliminates all connecting roads from the project to the Garden Hwy, except for Radio Rd, for emergency use only. (Plate ALT 5-3.) The Fehr & Peers Technical Memorandum (Memorandum) outlines a

traffic calming plan to create a traffic circle on San Juan Rd and a speed limit reduction to 20 mph.

Notwithstanding these revisions, the average daily traffic is estimated to increase by 12,500 vehicles per day. (Memorandum, Table 2.) There are no plans to widen the Garden Hwy from its existing 24 feet with a six-foot shoulder. (Memorandum Table 3.) In fact, the Garden Hwy cannot be widened due to the re-engineered adjacent levee. The PRDIER will not eliminate unacceptable operations along West El Camino, El Centro, and San Juan. (Memorandum Table 3.) Although the PRDEIR estimates a decrease in peak hour traffic volumes, there remains significant traffic increases and congestion on the I-80 and I-5 ramps. (Memorandum Table 4.) In normal commute and traffic patterns, let alone an emergency, the PRDIER fails to mitigate the increased pressure on existing evacuation routes posed by the UWSP.

Response 249-2

The initial part of this comment is inaccurate in two ways. First, the Bryte Bend Road connection to Garden Highway would remain as a full vehicular connection. The San Juan Road connection to Garden Highway would still be traversable by motorists but would require slightly longer travel times due to traffic calming. Second, Figure 2 of the memo in Appendix ALT 5-1 of the PRDEIR shows a roundabout on San Juan Road at Bryte Bend Road. That was an original design feature and is not part of the traffic calming to be implemented immediately east of Garden Highway. Page 2-5 of the PRDEIR describes the types of traffic calming devices that could be implemented. The comment's reference to a speed reduction to 20 mph is from page 1 of the memo, in which a 20 mph free-flow speed was assumed in the regional travel demand model to replicate the effects of traffic calming. There is no current proposal to post San Juan Road with a 20 mph speed limit.

The second part of this comment erroneously states that Table 2 of the memo in Appendix ALT 5-1 shows a 12,500 ADT increase, presumably on Garden Highway. No such increase is shown. Regarding widening of Garden Highway to add shoulders, it is noted that EIR Mitigation Measure C-TR-1 requires the project applicant to pay their fair share cost of improving the following roadways to conform with current County design standards: Powerline Road from Bayou Way to Garden Highway; and Garden Highway from Powerline Road to San Juan Road. Payment for improvements would be made to Sacramento County who would be responsible for making the improvements. Lastly, it is noted that the proposed UWSP is required to improve several interchanges and on/off ramps to address project-related queuing on the state highway system, which is considered a significant impact. Per SB 743, LOS and other measures of delay are prohibited from being included in CEQA documents, and therefore no CEQA impacts or mitigations are identified for congested conditions on City or County roadways.

Comment 249-3

The PRDEIR fails to mitigate the serious safety issues the UWSP will superimpose on those presently existing on the Garden Hwy and Power Line Rd which connects Garden

Hwy to El Centro Rd. Currently vehicles travel at excessive speeds on Garden Hwy, some “clocked” at over 100 MPH along what is a two-lane rural roadway. Additionally, despite being disallowed by current traffic regulations both Garden Hwy and Power Line Rd are frequented by commercial tractor trailer traffic trying to avoid congestion on I-5. Similarly, Traffic Apps such as Waze and Google divert traffic to Power Line Rd. and Garden Hwy. Neither Power Line Rd. nor Garden Hwy, atop the levee, can be widened to accommodate the current traffic, let alone an increase of over 12,000 vehicles per day. Furthermore, the levee Garden Hwy sits atop, and the adjacent reengineered super-levee, were engineered to protect Natomas from historic flooding. They were not designed to carry the load and impact of an additional 12,000 vehicles per day. It is likely this additional vehicle volume could damage the structural integrity of the newly built levee.

Response 249-3

As noted in Response 249-2 above, this comment references an inaccurate estimate of project-added traffic to Garden Highway. Table 2 of the memo in Appendix ALT 5-1 shows that under cumulative conditions, the revised project would result in a net increase (relative to no project conditions) in traffic on Garden Highway of 2,100 ADT north of Radio Road, 1,100 ADT south of San Juan Road, and 3,500 ADT east of the I-80 overcrossing. These project-added increases under Alternative 5 are less than the prior project’s contribution presented in the June 2025 Final EIR with one exception. Garden Highway under I-80 was forecast to carry 5,000 ADT under cumulative plus project conditions in the August 2024 DEIR. Table 2 of the memo in Appendix ALT 5-1 indicates that this volume would increase to 5,400 ADT with the revised project. This 400 vehicle increase per day is attributable to the removal of other project access connections to the north along Garden Highway. Please see Master Response TR-2 (Garden Highway Safety Considerations) in the June 2025 Final EIR and Response 249-2 above.

Comment 249-4

These safety issues which cannot be mitigated, together with increased pollution, noise, congestion, traffic delays, and potential damage to our new super-levee and the associated flood risk to the Natomas Basin, warrant a decision by the Commission to NOT certify the PRDEIR.

Response 249-4

This comment expresses an opinion about a potential future action of the Board of Supervisors. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 249-5

2. Water Source/Treatment

The PRDIR identifies the Natomas Central Mutual Water District (Natomas Central) as a potential domestic water supply source which will require amendments to existing federal contracts and building an 8+ acre water treatment facility on San Juan Rd. The PRDIER acknowledges that " [T]o ensure year-round raw water deliveries, the delivery schedule of the USBR Contract entitlements would have to be modified for year-round diversions and deliveries. It should be noted that delivery of wholesale raw water from NCMWC to the UWSP area would also require a wholesale agreement between NCMWC and Sacramento County Water Agency (SCWA) to allow service of Municipal and Industrial (M&I) water to the proposed UWSP development. (PRDEIR p. 2-34.)

Response 249-5

Please see Response 248-8 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 249-6

In addition, converting from agricultural to municipal use would require obtaining authority from the State Water Resources Control Board (SWRCB). This process will no doubt invite statewide opposition from conservation and environmental protection groups and their attorneys. None of the agreements or approvals needed to allow municipal delivery have been secured, and no approvals have been obtained to convert raw Sacramento River water into potable municipal water.

Response 249-6

Please see Response 248-8 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 249-7

Additionally, there is serious question as to whether the potential source (Sacramento River) will be adequate. The Memorandum estimates that there will be sufficient water from the Sacramento River and its tributaries even in drought years. This conclusion is questionable, however, given the SWRCB report that in the 2022 drought year, Natomas Central received only 18% of its full supply, an historic low.

https://www.waterboards.ca.gov/drought/sacramento_river/docs/2022-sac-tmp-final.pdf.

Response 249-7

Please see Response 248-8 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 249-8

The Memorandum also does not consider the impact the proposed diversions will have on the vital role the Sacramento River plays in the California Water Project, the Delta's delicate ecosystems, and other downstream water needs, both agricultural and municipal.

Response 249-8

As described in the WSA included as Appendix Alt-5-2 of the PRDEIR, the WSA evaluates a wholesale water supply scenario under which NCMWC would provide raw surface water supplies to SCWA for treatment and distribution to the UWSP area. NCMWC currently diverts surface water from the Sacramento River and delivers to existing agricultural users within its service area. The WSA describes in detail existing area agriculture water demand in the UWSP area, anticipated UWSP water demand in combination with existing and project demand with NCMWC service area. Throughout most of the year, NCMWC provides surface water to agricultural users within the UWSP, however, in October through March surface water deliveries are typically not needed for agricultural uses. As shown in Table 8 of the WSA and Table ALT 5-12, additional water supplies would be needed to meet M&I uses within the UWSP and would be met through NCMWC's USBR Contract as modified to allow for year-round diversions and conveyance to the UWSP.

As described in the WSA, pursuant to the renewal of the USBR Settlement Agreement (May 2005), USBR may declare a Critical Year condition when the natural flows into Shasta Reservoir are equal to or less than 3.2 million acre-feet (MAF), or when total actual deficiencies below 4 MAF in the prior water year or when a series of successive prior water years experienced inflows of less than 4 MAF and current year forecasted inflow deficiencies exceed 800,000 acre-feet. In such Critical Years, Sacramento River Settlement Contractors CVP water diversions are reduced by 25 percent.

Pursuant to the Agreement between USBR and Sacramento River Settlement Contractors for Establishment of a DPP (January 2025) the signatories established a new program designed to improve water supply reliability and avoid severe storage deficiencies, such as the one that occurred in 2022. Under the DPP when USBR declares a Critical Year and the Sacramento-San Joaquin Delta (Delta) is in a "balanced condition" Sacramento River Settlement Contractors have agreed to further reduce diversions an additional 25 percent. As shown in Table 3 of the WSA, NCMWC diversions of CVP water in Critical Years are reduced by 25 percent, or 90,150 AFY. Furthermore, in Critical Years, an additional 25 percent reduction can be imposed under the new DPP (January 2025), in these years, NCMWC diversions of CVP water can be reduced by up to a total of 50 percent or 60,100 AFY. Therefore, even in Critical or DPP years, the Delta's delicate ecosystem would not be hindered by water delivered to the

UWSP area. Furthermore, deliveries to CVP and SWP contractors downstream would likely be curtailed based on Term 91 conditions and CVP contract terms and could expect reduced deliveries according to their Table A or CVP contract provisions.

COMMENT 249-9

Moreover, the PRDIER and the underlying UWSP continue to violate existing habitat protection agreements with the Federal Government and other governmental entities. The plan threatens species, habitat, and the surrounding environment. Table ALT 5-2 identifies six species of fish that will be highly affected by the proposal: Green Sturgeon, White Sturgeon, Steelhead, and three varieties of Chinook Salmon. Pacific Lamprey, Sacramento Splittail, Hardhead, and Central California Roach will be moderately impacted. These species are in addition to the terrestrial species threatened by the loss of vital habitat to the footprint of the overall project and the associated pollution, traffic, noise, and light pollution.

RESPONSE 249-9

The County analyzed the UWSP's potential impacts on special-status species and conflicts with adopted HCPs or NCCPs and proposed mitigation to reduce any impacts to less-than-significant. Potential impacts on species listed in Table ALT 5-2 were addressed in the PRDEIR under Impact ALT-5 BIO-1, which concluded the water supply alternative's potential impacts on special-status fish species would be less than significant. The County fully analyzed project impacts and proposed mitigation for terrestrial species in the June 2025 Final EIR in Impacts BR-1 through BR-9, and BR-14, the Biological Resources section of Chapter 22, *Cumulative Impacts*, and Master Response BR-1, BR-2, BR-3, and BR-4. Potential impacts to fish species are also addressed under Responses 243-4, 243-5 and 243-6, above.

COMMENT 249-10

For these reasons, together with those previously expressed, the GHCA continues to oppose the Upper West Side Project and urges the Planning Commission to reject the PRDIER. The GHCA joins with the comments by ECOS, the City of Sacramento, the Natomas Basin Conservancy, and the Friends of the Swainson's Hawk in asking that the Planning Commission not certify the PRDIER.

RESPONSE 249-10

Citing concerns raised in the letter, which have been addressed in the preceding responses, the comment expresses opposition to the proposed UWSP. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

LETTER 250

Best Best & Krieger LLP; on behalf of the Natomas Basin Conservancy; written correspondence; dated January 23, 2026.

COMMENT 250-1

This law firm represents the Natomas Basin Conservancy ("Conservancy") as its general counsel, and submits this comment letter on the Conservancy's behalf. The Conservancy appreciates the opportunity to submit these comments regarding the Partially Recirculated Draft Environmental Impact Report ("PRDEIR") for the Upper Westside Specific Plan ("Specific Plan") that has been prepared by the County of Sacramento ("Sacramento County") for public review pursuant to the California Environmental Quality Act (Cal. Pub. Res. Code §§ 21000–21189.3) ("CEQA"). Interested parties are encouraged to submit input regarding "the adequacy and thoroughness of the environmental analysis" related to the Specific Plan. PRDEIR at 1-3. The Conservancy respectfully submits that the environmental analysis pertaining to the Specific Plan's new water supply option as described in the PRDEIR ("New Water Supply Option") is wholly inadequate and lacks the thoroughness required under CEQA. The Conservancy is highly concerned that the PRDEIR and Final Environmental Impact Report ("FEIR") will negatively impact protected species and existing habitat conservation plans in the Natomas Basin.

The Conservancy's comments address five primary concerns regarding the environmental analysis contained in the PRDEIR and related FEIR:

1. The PRDEIR and FEIR fail to analyze potentially significant impacts that the New Water Supply Option will have on agricultural land that is critical for conservation in the Natomas Basin;
2. The PRDEIR and FEIR fail to consider and adhere to specific orders issued by the federal court that upheld the existing habitat conservation plans in the Natomas Basin;
3. The PRDEIR and FEIR fail to analyze potential impacts on terrestrial species protected under state and federal law;
4. The Specific Plan as described in the PRDEIR and FEIR threatens to interfere with contractual obligations of parties to the agreement implementing existing habitat conservation plans in the Natomas Basin; and
5. New information in the PRDEIR on potential environmental impacts requires recirculation of the FEIR in its entirety.

RESPONSE 250-1

The County appreciates the Conservancy's review of the PRDEIR and its continued participation in the CEQA process. The Conservancy raises concerns regarding agricultural land impacts, consistency with federal court orders related to the Natomas

Basin and Metro Air Park HCPs, potential effects on protected terrestrial species, contractual obligations among HCP parties, and whether new information warrants additional recirculation. Each of these concerns is addressed in further detail in the responses below.

COMMENT 250-2

I. STATEMENT OF INTEREST

a. Background on the Natomas Basin Conservancy

The Conservancy was incorporated on October 21, 1994, as a California non-profit public benefit corporation and has operated since February of 1999. The Conservancy's primary purpose is to implement two habitat conservation plans, the Natomas Basin Habitat Conservation Plan ("NBHCP") and the Metro Air Park Habitat Conservation Plan ("MAPHCP") (together referred to as the "HCPs" or the "Plans"). In this role, the Conservancy acquires and manages land to fulfill the objectives of the HCPs. Its work also includes incorporating acquired land to advance objectives of the Plans through habitat enhancement, marsh and wetland management, biological monitoring and data collection, and on-the-ground experiments to support conservation throughout the Natomas Basin.

Under the HCPs, habitat mitigation fees and acquired mitigation lands are held by the Conservancy to advance mitigation objectives for the benefit of protected species in the Natomas Basin. To date, the Conservancy has acquired more than 5,300 acres of land to fulfill these mitigation requirements. In addition, substantial financial investments have been made toward implementation of the HCPs totaling more than $139 million in fees and fee-related income. *See*, The Natomas Basin Conservancy, 2024 Implementation Annual Report (June 24, 2025), available at https://natomasbasin.org/reports/annual-reports/. These investments are in addition to the significant commitments made by HCP proponents/permittees — the City of Sacramento and Sutter County — to achieve and maintain compliance with the Plans under state and federal law.

RESPONSE 250-2

The County appreciates the Conservancy's longstanding role in implementing the Natomas Basin and Metro Air Park HCPs, including its acquisition and management of more than 5,300 acres of mitigation land and its substantial investments in habitat conservation and species protection. The Conservancy's experience and responsibilities under the HCPs are recognized, and its comments have been fully considered as part of the CEQA review for the UWSP project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-3

b. Formulation of the Plans

The development of the HCPs spanned more than fifteen years and involved numerous iterations and several legal challenges. The resulting 50-year plan encompasses 53,537 acres of land historically used for agriculture. The HCPs and associated permits cover twenty-two listed or candidate species under the federal Endangered Species Act ("ESA") (16 U.S.C. §§ 1531–1544) and the California Endangered Species Act ("CESA") (Cal. Fish & Game Code §§ 2050–2116).

The Plans are designed to promote the long-term conservation of these covered species while accommodating authorized and limited urban development. In 2003, the parties to the NBHCP — the Conservancy, the City of Sacramento, Sutter County, the U.S. Fish and Wildlife Service ("USFWS"), and the California Department of Fish and Wildlife ("CDFW") — entered into an Implementation Agreement establishing the mechanisms for carrying out the NBHCP.

The Plans authorize development of up to 17,500 acres within the Natomas Basin in the City of Sacramento and the Sutter County. Under the NBHCP and the Implementation Agreement, the City of Sacramento agrees not to approve more than 8,050 acres of development, and Sutter County agrees not to approve more than 7,467 acres of development within their respective designated "Permit Areas."[1] The Plans establish a comprehensive, long-term conservation program — implemented by the Conservancy as plan operator — for the twenty-two covered species, while allowing for limited development to proceed within the Permit Areas.

The NBHCP and Implementation Agreement establish the terms and conditions necessary to support issuance of incidental take permits ("ITPs") by USFWS under Section 10(a)(1)(B) of the ESA and CDFW under Section 2081 of CESA. The ITPs issued to the City of Sacramento and Sutter County authorize incidental take of the covered species within the Permit Areas. To support issuance of these permits, the NBHCP and Implementation Agreement require substantial mitigation measures, including acquisition of mitigation lands at a ratio of 0.5 acre of protected habitat for every 1 acre of land converted to development. Under these requirements, the Conservancy is responsible for the permanent preservation of 8,750 acres of land to be managed as wildlife reserves. This includes 4,375 acres that will remain in rice cultivation under the Conservancy's management to benefit protected species.

[1] An additional 1,983 acres of development is allocated to the Metro Air Park project in Sacramento County under the MAPHCP and is analyzed within the NBHCP.

RESPONSE 250-3

The County acknowledges and is aware of the background information provided regarding the development, scope, and implementation of the Natomas Basin and Metro Air Park HCPs, including their 50-year conservation framework, authorized

development limits, and associated mitigation requirements. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-4

c. Federal Court Order

The NBHCP was upheld as satisfying the requirements of the ESA by a federal court order issued on September 7, 2005. Nat'l Wildlife Fed'n v. Norton, No. CIV-S-04-0579, 2005 WL 2175874 (E.D. Cal. Sept. 7, 2005) (“Federal Court Order”). A central premise of the court’s decision was that any development beyond the 17,500 acres authorized under the Natomas Basin HCP would require additional assessment to ensure consistency with the Plan. Any project that threatens protected species and the HCPs must therefore be carefully scrutinized under the Federal Court Order.

Specifically, the Federal Court Order requires that any further development necessitates a “new evaluation” of impacts to protected species and a “reevaluation of [the] efficiency of the NBHCP in light of proposed development.” *Id.* at *11. In addition, the court emphasized that “[f]urther federal review will be required under any scenario that could impact the efficacy of the NBHCP.” The Federal Court Order anticipated comprehensive review of any development proposed outside the Permit Areas, noting that “[i]f and when a concrete development proposal is put forth, it will be the subject of additional federal and state environmental review.” *Id.* at 11–12.

A key footnote in the Federal Court Order describes the Court’s reasoning and conclusions in upholding the NBHCP:

> The court notes, however, that the [U.S. Fish and Wildlife] Service and those seeking an ITP in the future will face an uphill battle if they attempt to argue that additional development in the Basin beyond 17,500 acres will not result in jeopardy. The NBHCP, BiOp, EIR/EIS, and Findings and Recommendations are all predicated on the assumption that development in the Basin will be limited to 17,500 acres and that the remaining lands will remain in agricultural use.
>
> *Id.* at *12 (emphasis added).

In short, under the Federal Court Order, any expansion of development requires full analysis of environmental impacts under state and federal law, including an evaluation of impacts on protected species.

RESPONSE 250-4

This topic was addressed in Response to comment 19-37 in the Final EIR. Please see Response 250-13 below for additional discussion of these issues. This comment raises neither new significant environmental issues nor specific questions about the analyses

or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-5

The PRDEIR and related FEIR for the Specific Plan propose development of 2,066 acres that is outside the Permit Areas and in addition to the 17,500 acres authorized under the Plans. The Federal Court Order therefore requires the impacts of the Specific Plan — notably its potential impacts on the efficacy of the HCPs — to be carefully evaluated.

The obligation to carefully evaluate impacts of further development on the efficacy of the Plans falls not on the signatories and permittees of the two adopted HCPs. These entities have already committed and continue to invest significant time and resources into those Plans. Rather, proponents of additional development must themselves demonstrate — through the environmental review process — that proposed plans for further development will not impact the efficacy of the HCPs or that these impacts are adequately mitigated. *See*, Federal Court Order at *10 (emphasizing that "further development or action by any other entity would require additional federal approvals").[2] Through independent environmental review, project proponents — not HCP signatories and permittees — have the responsibility of proving that additional development will not negatively impact the efficacy of the Plans.

[2] It is important to note that while the Federal Court Order emphasizes the federal approval process, state environmental review also requires full analysis of the potentially significant impacts that a project may have on applicable regional plan including existing habitat conservation plans and natural community conservation plans. *See*, Cal. Code Regs. tit. 14, § 15125.

RESPONSE 250-5

As is described in the June 2025 Final EIR, Chapter 2, *Project Description*, page 2-28, the proposed UWSP would result in the development of an area of 1,524 acres, not the 2,066 acres cited in the comment. The remaining 524 acres that are part of the specific plan area are included in an Agricultural Buffer in which land use designations would remain unchanged.

CEQA requires the EIR to assess whether a project would conflict with the provisions of adopted habitat conservation plans. Thus, the EIR did contain a careful evaluation of potential conflicts between the proposed UWSP and the adopted Natomas Basin and Metro Air Park HCPs, which is included in the June 2025 Final EIR, Chapter 7, *Biological Resources*, and the Biological Resources section of Chapter 22, *Cumulative Impacts*. An evaluation of these same effects related to Alternative 5 is included in the PRDEIR. The federal court order cited by the commenter pertains to federal permitting for the NBHCP under the federal Endangered Species Act and does not itself impose additional CEQA obligations on the County beyond those articulated within the California Public Resources Code sections 21000 through 21189 and the CEQA Guidelines. This comment raises neither new significant environmental issues nor specific questions

about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-6

Moreover, it is critical that third-party project proponents and lead agencies such as Sacramento County recognize that HCP permittees have vested reliance interests in the state and federal issued ITPs. To the extent that proposed development may affect these permits — including through potentially significant impacts on protected species and habitat covered under the Plans — these impacts must be thoroughly evaluated through the environmental review process. As further described below, CEQA specifically mandates a finding of significance where a project threatens to substantially reduce the habitat of a protected species or jeopardize the integrity of an adopted habitat conservation plan. *See*, Cal. Code Regs. tit. 14, §§ 15065, 15125.

The Conservancy is highly concerned with the PRDEIR's inadequate environmental analysis, which fails to satisfy what is required under state and federal law. If deficiencies of the PRDEIR and related FEIR are not addressed, they may impair the Conservancy's ability to fulfill its obligations under the Plans in a manner that maintains consistency with the Federal Court Order.

RESPONSE 250-6

CEQA requires the EIR to assess the potential impacts of the proposed UWSP on protected species, as well as whether a project would conflict with adopted habitat conservation plans. The June 2025 Final EIR include this evaluation in Chapter 7, *Biological Resources,* and the Biological Resources section of Chapter 22, *Cumulative Impacts.* Please note that the federal court order cited by the commenter pertains to federal permitting under the federal Endangered Species Act and NEPA, and does not itself impose CEQA obligations on the County beyond those articulated in the California Public Resources Code sections 21000 through 21189 and the CEQA Guidelines. Furthermore, CEQA Guidelines section 15065, cited by commenter, is concerned with the threshold question of whether an EIR must be prepared for a project and does not mandate a particular significance conclusion within that EIR context. CEQA Guidelines section 15125 requires discussion of consistency with an adopted HCP, which analysis was conducted. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-7

II. COMMENTS

a. The PRDEIR fails to analyze the significant environmental impacts of removing agricultural land from production

CEQA requires analysis of the potentially significant impacts that a project may have on applicable regional plans including existing habitat conservation plans and natural

community conservation plans. Cal. Code Regs. tit. 14, § 15125. In addition, CEQA requires an evaluation of the potentially significant impacts of the conversion of farmland to non-agricultural use. Cal. Code Regs. tit. 14, § Div. 6 Ch. 3 App. G. The PRDEIR and FEIR fall short in their analysis of the effects of the Specific Plan on the existing HCPs in the Natomas Basin and fail to adequately address impacts resulting from urbanization of farmland.

Instead of providing an analysis of these impacts, the FEIR incorrectly concludes that the Specific Plan does not conflict with the existing Natomas Basin HCPs, and the PRDEIR reiterates this unsupported conclusion. Urbanization of agricultural land in the Natomas Basin — in a manner that is inconsistent with the HCPs and for which sufficient environmental review has not been conducted — threatens the Conservancy's ability to ensure implementation of the Plans consistent with the ITPs, Implementation Agreement, and the Federal Court Order.

i. Importance of agricultural land under the HCPs

The PRDEIR and FEIR fail to acknowledge that the conservation of agricultural land is a central component — perhaps *the* central component — of the HCPs. As noted above, the Conservancy is responsible for the permanent preservation of 8,750 acres of land to be managed as wildlife reserves, including 4,375 acres that will remain in rice cultivation under the Conservancy's management to benefit protected species. The proposed urbanization of agricultural land would be significantly advanced by the changes contemplated under the New Water Supply Option described in the PRDEIR, which is in direct conflict with the management goals established under the Plans. Because the PRDEIR and FEIR do not analyze the anticipated impacts of converting agricultural land to urban uses, they fall short of CEQA's requirements.

Response 250-7

Because the 1,524-acre footprint of development under Alternative 5 would be identical to that in the proposed UWSP, meaning that Alternative 5, if adopted, would not remove agricultural land from production beyond that which would be removed by the proposed UWSP and disclosed in the June 2025 Final EIR, Chapter 5, *Agricultural Resources*, Impact AG-1, environmental impacts associated with removal of agricultural land from production were not further evaluated in the PRDEIR. The potential for the proposed UWSP to conflict with the provisions of the NBHCP, including the impacts to covered species and availability of potential mitigation lands following build-out of foreseeable projects in Natomas Basin, is fully addressed in the Draft EIR Chapter 7*, Biological Resources*, Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) and the Biological Resources section of Chapter 22, *Cumulative Impacts*, of the Draft EIR. Comments received on the Draft EIR related to conflict with the provisions of the NBHCP and reductions in agricultural land are addressed in Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan and Master Response BR-2: Reductions in Agricultural Land Available to NBHCP Covered Species in the June 2025 Final EIR.

COMMENT 250-8

ii. Urbanization of agricultural land under the New Water Supply Option

Under the New Water Supply Option of Alternative 5, the Sacramento County Water Agency would enter into an agreement for wholesale purchase of raw water from the Natomas Central Mutual Water Company ("NCMWC"). NCMWC sources its surface water supply from the Sacramento River through a settlement agreement ("Settlement Agreement") with the U.S. Bureau of Reclamation ("Reclamation").

NCMWC currently provides surface water from the Sacramento River for agricultural uses in the Natomas Basin. PRDEIR at 2-34. The New Water Supply Option in the PRDEIR contemplates that NCMWC would convert water historically used for agricultural purposes to delivery for municipal uses to serve new development under the Specific Plan. PRDEIR at 2-6. This would require NCMWC to request modification of its Settlement Contract with Reclamation and seek amendments to its state water rights permits to change from strictly agricultural uses — as currently authorized under the Settlement Contract and permits — to include municipal and industrial uses. PRDEIR at 2-34.

Importantly, the central idea of the New Water Supply Option under Alternative 5 is that existing agricultural land uses would convert to developed land uses. PRDEIR at 2-40. However, despite clear direction under CEQA, the PRDEIR neglects to analyze the environmental impacts of the shift in land use from agricultural to municipal. Rather than analyze these impacts, the PRDEIR simply states that impacts related to agricultural resources "would be like those described for the proposed UWSP, as the same amount of farmland within the UWSP area would be converted to urban uses," thus relying on the FEIR's inadequate analysis of impacts on agricultural resources. *See*, PRDEIR at 2-49.

RESPONSE 250-8

Please see Response 248-8 above for a discussion of the implications of the indirect effects on farmers and local agricultural uses of the provision of wholesale water supply from NCMWC to the UWSP.

COMMENT 250-9

The Supreme Court of California has held that a conclusory discussion of a potentially significant environmental impact is not adequate under CEQA. *See*, Sierra Club v. Cnty. of Fresno, 6 Cal. 5th 502, 514, 431 P.3d 1151, 1160 (2018) (describing that a "conclusory discussion of an environmental impact that an EIR deems significant can be determined by a court to be inadequate as an informational document without reference to substantial evidence").

The FEIR's discussion of impacts on agricultural land was cursory at best and wholly inadequate to satisfy requirements under CEQA. In its conclusory finding that impacts on agricultural resources would be less than significant, the FEIR relies on the fact that the Specific Plan contemplates the gradual transition of residential uses towards an

"agricultural buffer zone" that would provide 542 acres for continued agricultural use within the Specific Plan area. *See*, FEIR at 5-25.

The agricultural buffer zone is insufficient to mitigate the significant impacts of urbanizing agricultural land in the Natomas Basin, as contemplated under the Specific Plan. Conserving 542 acres is meager when compared to the 2,066 acres of farmland proposed for development. This imbalance would result in the development of approximately four acres for every one acre conserved. Notably, the federal court upheld the NBHCP based on the expectation that one acre of land would be conserved for every two acres developed. *See*, Federal Court Order at *1. The PRDEIR's conclusion that impacts on agricultural resources will be less than significant due to the agricultural buffer zone fails to meet CEQA's requirement for a thorough evaluation of potentially significant impacts.[3]

[3] In addition to the agricultural buffer zone, the FEIR contemplates that a "project proponent shall mitigate the loss of farmland within the plan area, except as otherwise specified in General Plan Policy AG-5 (as amended with UWSP approval), based on a 1:1 ratio through the specific planning process or individual project entitlement requests to provide in-kind or similar resource value protection (such as easements for agricultural purposes)." This project-by project approach provides no concrete plans for conservation of agricultural land or other forms of mitigation. Without any commitment to conserve agricultural land outside of the agricultural buffer zone, the PRDEIR and FEIR offer no assurance to impacted parties that the significant loss of farmland contemplated under the Specific Plan will actually be mitigated.

RESPONSE 250-9

This comment pertains to the analysis under Impact AG-3 in Chapter 5, *Agricultural Resources*, of the June 2025 Final EIR. The analysis does not state that the proposed agricultural buffer zone is intended to mitigate the significant impacts associated with the direct conversion of farmland to nonagricultural use. Instead, Impact AG-3 evaluates whether the proposed UWSP would indirectly induce farmland conversion outside the plan area. Substantial evidence supports the conclusion that such indirect conversion is unlikely as the proposed UWSP establishes a clearly defined Development Area, maintains a substantial agricultural buffer outside the UPA and USB, limits infrastructure sizing to serve only the Development Area, and retains agricultural land use designations on surrounding parcels. These physical, regulatory, and policy constraints on urban encroachment are described in detail in the EIR and provide a reasoned basis for the conclusion that indirect farmland conversion would not occur.

Direct conversion of farmland within the UWSP area is addressed separately under Impact AG-1. That analysis quantifies the acreage affected, identifies farmland classifications, evaluates applicable General Plan policies, and requires mandatory 1:1 mitigation, which exceeds the 0.5:1 ratio upheld by the federal court in the NBHCP litigation. Because a substantial net loss of farmland would still occur even with this mitigation, Impact AG-1 appropriately concludes that the impact remains significant and unavoidable.

Regarding the assertion that project-by-project implementation provides "no concrete plans" for farmland conservation, Mitigation Measure AG-1 establishes a clear,

enforceable, and objective standard: preservation of farmland at a 1:1 ratio using in-kind or equivalent-value agricultural lands, based on the most current FMMP mapping at the time of project approval. CEQA allows performance-based mitigation where site-specific details will be determined through later discretionary approvals, provided the mitigation commitment is mandatory and sufficiently specific. Mitigation Measure AG-1 meets this requirement and ensures that farmland loss within the UWSP area would be mitigated to a less-than-significant level consistent with the requirements of CEQA.

COMMENT 250-10

Moreover, mitigation cannot be deferred unless an agency commits to specific permit conditions, agreements, or other enforceable mechanisms. *See*, Cal. Code Regs. tit. 14, § 15126.4 (requiring that "[m]itigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instrument"). To the extent Sacramento County plans to rely on deferred mitigation where the loss of agricultural land is mitigated on a project-by-project basis at a later date, it is important to note that this approach is not authorized under CEQA.

RESPONSE 250-10

The EIR does not improperly defer mitigation. The mitigation measures in the EIR are described in detail, including concrete implementation and verification as part of the building permit review process. Under CEQA, where a significant impact of the proposed project is identified, the EIR is required to "describe feasible measures which could minimize significant adverse impacts." CEQA Guidelines section 15126.4(a)(1)(B) states that "[f]ormulation of mitigation measures shall not be deferred until some future time," but:

> *The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure.*

For example, Mitigation Measure BR-1 requires that a pre-construction Baseline Biological Resources Report be prepared for each phase of development documenting current land cover and land use (including agriculture), plant and wildlife habitat, and the locations of potential jurisdictional aquatic resources, native and non-native trees, and any other biological resources relating to any of the subsequent mitigation measures in the Biological Resources chapter. The County would not deem phase-specific development applications complete until it receives the Baseline Biological Resources Report. The specific performance standard the measure achieves is the documentation of any biological resources that would trigger implementation of any mitigation measure described in the Final EIR. The potential action that would feasibly achieve the

performance standard is the pre-construction survey that would inform the Baseline Biological Resources Report.

Regarding mitigation for loss of farmland, as noted in Response 250-9 above, Mitigation Measure AG-1 establishes a clear, enforceable, and objective standard: preservation of farmland at a 1:1 ratio using in-kind or equivalent-value agricultural lands, based on the most current FMMP mapping at the time of project approval. CEQA allows performance-based mitigation where site-specific details will be determined through later discretionary approvals, provided the mitigation commitment is mandatory and sufficiently specific.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 250-11

In addition, it is important to fully consider the reality that each acre of the NCMWC service area removed from agricultural production has the impact of raising costs for all other shareholders of the mutual organization, who will experience a considerable financial burden. That is, fixed costs (non-water usage component of water rates) must be spread over a decreased shareholder base. The PRDEIR and FEIR fail to consider these impacts, and this deficiency must be addressed. The analysis must fully evaluate how the impacts of removing agricultural land from production will be addressed so that the Specific Plan's negative externalities do not burden the remaining NCMWC shareholders.

Response 250-11

CEQA focuses on identifying and mitigating physical environmental impacts, not on the financial viability or funding mechanisms associated with the implementation of a proposed project. The June 2025 Final EIR and December 2025 PRDEIR fully evaluate the physical environmental effects that could result with implementation of the proposed UWSP and Alternative 5. While the comment raises a question about the cost implications of the proposed Alternative 5 on NCMWC water users, it does not connect such costs to an environmental effect. Pursuant to CEQA Guidelines section 15131(a), "[e]conomic or social effects of a project shall not be treated as significant effects on the environment," except in circumstances where the economic or social effect is a link in a chain of effects that connects the project to a physical environmental effect. The comment makes no such assertion. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 250-12

In short, the New Water Supply Option described in the PRDEIR directly contradicts the conservation goals of two adopted HCPs in the Natomas Basin and would negatively impact agricultural land that is critical for habitat of protected species in the basin. CEQA requires these impacts to be addressed. Moreover, as described below, the

Specific Plan's impacts on habitat for protected species and the availability of agricultural land in the Natomas Basin is in clear conflict with the Federal Court Order upholding the HCPs.

Response 250-12

The commenter states that Alternative 5 directly contradicts the conservation goals of the Natomas Basin and Metro Air Park HCPs and would negatively impact agricultural land that is critical for habitat of protected species in Natomas Basin. However, the comment does not describe how the change in water supply described under Alternative 5 would cause these potential impacts. Because Alternative 5 would not remove agricultural land from production beyond that which would be removed by the proposed UWSP and evaluated in the June 2025 Final EIR, environmental impacts associated with removal of agricultural land from production were properly not evaluated in the PRDEIR. The potential for the proposed UWSP to conflict with the provisions of the NBHCP, including the impacts to covered species and availability of potential mitigation lands following build-out of foreseeable projects in Natomas Basin, is fully addressed in the Draft EIR Chapter 7*, Biological Resources*, Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) and the Biological Resources section of Chapter 22, *Cumulative Impacts*, of the Draft EIR. Comments received on the Draft EIR related to conflict with the provisions of the NBHCP and reductions in agricultural land are addressed in Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan and Master Response BR-2: Reductions in Agricultural Land Available to NBHCP Covered Species in the June 2025 Final EIR.

Comment 250-13

b. The PRDEIR fails to consider the Federal Court Order that establishes limitations development in the Natomas Basin

The HCPs cover the entire Natomas Basin and provide concrete mitigation measures to minimize the impacts of the 17,500 acres of planned development on twenty-two covered species. The Specific Plan contemplates development of an additional 2,066 acres, which could permanently disturb or degrade habitat and foraging areas essential to species protected under the Plans. This proposal presents potentially significant impacts on the long-term implementation and success of the Plans, with or without the mitigation measures contemplated by Sacramento County.

The Conservancy is deeply concerned that the proponent has dismissed — in a conclusory manner — all comments regarding the potential for the Specific Plan to impede implementation of the existing NBHCP and MAPHCP. Moreover, the PRDEIR and Specific Plan fail to address potential issues related to compliance with the Federal Court Order.

RESPONSE 250-13

In *National Wildlife Federation v. Norton* (CIV-S-04-0579 DFL JFM) (Natomas II) Judge Levi did not conclude that additional development in the Natomas Basin was de facto inconsistent with the Natomas Basin and Metro Air Park HCPs. Rather the opinion in the Natomas II case stated that any new development beyond the 17,500 acres already approved and permitted by the Natomas Basin and Metro Air Park HCPs would be subject to additional federal and State environmental review, concluding that "future development will not be permitted if sufficient mitigation land is unavailable and the development will result in jeopardy." The Upper Westside Specific Plan EIR represents the additional State environmental review, and reflects the County's conclusion, as the CEQA lead agency, that the proposed UWSP including all required mitigation, would not conflict with the provisions of the adopted Natomas Basin and Metro Air Park HCPs.

It will be the responsibility of the federal regulatory agencies to determine the nature of subsequent federal environmental review. In the event that those agencies determine that the proposed UWSP, including mitigation, would not create jeopardy to the species affected covered in the HCPs, relevant permits would be granted without creating a conflict with the HCPs. If, in their independent judgment, the federal agencies determine that the proposed UWSP would create jeopardy to the covered species, it is reasonable to assume that they would not grant permits to the proposed UWSP, and thus there would be no conflict with the HCPs. This is consistent with the logic reflected by Judge Levi in his opinion on Natomas II.

Mitigation Measures BR-1 through BR-14 in the June 2025 Final EIR mitigate the impacts of the proposed UWSP to a less-than-significant level. Specifically, comments received on the Draft EIR related to Conflicts with the NBHCP Operating Conservation Program and Persistence of Covered Species are addressed in Master Response BR-1 of the June 2025 Final EIR. Comments received on the Draft EIR related to NBHCP-covered species, and reduction in giant garter snake and Swainson's hawk habitat, including within the Swainson's Hawk Zone, are addressed in Master Response BR-2, Master Response BR-3: Impacts on Giant Garter Snake, and Master Response BR-4. As discussed in Response 12-22 in the June 2025 Final EIR, Chapter 26, *Responses*, the NBHCP recognized that within the 50-year permit term of the NBHCP and ITPs, the possibility remained that existing land use outside the Permit Areas and within the Natomas Basin could change over time in a manner that would affect Swainson's hawk foraging habitat. The NBHCP's adaptive management provisions were designed to respond to changes in baseline habitat that could occur if undeveloped lands in the Natomas Basin were converted to urban uses.

In addition, the Biological Resources Cumulative Impacts Evaluation in the June 2025 Final EIR disclosed and assessed the cumulative impact of all reasonably foreseeable projects in the Basin, including tabulation of Existing and Reasonably Foreseeable Development in the Natomas Basin (Table CI-3) and Proportion of Available Reserve Lands Remaining After Build-out of Existing and Planned Development (Table CI-4), and concluded that the proposed UWSP would not contribute to a cumulatively

considerable impact to the conservation strategies core to the HCPs, including the ability to secure future reserve lands in the basin.

COMMENT 250-14

i. Conflict with the Federal Court Order

The Specific Plan described in the PRDEIR and related FEIR directly conflicts with the Federal Court Order, which establishes clear limitations on the urbanization of agricultural land in the Natomas Basin. *See*, Federal Court Order at *12 (stating that "[t]he NBHCP, BiOp, EIR/EIS, and Findings and Recommendations are all predicated on the assumption that development in the Basin will be limited to 17,500 acres and that the remaining lands will remain in agricultural use"). The Federal Court Order makes clear that the remaining agricultural lands in the Natomas Basin are intended to support the conservation goals of the Plans. Urbanization of 2,066 acres of farmland proposed for development under the Specific Plan is in direct conflict with these judicially recognized limitations on development.

RESPONSE 250-14

See Response 250-13, above. As noted in Response 250-7, above, the development footprint of the proposed UWSP and Alternative 5 is 1,524 acres, not 2,066 asserted in this comment. While not a CEQA issue, it is worth noting that the Levi opinion should be read and understood in its full context, not by selectively quoting from a footnote. That opinion analyzed and upheld the legal adequacy of the NBHCP itself against a challenge by environmental organization plaintiffs. The opinion did not impose limitations on future development, but rather, as noted above, expected that any new development beyond the 17,500 acres already approved and permitted by the Natomas Basin and Metro Air Park HCPs would be subject to additional environmental review.

COMMENT 250-15

In addition, as noted above, the Federal Court Order describes the "uphill battle" that developers will face for any project that would urbanize additional agricultural land in the Natomas Basin beyond the 17,500 acres contemplated under the Plans. Federal Court Order at *12. Despite these clear guardrails from the federal court, Sacramento County has characterized comments regarding the Federal Court Order as "not relevant." *See*, FEIR at 26-184. Sacramento County fails to recognize that the environmental analysis for the Specific Plan — including the analysis of the New Water Supply Option under Alternative 5 — must be evaluated in light of the Federal Court Order. Sacramento County's dismissal of the Federal Court Order as not relevant demonstrates that its approach to environmental analysis in the PRDEIR and FEIR is not only inadequate under CEQA but also inconsistent with the requirements of federal law.

RESPONSE 250-15

The comment expresses opinions about the *National Wildlife Federation v. Norton* decision. See Responses 250-13 and 250-14, above. The reference to an "uphill battle"

is an aside offered by Judge Levi in a footnote in the Natomas II opinion. It is inappropriately referred to in the comment as a "guardrail," which implies a hard and fast rule or prohibition. Rather, it would be more aptly described as a parenthetical remark from the author of the opinion regarding the level of scrutiny that likely would come to future federal and State environmental review and regulatory permitting processes addressing future development proposals on undeveloped land outside the permitted areas of the Natomas Basin. The County is well aware of the content of the opinion in Natomas II, and has accordingly invested significant effort to ensure that the CEQA document, which falls within the County's responsibility as lead agency, contains thoughtful and detailed analyses based on substantial evidence in the record related to potential conflicts between the proposed UWSP and the adopted Natomas Basin and Metro Air Park HCPs.

Impacts of the proposed UWSP, in combination with other proposed and approved development in the Natomas Basin that is outside of the permittees' development area of the NBHCP, are fully addressed in Impact BR-14 and the Biological Resources section of Chapter 22, *Cumulative Impacts*, of the June 2025 Final EIR. Comments received on the Draft EIR related to this topic are addressed in Master Response BR-1 in Chapter 26, *Responses*, of the June 2025 Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 250-16

ii. Land availability in the Natomas Basin

As noted above, a key component of the Plans is the ability of the Conservancy to acquire sufficient conservation land within the defined Natomas Basin area to meet the 8,750 acres of land that will be maintained as wildlife reserve. In upholding the NBHCP, the federal court specifically noted that this HCP is premised on the "requirement…that the NBC will never be unable to find and acquire mitigation lands…." Federal Court Order at *3. The Specific Plan as described in the PRDEIR and FEIR puts this premise as risk by urbanizing 2,066 acres of farmland that could otherwise be preserved for mitigation and thus inhibiting the Conservancy's ability to find and acquire agricultural land suitable for preservation. The PRDEIR and related FEIR fail to adequately consider the impacts that the Specific Plan will have in the overall context of the limited acreage of land available for mitigation in the Natomas Basin.

Response 250-16

The commenter has excluded contextual language in the federal court's opinion, which references a provision in the NBHCP that is intended to assure that TNBC will never be unable to find and acquire mitigation lands for development that has already been

approved.[14] In his opinion and order, Judge Levi highlighted that the NBHCP includes a provision for a 200-acre 'cushion' of mitigation land, which requires that, as of September of each year, that TNBC, which is the entity that owns, acquires, and manages the reserve lands, must have acquired at least 200 more acres of reserve land than necessary to mitigate all of the development approved to that date before any further development is permitted (Id. at 213-14.). As such, the federal court confirmed that the NBHCP includes provisions to avoid the very situation that the commenter asserts could occur with implementation of the proposed UWSP.

The potential for the proposed UWSP to conflict with the provisions of the NBHCP, including the four main strategies of the NBHCP, is fully addressed in the June 2025 Final EIR Chapter 7*, Biological Resources* in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP), and the Biological Resources section of Chapter 22, *Cumulative Impacts*. As shown in Table CI-3 of the June 2025 Final EIR, the percent of available reserve lands remaining after build-out of the UWSP area excludes existing conservation lands and existing or planned development, including airport lands. Comments received on the Draft EIR related to this topic are addressed in the June 2025 Final EIR, Chapter 26, *Responses*, in Master Responses BR-1 and BR-2.

During fall 2025, the County met several times with the City of Sacramento to discuss and understand better the City's concerns about the accuracy of the assessment of the proposed UWSP on the availability of lands necessary for acquisition and conservation by TNBC in order to successfully implement the provision of the NBHCP. Following these conversations, the County re-examined the information provided in Tables CI-3 and CI-4 of the June 2025 Final EIR and confirmed that the overall percentage of the Natomas Basin that is reflected in existing, approved, and planned development does not exceed the 70 percent disclosed in the Draft EIR Table CI-3. Similarly, the Percent of Potentially Available Reserve Lands Remaining After Development of the UWSP Area remains at 84 percent as disclosed in the Draft EIR.

This re-examination confirmed the conclusions in the Final EIR regarding the UWSP's potential impacts on the NBHCP, including that the planned UWSP development would not reduce agricultural lands in the basin in a way that would inhibit TNBC's ability to achieve its conservation strategy. FEIR, p. 26-16.

COMMENT 250-17

iii. Connectivity of habitat for protected species

The Federal Court Order recognizes that habitat connectivity is an essential component of the NBHCP and emphasizes the importance of "provisions of the NBHCP that preserve connectivity." Federal Court Order at *14. The Specific Plan jeopardizes the effectiveness of the habitat connectivity, a core and foundational element of the HCPs.

[14] National Wildlife Federation, et al., Plaintiffs, v. Gale Norton, Defendant. Memorandum of Opinion and Order, David Levi, District Judge. pp. 7-8.

See, U.S. Department of the Interior, Fish and Wildlife Service, *Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to the City of Sacramento and Sutter County for Urban Development in the Natomas Basin, Sacramento and Sutter Counties, California* ("Biological Opinion") (June 24, 2023) (stating that "[o]ne of the primary goals of the NBHCP is to ensure connectivity between individual reserves, and connectivity between reserves and surrounding agricultural lands").

Habitat connectivity enables the necessary mobility of species within their ranges and is essential to ensuring the long-term viability of wildlife populations in the basin. *Id.* at 33. USFWS has highlighted the importance of connectivity, noting that land acquisitions by the Conservancy are specifically aimed at reducing fragmentation and isolation of habitat reserves for key protected species such as the giant garter snake. *Id.* at 34. For key protected species under the Plans, such as the giant garter snake, USFWS determined that the loss and subsequent fragmentation of habitat is the primary threat, stating:

> At the time of listing, habitat loss as a result of urbanization and conversion of wetlands was recognized as the primary Factor A threat to the giant garter snake. **Today, habitat loss and fragmentation due to urbanization and changes in the levels and methods of rice production are the largest threat to the giant garter snake.**

U.S. Fish & Wildlife Service, *Recovery Plan for the Giant Garter snake (Thamnophis gigas)*, Pacific Southwest Region ("Giant Garter Snake Recovery Plan") (Sept. 28, 2017) (emphasis added).

The Conservancy is highly concerned that the proposed action could adversely impact its responsibilities under the HCPs by impeding habitat connectivity, the importance of which has been highlighted by USFWS and emphasized in the Federal Court Order.

Importantly, the Specific Plan would result in substantial development located adjacent to existing mitigation lands acquired under the HCPs. The introduction of urbanization and associated high-traffic corridors in the vicinity of these mitigation lands threatens to degrade the biological value of the existing conservation lands acquired and managed under the HCPs. The PRDEIR and FEIR fail to consider or analyze impacts on habitat connectivity and therefore not only fall short of CEQA requirements but also are inconsistent with a key aspect of the Federal Court Order.

Response 250-17

Comments received on the Draft EIR related to this topic are fully and adequately addressed in Master Response BR-3: Impacts on Giant Garter Snake Habitat in Chapter 26, *Responses*, as well as in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) of the 2025 June Final EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-18

iv. Negative externalities on parties who have made substantial investments towards the success of the Natomas Basin HCPs

Implementation of the Natomas Basin HCPs has resulted in more than $100 million in mitigation investments for these regional plans. Additionally, the two HCP proponents/permittees — Sutter County and the City of Sacramento — have dedicated substantial resources to acquiring mitigation lands, defending the Plans, and maintaining compliance with state and federal law under their respective ITPs. Proposed development without adequate compensatory mitigation places these public investments and the parties' commitments under the HCPs at significant risk.

The federal court that upheld the NBHCP recognized the importance of these public investments and acknowledged the intent that public investments would be protected in part through regulatory scrutiny of any additional development in the Natomas Basin by non-permittees. *See*, Federal Court Order at *10 (emphasizing that "further development or action by any other entity would require additional federal approvals"). The PRDEIR and related FEIR prepared by Sacramento County — an entity that opted not to participate in the HCPs — fail to account for the negative externalities the proposed project would impose on the parties that have invested in the HCPs and on the general public that benefits from their successful implementation.

Moreover, CEQA specifically requires a regional perspective of impacts on external parties. An EIR "must include a description of the physical environmental conditions in the vicinity of the project…from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." Cal. Code Regs. tit. 14, § 15125. California courts have interpreted this CEQA Guideline broadly in order to "afford the fullest possible protection of the environment." *See*, Kings Cnty. Farm Bureau v. City of Hanford, 221 Cal. App. 3d 692, 720 (1990). The intent of CEQA's regional perspective is to ensure the EIR's analysis of significant effects is as accurate as possible. Friends of the Eel River v. Sonoma Cnty. Water Agency, 108 Cal. App. 4th 859, 874 (2003).

Here, the PRDEIR fails to consider impacts of the Natomas Basin from a regional perspective — including the negative externalities on interested parties that have made substantial investments into the existing HCPs — as required under CEQA. This deficiency must be addressed to ensure compliance with CEQA's requirement to ensure a regional perspective and the Federal Court Order's recognition of the need to protect public investments made by interested parties in the region.

RESPONSE 250-18

CEQA requires that the analysis consider potential conflicts with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. As discussed in Master Response BR-1 in the June 2025 Final EIR, the EIR carefully considers the potential for

the proposed UWSP to conflict with the provisions of the MAP HCP and/or the NBHCP at the project level and in the context of reasonably foreseeable cumulative development and concluded that impacts would be less than significant. Beyond the analysis of the manner in which the proposed UWSP could conflict with the conservation strategies of the Natomas Basin and Metro Air Park HCPs, it is unclear to what the commenter is referring. Because the proposed UWSP would not conflict with the conservation strategies of the two adopted HCPs in the Natomas Basin, the prior efforts and investments in the implementation of the HCPs would not be diminished. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-19

c. The PRDEIR and FEIR fail to adequately evaluate potential impacts on protected terrestrial species

As noted above, the HCPs establish a multi-species conservation program designed to mitigate the expected loss of habitat values and the incidental take of species protected under state and federal law. These Plans have been effective in preserving, restoring, and enhancing habitat values in the Natomas Basin while allowing urban development to proceed in accordance with local land use plans.

Importantly, the HCPs provide the basis for issuance of ITPs under Section 10(a)(1)(B) of the ESA and Section 2081 of CESA. Section 10(a)(1)(B) of the ESA allows incidental take of endangered or threatened species subject to its permit requirements. Similarly, Section 2081 of the California Fish and Game Code allows CDFW to enter into management agreements that allows activities which may otherwise result in habitat loss or take of individuals of a state-listed species.

The HCPs and their associated permits authorize covered activities that may result in incidental take of twenty-two protected species that are critical to the ecological health of the Natomas Basin. Coverage under the Plans applies only to the activities of the proponents/permittees (i.e., Sutter County and the City of Sacramento), who must comply with the comprehensive species-protection requirements established under the Plans. As noted above, Sacramento County is not a permittee and therefore has an independent obligation — outside the HCPs — to ensure compliance with state and federal endangered species laws.

The PRDEIR is insufficient in its evaluation of effects on protected endangered species because it arbitrarily limits the analysis to impacts on aquatic habitat and species. This narrow scope is highly concerning to the Conservancy and, as described below, must be addressed to ensure compliance with not only CEQA but also state and federal endangered species law.

Response 250-19

As stated in the PRDEIR, because the development footprint of Alternative 5 would be identical to that of the proposed UWSP evaluated in the June 2025 Final EIR, terrestrial biological resources that could be affected by the proposed UWSP are addressed in Draft EIR Chapter 7, *Biological Resources*. Special-status terrestrial species relevant to the UWSP area are discussed and presented in Draft EIR, Chapter 7, *Biological Resources*, including Table BR-2, *Special-Status and NBHCP and MAP HCP Covered Species Evaluated for Potential Occurrence in the UWSP Area*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 250-20

i. CEQA requires an evaluation of impacts on protected species

CEQA requires analysis of whether a project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. Cal. Code Regs. tit. 14, § Div. 6 Ch. 3 App. G. A project may have a significant effect on the environment where it threatens to substantially reduce habitat of a protected fish or wildlife species. Cal. Code Regs. tit. 14, § 15065. CEQA Guidelines describe that an impact may be considered significant if the project or alternative includes any of the following:

> A substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS; or
>
> Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
>
> Cal. Code Regs. tit. 14, § 15000 app. G (2025).

Despite this clear direction under CEQA, the PRDEIR fails to analyze the potentially significant impacts on any terrestrial species. Instead, it limits its review to “the potential effects of diverting water from the Sacramento River at the Riverside Pumping Plant on aquatic habitat and species that may be present in the river” and asserts that “terrestrial biological resources that could be affected by the proposed UWSP were addressed in Draft EIR Chapter 7, Biological Resources.” PRDEIR at 2-6.

The New Water Supply Option described in the PRDEIR contemplates changes that could affect the habitat of a variety of terrestrial species protected under state and federal law. As the PRDEIR explains, this option would increase pumping and annual diversions from the Sacramento River and alter the seasonality of those diversions compared to existing conditions. *See*, PRDEIR at 2-6 (stating that the “change in the

use of diverted water at the Riverside Pumping Plant would lead to an increase in annual diversions and a change in seasonality of diversions compared to existing conditions").

Despite acknowledges [*sic*] these changes, the PRDEIR fails to evaluate how an increase in annual diversions and changes in seasonality could result in adverse habitat impacts for all candidate, sensitive, and special-status species, including terrestrial species. Simply concluding that only aquatic species warrant consideration is wholly inadequate to satisfy CEQA's requirements.

In particular, the Conservancy is concerned about potentially significant impacts on the habitat of the twenty-two species covered under the HCPs. While it is imperative to consider potential impacts on aquatic species in the Natomas Basin, it is equally imperative that Sacramento County fully evaluate the impacts the Specific Plan may have on each of the species covered under the HCPs. The giant garter snake, for example, has specific habitat requirements that include summer aquatic habitat for foraging, bankside basking areas, and wetlands with high-quality vegetation. *See*, Giant Garter Snake Recovery Plan at (iii). Increased annual diversions and changes in seasonality of pumping as contemplated under the New Water Supply Option could have potentially significant effects on these essential habitat components.

The PRDEIR's conclusory statement that terrestrial species are not impacted is a clear deficiency that must be addressed. The PRDEIR fails to consider the potential impacts that changes in water diversions and seasonality could have on habitat for terrestrial species. This issue is particularly important because the Specific Plan anticipates that these changes will occur in areas adjacent to mitigation lands established under the HCPs. At the minimum, it is necessary for the PRDEIR to include an evaluation of the actions that may be necessary to sustain habitat conditions for the twenty-two species covered under the NBHCP and MAPHCP.

Response 250-20

Please see Response 250-19 above regarding the effects of Alternative 5 on terrestrial species. There is no evidence in the record that would support a conclusion that the provision of water on a wholesale basis from the NCMWC Riverside Pumping Plant for municipal uses in the UWSP area would adversely affect terrestrial species outside of the boundaries of the UWSP area. As is shown in the WSA, including Appendix ALT 5-2 in the PRDEIR, there are sufficient water supplies within the NCMWC allotments to support development within the UWSP area without adversely affecting other water users currently supplied by NCMWC. In fact, the changes in seasonality that are addressed, with the demand for water supplies in the winter months, come at a time when little, if any, water is being diverted by NCMWC for agricultural deliveries in the Natomas Basin. Conversely, in the drier months of the year, when irrigation is typically at its highest and when needs may exist for irrigation water to support aquatic species, the proposed UWSP would result in similar or lower water demands during the spring, summer and early fall months. As a result, the proposed UWSP would not adversely affect the availability of NCMWC water supplies to support habitat conservation in the

Natomas Basin, and could, in fact, improve the resiliency of those water supplies during the more critical dry months of the year.

As described on page 7-87 of the June 2025 Final EIR, the eastern edge of the Alleghany Reserve would be separated from the western edge of planned low-density residential development. Special-status species relevant to the UWSP area are discussed and presented in Draft EIR, Chapter 7, *Biological Resources*, including Table BR-2, *Special-Status and NBHCP and MAP HCP Covered Species Evaluated for Potential Occurrence in the UWSP Area*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-21

ii. State and federal endangered species law requires an independent assessment of potential impacts on protected species

Section 9 of the ESA prohibits the "take" of federally endangered or threatened wildlife species. *See*, 16 U.S.C. § 1538(a)(1)(B). Similarly, Section 2080 of CESA prohibits the take of state-listed threatened and endangered species. *See*, Cal. Fish & Game Code § 2080. As noted above, the HCPs provide the basis for issuing ITPs under Section 10(a)(1)(B) of the ESA and Section 2081 of CESA. These permits authorize incidental take to a defined extent and only for activities covered under the Plans. The Conservancy and the HCP proponents/permittees actively coordinate with state and federal wildlife agencies to ensure compliance with these permits and the successful implementation of the conservation programs.

The plan for the New Water Supply Option under the PRDEIR is highly concerning to the Conservancy because the document contains an inadequate analysis of compliance with state and federal endangered species law. As noted above, changes in diversions and seasonality could affect habitat for species protected under the ESA and CESA. Such impacts may result in unauthorized take of protected terrestrial species. In turn, unauthorized take could undermine the efficacy of the HCPs and impede the Conservancy's ability to fulfill its responsibilities under the Plans. Indeed, the federal court that upheld the HCPs emphasized the need for careful review of any action that may affect implementation of these Plans. *See*, Federal Court Order at *11 (noting that "further federal review will be required under any scenario that could impact the efficacy of the NBHCP").

The PRDEIR contains no discussion of the potential for "take" of terrestrial species protected under the ESA and CESA. In addition, the PRDEIR provides no detail regarding avoidance or mitigation measures that may be necessary to protect habitat for these species, nor does it identify any concrete mitigation commitments. These omissions are particularly concerning to the Conservancy with respect to the twenty-two species covered under the HCPs, and these deficiencies must be addressed to ensure compliance with state and federal endangered species law.

RESPONSE 250-21

Potential "take" of terrestrial species protected under the ESA and CESA, as well as project avoidance and mitigation measures to avoid and minimize impacts to species and their habitats, are addressed in Chapter 7, *Biological Resources*, and elsewhere, including Response 15-9 of the June 2025 Final EIR. As stated in Response 250-20 above, there is no substantial evidence in the record that would support or even provide the basis for an analysis of how the delivery of water from NCMWC to SCWA for the purposes of supplying development in the UWSP area could adversely affect terrestrial species. Further, this comment speculates that Alternative 5 "may result in unauthorized take of protected terrestrial species," but does not describe or assert how such take could take place. Pursuant to CEQA Guidelines section 15145, if an impact is speculative "the agency should note its conclusion and terminate discussion of the impact." As such, no further consideration of these issues is appropriate. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-22

iii. Endangered species law requirements must be integrated into the CEQA process

CEQA requires that federal and state endangered species laws are integrated during the process, not postponed for a later date when permits are sought. *See*, Cal. Code Regs. tit. 14, § 15124 (requiring that "the lead agency should integrate CEQA review with these related environmental review and consultation requirements"). Here, Sacramento County has ignored its obligation to integrate CEQA review with the requirements of the ESA and CESA, giving little to no consideration to permits required under these laws. Rather than include the required analysis, the description of the potential impacts of the New Water Supply Option on protected species simply states that its impact analysis "assumes that implementation of Alternative 5 would comply with existing applicable regulatory and permitting requirements." PRDEIR at 2-24.

This approach falls short of CEQA requirements. The California Supreme Court has held that CEQA specifically calls for consideration of relevant regulatory requirements, such as the ESA and CESA, when discussing project alternatives such as the New Water Supply Option under Alternative 5. *See*, Banning Ranch Conservancy v. City of Newport Beach, 2 Cal. 5th 918, 936, 392 P.3d 455, 467 (2017) (stating that "CEQA Guidelines specifically call for consideration of related regulatory regimes…when discussing project alternatives"). The PRDEIR's failure to fully consider and integrate the requirements of the ESA and CESA is a deficiency that must be addressed.

RESPONSE 250-22

The FEIR describes the regulatory processes that are relevant to the project in the Regulatory Setting section beginning on page 7-28, including federal and state regulations protecting sensitive species (Federal Endangered Species Act, Migratory Bird Treaty Act, California Endangered Species Act, and California Fish and Game

Code). These federal and state regulations protecting sensitive species are described in the Regulatory Setting section and are referenced in the Environmental Setting section, specifically their importance in defining the *special-status species* (p. 7-11) that are analyzed and for which impact avoidance and mitigation is detailed under the Impacts and Analysis section, including Mitigation Measure BR-2c: Avoid and Minimize Impacts to Special-Status Plants. Additionally, these regulations may require "take" authorization or permits, as indicated under Mitigation Measure BR-3: Avoid, Minimize, and Compensate for Impacts on Giant Garter Snake, BR-6: Avoid and Minimize Impacts on Western Burrowing Owl, and BR-7c: Compensate for Permanent Impacts on Swainson's Hawk Nesting Habitat.

COMMENT 250-23

d. The PRDEIR and FEIR threaten to directly interfere with contractual obligations of parties to the Implementation Agreement

The Implementation Agreement for the NBHCP is a contractual agreement among the Conservancy, USFWS, CDFW, City of Sacramento, and Sutter County. It establishes specific rights, obligations, and assurances governing how habitat conservation and development must be carried out in the Natomas Basin. In particular, the Implementation Agreement outlines measures to avoid and minimize "take" of covered species, as well as mitigation requirements, including conservation of agricultural lands that provide essential habitat for protected species. The PRDEIR and related FEIR — in advancing urbanization of agricultural areas without regard to the limited acreage of farmland in the basin — risk undermining and interfering with the Conservancy's contractual obligations under the Implementation Agreement.

The Supreme Court of California has long recognized that contractual interference claims may arise due to a party's performance being made more costly or burdensome. *See*, *Pac. Gas & Elec. Co. v. Bear Stearns & Co.*, 50 Cal. 3d 1118, 1129 (1990) ("We have recognized that interference with the plaintiff's performance may give rise to a claim for interference with contractual relations if plaintiff's performance is made more costly or more burdensome").

Here, the PRDEIR threatens not only the financial viability but also the fundamental feasibility of the Conservancy's obligations under the Implementation Agreement. By proposing a Specific Plan that would impede the acquisition of essential mitigation lands and allowing development within the protected Swainson's Hawk Zone, Sacramento County is creating conditions that directly obstruct the Conservancy's ability to meet its performance mandates under the HCPs. Such an interference with a contractually bound conservation framework constitutes a significant and unmitigated impact that must be addressed.

RESPONSE 250-23

As discussed in the June 2025 Final EIR Master Response BR-1 and the June 2025 Final EIR Chapter 22, *Cumulative Impacts*, the EIR carefully considers the potential for the proposed UWSP to conflict with the provisions of the MAP HCP and/or the NBHCP

at the project level and in the context of reasonably foreseeable cumulative development and concluded that impacts would be less than significant. Please see Responses 250-13 and 250-16 above for additional discussion of these issues. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

Comment 250-24

i. The Conservancy's obligation to acquire mitigation lands

The Implementation Agreement requires the Conservancy to "[a]cquire, locate, operate, and maintain Mitigation Lands" in accordance with the terms and conditions of the NBHCP and the Agreement. *See*, Implementation Agreement, subparagraph 3.2 at 7. This obligation must be fulfilled prior to the approval of any authorized development under the NBHCP, with an additional 200-acre "cushion" of mitigation lands required before development approval. Implementation Agreement, subparagraph 5.5 at 16. Issuance of the incidental take permits by USFWS and CDFW is expressly conditioned on meeting these contractual obligations, and so long as the NBHCP's terms are properly implemented, these agencies are prohibited from requiring additional mitigation measures. *See*, Implementation Agreement, subparagraphs 6.1 and 6.2 at 17-20.

The significant urbanization of agricultural land proposed in the PRDEIR and related FEIR threatens to frustrate the Conservancy's contractual obligation to acquire mitigation lands. The Conservancy is highly concerned that there may not be a sufficient amount of suitable agricultural land remaining in the Natomas Basin to meet its obligations under the Implementation Agreement if the Specific Plan is approved. The PRDEIR and FEIR fail to assess whether the additional 2,066 acres proposed for development would compromise the acquisition of mitigation lands that is already required under the existing HCPs and binding upon the Conservancy under the Implementation Agreement. Without such an analysis, it is impossible to determine whether the Specific Plan would directly interfere with the Conservancy's contractual obligation to acquire mitigation land.

The Conservancy has a legal obligation to ensure it can fulfill its responsibilities under the existing HCPs and the Implementation Agreement, including the acquisition of mitigation lands. It is imperative that the PRDEIR and FEIR fully consider the Conservancy's contractual obligations with respect to acquiring and maintaining these mitigation lands.

Response 250-24

As discussed in the June 2025 Final EIR Master Response BR-1 and the June 2025 Final EIR Chapter 22, *Cumulative Impacts*, the EIR carefully considers the potential for the proposed UWSP to conflict with the provisions of the MAP HCP and/or the NBHCP at the project level and in the context of reasonably foreseeable cumulative development and concluded that impacts would be less than significant. Please see Responses 250-13 and 250-16 above for additional discussion of these issues. This

comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-25

ii. Swainson's Hawk One-Mile Buffer Zone

The NBHCP and Implementation Agreement prohibit development in a one-mile-wide strip of land adjacent to the Sacramento River, known as the Swainson's Hawk Zone. *See*, Implementation Agreement, subparagraph 3.1.2 at 4. This zone was explicitly established in the NBHCP to protect essential habitat for the Swainson's hawk, a threatened species under CESA. *See*, NBHCP, Chapter 9 at VII-11. Development within the Swainson's Hawk Zone is categorically prohibited under the existing NBHCP, with the sole exception of 252 acres approved for development by the City of Sacramento. *See*, Implementation Agreement, subparagraph 3.1.2(a) at 4.

The analysis in the PRDEIR and related FEIR for the Specific Plan indicates that significant portions of the proposed development would encroach into the Swainson's Hawk Zone. Such development would fundamentally conflict with the legal obligations of the parties to the NBHCP, which is premised on the exclusion of development within this zone. See, Implementation Agreement, subparagraph 3.1.2(c) at 4. The one-mile buffer was established through rigorous biological analysis and constitutes an indispensable component of the Plan's mitigation strategy. *See*, NBHCP, Chapter 9 at VII 11-20. Any action by Sacramento County to approve or allow development within the Swainson's Hawk Zone not only threatens the ecological effectiveness of the NBHCP but also directly conflicts with the enforceable obligations of the Implementation Agreement.

The parties to the NBHCP have clear legal obligations that explicitly prohibit development within the Swainson's Hawk Zone. These obligations are set forth in the Plan and are enforceable through the Implementation Agreement. As currently proposed, the PRDEIR and related FEIR threaten to directly interfere with these contractual obligations.

RESPONSE 250-25

The project footprint of the UWSP would not change under Alternative 5; therefore, nor would the potential impacts evaluated in the FEIR to the Swainson's Hawk Zone change. Comments received on the Draft EIR related to reductions in Swainson's hawk foraging habitat, including within the Swainson's Hawk Zone are addressed in the June 2025 Final EIR in Master Response BR-4. Under the discussion of Impact BR-7, the Final EIR concluded that all potential impacts to Swainson's hawk would be less than significant with mitigation. As discussed in the June 2025 Final EIR in Response 12-22, the portion of the UWSP that would be developed within 1-mile of the Sacramento River represents approximately 8.2 percent of the habitat in the entire NBHCP Swainson's Hawk Zone. Response 12-22 also recognized that the NBHCP and the MAP HCPs include provisions that anticipate that within the 50-year permit term of the HCPs and ITPs, land use conditions outside the Permit Areas and within the Natomas Basin could

change over time in a manner that would affect Swainson's hawk foraging habitat. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines section 15088.

COMMENT 250-26

e. The addition of the New Water Supply Option in the PRDEIR requires recirculation of the FEIR in its entirety

CEQA requires recirculation of an EIR when significant new information is added after the close of the public comment period but before certification. Cal. Pub. Res. Code § 21092.1. The California Supreme Court has held that this standard requires recirculation when new information demonstrates that the project will have a substantial increase in the severity of the environmental impact, when a project alternative is considerably different from other previously analyzed, or when the draft EIR was fundamentally and basically inadequate. *See*, *Laurel Heights Improvement Assn. v. Regents of Univ. of California*, 6 Cal. 4th 1112, 1114 (1993).

The New Water Supply Option described in the PRDEIR presents a fundamentally different environmental scenario that could increase the severity of environmental impacts associated with the Specific. Specifically, increases in water diversions and seasonality have the potential to significantly impact terrestrial species protected under state and federal law. In addition, the proposed change in water use from agricultural to municipal would advance urbanization of farmland in a manner that may inhibit implementation of the two existing HCPs in the Natomas Basin. These unexamined consequences associated with the PRDEIR could result in a substantial increase in the environmental impacts of the Specific Plan and therefore require recirculation of the full FEIR.

In addition, as described above, the FEIR's analysis of potential impacts on agricultural land and potential to inhibit the efficacy of the HCPs was cursory at best and conclusory to a point of dismissing comments regarding the Federal Court Order as not relevant. The inadequacy of the FEIR's analysis of environmental impacts warrants recirculation of the document in its entirety. For these reasons, under the standard described in Laurel Heights, recirculation of the full EIR is required.

III. CONCLUSION

The Conservancy appreciates your consideration of its comments on the PRDEIR. The Conservancy and the proponents/permittees of the NBHCP and MAPHCP remain committed to upholding the requirements of these Plans and sustaining the ecological health of the Natomas Basin. If you have any questions, please feel free to contact me at the email or phone number listed above.

RESPONSE 250-26

CEQA Guidelines section 15088.5 establishes the circumstances in which some or all of a Draft EIR needs to be recirculated. More specifically, CEQA Guidelines section

15088.5(c) states that “[i]f the revision is limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified.” In this case the change to the UWSP was to add an alternative which includes the option to have wholesale water supplied by NCMWC rather than by the City of Sacramento, and the option to make revisions to the circulation network in response to concerns about traffic safety on Garden Highway. The County determined that since no other changes were being made to the UWSP, including its footprint and land use policies, the recirculation of a new alternative meets the requirements of CEQA. Although the evaluation of Alternative 5 and the revised WSA were circulated for public review as part of the PRDEIR in December 2025, they do not identify new significant environmental impacts or substantially increase the severity of previously identified impacts. Rather, they provide additional disclosure and analysis of a feasible alternative water supply scenario, consistent with CEQA Guidelines section 15088.5. Despite this fact, the County provided a full 45-day public review and comment period, and is fully responding to comments on the PRDEIR, as required under CEQA Guidelines section 15088. As noted in Responses 250-1 through 250-25, there is no evidence that has been presented in this letter or other comments on the PRDEIR to support the conclusion that there is a need for further analyses that would meet the thresholds established for recirculation in CEQA Guidelines section 15088.5(a). Thus, no further recirculation of the EIR is required.

LETTER 251

Amanda Burnitt; member of the community; written correspondence; dated December 10, 2025.

COMMENT 251-1

I would formally like to file my complaint for the Westside Specific Plan.

Urban sprawl often leads to increased traffic congestion, longer commutes, and a higher cost of living. I don't want Sacramento to become Roseville or Elk Grove. Rather than expanding into our precious farmland, we should focus on building walkable, mixed-use neighborhoods. Only 38% of the world's land can be used for farmland. Sacramento is "farm to fork" and you want to get rid of our farms?

RESPONSE 251-1

The comment does not address the content of the PRDEIR. The commenter expresses opposition to the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 251-2

Preserving green spaces should also be a top priority. Green spaces improve our mental and physical well-being and offer vital habitats for animals. This is a flood zone, I know because I live here, this isn't the place to build more suburban development. By protecting these areas from development, we safeguard our environment, contribute to climate resilience, and provide sanctuary for wildlife that is increasingly displaced by unchecked growth.

RESPONSE 251-2

The comment does not address the content of the PRDEIR. The commenter expresses an opinion on the merits of the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 251-3

Suburban developments once they are completed are the best they are ever going to be. After that they decay, they cost the city more because they never adapt or grow. Never allowing more people to move into a neighborhood. Encouraging mixed-use zoning for current existing areas would allow for affordable housing options that are sorely needed, especially for low-income residents who are often priced out of

traditional suburban developments. Why expand when we can do better and make Sacramento less like Elk Grove and Roseville and more like downtown.

Response 251-3

The comment does not address the content of the PRDEIR. The commenter expresses an opinion on the merits of the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 251-4

I ask you to protect Natomas' farmland and instead prioritize urban planning strategies that emphasize walkability, mixed-use development, affordable housing, public transportation, and environmental conservation. Let's create a city where people and nature thrive together, rather than one where unchecked development diminishes the quality of life for all.

Response 251-4

The comment does not address the content of the PRDEIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

LETTER 252

Justine Bradley; member of the community; written correspondence; dated December 10, 2025.

COMMENT 252-1

The issues are:

1. A high school being built directly behind houses which will then be a noise issue with any games or activities at the high school. Traffic from people coming and dropping off their kids will produce excessive noise and pollution as well as kids doing destruction to people property. Why does a High school have to be directly behind all of us and not put elsewhere. If I wanted to live by a school, i would have moved by a school.

RESPONSE 252-1

The comment does not address the content of the PRDEIR. The commenter expresses an opinion on the merits of the proposed project. Impacts of the proposed UWSP related to air quality, noise, and transportation are fully addressed in the June 2025 Final EIR Chapter 6, *Air Quality*, Chapter 7, *Noise*, and Chapter 18, *Transportation*, respectively, and in the PRDEIR Chapter 2, *Alternative 5: Revised Project Alternative*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 252-2

2. traffic concerns. Emergency vehicles will have a difficult time getting to people with the increase in traffic, which will then account for loss of life as well as more injuries. People will not be able to get out of the developments to their job, shopping, etc. We will be stuck in our homes, just like Covid.

RESPONSE 252-2

The comment does not address the content of the PRDEIR. Impacts of the proposed UWSP related to transportation, including emergency vehicle access, are fully addressed in the June 2025 Final EIR Chapter 18, *Transportation*, and in the PRDEIR Chapter 2, *Alternative 5: Revised Project Alternative*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 252-3

3. Water safety concerns - Putting more homes by levee's can and will cause structural issues with the levee system and why do canals when there is already a water danger.

Response 252-3

The comment does not address the content of the PRDEIR. Impacts of the proposed UWSP related to soil stability and structural safety are fully addressed in the June 2025 Final EIR Chapter 1, *Geology, Soils, and Paleontology*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 252-4

4. wildlife - disrupting endangered animals and their habitat is a way to wipe them out of our lives.

Response 252-4

The comment does not address the content of the PRDEIR. Impacts of the proposed UWSP related to biological resources are fully addressed in the June 2025 Final EIR Chapter 7, *Biological Resources*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 252-5

Water issues - There are already issues with low water pressure in Natomas and how can another agency handle getting water when we don't have enough from our current agency.

Response 252-5

Impacts of Alternative 5 related to water supply are fully addressed in the PRDEIR Chapter 2, *Alternative 5: Revised Project Alternative*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 252-6

The schools directly behind the houses already there is a huge issue with traffic and such. The wildlife will be disrupted and vanish, becoming extinct and people will be stuck in their houses because they won't be able to get out of their homes because there will be no room on the road. Also, the commercial building will be empty since

most of Natomas has empty building, bad parking and no infrastructure to support this type of land development.

Response 252-6

See Responses 252-1 through 252-5 above. The commenter's reference to an empty commercial building and a comment expressing an opinion on the merits of the proposed project raise neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 252-7

Please vote no on letting a city the size of Galt be dropped into Natomas with 2 lane total roads, no infrastructure and levee breaks possible.

Response 252-7

The comment does not address the content of the PRDEIR. The commenter expresses opposition to the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 252-8

I am writing to express my frustration with this Upper West Project, which the revisions are very minor. Nothing is being done or said about the endangered species that have their home and habitat there. I also am expressing my anger and disappointment to this proposal that does not take into account the people who are currently residing in the area.

Response 252-8

See Responses 252-1 through 252-7.

LETTER 253

Melanie Herman; member of the community; written correspondence; dated January 3, 2026.

COMMENT 253-1

Please do not add more cross-streets to the Garden Highway. The revisions made to the UWS are simply insignificant. Farm Rd, Radio Rd, etc. should never connect to suburbia. The expansion into Fargo Wildlife Refuge should not be considered.

RESPONSE 253-1

The commenter expresses an opinion on the merits of the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 253-2

The highway is already very dangerous. Adding more traffic congestion will only mean more death and destruction on a road that is simply not ready for more traffic.

RESPONSE 253-2

Impacts of the proposed UWSP related to transportation are fully addressed in the June 2025 Final EIR Chapter 18, *Transportation*, and in the PRDEIR Chapter 2, *Alternative 5: Revised Project Alternative*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 253-3

1-3-26 (Can you believe it???)

Dear Sup. Desmond,

Thank you for your public service it isn’t easy to deal with the public and I admire people who manage it well.

This book is for you to read & digest. The maps tell the future as clearly as any crystal ball. The valley is going to flood. Please do not put even more people – families like yours – into harm’s way.

The WWSP is an interesting project in the wrong place. Please work to move it elsewhere.

Melanie Herman

Response 253-3

The commenter expresses an opinion on the merits of the proposed project. Impacts of the proposed UWSP related to flood risk are fully addressed in the June 2025 Final EIR Chapter 12, *Hazards and Hazardous Materials*, and Chapter 13, *Hydrology and Water Quality*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 253-4

1-3-26

To Sup Patrick Kennedy

You've been a responsible public servant and I appreciate it. I know you care about climate change. Please read this and ARKSTORM2.0 Here's a map. Its going to flood unless we build a dam across the Sac River to hold back the sea. Stop voting like last century and START thinking about 100-500 years from now. Don't let more Natomas sunken costs become your legacy. It is going to flood.

Melanie Herman

Response 253-4

See Response 253-3 above.

Comment 253-5

1-3-26

To Sup Rodriguez,

Please accept this book in the spirit in which it is given. (My hand is getting tired).

You should know the history of the Natomas Flood zone before you vote to put even more innocent families into harm's way.

It is going to flood. One levee breach will create a huge wave that will swamp Natomas. Please stop the Upper Westside project. Serna is leaving. You have nothing to lose. Drive the Garden Hwy. It is unfit for more traffic. Those of us who live on the Garden Hwy look down on Natomas Roofs. We'll be OK but all those families wont. Vote as if climate change is real.

Melanie Herman

Response 253-5

The commenter expresses opposition to the proposed project. Impacts of the proposed UWSP related to flood risk are fully addressed in the June 2025 Final EIR Chapter 12, *Hazards and Hazardous Materials*, and Chapter 13, *Hydrology and Water Quality*. Impacts of the proposed UWSP related to climate change are fully addressed in the June 2025 Final EIR Chapter 8, *Climate Change*. Impacts of the proposed UWSP related to transportation are fully addressed in the June 2025 Final EIR Chapter 18, *Transportation*. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 253-6

1-3-26

To Sup Hume,

In January 2023 there were levee beaches along the Consumnes River that caused some pretty significant flooding. Now imagine that the entire City of Gale flooded to the rooftops. Imagine the cost of cleanup and all the funerals you'll have to attend.

Those of us who live on the Garden Highway are hyper-aware of the power of the river. We look at Natomas roof tops. One Breach. Just one.

Besides the fact that the Garden Hwy is unfit for even the amount of traffic it gets now, imagine a flood emergency with only 2 ways out & enough people to equal another Galt trying to get out all at once.

Please vote as if climate change is real. Vote no on the Upper Westside Project

Melanie Herman

Response 253-6

The commenter expresses an opinion on the merits of the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

LETTER 254

Melissa Fogarty; member of the community; written correspondence; dated December 22, 2025.

COMMENT 254-1

I just looked at the revised EIR for the Upper Westside project. The developer's revisions do not resolve the most dangerous condition on Garden Highway: the lack of shoulders on a two-lane road carrying increasing volumes of traffic. Removing a connection on Radio Road simply pushes more vehicles onto Garden Highway for longer distances. A traffic circle on San Juan Road discourages cut-through traffic but again leaves Garden Highway as the unavoidable route.

RESPONSE 254-1

The comment expresses opinions regarding the effects of removing street connections and the capacity of Garden Highway. Contrary to the comment's characterization, the *Local Transportation Analysis for Upper Westside Specific Plan* (Fehr & Peers, 2022) found that 4 percent of the proposed UWSP's external vehicle trips would use Garden Highway. Under Alternative 5 described in the PRDEIR, this percentage would be reduced even further by virtue of fewer project trips heading north on Garden Highway toward I-5. See Responses 249-2 and 249-3 for details regarding project responsibilities to contribute fair share funding toward the expansion of Garden Highway to add shoulders.

COMMENT 254-2

Traffic calming elsewhere does not make Garden Highway safer. When a vehicle is disabled, emergency access is compromised, cyclists and pedestrians are trapped, and collisions cascade. These revisions fail to address the road's physical limitations.

RESPONSE 254-2

Under both the proposed UWSP and Alternative 5, all existing emergency response corridors remain available and unobstructed. While expressing an opinion about emergency vehicle access, the comment includes no evidence as to why emergency access would be compromised. See also Responses 249-2 and 249-3 for details regarding project responsibilities to contribute fair share funding toward the expansion of Garden Highway to add shoulders.

COMMENT 254-3

This seems to be a project in need of a different location. The Garden Highway is more like a country lane than something that anyone would envision as a "highway". It should be renamed Garden Lane!!

RESPONSE 254-3

The commenter expresses an opinion on the merits of the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

LETTER 255

Wayne Herman; member of the community; written correspondence; dated December 18, 2025.

COMMENT 255-1

I am writing to oppose the claim that the proposed revisions to the traffic circulation network will meaningfully reduce traffic or improve safety on Garden Highway. Closing the regular vehicular connection on Radio Road and adding a traffic calming circle on San Juan Road may shift routes on paper, but they do not change the underlying problem: Garden Highway is a narrow, two-lane road with no shoulders and no margin for error.

When even one vehicle stalls, is struck, or slows unexpectedly, traffic immediately backs up in both directions. These revisions do nothing to address that reality. All project-generated traffic still funnels onto Garden Highway, which remains the sole north-south spine in the area. Concentrating traffic rather than dispersing it increases risk, not safety.

This highway simply cannot tolerate even more traffic than it has right now. Vote NO on this development!

RESPONSE 255-1

The comment expresses opinions regarding the effects of removing street connections and the capacity of Garden Highway and the ability to widen it. Contrary to the comment's characterization that all project traffic would use Garden Highway, the *Local Transportation Analysis for Upper Westside Specific Plan* (Fehr & Peers, 2022) found that 4 percent of the proposed UWSP's external vehicle trips would use Garden Highway. Under Alternative 5 described in the PRDEIR, this percentage would be reduced even further by virtue of fewer project trips heading north on Garden Highway toward I-5. See Responses 249-2 and 249-3 for details regarding project responsibilities to contribute fair share funding toward the expansion of Garden Highway to add shoulders.

LETTER 256

Harriet Steiner; member of the community; written correspondence; dated January 25, 2026.

COMMENT 256-1

I have reviewed the Partially Revised Draft EIR. I view the proposed changes suggested by the Revised DEIR as small bandaids on a large sore that cannot be fixed. The Upper West Side Project has numerous adverse impacts that cannot be mitigated as set forth in the DEIR and through public comments, among these are traffic on Garden Highway and in the surrounding community, as well as on the arterials and the interstates. As we know, Garden Highway is on the levee and cannot be widened. Increased traffic on Garden Highway is one horrible and life threatening impact of this Project and there are many more traffic related adverse impacts that also need to be addressed but, in fact, cannot be mitigated. While is may be beneficial to try to ameliorate the impact of traffic from the Project on Garden Highway I do not think that this minor change, if it is successful, is sufficient to mitigate or off set the adverse impacts on traffic from this project; nor will this proposed minor alteration of traffic patterns actually improve traffic impacts overall. Therefore, I think that this Revised EIR merely tries to hide the major adverse impacts that cannot be mitigated on Garden Highway and on all the other roads that this project will use that cannot be modified to hold the traffic that will come from this project. The no project alternative is still the best alternative.

RESPONSE 256-1

The commenter expresses opinions on the merits of the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

For more information regarding traffic and safety conditions on Garden Highway, refer to Responses 249-2 and 249-3, above, and Master Response TR-2: Garden Highway Safety Considerations in the June 2025 Final EIR.

COMMENT 256-2

Furthermore, adding an additional water source will also not mitigate the many adverse impacts of this project on water and other utilities, as set forth in the City's prior letters and by others. This land was set aside for agriculture conservation and open space and should not be considered for urban dense development causing multiple adverse impacts that cannot be mitigated. I also object to the idea of constructing this Project outside the jurisdiction of the City. This Revised EIR again highlights that problems with divided governance; the County should live up to the promises that it made years ago not to develop on this property. An additional unproven water source does not address the myriad on problems with this proposed development. Natomas was developed and sized with the underlying promise that this property would stay in agricultural and open

space uses. Further, adopted plans assume that any changes to a more urban land use would take place, if absolutely necessary, within the City so that all the residents of Natomas, including this area, live under the same form of governance, have the same elected officials that can address future issues, and pay for and benefit from the same or similar improvements. Approval of this project with divided and different service providers in different jurisdictions will exacerbate all of the impacts of this project and will hamstring future and current residents from addressing any future issues. this is another reason why the no project alternative remains the only reasonable and proper alternative for this project and the Project should be denied.

Response 256-2

The commenter expresses opposition to the proposed project. Please see Impact LU-2 in Chapter 14, *Land Use,* and Response 19-8 in the June 2025 Final EIR for discussion of the proposed UWSP's consistency with County General Plan policies related to the Natomas Joint Vision Area. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 256-3

This Revised EIR is inadequate because it addresses only slivers of the problems with this project without reopening the full EIR and addressing the adverse impacts and inadequacies addressed in the comments to the DEIR.

Response 256-3

The PRDEIR evaluates a new Alternative 5, Revised Project Alternative, which includes consideration of the Natomas Central Mutual Water Company (NCMWC) as a potential wholesale domestic water supply source and a revised circulation network intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway. As described in the PRDEIR, all other aspects of the proposed UWSP would remain unchanged under Alternative 5, including land uses, densities, and plans for infrastructure and service delivery.

The PRDEIR focuses chiefly on environmental issues that would be substantially affected by the changes included in Alternative 5. The PRDEIR specifies that all other portions of the Draft EIR and the June 2025 Final EIR remained valid and unchanged, except as otherwise discussed in the PRDEIR. Aside from a vague reference to inadequacies addressed in comments on the DEIR, which were fully responded to in the June 2025 Final EIR, the comment does not specify what impacts the PRDEIR purportedly fails to address. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 256-4

I request that the County decline to certify this Revised DEIR, reopen the EIR for this Project in its entirety and address all the comments submitted on the Draft EIR before considering this Project. I believe that if you do that it will be clear that this project is inconsistent with the County and the City's plans and will have so many adverse impacts that cannot be mitigated that this project should not go forward.

Thank you for considering these comments.

Response 256-4

The commenter expresses opposition to the proposed project. As required pursuant to CEQA Guidelines section 15088, the June 2025 Final EIR included substantive responses to all comments raising significant environmental issues received during the comment period on the Draft EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

LETTER 257

Steve and Melva Arditti; members of the community; written correspondence; dated January 26, 2026.

COMMENT 257-1

I am writing to express our continued strong objection to the Upper Westside Development proposal and to the minimally revised EIR which has been submitted.

The proposed water source seems contingent on non-existent speculative private and governmental agreements; there appears to be no assurance that adequate water would be provided or that it would not come at the expense of other essential uses. And the proposed minimal traffic "mitigations" do nothing to reduce traffic and pollution or to meaningly improve safety.

The adverse impacts on animal species, farming, existing residential areas and scenic beauty of the original plan are unchanged. Simply put, this project is too much in the wrong place.

Importantly, there are vast areas of Natomas which have been approved for development but are yet unbuilt. There is thus no shortage of available development space.

Thank you for considering our views.

RESPONSE 257-1

The comment expresses opposition to the proposed project. Please see Responses 242-1 through 242-10 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

LETTER 258

Tony Wall; member of the community; written correspondence; dated January 27, 2026.

COMMENT 258-1

I am writing to oppose the claim that the proposed revisions to the traffic circulation network will meaningfully reduce traffic or improve safety on Garden Highway. Closing the regular vehicular connection on Radio Road and adding a traffic calming circle on San Juan Road may shift routes on paper, but they do not change the underlying problem: Garden Highway is a narrow, two-lane road with no shoulders and no margin for error.

When even one vehicle stalls, is struck, or slows unexpectedly, traffic immediately backs up in both directions. These revisions do nothing to address that reality. All project-generated traffic still funnels onto Garden Highway, which remains the sole north–south spine in the area. Concentrating traffic rather than dispersing it increases risk, not safety.

This highway simply cannot tolerate even more traffic than it has right now. Vote NO on this development!

RESPONSE 258-1

The comment expresses opinions regarding the effects of removing street connections and the capacity of Garden Highway and ability to widen it. Contrary to the comment's characterization that all project traffic will use Garden Highway, the *Local Transportation Analysis for Upper Westside Specific Plan* (Fehr & Peers, 2022) found that 4 percent of the proposed UWSP's external vehicle trips would travel on Garden Highway. Under Alternative 5 described in the PRDEIR, this percentage would be reduced even further by virtue of fewer project trips heading north on Garden Highway toward I-5. See Responses 249-2 and 249-3 for details regarding project responsibilities to contribute fair share funding toward the expansion of Garden Highway to add shoulders.

LETTER 259

Tony Wall; member of the community; written correspondence; dated January 27, 2026.

COMMENT 259-1

As someone concerned about emergency response, I strongly disagree that the proposed circulation changes will reduce safety risks. Garden Highway has no shoulders. When a vehicle breaks down or an accident occurs, emergency vehicles cannot pass. It takes more time than it should - right now - for emergency vehicles to get to houses out here.

Closing Radio Road removes an alternate path that could relieve pressure during incidents. Discouraging San Juan Road use further concentrates traffic onto a road already operating at its limit. These revisions increase vulnerability during emergencies rather than reduce it.

Thank you for taking the time to read this note. Safety matters and, unless and until the Garden Highway gets upgraded to have shoulders, NO extra traffic should be added to it.

RESPONSE 259-1

The initial part of this comment requires clarification of the Revised Project Alternative 5 objectives. Page 2-1 of the PRDEIR mentions that the roadway network changes proposed under Alternative 5 are intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway. The safety benefits to Garden Highway would be achieved by having fewer project-added trips and two fewer intersections on the roadway. Garden Highway south of San Juan Road currently carries a two-way volume of 200 AM peak hour vehicles and 135 PM peak hour vehicles. Given these volumes, the commenter’s statement that Garden Highway is operating at its limit or capacity is inaccurate. Under these conditions, in the event of a vehicle broken down on the side of the road, emergency vehicles can temporarily use the opposing travel lane to pass. Please also see Responses 249-2 and 249-3, above, and Master Response TR-2: Garden Highway Safety Considerations in the June 2025 Final EIR.

LETTER 260

Arthur Gibson Howell; member of the community; written correspondence; dated January 27, 2026.

COMMENT 260-1

1. Summary

This report identifies fundamental legal and technical inadequacies in the Upper Westside Partially Recirculated Draft Environmental Impact Report (PRDEIR). As currently drafted, the PRDEIR fails to meet the "substantial evidence" requirements of the California Environmental Quality Act (CEQA) and violates safety mandates under the Sacramento County General Plan. The project creates a systemic "failure state" by proposing 9,356 units within a constrained, two-exit bottleneck that is mathematically incapable of safe evacuation or acceptable traffic flow.

RESPONSE 260-1

The comment is a summary of the assertions included in the letter, which are addressed in the responses below. Please see Responses 260-2 through 260-39 below.

COMMENT 260-2

2. Inadequacy of Traffic Analysis (LOS F and System Saturation)

The PRDEIR admits that five intersections will operate at LOS F (failing) within a two-mile corridor. Under CEQA, the analysis is inadequate for the following reasons:

Failure of Mitigation: The PRDEIR relies on the Sacramento County Board of Supervisors to adopt a "Statement of Overriding Considerations" rather than feasible mitigation (per CEQA Guidelines Section 15093). However, CEQA requires that all feasible mitigation be adopted. This is essentially a legal "pardon" for traffic congestion. The County must formally admit the traffic will be a failure but argue that the project’s benefits are more important. While it can be argued the County needs more housing, the proposed project is not realistically feasible in an area that is “locked in” by the Sacramento River on one side, I-80 on the other, and only 2 main methods of ingress and egress that will be at LOS F and gridlocked by design.

RESPONSE 260-2

Page 8-13 of the Draft EIR describes how SB 743 resulted in the replacement of vehicle level of service (LOS) with Vehicle Miles of Travel (VMT) as the metric to be used to analyze a proposed land development’s impacts on the roadway network. Consistent with the provisions of SB 743, CEQA Guidelines Section 15064.3 prohibits the use of LOS or other measures of delay as thresholds of significance in CEQA documents. For this reason, intersection and roadway LOS analysis is not presented in any of the EIR chapters. Under CEQA, mitigation measures can only be identified to offset significant

impacts. And since there were no significant LOS impacts (in accordance with SB 743), no mitigation measures were identified. However, the LTA does include a comprehensive traffic operations analysis, which identifies the need for several off-site intersection improvements.

As the PRDEIR did not conduct or present any new LOS analysis, this comment is most likely referring to the cumulative plus project revised project roadway segment analysis results included in the memo in Appendix ALT 5-1 of the PRDEIR. Please see Response 260-17 below regarding the accuracy of daily roadway segment versus peak hour intersection analysis results. Contrary to the comment, the project would be accessible from a reconstructed interchange directly onto I-80, San Juan Road to the east, Arena Boulevard to the north, and northerly and southerly connections via Garden Highway. The statement that there are only two main methods ingress and egress is false. See also Master Response TR-3: Traffic Congestion in the June 2025 FEIR.

Comment 260-3

I-5 and I-80 Saturation: The "Cumulative Impacts" analysis is flawed because it treats regional freeway saturation as a background condition that should not impede the proposed development. When the freeway mainline is at LOS F, the internal road system becomes a storage reservoir. The PRDEIR fails to model the "Gridlock Effect" where surface street queues physically prevent emergency vehicles from reaching the site.

Response 260-3

Neither the Draft EIR, June 2025 Final EIR, nor the PRDEIR included cumulative impact analysis on freeways such as I-5 and I-80 because freeway LOS is no longer required to be studied in environmental documents. The SACSIM Travel demand model used in the EIR to estimate traffic volumes on surface streets and at freeway interchanges considered the level of traffic and congestion on surrounding freeways. To the extent those facilities become increasingly congested under cumulative conditions, the model is sensitive to the added delays it causes and may reroute traffic onto surface streets. Under existing conditions, Garden Highway south of Powerline Road carried 2,300 average daily trips (ADT), San Juan Road west of El Centro Road carried 2,300, and El Centro Road south of San Juan Road carried 13,400 ADT. Under cumulative no project conditions, these segments carry 3,500, 3,200, and 23,700 ADT, respectively. This traffic growth is likely due to both diversion of trips from nearby freeways and new development in the area.

With regard to emergency vehicle access, the commenter offers no evidence as to why emergency vehicles could not access the site. Many freeways in the Sacramento region face recurring congestion. However, that does not preclude police and fire and other emergency vehicles from reaching their destinations. Vehicles are required by law to pull over. Emergency responding vehicles can also use the median or the shoulder.

Comment 260-4

Their model also states traffic exiting I-80 at West El Camino will not flow back onto the freeway causing highway safety issues, however this is incorrect if the intersections these exits feed are gridlocked. Their own reports states not only those intersections will be at LOS F (oversaturated), but four others within 2 miles will be LOS F and therefore gridlocked by design.

Response 260-4

The microsimulation model used to analyze the I-80/West El Camino Avenue interchange included both freeway ramp terminal intersections as well as major internal intersections within the project site. The lane configuration at the West El Camino Avenue/El Centro Road intersection was specifically developed to be able to serve traffic approaching that intersection from the I-80/West El Camino Avenue interchange.

Comment 260-5

Having five Level of Service (LOS) F intersections clustered within a two-mile stretch creates a compounding failure known as network saturation or gridlock. In traffic engineering, LOS F indicates that the flow has completely broken down, and the demand-to-capacity ratio (v/c) exceeds 1.0.

Response 260-5

This comment offers a definition of saturated or gridlock conditions, and then also defines LOS F conditions. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088. Please see Response 260-17 below for further explanation of the difference between roadway segment LOS and peak hour intersection LOS.

Comment 260-6

When these "failing" nodes are spaced so closely (averaging one every 0.4 miles), the following specific effects occur:

1. Queue Spillback and "Gridlock"

The most immediate effect is queue spillback. Because the intersections are less than half a mile apart, the line of waiting vehicles at one intersection will physically reach the preceding one.

- Intersection Blockage: Vehicles from the downstream "F" intersection spill back and block the upstream intersection, preventing side-street traffic from moving even when they have a green light.
- Systemic Failure: This transforms a local delay into a corridor-wide failure where movement ceases entirely across all directions.

RESPONSE 260-6

Use of micro simulation models such as SimTraffic capture the effects of queue spillback. As discussed in the June 2025 Final EIR, Chapter 2, *Project Description*, the roadway system provided by the UWSP would utilize a modified grid to allow the efficient distribution and dispersal of traffic, with collector streets looping into the Development Area from the El Centro Road thoroughfare/arterial (see Plate PD-14). The grid system would create alternative routes, so that if one road is closed or congested, other roads could serve to disperse traffic. Grid street networks have intersection spacing much shorter than the comment's suggested 0.5-mile spacing. Many of the intersections in the Downtown Sacramento grid are spaced approximately 400 feet apart. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-7

2. Loss of Signal Progression

In a standard corridor, signals are timed for "green waves" so platoons of cars can hit consecutive green lights.

- At LOS F, the "green wave" is impossible. Even if the light turns green, there is no "pocket" or storage space for vehicles to move into because the next segment is already full.
- Efficiency Drop: Research suggests that each additional signal over two per mile can increase travel time by roughly 7% under normal conditions; at LOS F, this delay becomes exponential.

RESPONSE 260-7

Coordinated traffic signals along a corridor can result in a "green wave" whereby each subsequent light turns green as the motorist approaches. This phenomenon can be seen on various Sacramento County arterials. However, signal coordination to accommodate through traffic progression is not necessary in the immediate vicinity of the project site and at the I-80/West El Camino Avenue interchange because the intersections in this area feature large volumes of left and right turning traffic versus predominantly through movements.

With regard to efficiency drop, a quick literature review did not reveal any published research indicating a 7 percent increase in travel time resulting from each added signal. As the comment does not cite where that statistic comes from, a response to it is not possible. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-8

3. Safety and Environmental Risks

- Crash Rates: High-density, stop-and-go traffic significantly increases rear-end and "fender bender" collisions due to constant braking and driver frustration.

RESPONSE 260-8

While it may be accurate that stop-and-go traffic tends to be associated with greater levels of rear end collisions, such collisions rarely result in fatalities or severe injuries. An important component of traffic safety pertains to reducing or eliminating collisions that result in severe injuries or death (i.e., “killed or severely injured (KSI) collisions”). That is not to say that property damage-only or minor injury collisions are to be tolerated. Many cities and counties are re-evaluating how they determine appropriate speed limits given the knowledge that speed is the critical factor contributing to the severity of injuries. The City of Seattle website provides insightful information regarding how they have approached speed limits and safety.[1] This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-9

- Emissions: Vehicles trapped in this two-mile "hot zone" produce significantly higher CO2 and NOx emissions due to prolonged idling and frequent acceleration/ deceleration cycles.

RESPONSE 260-9

The June 2025 Final EIR Chapter 6, *Air Quality,* discloses that motor vehicles are a primary source of NOx and CO_2 emissions and adequately evaluates the project’s potential mobile source emissions, including emissions from off-site travel, idling, and other vehicle operating conditions. Motor vehicle NOx emissions are evaluated in Impact AQ-3 (Long-term Operational Emissions of Criteria Air Pollutants and Precursors) and Impact AQ-4 (Exposure of Sensitive Receptors to TACs). These evaluations specifically quantify not only the mass amount of NOx emissions generated by the project (i.e., pounds per day, see Table AQ-10) but also the potential health effects associated with exposure to ozone concentrations, for which NOx is precursor pollutant. The EIR includes Mitigation Measures AQ-4a, AQ-4b, and AQ-4c to reduce potential exposure to criteria air pollutant emissions, including NOx, as well as toxic air contaminant emissions, but concludes the project could still result in significant and unavoidable impacts even with the incorporation of these mitigation measures.

Similarly, motor vehicle CO_2 emissions are evaluated in the June 2025 Final EIR Chapter 8, *Climate Change,* under Impact CC-1 (GHG Emissions) and Impact CC-2

[1] Speed Limits - Transportation | seattle.gov

(Conflicts with an Applicable Plan, Policy or Regulation). These evaluations specifically quantify the mass amount of CO_2 emissions generated by the project (i.e., metric tons of carbon dioxide equivalents, see Table CC-3) and the proposed UWSP's compliance with applicable plans, policies, and regulations adopted for the purposes of reducing GHG emissions, including the 2022 Climate Change Scoping Plan. With the implementation of Mitigation Measures CC-1a, CC-1b, and CC-1c, which include actions to reduce or avoid CO_2 emissions and CO_2 concentrations from specific sources like construction equipment, stationary source equipment, and motor vehicles, the EIR concludes the project's climate change impacts would be less than significant.

COMMENT 260-10

- Emergency Response: Closely spaced failing intersections can create "hard" barriers for emergency vehicles, as there is often no physical room for cars to pull over and clear a path.

RESPONSE 260-10

Emergency vehicles have a variety of options to pass through congested, signalized intersections. Often, they are equipped with emergency response sensors that enable the first responder to turn the light green in their intended direction. In other instances, the responder can use a shoulder, bike lane, or empty turn lane to pass through the intersection. In some instances, emergency vehicles travel temporarily on the opposite side of the road to bypass stopped traffic. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-11

4. Psychological and Economic "Leakage"

- Driver Frustration: This level of congestion leads to "aggressive weaving" or drivers attempting to cut through residential side streets (rat-running), which pushes the LOS F problems into neighborhoods not designed for high volume.

RESPONSE 260-11

Table 16 of the Local Transportation Analysis (LTA) prepared for the proposed UWSP (EIR Appendix TR-2) indicates that the vast majority of proposed UWSP intersections proposed would operate at LOS C or better. The areas within the proposed UWSP where peak hour stop-and-go traffic would be expected would be limited to parts of El Centro Road and West El Camino Avenue near the Town Center. It is noted in Table 21 of the LTA that the El Centro Road/West El Camino Avenue intersection would operate within 9 seconds of an acceptable LOS E condition during the AM peak hour and within 6 seconds of LOS E during the PM peak hour. While the intersection technically would operate below the standard, it would not be far from meeting it.

With regard to traffic leaking onto neighborhood streets in the area and causing purported weaving and cut-through, Page 4-25 of the draft Upper Westside Specific Plan indicates that the Town Center Side Streets would be designed as “urban streets,” consisting of two travel lanes, bike lanes, curbside parking, and separated sidewalks, in order to create the proper framework for an urban-patterned, town center environment. Urban streets would not be planned to be streets with fronting residences along them. Land uses in this area would be commercial mixed-use, high density and very high density residential. Modest levels of through traffic on these streets would be expected. However, as indicated on Figure 4-1 of the Upper Westside Specific Plan, all of these side street intersections with West El Camino Avenue between Farm Road and Street 2 would be restricted to right-turns only with the exception of full access via a traffic signal at Street 3. Accordingly, opportunities to use these side streets to bypass more congested areas would be limited due to the prohibition of left-turns.

COMMENT 260-12

- Economic Impact: A two-mile stretch of LOS F intersections can act as a barrier to local businesses, as the "cost" in time to access them exceeds the benefit for consumers.

RESPONSE 260-12

The comment asserts a speculative economic effect of the UWSP on local businesses. Because of the limited ways in which economic issues are addressed under CEQA (see CEQA Guidelines Section 15131), and an admonition against speculation in CEQA Guidelines Section 15145, speculation about economic effects is not addressed in the EIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-13

5. Technical simulation profile

Based on the data provided in the January 2026 Upper Westside Partially Recirculated EIR (PRDEIR). Using the intersection delay data and the "Alternative 5" circulation network, here is a model of how the two-mile stretch between I-80 West El Camino interchange and El Centro at Arena Blvd would function at peak capacity:

The "Gridlock" Simulation (2-Mile Corridor)

The Setup:

- Distance: 2.0 miles (I-80 West El Camino interchange to El Centro at Arena Blvd).
- Nodes: 5 intersections operating at LOS F (Delay > 80 seconds per vehicle).
- Bottle-neck: Only two primary exit paths (West El Camino to I-80 or El Centro to I-5).

RESPONSE 260-13

An updated analysis of traffic operations associated with the revised Alternative 5 project was not necessary because the revised project does not include any changes in project land uses. The changes in project access connections would result in very minor changes in traffic at nearby intersections. Table 5 in Appendix ALT 5-1 of the PRDEIR indicates that most key intersections near the UWSP area would experience a net increase or decrease of 3 percent or less peak hour traffic relative to the proposed project analyzed in the Draft EIR. Since this change is less than the typical variation in existing traffic from one day to the next, an updated set of analyses were not required. The only exception was at the Arena Boulevard/El Centro Road intersection, which would experience a 6.5 percent AM peak hour and 4.3 percent PM peak hour increase in traffic. The memo in Appendix ALT 5-1 discusses how this increase occurs for other movements and not the critical northbound right-turn and westbound left-turn, thus leading to the conclusion that no changes in required off-site improvements would be warranted at this intersection.

As the PRDEIR did not include any updated intersection LOS calculations, there was no updated intersection delay data corresponding to the Alternative 5 Circulation Network that could have been used for this purported technical simulation profile described in this comment. Further, the comment omits numerous required details that would be necessary to properly respond to the comment such as: What type of model was used? What hours were studied? What scenario was studied? What peak hour factors, heavy vehicle percentages, and signal timings were assumed? Which intersections were included? As a result of the lack of specificity in the information provided in the comment, no specific response can be made pertaining to the assertions about the results of this analysis. Conversely, the Local Transportation Analysis (LTA) prepared for the proposed UWSP (EIR Appendix TR-2) includes full documentation of underlying assumptions and study parameters upon which the analysis was conducted.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-14

Phase 1: The "Spillback" (T + 10 Minutes)

In a simulation, the first failure occurs at the West El Camino / I-80 ramp meter.

- Once the ramp meter slows to 1 car every 10 seconds, the queue extends backward.
- Because the next LOS F intersection is only ~0.4 miles away, the "tail" of the first queue physically enters the "box" of the second intersection.
- Result: Drivers on side streets (like those coming from the new 9,356 homes) have a green light but cannot move because the main road is blocked by the spillback.

RESPONSE 260-14

The comment does not provide sufficient detail to allow for a meaningful technical response. The I-80/West El Camino Avenue interchange currently includes four metered on-ramps (two eastbound and two westbound). The comment states that “a ramp meter fails,” but does not identify which of the four meters is being referenced.

The statement that “once the ramp meter slows to 1 car every 10 seconds” also suggests that the metering rate is changing in response to project traffic. Ramp metering rates are established by Caltrans and are generally based on real-time freeway operating conditions. When the freeway is congested, metering rates are reduced to manage the flow of entering vehicles; they are not adjusted in response to a specific development project.

In addition, the comment does not provide any information regarding the analytical assumptions or methods used, such as the roadway improvements assumed, heavy-vehicle percentages, peak-hour factors, signal timing inputs, or the type of model employed. Without this information, it is not possible to evaluate or respond to the comment’s assertions.

Due to the lack of specificity, no further response can be provided.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-15

Phase 2: The "Zipper Lock" (T + 20 Minutes)

The simulation shows the failure traveling upstream toward Garden Highway.

- The "Traffic Calming" measures on San Juan Road (Alternative 5) intended to slow cars now act as a physical dam.
- With the Radio Road connection restricted to "Emergency Only" or gated, the 25,000 residents are funneled exclusively into the two existing queues and Garden Hwy.
- Result: A "zipper lock" occurs. No intersection can "clear" its queue because there is no downstream "pocket" to receive vehicles. Average speed drops to < 5 mph.

RESPONSE 260-15

This comment omits information needed to properly respond. What “failure” is traveling upstream toward Garden Highway? What two queues are being referenced? What model is being used to yield congested speeds? The use of the term “zipper lock” presumably refers to a condition whereby two lanes in a direction travel merge into one lane. Vehicles must merge together, akin to a zipper being zipped up. But the comment makes no mention of where these lane merges are occurring. As a result of the lack of

specificity in the information provided in the comment, no specific response can be made pertaining to the assertions about the results of this analysis. Conversely, the Local Transportation Analysis (LTA) prepared for the proposed UWSP (EIR Appendix TR-2) includes full documentation of underlying assumptions and study parameters upon which the analysis was conducted.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-16

Phase 3: The "Closed-System" Saturation (T + 45 Minutes)

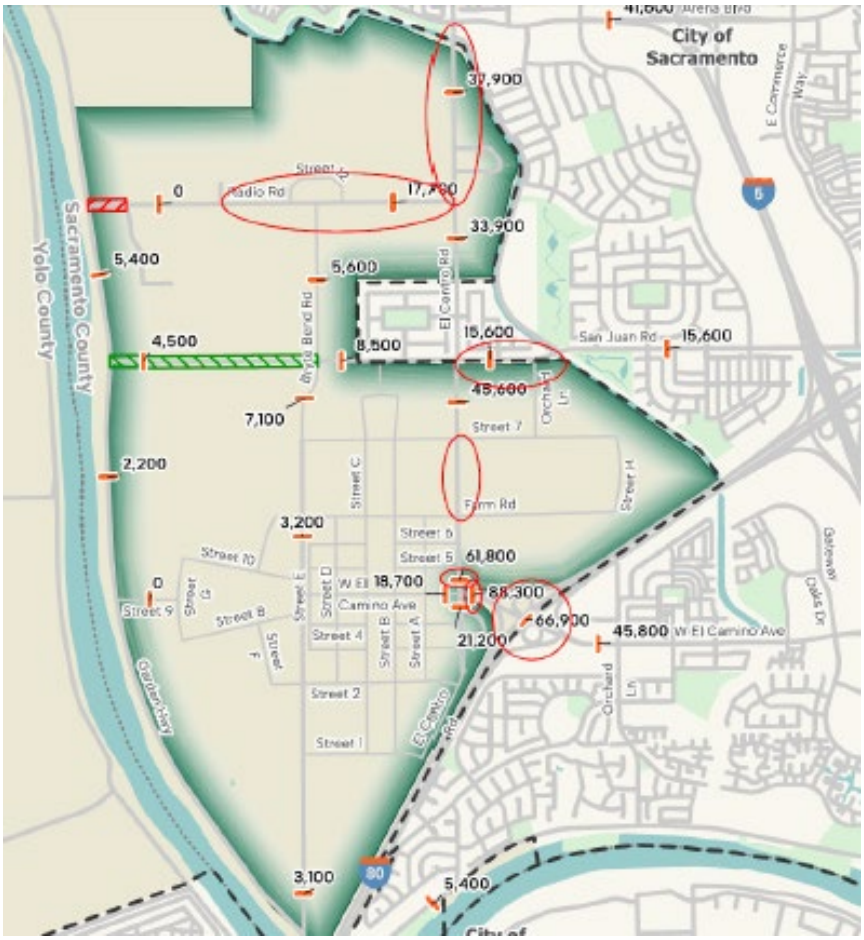
- I-5 and I-80 Saturation: The freeways are now at LOS F. The on-ramps stop moving entirely.
- Total Stasis: The 2-mile corridor is now a continuous line of ~400–500 stationary vehicles per lane.
- Response Failure: A simulated ambulance attempting to reach a hospital (none of which are located within the project area) is blocked. With the two main exits oversaturated, no room to widen San Juan Road East of the proposed project due to existing housing, and Garden Hwy limited to two lanes with no shoulder, there is no physical space for cars to pull over, creating a "Hard Barrier" for emergency services. Similar simulations for Fire and Police response produce identical results.

RESPONSE 260-16

This comment omits numerous details needed to properly respond. How were I-5 and I-80 modeled? To analyze freeways, the number of freeway lanes and traffic volumes are needed inputs. How were conclusions of LOS F operations derived? How were the simulated emergency response analyses performed? This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Lastly, it is noted that comments 260-13 through 260-16 utilize various terminologies not commonly found in the traffic engineering profession such as “peak capacity”, “total stasis", and “hard barrier”. While these are somewhat related to travel and movement, they are not found in the *Highway Capacity Manual* (TRB, 2021), suggesting that other undisclosed sources of information not necessarily recognized by the traffic engineering industry may have been used.

COMMENT 260-17



PRDEIR Figure 1 – 5 LOS F (gridlocked) intersections circled, within 1.8 miles of each other + I-80 interchange with overall unknown LOS

RESPONSE 260-17

This comment consists of the series of circles added onto Figure 1 (Average Daily Traffic under Cumulative Plus Revised Project conditions) of Appendix ALT 5-1. A comment was then added suggesting that each circle is a gridlocked LOS F intersection; however, this is not correct. The commentor appears to have circled segments based on results in Table 3 of the memo in Appendix ALT 5-1, which show specific roadway segments (not intersections) expected to operate at LOS F. Table 3 also shows the net change in cumulative daily traffic between the proposed project analyzed in the Draft EIR and the revised project. The memo states that the revised project would further degrade cumulatively LOS F operations on Radio Road between Street 12 and El Centro Road (volume-to-capacity ratio would increase from 1.14 to 1.18 due to a 600 ADT increase). The memo concludes by stating: “In summary, eliminating street connections to Garden Highway would result in less travel on it (and improved operations) with corresponding increases in traffic on El Centro Road south of Arena Boulevard and Radio Road west of El Centro Road."

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-18

Table 5: Comparison of Peak Hour Volumes at Critical Intersections

Intersection	Movement	AM (PM) Peak Hour Volume		
		Cumulative Plus Project (UWSP DEIR LTA)	Cumulative Plus Revised Project	
West El Camino/El Centro Road	Eastbound Through	637 (872)	457 (683)	128 cars / min
	Westbound Left	440 (707)	419 (720)	
	Westbound Through	750 (759)	769 (763)	2.1 cars / sec
	Westbound Right	1,877 (2,241)	1,834 (2,266)	
	Southbound Left	2,002 (2,090)	2,183 (2,205)	
	Northbound Right	619 (619)	626 (473)	
	Total & Percent Change	**7,003 (7,760)**	**6,912 (7,693) -1.3% (-0.9%)**	
West El Camino/I-80 WB Ramps	Eastbound Through	1,836 (1,933)	1,854 (1,829)	131 cars / min
	Eastbound Right	1,422 (1,520)	1,412 (1,546)	
	Westbound Through	2,211 (2,683)	2,157 (2,685)	2.2 cars / sec
	Southbound Left (Off-ramp)	697 (313)	706 (307)	
	Southbound Right (Off-ramp)	856 (1,038)	865 (1,064)	
	Total & Percent Change	**7,209 (7,993)**	**7,183 (7,874) -0.4% (-1.5%)**	
West El Camino/I-80 EB Ramps	Eastbound Through	1,829 (1,394)	1,832 (1,373)	100 cars / min
	Eastbound Right	704 (852)	728 (763)	
	Westbound Through	1,160 (1,655)	1,142 (1,593)	1.6 cars / sec
	Northbound Left (Off-ramp)	1,238 (1,534)	1,204 (1,535)	
	Northbound Right (Off-ramp)	177 (339)	210 (338)	
	Total & Percent Change	**5,724 (6,213)**	**5,650 (6,037) -1.3% (-2.8%)**	
Arena Boulevard/El Centro Road	Westbound Left	411 (608)	406 (577)	71 cars / min
	Northbound Through	886 (903)	990 (960)	
	Northbound Right	485 (561)	475 (552)	1.2 cars / sec
	Southbound Through	994 (843)	1,035 (899)	
	Total & Percent Change	**3,987 (3,988)**	**4,247 (4,161) +6.5% (+4.3%)**	

Notes:
[1] Derived by using the same version of SACSIM model used in DEIR (and same forecasting techniques) to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

PRDEIR Table 5 – Peak Hour Volume averages per minute and second - showing physically impossible “storage space” for number or vehicles on I-80 on/off ramps and Arena Blvd / I-5 access

RESPONSE 260-18

This comment is Table 5 from the memo in Appendix ALT 5-1 of the PRDEIR with the rate of vehicles per minute or second passing through each of the intersections shown for PM peak hour conditions. The comment then proclaims that the vehicles per minute or second result in “impossible storage space,” which presumably is assuming a lack of adequate storage in turn lanes to accommodate these vehicles.

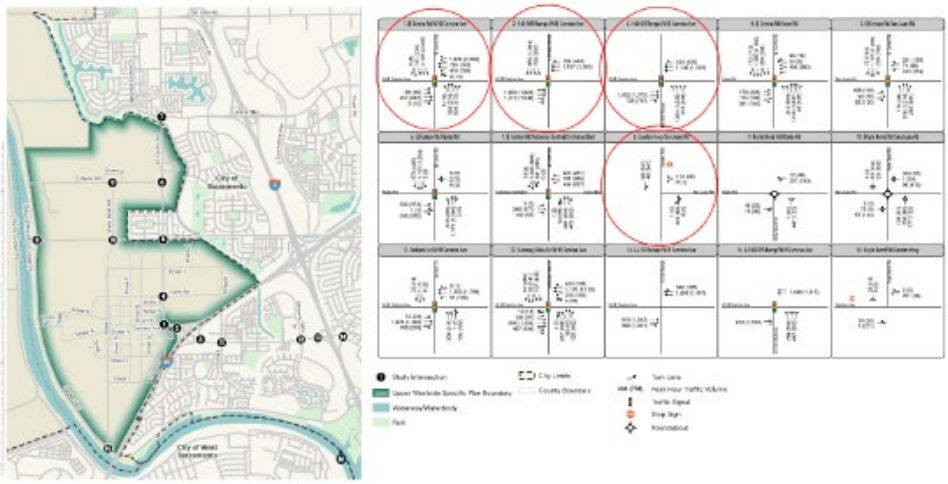
To assess turn lane storage requirements, microsimulation models are used. They consider traffic volumes, type of traffic control, signal timings and phasing (if a traffic light is present), and lane configurations among many other inputs. It is not possible to determine adequacy of storage requirements simply from a vehicles per minute or second rate. Moreover, the comment likely overlooked the fact that intersection

movements can occur simultaneously and that most intersections in the table consist of at least five lanes per approach.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-19

Peak Hour intersections with "impossible" levels of volume. San Juan at Garden Hwy shown since it does not reflect "real world" conditions, suggesting overall model is inaccurate.



Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions

RESPONSE 260-19

This comment consists of Figure 2 from Appendix ALT 5-1 with the following comments: "Peak hour intersections with impossible levels of volume San Juan at garden highway shown since it does not reflect real world conditions suggesting overall model is inaccurate. See Response 260-18. Traffic modeling and traffic counts performed for the EIR used industry-standard methodology. It is unclear how commenter believes the modeling departs from real-world conditions.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 260-20

3. Inadequacy of Transportation Mitigation: I-80/West El Camino Interchange

The PRDEIR identifies the widening and reconstruction of the I-80/West El Camino interchange as a core mitigation measure for the project's massive traffic impacts. However, this mitigation is "illusory" under CEQA for the following reasons:

Lack of CALTRANS Coordination and Funding

- Unfunded Status: The Public Facilities Financing Plan (PFFP) for the project relies on a "fair-share" transportation mitigation fee. However, the multi-hundred-million-dollar cost of a full interchange reconstruction is not fully funded by the project, nor is it currently programmed in the CALTRANS District 3 or SACOG regional transportation priority lists.

Response 260-20

This comment pertains to the need to improve the I-80/West El Camino interchange to accommodate project traffic. The Alternative 5 roadway network does not affect the need or type of interchange improvements or the project's financial responsibility to assist with funding the interchange improvements. Please see Responses 12-24 and 12-25 in the June 2025 Final EIR for more information regarding interchange improvements, the lead agency, and various funding streams. It is also worth noting that close coordination occurred with Caltrans as the EIR was being prepared. Please also see June 2025 Final EIR Responses 12-12 and 12-24.

Comment 260-21

- Jurisdictional Conflict: The County lacks jurisdiction over I-80. There is no formal Project Study Report (PSR) or Cooperative Agreement between Sacramento County and CALTRANS that guarantees the timing or design of this expansion. Without such an agreement, the PRDEIR cannot legally assume the mitigation will be built in time to serve the 25,000 projected residents.

Response 260-21

Interstate 80 and its interchange at West El Camino Avenue are part of the State Highway System, which is owned and operated by Caltrans. While Sacramento County lacks jurisdiction over the improvement, the County would work cooperatively with Caltrans in the study and design of the interchange improvement. This is similar to other completed interchange improvements involving Sacramento County, such as Metro Air Parkway on I-5 and Watt Avenue on US 50. A PSR or similar Caltrans advanced planning study is not typically conducted at this stage of a project's environmental review. The PRDEIR does not make a specific assumption regarding the construction date of interchange improvements. And it is noted that CEQA does not have a concurrency requirement for a mitigation to be implemented simultaneously with the onset of the impact. Please also see June 2025 Final EIR Responses 12-24 and 19-105.

Comment 260-22

- Missing LOS Determination: The PRDEIR fails to provide a comprehensive Level of Service (LOS) determination for the entire interchange complex. Analyzing ramp meters in isolation while the freeway mainline is at LOS F (saturation) ignores the "gridlock loop" that will occur when freeway back-ups prevent local traffic from even reaching the interchange.

RESPONSE 260-22

LOS is no longer an allowable metric under CEQA to identify significant impacts on the environment. Accordingly, the PRDEIR did not include a LOS analysis. The LTA (EIR Appendix TR-2) analyzed ramp meter operations within the SimTraffic microsimulation model that covered the entire interchange as well as nearby surface streets. The comment's assertion of a LOS F I-80 freeway mainline condition is at odds with current conditions at the interchange and lacks any technical details that substantiate that purported operating results. Please also see Response 260-2 above, and the June 2025 Final EIR Master Response TR-3: Traffic Congestion.

COMMENT 260-23

4. Evacuation and Public Safety (The Two-Exit Bottleneck)

The most egregious failure of the PRDEIR is the Safety Element.

Inadequate Egress: Proposing a community of ~25,000 residents with only two primary outlets (El Centro Rd and W. El Camino Ave) creates a "funnel" that violates FEMA and Cal OES safety guidelines.

RESPONSE 260-23

The assertion that the project has two primary entry/exit points is incorrect. Table 10 of the LTA (EIR Appendix TR-2) shows five different public street access points that would be used for project trips. Each route along with typical project trip purposes and percent usage by the project is described below:

- West El Camino Avenue (69%) – would provide direct access to I-80 to enable numerous types of trips ranging commute, school, and shopping.
- El Centro Road to Arena Boulevard (19%) – would be used to access I-5, the new Costco store on Arena Boulevard, and to reach a variety of other destinations.
- San Juan Road east of El Centro Road (8%) – would provide access to North Natomas and would be the most direct route to Natomas Marketplace on Truxel Road for some project trips.
- Garden Highway north of Radio Road (2%) – would provide the most direct access to destinations to the north on I-5 (including Sacramento International Airport and City of Woodland) for the northwesterly part of the project.
- Garden Highway under I-80 (2%) – would provide access to office and restaurants in South Natomas and is a convenient access to I-5 for the southerly part of the project.

Some routes would be used more than others due to the types of trip attractors in these areas, the project location relative to access points, and the project's higher density of land uses near I-80.

Comment 260-24

The "Trap" Geometry: Urban planners generally avoid "two-exit" designs for high-density areas specifically because they lack redundancy. Without a third or fourth high capacity "relief valve," the system has zero resiliency.

Response 260-24

Please see Response 260-23 above.

Comment 260-25

The Evacuation "Death Loop": In a regional emergency (like a flood or a fire in the foothills), I-80 and I-5 are the primary evacuation routes for the entire Sacramento region, not just the Upper Westside. Residents of the 9,356 new homes would be competing for space on the freeway with hundreds of thousands of people from Downtown, South Sacramento, and North Natomas. If I-5 is saturated North/South and I-80 is saturated East/West, the "two ways in/out" of the development effectively become dead ends.

Response 260-25

As discussed in the June 2025 Final EIR, Chapter 12, *Hazards and Hazardous Materials*, an inundation and evacuation analysis within the Natomas Basin was completed for the UWSP area. This analysis evaluated whether development under the proposed UWSP would affect emergency response and evacuation during a catastrophic levee breach, using updated basin-wide inundation modeling. The results indicate that changes in evacuation times would be minor or favorable, multiple evacuation routes would remain available, and implementation of the UWSP would not materially impair emergency response or evacuation capabilities. Furthermore, the County is required to periodically update its emergency response and evacuation plans to reflect growth and changing conditions within the UWSP area, ensuring that implementation of the UWSP would not interfere with emergency planning or evacuation procedures.

Comment 260-26

The EIR's Silence: The City of Sacramento has pointed out that the EIR does not sufficiently model a "Simultaneous Regional Event." If a flood or fire requires the evacuation of all of Natomas, the Upper Westside residents—who are at the furthest "end" of the funnel—would be physically unable to reach the freeways, even if they successfully navigated their own two-exit system.

Response 260-26

Please see Response 260-25 above.

Comment 260-27

Radio Road Paradox: The PRDEIR (Alternative 5) removes Radio Road as a public connection to "calm" traffic. Relying on a gated or "emergency-only" road for a mass evacuation of 9,000+ households is speculative. During a rapid-onset emergency (levee breach or wildfire), gated infrastructure and restricted routes consistently fail due to human panic and mechanical failure.

Response 260-27

Please see Response 260-25 above.

Comment 260-28

Unlawful Overriding: A "Statement of Overriding Considerations" can legally excuse traffic delay, but it cannot be used to override public safety and life-risk. The PRDEIR fails to provide a "Time-to-Clear" analysis for a total basin evacuation.

Response 260-28

With regard to the assertion that the PRDEIR fails to provide a time-to-clear analysis for a total basin evacuation, under CEQA the evaluation of project impacts on evacuation is generally based on whether implementation of the project would interfere with an adopted emergency response plan and not necessarily on a precise, quantitative timing model. CEQA requires analysis of how a project affects the environment, not how existing environmental conditions (such as a pre-existing, inadequate evacuation route) might affect the future residents of the project.[2]

Unless a project exacerbates an existing emergency hazard, a detailed study of how long it takes to evacuate is generally not required. Moreover, pursuant to CEQA Guidelines section 15145, CEQA lead agencies should avoid engaging in speculation. An exhaustive "time-to-clear" analysis requires modeling too many variables— wind speed, fuel moisture, time of day, traffic behavior— making specific scenarios speculative rather than representative. If a project includes adequate access points and does not interfere with existing evacuation routes, impacts related to emergency evacuation are generally considered to be less than significant. As discussed in Impact HAZ-5 (Impair Implementation of or Physically Interfere With an Emergency Operations Plan) in the June 2025 Final EIR Chapter 12, *Hazards and Hazardous Materials*, development allowed under the proposed UWSP would not interfere or impair an emergency response or evacuation plan during construction or operation, and this impact would be less than significant. Please see also Response 260-25 above.

[2] California Building Industry Association, Plaintiff and Respondent, v. Bay Area Air Quality Management District, Defendant and Appellant. No. S213478. Decided: December 17, 2015.

Comment 260-29

5. Garden Highway: The Illusion of "Traffic Calming"

The PRDEIR claims that "traffic calming" on San Juan Road will discourage through-traffic on Garden Highway. This is technically unsupported:

The "Traffic Calming" Paradox

The revised plan proposes "traffic calming" on San Juan Road to discourage through-traffic.

- The Conflict: Usually, you "calm" a road when there are alternative routes for traffic to take. In the Upper Westside project, there are only two main ways in or out.
- The Reality: If you slow down San Juan Road but don't provide a third or fourth high-capacity exit, you aren't "reducing" traffic; you are simply increasing the delay at those existing LOS F intersections. Drivers don't stop needing to leave the area; they just sit in longer queues.

Response 260-29

This comment asserts that the proposed traffic calming on San Juan Road east of Garden Highway will be ineffective. As noted on page 2-5 of the PRDEIR, the proposed traffic calming would be intended to discourage through traffic from using San Juan Road, thereby keeping volumes lower on Garden Highway. Table 2 in Appendix ALT 5-1 of the PRDEIR indicates that the combined effects of implementing traffic calming and removing the Radio Road connection to Garden Highway would be a cumulative plus project volume change from 6,200 ADT under the DEIR project to 4,500 ADT under the revised project. A two-lane road can accommodate this level of traffic, even with traffic calming measures such as vertical calming devices, and horizontal shifts to slow traffic. Congested, LOS F type conditions are not expected.

Comment 260-30

Displaced Flow: In a two-exit system, drivers do not "disappear." If other exits are gridlocked, drivers will naturally seek the path of least resistance. Because Garden Highway remains a direct route to the I-5/I-80 interchange, the PRDEIR fails to account for the "Rat-Running" effect where residents will overwhelm the fragile, two-lane levee road regardless of signage, speed humps, or traffic circles.

Response 260-30

Please see the June 2025 Final EIR Master Response TR-2: Garden Highway Safety Considerations and Master Response TR-3: Traffic Congestion. Also please see Response 260-23 above.

COMMENT 260-31

Levee Integrity: Increased volume on Garden Highway poses a physical risk to the levee structure and those living, biking, and walking on the levee; an impact not adequately mitigated in the current PRDEIR.

RESPONSE 260-31

Impacts of the proposed UWSP related to soil stability and structural safety are fully addressed in Chapter 1, *Geology, Soils, and Paleontology*, of the June 2025 Final EIR. The commenter offers no evidence of increased risk to the levee or those living, biking, or walking on the levee as a result of the proposed UWSP or Alternative 5.

COMMENT 260-32

6. Increased Vehicle Emissions and Climate Impacts

By forcing 9,356 households into a semi-permanent LOS F gridlock, the project creates a "Hot Spot" of criteria pollutants (CO, NOx, and PM2.5).

VMT vs. LOS: While the developers argue that the "internal" design is walkable (reducing Vehicle Miles Traveled), this doesn't help the "external" bottleneck. Once those 9,300 households need to leave for work, medical appointments, or errands, they hit the same two potentially gridlocked main exits.

Idling Emissions: The Air Quality analysis is inadequate because it uses "average trip lengths" rather than "idling time in gridlock." Stationary cars in a 4-cycle signal delay produce exponentially more emissions than the PRDEIR's models suggest, violating Clean Air Act standards for the Sacramento non-attainment area.

RESPONSE 260-32

Comment 260-32 alludes to a "hot spot" of criteria air pollutants associated with LOS F conditions at certain intersections evaluated in the EIR. As noted in Response 260-9, the EIR is clear that motor vehicles are a primary source of emissions. Furthermore, the EIR is clear that the traffic patterns associated with LOS F conditions (e.g., low travel speeds and stop-and-go driving) result in higher emissions for certain criteria air pollutants, such as carbon monoxide. However, these facts do not mean that the EIR analysis of mobile source air quality impacts is inadequate, as discussed further below.

The five LOS F intersections identified by the commenter are each located at least approximately one-quarter mile (1,320 feet) from each other and separated by more than 1.8 miles in total. This separation would limit the same receptor from being exposed to pollutant concentrations associated with motor vehicle operations in different locations. Furthermore, as explained in the June 2025 Final EIR, Chapter 6, *Air Quality,* the California Air Resources Board's Air Quality and Land Use Handbook recommends avoiding the placement of new sensitive land uses within 500 feet of roads that carry

100,000 vehicles per day, a requirement which is included in Mitigation Measure AQ-4a. Thus, the EIR includes measures to limit exposure to motor vehicle emissions.

Finally, as a point of clarification, the EIR estimates mobile source emissions for a variety of vehicle operations. As explained in the June 2025 Final EIR, Chapter 6, *Air Quality,* the proposed UWSP's mobile source emissions were estimated using the California Emissions Estimator Model, or CalEEMod. Appendix C to the CalEEMod User's Guide states (p. C-27), "On-road operational mobile source emissions are generated by resident, worker, customer, and delivery vehicles visiting the land use subtypes of a project. The emission processes associated with on-road mobile sources includes running, starting, idling, evaporative, and mechanical (e.g., brake wear, tire wear, and road dust). Running and mechanical emissions depend on VMT. All other emissions depend on the number of vehicle trips." Thus, the methodology used to calculate mobile source emissions incorporates idling emissions estimates associated with congestion. CalEEMod's idling estimates are based on CARB's Emissions Factor (EMFAC) model, which incorporates region-specific vehicle fleet and activity information on factors such as vehicle miles travelled, idle-hours, etc.

COMMENT 260-33

7. Speculative Water Supply: NCMWC and Water Rights Challenges

The PRDEIR introduces the Natomas Central Mutual Water Company (NCMWC) as a primary raw water provider. This proposal contains significant legal and environmental "red flags"

1. The "Agricultural Only" Gap

NCMWC's primary water source is the Sacramento River Settlement Contract with the U.S. Bureau of Reclamation. These contracts are designed for the "typical valley growing season" (April to October).

- The Problem: The Settlement Contracts do not traditionally provide water for municipal use during the winter. For the Upper Westside project to function, 9,356 homes need "M&I" (Municipal and Industrial) water 365 days a year.
- Regulatory Hurdle: Converting seasonal irrigation rights into year-round domestic rights requires a formal "Petition for Change" through the State Water Resources Control Board. This process is notoriously difficult, especially for the Sacramento River, which is already designated as "fully appropriated" during many months of the year.

RESPONSE 260-33

Please see Response 248-3 above.

As described in the WSA included as PRDEIR Appendix Alt-5-2, on page 17, the NCMWC maintains specific M&I water rights for use at the Sacramento Airport and

Metro Airpark areas. The Sacramento River is a fully appropriated stream part of the year. Service to the proposed UWSP (Alternative 5) would require a change in “purpose of use” from agricultural uses to M&I, but it would not change NCMWC’s Settlement Agreement to divert up to 120,100 AFY from the Sacramento River. Under this change in purpose of use, NCMWC would only divert surface water to meet demand within its existing service area, including the proposed UWSP.

COMMENT 260-34

2. Competition with Winter-Run Chinook Salmon

According to the California Department of Fish and Wildlife (CDFW) (January 13, 2026), the project aims to divert an additional 3,139 acre-feet per year, with a majority of that diversion occurring between September and March.

- The Conflict: This winter diversion window overlaps directly with the migration and incubation periods of the Sacramento River winter-run Chinook salmon (an endangered species).
- Survival Impact: In dry or "critically dry" years, winter water levels are already dangerously low. New diversions during these months increase water temperatures and reduce the "cold water pool" at Shasta Reservoir, which federal agencies are mandated to protect.

RESPONSE 260-34

The comment asserts that the proposed UWSP would divert an additional 3,139 acre-feet per year. However, Table ALT 5-4 in Chapter 2, *Alternative 5: Revised Project Alternative,* of the PRDEIR, indicates an average net change in water usage of only 458 acre-feet per year. When comparing existing water diversions at the Riverside Pumping Plant to diversions under Alternative 5, the proposed UWSP would utilize more surface water during the cooler months between September and March, and generally less water in the warmer months between April and August (see Table ALT 5-4). As a result, there would be increased diversions of the Sacramento River during the months of September through March in the range of approximately 122 AF to 270 AF, and less diversions during April through August of approximately -67 AF to -261 AF, for average net increase of 458 AF across all months (see Table ALT 5-4). And even under minimum monthly Sacramento River flow conditions (6,041 cfs to 10,238 cfs), the additional diversions in September through March equate to 0.02 to 0.07 percent of the flow present in the Sacramento River (see Table ALT 5-5). Therefore, these very small diversion amounts (less than 0.08 percent) under Alternative 5 would not be expected to have a meaningful impact on fish habitat or fish survival.

In addition, the diversions for the proposed UWSP would not alter protective flow releases from Shasta Reservoir required under the BiOps for the long-term operations of the SWP and CVP. As such, the proposed UWSP would not impact the delivery of water in the upper Sacramento River or reduce the cold water pool at Shasta Reservoir,

and thus would not adversely affect the habitat of protected fish species in the Sacramento River. Please see Responses 243-5 and 250-20 above.

COMMENT 260-35

3. Starving the Giant Garter Snake (GGS) Habitat

The Natomas Basin habitat depends on "managed marsh" and rice-land irrigation.

- Ecological Theft: CDFW has formally warned that if NCMWC prioritizes its limited winter water for urban residents, it may deprive the Natomas Basin Conservancy of the water needed to maintain aquatic mitigation for the Giant Garter Snake during drought years.
- CEQA Violation: The PRDEIR fails to explain how it will mitigate the loss of water to these protected species if the "urban" demand takes priority over "environmental" water during the winter.

RESPONSE 260-35

Please see Responses 243-5 and 250-20 above.

COMMENT 260-36

8. Violation of Federal and State Species Protection

The Natomas Basin is a critical habitat for the Swainson’s Hawk and the Giant Garter Snake (recently named California's state snake).

Habitat Fragmentation: The PRDEIR relies on the Natomas Basin Habitat Conservation Plan (NBHCP). However, the sheer scale of the Upper Westside project, combined with two other major Natomas developments (totaling 7,600+ acres), exceeds the "take" assumptions of the original 50-year plan.

RESPONSE 260-36

The U.S. Fish and Wildlife Service designates Critical Habitat for Threatened and Endangered Species that are listed under the federal Endangered Species Act (ESA). Swainson’s hawk is not listed under the ESA and no critical habitat is designated for the species. Giant garter snake is listed as threatened under the ESA; however, USFWS has not designated critical habitat for the species. Potential impacts on these species are fully addressed in the June 2025 Final EIR in Impact BR-3 (Giant Garter Snake), Impact BR-7 (Swainson’s Hawk), and Master Responses BR-2, BR-3, and BR-4. The potential for the proposed UWSP to conflict with the provisions of the NBHCP are fully addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) and Master Response BR-1 in the June 2025 Final EIR.

Comment 260-37

Water Diversion: As noted by the California Dept. of Fish and Wildlife (CDFW) in January 2026, the project's new water source (NCMWC) may deprive the Natomas Basin Conservancy of the water needed to maintain aquatic habitats during drought, leading to a "Significant" impact on the Giant Garter Snake that the PRDEIR fails to mitigate.

Response 260-37

Please see Responses 243-5 and 250-20 above.

Comment 260-38

7. Conclusion

The Upper Westside PRDEIR is legally deficient. It attempts to use housing goals to bypass fundamental laws of physics and public safety. Because the project cannot provide a third or fourth exit due to levee constraints, it is internally inconsistent with the Sacramento County General Plan.

Response 260-38

The comment summarizes assertions of purported deficiencies and violations addressed in the preceding responses. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 260-39

Recommendation: The County must Decertify the PRDEIR

Response 260-39

The comment expresses an opinion related to a future action of the Sacramento County Board of Supervisors. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

LETTER 261

Chris Rufer; member of the community; written correspondence; dated January 27, 2026.

COMMENT 261-1

Dear Members of the Sacramento County Planning Commission: I submit this letter in opposition to the Partially Recirculated Draft Environmental Impact Report (PRDEIR) for the Upper Westside Specific Plan (UWSP). I do so as both a Garden Highway resident directly affected by the Project's traffic, safety, and environmental impacts, and as an agricultural stakeholder who has offered to purchase land within the Upper Westside planning area at fair-market value for continued agricultural use.

RESPONSE 261-1

The commenter expresses opposition to the PRDEIR. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 261-2

The farmland proposed for urban conversion under the UWSP is viable and in demand for agricultural production today. This Project is not responding to a lack of agricultural use, but rather displacing productive farmland in conflict with long-standing habitat protection, urban services, and interagency agreements.

RESPONSE 261-2

The commenter expresses an opinion on the merits of the proposed project. The effects of the proposed UWSP and Alternative 5 are addressed in the June 2025 Final EIR, Chapter 5, *Agricultural Resources*, Impact AG-1. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 261-3

1. Water Source and Treatment

The PRDEIR relies on a revised water supply concept that depends on a potential Sacramento River diversion through Natomas Central Mutual Water Company and a future undefined treatment facility.

This approach relies on:

- An optional and unsecured water source
- No executed agreements guaranteeing supply. priority. or delivery

- Assumptions of reliability during drought and curtailment without clear allocation or operational limits

This creates significant uncertainty and shifts real risk to existing residents and river-dependent systems.

RESPONSE 261-3

Please see Response 248-3 above.

COMMENT 261-4

2. Biological Resources

The PRDEIR minimizes biological impacts from increased Sacramento River diversion and land conversion through generalized conclusions rather than site-specific analysis. The Project conflicts with existing habitat protection commitment and interagency agreements intended to preserve riverine. riparian, and agricultural buffer areas in the Upper Westside.

The PRDEIR does not explain how these conflicts are resolved or why those commitments should be set aside.

RESPONSE 261-4

Effects of the proposed UWSP related to biological resources, including effects related to sensitive wildlife species and their associated habitats, are evaluated in Chapter 7, *Biological Resources*, of the June 2025 Final EIR. The EIR identifies that potential impacts related to biological resources would be reduced to a less-than-significant level through implementation of recommended mitigation measures. Impacts of the proposed UWSP related to the Natomas Basin and Metro Air Park HCPs are fully addressed in Impact BR-14 (Conflict with Natomas Basin HCP and Metro Air Park HCP) in Chapter 7*, Biological Resources*, and Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan in the June 2025 Final EIR. The project footprint of the UWSP would not change under Alternative 5. Therefore, the potential impacts to terrestrial biological resources, wetlands, other waters, or riparian habitat would likewise remain unchanged.

The potential effects of Sacramento River diversions associated with delivery of wholesale water from the NCMWC are addressed in the PRDEIR, pages 2-6 through 2-29, including Impact ALT 5 BIO-1. As noted in that discussion, “Numerical modeling (e.g. CalSim) to evaluate changes in river flows was not warranted because project-related changes in river flows (from changes in diversions) are a fraction of a percentage and within the sensitivity bounds (e.g., model noise or error) of the best available hydrologic and habitat suitability models.” Nevertheless, Impact ALT 5 BIO-1 includes a 5-page analysis of the potential effects of the proposed diversions at the Riverside Pumping Plant, including Near-Field Impacts, Far-Field Impacts, and Maintenance Impacts. This comment raises neither new significant environmental

issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 261-5

3. Transportation and Garden Highway Impacts

As a Garden Highway resident. I am directly affected by the Project's circulation impacts. While the PRDEIR proposes removing a standard Radio Road connection and adding traffic calming, it acknowledges that significant and unavoidable transportation impacts remain.

Project-related traffic is estimated to add approximately 12,500 daily vehicle trips. and the PRDEIR:

- Shifts traffic rather than reducing it
- Lacks enforceable protections against cut-through traffic on rural residential roads
- Does not adequately address emergency-only access enforcement or safety risks

Minor adjustments do not offset the overall increase in traffic burden placed on Garden Highway and surrounding roads.

RESPONSE 261-5

This comment erroneously states that Table 2 of the memorandum in Appendix ALT 5-1 of the PRDEIR shows a 12,500 ADT increase, presumably on Garden Highway. No such increase is shown in the memorandum. Alternative 5 would not include any land use changes that would result in the generation of more or fewer overall trips. The intent of Circulation Network Alternative 5 would be to redirect traffic in a way that reduces project-related trips on Garden Highway. Please see also the June 2025 Final EIR Master Response TR-2: Garden Highway Safety Considerations and Master Response TR-3: Traffic Congestion.

COMMENT 261-6

4. Agricultural Resources

The PRDEIR treats farmland conversion as unavoidable despite clear evidence that:

- The land is suitable and available for continued agricultural use
- There is active market demand
- I have offered to purchase land at fair-market agricultural value to keep it in production

Urbanization here is a policy choice, not a necessity.

RESPONSE 261-6

As required by CEQA, the June 2025 Final EIR evaluates impacts of the proposed UWSP related to conversion of farmland to non-agricultural uses. Because under CEQA the purpose of the EIR is to disclose the physical adverse environmental effects of the proposed project, economic factors such as market demand or purchase offers are not considered in the environmental analysis.

As discussed in Impact AG-1 of the June 2025 Final EIR, the proposed UWSP would result in the loss of approximately 1,372 acres of Important Farmland subject to mitigation pursuant to General Plan Policy AG-5. As discussed in the analysis, implementation of Mitigation Measure AG-1 would require preservation of farmland at a 1:1 ratio. However, the California courts have determined that, while preservation of farmland may reduce the severity of an impact related to the loss of Important Farmland, because there would still be a net loss of farmland resources, such mitigation does not mitigate the impact to insignificance.[3] Consistent with this legal direction, the EIR concludes that, even with Mitigation Measure AG-1 there would be a net loss of farmland within Sacramento County as a result of the proposed UWSP, and this impact would be significant and unavoidable. Therefore, despite mitigation requiring preservation at a 1:1 ratio, the June 2025 Final EIR appropriately identifies that a significant and unavoidable impact related to the conversion of farmland to non-agricultural uses would occur with implementation of the proposed UWSP.

As discussed in Chapter 2, *Alternative 5: Revised Project Alternative,* of the PRDEIR, impacts related to agricultural resources under Alternative 5 would be the same as those described for the proposed UWSP because the same farmland within the UWSP area would be converted to urban uses. Therefore, with respect to the conversion of farmland to non-agricultural uses, the proposed plan's significant and unavoidable impact with mitigation would remain the same under Alternative 5.

COMMENT 261-7

The PRDEIR relies on uncertain water supply assumptions, minimizes biological impacts, leaves major traffic and safety issues unresolved. and disregards long-standing agreements governing habitat protection and urban services. For these reasons. I respectfully request that the Planning Commission not recommend certification of the PRDEIR.

RESPONSE 261-7

The comment summarizes assertions of purported deficiencies and violations addressed in the preceding responses. Please see Responses 261-1 through 261-6 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

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[3] *V Lions Farming, LLC v. County of Kern*, (2024) 100 Cal.App.5th 412, 318 Cal.Rptr.3d 879 (Cal. Ct. App., 5th Dist. Mar. 7, 2024)

LETTER 262

Melissa Brown, member of the community; written correspondence; dated January 27, 2026.

COMMENT 262-1

1. Executive Summary

This report identifies fundamental legal and technical inadequacies in the Upper Westside Partially Recirculated Draft Environmental Impact Report (PRDEIR). As currently drafted, the PRDEIR fails to meet the "substantial evidence" requirements of the California Environmental Quality Act (CEQA) and violates safety mandates under the Sacramento County General Plan. The project creates a systemic "failure state" by proposing 9,356 units within a constrained, two-exit bottleneck that is mathematically incapable of safe evacuation or acceptable traffic flow.

2. Inadequacy of Traffic Analysis (LOS F and System Saturation)

The PRDEIR admits that five intersections will operate at LOS F (failing) within a two-mile corridor. Under CEQA, the analysis is inadequate for the following reasons:

Failure of Mitigation: The PRDEIR relies on the Sacramento County Board of Supervisors to adopt a "Statement of Overriding Considerations" rather than feasible mitigation (per CEQA Guidelines Section 15093). However, CEQA requires that all feasible mitigation be adopted. This is essentially a legal "pardon" for traffic congestion. The County must formally admit the traffic will be a failure but argue that the project’s benefits are more important. While it can be argued the County needs more housing, the proposed project is not realistically feasible in an area that is “locked in” by the Sacramento River on one side, I-80 on the other, and only 2 main methods of ingress and egress that will be at LOS F and gridlocked by design.

I-5 and I-80 Saturation: The "Cumulative Impacts" analysis is flawed because it treats regional freeway saturation as a background condition that should not impede the proposed development. When the freeway mainline is at LOS F, the internal road system becomes a storage reservoir. The PRDEIR fails to model the "Gridlock Effect" where surface street queues physically prevent emergency vehicles from reaching the site.

Their model also states traffic exiting I-80 at West El Camino will not flow back onto the freeway causing highway safety issues, however this is incorrect if the intersections these exits feed are gridlocked. Their own reports states not only those intersections will be at LOS F (oversaturated), but four others within 2 miles will be LOS F and therefore gridlocked by design.

Having five Level of Service (LOS) F intersections clustered within a two-mile stretch creates a compounding failure known as network saturation or gridlock. In traffic engineering, LOS F indicates that the flow has completely broken down, and the demand-to-capacity ratio (v/c) exceeds 1.0.

When these "failing" nodes are spaced so closely (averaging one every 0.4 miles), the following specific effects occur:

1. Queue Spillback and "Gridlock"

The most immediate effect is queue spillback. Because the intersections are less than half a mile apart, the line of waiting vehicles at one intersection will physically reach the preceding one.

- Intersection Blockage: Vehicles from the downstream "F" intersection spill back and block the upstream intersection, preventing side-street traffic from moving even when they have a green light.
- Systemic Failure: This transforms a local delay into a corridor-wide failure where movement ceases entirely across all directions.

2. Loss of Signal Progression

In a standard corridor, signals are timed for "green waves" so platoons of cars can hit consecutive green lights.

- At LOS F, the "green wave" is impossible. Even if the light turns green, there is no "pocket" or storage space for vehicles to move into because the next segment is already full.
- Efficiency Drop: Research suggests that each additional signal over two per mile can increase travel time by roughly 7% under normal conditions; at LOS F, this delay becomes exponential.

3. Safety and Environmental Risks

- Crash Rates: High-density, stop-and-go traffic significantly increases rear-end and "fender bender" collisions due to constant braking and driver frustration.
- Emissions: Vehicles trapped in this two-mile "hot zone" produce significantly higher CO2 and NOx emissions due to prolonged idling and frequent acceleration/ deceleration cycles.
- Emergency Response: Closely spaced failing intersections can create "hard" barriers for emergency vehicles, as there is often no physical room for cars to pull over and clear a path.

4. Psychological and Economic "Leakage"

- Driver Frustration: This level of congestion leads to "aggressive weaving" or drivers attempting to cut through residential side streets (rat-running), which pushes the LOS F problems into neighborhoods not designed for high volume.

- Economic Impact: A two-mile stretch of LOS F intersections can act as a barrier to local businesses, as the "cost" in time to access them exceeds the benefit for consumers.

5. Technical simulation profile

Based on the data provided in the January 2026 Upper Westside Partially Recirculated EIR (PRDEIR). Using the intersection delay data and the "Alternative 5" circulation network, here is a model of how the two-mile stretch between I-80 West El Camino interchange and El Centro at Arena Blvd would function at peak capacity:

The "Gridlock" Simulation (2-Mile Corridor)

The Setup:

- Distance: 2.0 miles (I-80 West El Camino interchange to El Centro at Arena Blvd).
- Nodes: 5 intersections operating at LOS F (Delay > 80 seconds per vehicle).
- Bottle-neck: Only two primary exit paths (West El Camino to I-80 or El Centro to I-5).

Phase 1: The "Spillback" (T + 10 Minutes)

In a simulation, the first failure occurs at the West El Camino / I-80 ramp meter.

- Once the ramp meter slows to 1 car every 10 seconds, the queue extends backward.
- Because the next LOS F intersection is only ~0.4 miles away, the "tail" of the first queue physically enters the "box" of the second intersection.
- Result: Drivers on side streets (like those coming from the new 9,356 homes) have a green light but cannot move because the main road is blocked by the spillback.

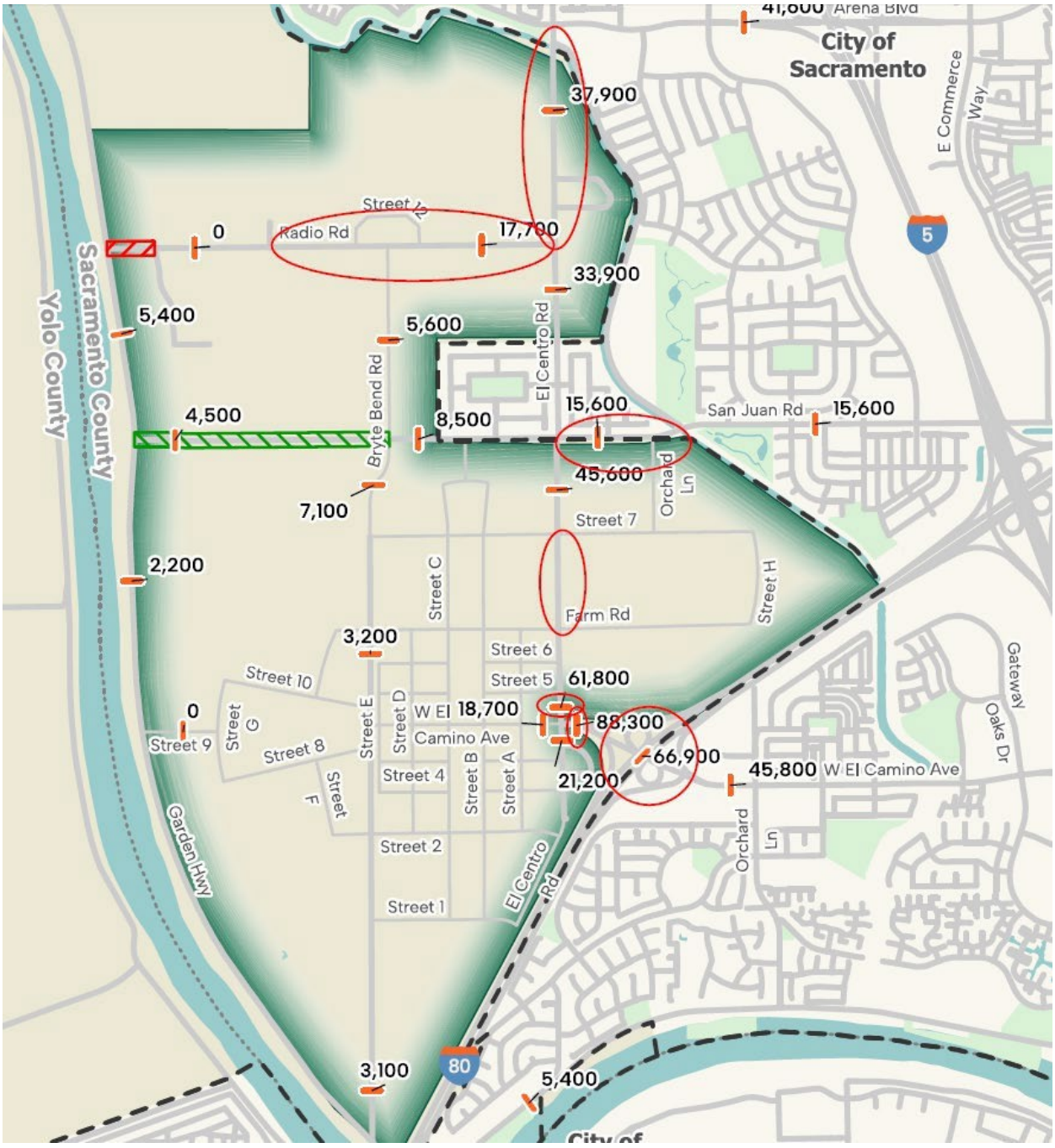
Phase 2: The "Zipper Lock" (T + 20 Minutes)

The simulation shows the failure traveling upstream toward Garden Highway.

- The "Traffic Calming" measures on San Juan Road (Alternative 5) intended to slow cars now act as a physical dam.
- With the Radio Road connection restricted to "Emergency Only" or gated, the 25,000 residents are funneled exclusively into the two existing queues and Garden Hwy.
- Result: A "zipper lock" occurs. No intersection can "clear" its queue because there is no downstream "pocket" to receive vehicles. Average speed drops to < 5 mph.

Phase 3: The "Closed-System" Saturation (T + 45 Minutes)

- I-5 and I-80 Saturation: The freeways are now at LOS F. The on-ramps stop moving entirely.



PRDEIR Figure 1 – 5 LOS F (gridlocked) intersections circled, within 1.8 miles of each other + I-80 interchange with overall unknown LOS

Table 5: Comparison of Peak Hour Volumes at Critical Intersections

Intersection	Movement	AM (PM) Peak Hour Volume		
		Cumulative Plus Project (UWSP DEIR LTA)	Cumulative Plus Revised Project	
West El Camino/El Centro Road	Eastbound Through	637 (872)	457 (683)	128 cars / min
	Westbound Left	440 (707)	419 (720)	
	Westbound Through	750 (759)	769 (763)	
	Westbound Right	1,877 (2,241)	1,834 (2,266)	2.1 cars / sec
	Southbound Left	2,002 (2,090)	2,183 (2,205)	
	Northbound Right	619 (419)	626 (473)	
	Total & Percent Change	**7,003 (7,760)**	**6,912 (7,693) –1.3% (–0.9%)**	
West El Camino/I-80 WB Ramps	Eastbound Through	1,836 (1,933)	1,854 (1,829)	131 cars / min
	Eastbound Right	1,422 (1,520)	1,412 (1,546)	
	Westbound Through	2,211 (2,683)	2,157 (2,685)	
	Southbound Left (Off-ramp)	697 (313)	706 (307)	2.2 cars / sec
	Southbound Right (Off-ramp)	856 (1,038)	865 (1,064)	
	Total & Percent Change	**7,209 (7,993)**	**7,183 (7,874) –0.4% (–1.5%)**	
West El Camino/I-80 EB Ramps	Eastbound Through	1,829 (1,394)	1,832 (1,373)	100 cars / min
	Eastbound Right	704 (852)	728 (763)	
	Westbound Through	1,160 (1,655)	1,142 (1,593)	
	Northbound Left (Off-ramp)	1,238 (1,534)	1,204 (1,535)	1.6 cars / sec
	Northbound Right (Off-ramp)	177 (339)	210 (338)	
	Total & Percent Change	**5,724 (6,213)**	**5,650 (6,037) –1.3% (–2.8%)**	
Arena Boulevard/El Centro Road	Westbound Left	411 (608)	406 (577)	71 cars / min
	Northbound Through	886 (903)	990 (960)	
	Northbound Right	485 (561)	475 (552)	
	Southbound Through	994 (843)	1,035 (899)	1.2 cars / sec
	Total & Percent Change	**3,987 (3,988)**	**4,247 (4,161) +6.5% (+4.3%)**	

Notes:
[3] Derived by using the same version of SACSIM model used in DEIR (and same forecasting techniques) to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

PRDEIR Table 5 – Peak Hour Volume averages per minute and second - showing physically impossible "storage space" for number or vehicles on I-80 on/off ramps and Arena Blvd / I-5 access

Peak Hour intersections with "impossible" levels of volume. San Juan at Garden Hwy shown since it does not reflect "real world" conditions, suggesting overall model is inaccurate.

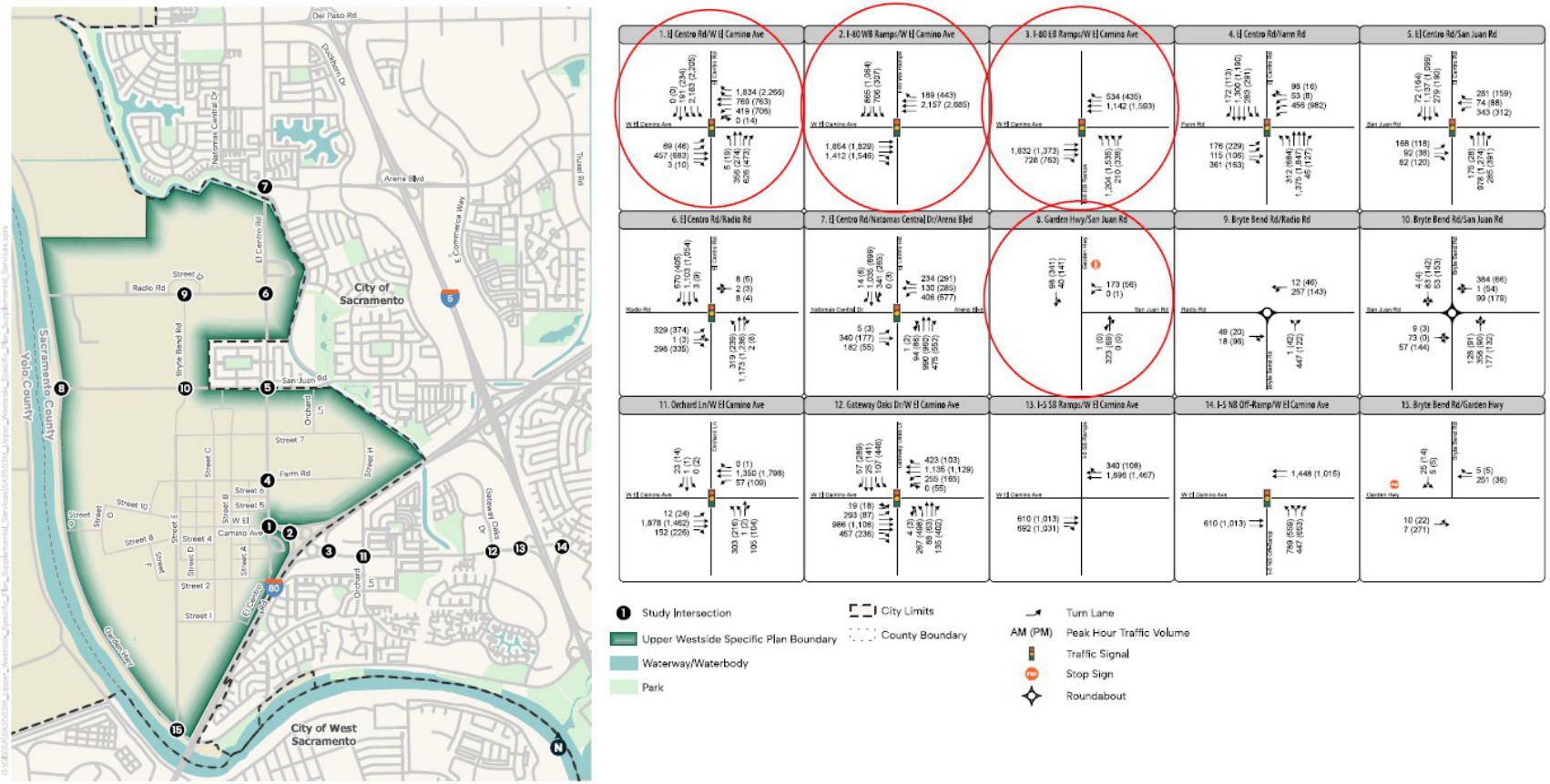


FIGURE 2

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions

- Total Stasis: The 2-mile corridor is now a continuous line of ~400–500 stationary vehicles per lane.
- Response Failure: A simulated ambulance attempting to reach a hospital (none of which are located within the project area) is blocked. With the two main exits oversaturated, no room to widen San Juan Road East of the proposed project due to existing housing, and Garden Hwy limited to two lanes with no shoulder, there is no physical space for cars to pull over, creating a "Hard Barrier" for emergency services. Similar simulations for Fire and Police response produce identical results.

3. Inadequacy of Transportation Mitigation: I-80/West El Camino Interchange

The PRDEIR identifies the widening and reconstruction of the I-80/West El Camino interchange as a core mitigation measure for the project's massive traffic impacts. However, this mitigation is "illusory" under CEQA for the following reasons:

Lack of CALTRANS Coordination and Funding

- Unfunded Status: The Public Facilities Financing Plan (PFFP) for the project relies on a "fair-share" transportation mitigation fee. However, the multi-hundred-million-dollar cost of a full interchange reconstruction is not fully funded by the project, nor is it currently programmed in the CALTRANS District 3 or SACOG regional transportation priority lists.
- Jurisdictional Conflict: The County lacks jurisdiction over I-80. There is no formal Project Study Report (PSR) or Cooperative Agreement between Sacramento County and CALTRANS that guarantees the timing or design of this expansion. Without such an agreement, the PRDEIR cannot legally assume the mitigation will be built in time to serve the 25,000 projected residents.
- Missing LOS Determination: The PRDEIR fails to provide a comprehensive Level of Service (LOS) determination for the entire interchange complex. Analyzing ramp meters in isolation while the freeway mainline is at LOS F (saturation) ignores the "gridlock loop" that will occur when freeway back-ups prevent local traffic from even reaching the interchange.

4. Evacuation and Public Safety (The Two-Exit Bottleneck)

The most egregious failure of the PRDEIR is the Safety Element.

Inadequate Egress: Proposing a community of ~25,000 residents with only two primary outlets (El Centro Rd and W. El Camino Ave) creates a "funnel" that violates FEMA and Cal OES safety guidelines.

The "Trap" Geometry: Urban planners generally avoid "two-exit" designs for high-density areas specifically because they lack redundancy. Without a third or fourth high capacity "relief valve," the system has zero resiliency.

The Evacuation "Death Loop": In a regional emergency (like a flood or a fire in the foothills), I- 80 and I-5 are the primary evacuation routes for the entire Sacramento

region, not just the Upper Westside. Residents of the 9,356 new homes would be competing for space on the freeway with hundreds of thousands of people from Downtown, South Sacramento, and North Natomas. If I-5 is saturated North/South and I-80 is saturated East/West, the "two ways in/out" of the development effectively become dead ends.

The EIR's Silence: The City of Sacramento has pointed out that the EIR does not sufficiently model a "Simultaneous Regional Event." If a flood or fire requires the evacuation of *all* of Natomas, the Upper Westside residents—who are at the furthest "end" of the funnel—would be physically unable to reach the freeways, even if they successfully navigated their own two- exit system.

Radio Road Paradox: The PRDEIR (Alternative 5) removes Radio Road as a public connection to "calm" traffic. Relying on a gated or "emergency-only" road for a mass evacuation of 9,000+ households is speculative. During a rapid-onset emergency (levee breach or wildfire), gated infrastructure and restricted routes consistently fail due to human panic and mechanical failure.

Unlawful Overriding: A "Statement of Overriding Considerations" can legally excuse traffic delay, but it cannot be used to override public safety and life-risk. The PRDEIR fails to provide a "Time- to-Clear" analysis for a total basin evacuation.

5. Garden Highway: The Illusion of "Traffic Calming"

The PRDEIR claims that "traffic calming" on San Juan Road will discourage through-traffic on Garden Highway. This is technically unsupported:

The "Traffic Calming" Paradox

The revised plan proposes "traffic calming" on San Juan Road to discourage through-traffic.

- The Conflict: Usually, you "calm" a road when there are alternative routes for traffic to take. In the Upper Westside project, there are only two main ways in or out.
- The Reality: If you slow down San Juan Road but don't provide a third or fourth high-capacity exit, you aren't "reducing" traffic; you are simply increasing the delay at those existing LOS F intersections. Drivers don't stop needing to leave the area; they just sit in longer queues.

Displaced Flow: In a two-exit system, drivers do not "disappear." If other exits are gridlocked, drivers will naturally seek the path of least resistance. Because Garden Highway remains a direct route to the I-5/I-80 interchange, the PRDEIR fails to account for the "Rat-Running" effect where residents will overwhelm the fragile, two-lane levee road regardless of signage, speed humps, or traffic circles.

Levee Integrity: Increased volume on Garden Highway poses a physical risk to the levee structure and those living, biking, and walking on the levee; an impact not adequately mitigated in the current PRDEIR.

6. Increased Vehicle Emissions and Climate Impacts

By forcing 9,356 households into a simi-permanent LOS F gridlock, the project creates a "Hot Spot" of criteria pollutants (CO, NOx, and PM2.5).

VMT vs. LOS: While the developers argue that the "internal" design is walkable (reducing Vehicle Miles Traveled), this doesn't help the "external" bottleneck. Once those 9,300 households need to leave for work, medical appointments, or errands, they hit the same two potentially gridlocked main exits.

Idling Emissions: The Air Quality analysis is inadequate because it uses "average trip lengths" rather than "idling time in gridlock." Stationary cars in a 4-cycle signal delay produce exponentially more emissions than the PRDEIR's models suggest, violating Clean Air Act standards for the Sacramento non-attainment area.

7. Speculative Water Supply: NCMWC and Water Rights Challenges

The PRDEIR introduces the Natomas Central Mutual Water Company (NCMWC) as a primary raw water provider. This proposal contains significant legal and environmental "red flags"

1. The "Agricultural Only" Gap

NCMWC's primary water source is the Sacramento River Settlement Contract with the U.S. Bureau of Reclamation. These contracts are designed for the "typical valley growing season" (April to October).

- The Problem: The Settlement Contracts do not traditionally provide water for municipal use during the winter. For the Upper Westside project to function, 9,356 homes need "M&I" (Municipal and Industrial) water 365 days a year.
- Regulatory Hurdle: Converting seasonal irrigation rights into year-round domestic rights requires a formal "Petition for Change" through the State Water Resources Control Board. This process is notoriously difficult, especially for the Sacramento River, which is already designated as "fully appropriated" during many months of the year.

2. Competition with Winter-Run Chinook Salmon

According to the California Department of Fish and Wildlife (CDFW) (January 13, 2026), the project aims to divert an additional 3,139 acre-feet per year, with a majority of that diversion occurring between September and March.

- The Conflict: This winter diversion window overlaps directly with the migration and incubation periods of the Sacramento River winter-run Chinook salmon (an endangered species).

- Survival Impact: In dry or "critically dry" years, winter water levels are already dangerously low. New diversions during these months increase water temperatures and reduce the "cold water pool" at Shasta Reservoir, which federal agencies are mandated to protect.

3. Starving the Giant Garter Snake (GGS) Habitat

The Natomas Basin habitat depends on "managed marsh" and rice-land irrigation.

- Ecological Theft: CDFW has formally warned that if NCMWC prioritizes its limited winter water for urban residents, it may deprive the Natomas Basin Conservancy of the water needed to maintain aquatic mitigation for the Giant Garter Snake during drought years.
- CEQA Violation: The PRDEIR fails to explain how it will mitigate the loss of water to these protected species if the "urban" demand takes priority over "environmental" water during the winter.

8. Violation of Federal and State Species Protection

The Natomas Basin is a critical habitat for the Swainson's Hawk and the Giant Garter Snake (recently named California's state snake).

Habitat Fragmentation: The PRDEIR relies on the Natomas Basin Habitat Conservation Plan (NBHCP). However, the sheer scale of the Upper Westside project, combined with two other major Natomas developments (totaling 7,600+ acres), exceeds the "take" assumptions of the original 50-year plan.

Water Diversion: As noted by the California Dept. of Fish and Wildlife (CDFW) in January 2026, the project's new water source (NCMWC) may deprive the Natomas Basin Conservancy of the water needed to maintain aquatic habitats during drought, leading to a "Significant" impact on the Giant Garter Snake that the PRDEIR fails to mitigate.

7. Conclusion

The Upper Westside PRDEIR is legally deficient. It attempts to use housing goals to bypass fundamental laws of physics and public safety. Because the project cannot provide a third or fourth exit due to levee constraints, it is internally inconsistent with the Sacramento County General Plan.

Recommendation: The County must Decertify the PRDEIR

Response 262-1

This letter is an exact duplicate of Letter 260. Please see Responses 260-1 through 260-39 above.

LETTER 263

David Brady: member of the community; written correspondence; dated January 28, 2026.

COMMENT 263-1

These two proposed amendments to the EIR make a terrible project even worse.

The use of agricultural water for urban purposes is another attempt by the proponents of this project to exploit a loophole for their individual benefit at the expense of the rest of the community. The City of Sacramento objected to the Upper Westside Project for a number of reasons, including water supply, and their request was for the developers to engage in productive discussions with the city and county, not to attempt an end run by using water intended for agricultural purposes instead of connecting to the city's well-developed urban water supply. California and the Sacramento Region have scarce water resources, and the use of Natomas Central for domestic water is an abuse of those resources, creating negative impacts for residents, water quality, wildlife and the surrounding environment.

RESPONSE 263-1

The comment expresses opinions as to the merits of the proposed water supply addressed in the PRDEIR. Since summer 2025, the County and the City have had several discussions related to issues expressed by the City in their comments on the EIR and in letters to the Board of Supervisors. The effects of the delivery of wholesale raw water from the NCMWC Riverside Pumping Plant to the UWSP area are addressed in the PRDEIR. Please see Response 248-3 above. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

COMMENT 263-2

The second abuse to remove the vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway and implement traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic is a concession to wealthy landowners along the Garden Highway that puts an increased burden and endangers the safety of thousands of current and future residents who must use the two lane El Centro Road and West El Camino freeway overpass for everyday transit and emergency services. The two-lane overpass at West El Camino and I-80 was originally designed to serve farmers in the surrounding fields. It was never intended to support 40,000 new residents, along with schools and commercial development. It does not meet the minimum Cal-Trans standards and needs to be replaced in its entirety. Traffic is currently gridlocked during morning and afternoon commutes, because it is the only way for existing residents on both sides of I-80 to get to work and schools. This creates an dangerous situation, because it prevents fire

response from Sacramento Fire Stations 43 and 15 to emergencies on the other side of the freeway, as well as accidents on I-80 itself. In fact, it is not uncommon to rely on mutual aid from West Sacramento Fire to respond to accidents in this area of Sacramento County, because of the delayed response by units stationed in Natomas. It is extremely irresponsible for the developers of the Upper Westside project to suggest measures that will direct even more traffic flow down El Centro and across the West El Camino interchange.

Response 263-2

The comment expresses opinions about the merits of the proposed circulation changes addressed in the PRDEIR. Under both the proposed UWSP and Alternative 5, all existing emergency response corridors, including El Centro Road, Powerline Road, West Elkhorn Boulevard, and Radio Road (for emergency vehicles only), would remain available and unobstructed. These are the same routes currently used by City and County emergency services to reach the UWSP area, and the proposed project does not remove, narrow, or restrict any of them. In addition, all internal UWSP roadways must comply with Natomas Fire Protection District standards for width, turning radii, secondary access, and emergency vehicle circulation, ensuring that emergency responders retain full access to the project site and adjacent neighborhoods.

This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

Comment 263-3

Again, the amended traffic proposal is being proposed solely for the benefit of the land speculators and developers of the Upper Westside project, at the expense of neighboring residents and the entire region. Please reject these dangerous and ill-conceived EIR amendments, as well as the entire Upper Westside Project.

Response 263-3

The comment expresses opinions as to the merits of, and expresses opposition to, the proposed project. This comment raises neither new significant environmental issues nor specific questions about the analyses or information in the PRDEIR that would require response pursuant to CEQA Guidelines Section 15088.

APPENDIX ALT 5-1

REVISED PROJECT ROADWAY NETWORK ANALYSIS

Fehr & Peers

Technical Memorandum

Date: August 18, 2025

To: Cameron Shew and Gary Gasperi – Sacramento County Department of Transportation

From: John Gard – Fehr & Peers

Subject: Upper Westside Specific Plan Revised Project Roadway Network Analysis

SA25-0316

Purpose

Fehr & Peers was requested to perform a focused impact analysis to the roadway network resulting from the following potential change to the Upper Westside Specific Plan (UWSP) circulation system:

- Remove Radio Road vehicular connection between Plan Area and Garden Highway.
- Implement traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic.

The removed street would become an emergency vehicle access (EVA). To model the effects of traffic calming, the free-flow speed on the above segment of San Juan Road was reduced from its present speed limit by 20 miles per hour (mph). The Bryte Bend Road vehicular connection between Plan Area and Garden Highway would remain.

The "Revised Project" terminology used in this memo represents the above roadway modifications[1]. No changes in project land uses were made.

Traffic forecasts were developed for average daily conditions for 23 different roadway segments and 14 different intersections under Cumulative Plus Revised Project conditions. This scenario was chosen (instead of Existing Plus Project) because it is comprised of greater levels of background traffic on streets to be modified and/or effected.

Analysis Methodologies

Traffic forecasts were developed using the same version of the Sacsim travel demand model used in the *Final Local Transportation Analysis (LTA) for Upper Westside Specific Plan* (Fehr & Peers, 2025).

Roadway segments were analyzed to determine the segment daily level of service (LOS) using the same analysis methods as applied in the LTA. Peak hour intersection turning movement volumes were developed and reviewed to determine whether certain critical turning movements would experience notable increases in traffic (relative to the forecasts in the LTA), which could warrant supplemental traffic operations analysis.

[1] The UWSP LTA had assumed a Street 9 connection to Garden Highway. As part of the Final EIR for the Upper Westside Specific Plan, additional analysis was performed that led to the conclusion that the removal of this connection (estimated to carry 900 vehicles per day at project buildout) would not adversely affect roadway network operations. The analysis of the "Revised Project" presented here includes the effects of that street removal along with others listed above.

Cumulative Plus Revised Project Conditions

Figure 1 shows the ADT for the Cumulative Plus Revised Project scenario for a subset of the roadway segments that were studied in the UWSP DEIR. These include facilities in Sacramento County, City of Sacramento, and within Caltrans's right-of-way (ROW) including several streets that would be constructed by the project.

Table 1 shows the ADT on the five gateway streets. Key findings from this table are:

1. The eliminated project street connections to Garden Highway would cause Garden Highway north of Radio Road to carry considerably less traffic than the DEIR proposed project.
2. The traffic diverted away from Garden Highway would primarily shift to El Centro Road between Radio Road and Arena Boulevard (2,000 ADT increase).
3. The revised project would reduce the amount of traffic (relative to the DEIR proposed project) by 400 ADT on West El Camino Avenue between I-80 and El Centro Road.
4. When considering all five gateway routes, there is a net decrease of 800 trips per day. This could be associated with less cut-through traffic within the UWSP area and also changes in UWSP area trip-making due to the change in street connections.

Table 1: Change in ADT at Project Gateway Streets – Cumulative Plus Revised Project Conditions

Segment	General Direction Relative to UWSP Area	Average Daily Traffic (ADT) [1]		
		Cumulative Plus Project (UWSP DEIR) [2]	Cumulative Plus Revised Project [3]	Change
Garden Highway: Powerline Road to Radio Road	North	8,500	5,600	-2,900
El Centro Road: Arena Boulevard to Radio Road	North	35,900	37,900	2,000
San Juan Road: El Centro Road to Orchard Lane	East	15,500	15,600	100
West El Camino Avenue: El Centro Road to I-80 WB Ramps	Southeast	88,700	88,300	-400
Garden Highway: East of I-80 Overcrossing	South	5,000	5,400	400
Total		153,600	152,800	-800

Notes:
[1] Values rounded to nearest 100 vehicles.
[2] Source is Figures 18a and b of UWSP LTA.
[3] Derived by using the same version of SACSIM model used in DEIR to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

Table 2 shows the change in ADT along Garden Highway and the UWSP project accesses connecting to it with the Revised Project. As shown, the project would cause notable decreases in ADT along various segments of Garden Highway along the project frontage and to its north. There would be a slight increase in ADT (400) on Garden Highway east of the I-80 overcrossing.

Table 2: Change in ADT along Garden Highway and its Project Accesses – Cumulative Plus Revised Project Conditions

Segment	Average Daily Traffic (ADT) [1]				
	Existing	Cumulative No Project	Cumulative Plus Project (UWSP DEIR) [2]	Cumulative Plus Revised Project [3]	Change Between UWSP DEIR and Revised Project
Garden Highway: Powerline Road to Radio Road	2,300	3.500	8,500	5,600	-2,900
Garden Highway: south of San Juan Road	1,800	1,100	2,400	2,200	-200
Garden Highway: East of I-80 Overcrossing	1,900	1,700	5,000	5,400	400
Radio Road: East of Garden Highway	-	-	1,400	0	-1,400
San Juan Road: East of Garden Highway	2,300	3,200	6,200	4,500	-1,700
Street 9: East of Garden Highway	-	-	1,000	0	-1,000
Bryte Bend Road: North of Garden Highway	-	-	2,900	3,100	200

Notes:
[1] Values rounded to nearest 100 vehicles.
[2] Source is Figures 18a and b of UWSP LTA.
[3] Derived by using the same version of SACSIM model used in DEIR to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

Roadway Segment LOS Results

Table 3 shows the Cumulative Plus Revised Project LOS on 18 roadway segments in Sacramento County that were also studied in the UWSP LTA. Key findings from this table are:

- El Centro Road between Arena Boulevard and Radio Road would degrade from LOS E (acceptable) to LOS F (unacceptable) due to the 2,.00 ADT increase caused by the Revised Project.
- Garden Highway (from Powerline Road to San Juan Road) and Powerline Road north of Garden Highway would improve from LOS E (unacceptable) to LOS D (acceptable) with the Revised Project.
- The Revised Project would further degrade cumulatively LOS F operations (under the DIER proposed project) on Radio Road between Street 12 and El Centro Road. It would have this segment's volume-to-capacity ratio to increase from 1.14 to 1.187 due to a 600 ADT increase.

In summary, eliminating street connections to Garden Highway would result in less travel on it (and improved operations) with corresponding increases in traffic on El Centro Road south of Arena Boulevard and Radio Road west of El Centro Road.

Fehr & Peers

Table 3: Sacramento County Roadway Segment Operations – Cumulative Plus Revised Project Conditions

Segment	LOS Standard	Cumulative Plus Project (UWSP DEIR LTA) Conditions				Cumulative Plus Revised Project Conditions		
		Classification	ADT	V/C [1]	LOS	ADT	V/C [1]	LOS
West El Camino Avenue west of El Centro Road	E	Arterial, low access control (4 lanes)	18,800	0.63	B	18,700	0.62	B
West El Camino Avenue: El Centro Road to I-80 WB Ramps	E	Arterial, moderate access control (6 lanes)	**88,700**	**1.48**	**F**	**88,300**	**1.47**	**F**
El Centro Road: Street 4 to West El Camino Avenue	E	Arterial, moderate access control (6 lanes)	20,900	0.39	A	21,200	0.39	A
El Centro Road: West El Camino Avenue to Street 5	E	Arterial, moderate access control (6 lanes)	**62,100**	**1.15**	**F**	**61,800**	**1.14**	**F**
El Centro Road: Farm Road to Street 7	E	Arterial, moderate access control (4 lanes)	**45,600**	**1.27**	**F**	**45,600**	**1.27**	**F**
El Centro Road: San Juan Road to Radio Road	E	Arterial, moderate access control (4 lanes)	33,000	0.92	E	33,900	0.94	E
El Centro Road: Radio Road to Arena Boulevard	E	Arterial, moderate access control (4 lanes)	35,900	1.00	E	**37,900**	**1.05**	**F**
Radio Road: Street 12 (E) to El Centro Road	E	Arterial, low access control (2 lanes)	**17,100**	**1.14**	**F**	**17,700**	**1.18**	**F**
San Juan Road: Bryte Bend Road to Street I	E	Arterial, low access control (2 lanes)	9,600	0.64	B	8,500	0.57	A
San Juan Road: El Centro Road to Orchard Lane	E	Arterial, low access control (2 lanes)	**15,600**	**1.04**	**F**	**15,600**	**1.04**	**F**
Bryte Bend Road: Radio Road to San Juan Road	E	Arterial, low access control (2 lanes)	5,100	0.34	A	5,600	0.37	A
Bryte Bend Road: San Juan Road to Street 7	E	Arterial, low access control (2 lanes)	7,300	0.49	A	7,100	0.47	A
Bryte Bend Road: El Camino Avenue to Street 8	E	Arterial, low access control (2 lanes)	3,200	0.21	A	3,200	0.21	A
Bryte Bend Road: north of Garden Highway	E	Arterial, low access control (2 lanes)	2,900	0.19	A	3,100	0.21	A
Powerline Road: Del Paso Road to Garden Highway	D	Rural, 2 lane road, <24' of pavement, <6' shoulders	**8,000**	**0.63**	**E**	5,100	0.40	D
Garden Highway: Powerline Road to Radio Road	D	Rural, 2 lane road, <24' of pavement, <6' shoulders	**8,500**	**0.66**	**E**	5,600	0.44	D
Garden Highway: Radio Road to San Juan Road	D	Rural, 2 lane road, <24' of pavement, <6' shoulders	**7,000**	**0.55**	**E**	5,400	0.42	D
Garden Highway: San Juan Road to Street 9	D	Rural, 2 lane road, <24' of pavement, <6' shoulders	2,400	0.19	C	2,200	0.17	C

Notes:
[1] v/c = Volume to capacity ratio.
Bolded cells represent unacceptable operations.
Source: Fehr & Peers, 2025.

Table 4 shows the change in daily traffic on study roadways in the City of Sacramento and under Caltrans control.[2] Changes to these roadway segments are modest.

Table 4: Change in ADT on Study Roadway Segments Under Jurisdiction of City of Sacramento and Caltrans

Segment	Average Daily Traffic (ADT) [1]			
	Cumulative No Project	Cumulative Plus Project (UWSP DEIR LTA)	Cumulative Plus Revised Project [2]	Difference (Revised Project – DEIR LTA)
West El Camino Avenue over I-80	26,700	67,100	66,900	-200
West El Camino Avenue east of I-80	24,200	45,400	45,800	400
Arena Boulevard west of I-5	35,700	41,700	41,600	-100
San Juan Road east of Orchard Lane	7,700	15,500	15,600	100
Garden Highway east of I-80 Overcrossing	1,700	5,000	5,400	400
Garden Highway west of I-5	17,400	21,700	21,800	100

Notes:
[1] Values rounded to nearest 100 vehicles.
[2] Derived by using the same version of SACSIM model used in DEIR to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

Intersection Peak Hour Turning Movement Volumes

Figure 2 shows the AM and PM peak hour turning movement volumes at 15 critical intersections in the UWSP study area under Cumulative Plus Revised Project conditions. These locations are those most likely to have meaningful changes in traffic as a result of the project circulation network changes.

Table 5 compares the total cumulative AM and PM peak hour intersection traffic volumes and the specific turning movement volumes at four especially critical intersections from the DEIR Proposed Project and Revised Project scenarios. The following conclusions are derived from this table:

1. **AM and PM peak hour traffic volumes at the El Centro Road/West El Camino Avenue intersection and at the two I-80/West El Camino Avenue interchange ramp terminal intersections would decrease as a result of the Revised Project**. The range of decrease is 0.4% to 2.8%.
   Conclusion: The recommended geometric improvements would continue to operate in the same or slightly improved manner relative to the cumulative plus project results shown in the *Final Local Transportation Analysis (LTA) for Upper Westside Specific Plan* (Fehr & Peers, 2025).

[2] LOS analysis is not shown here because the City does not analyze roadway segment operations for daily conditions as part of project-level analyses (though such analyses may be performed for General Plan updates).

Table 5: Comparison of Peak Hour Volumes at Critical Intersections

Intersection	Movement	AM (PM) Peak Hour Volume	
		Cumulative Plus Project (UWSP DEIR LTA)	Cumulative Plus Revised Project
West El Camino/El Centro Road	Eastbound Through	637 (872)	457 (683)
	Westbound Left	440 (707)	419 (720)
	Westbound Through	750 (759)	769 (763)
	Westbound Right	1,877 (2,241)	1,834 (2,266)
	Southbound Left	2,002 (2,090)	2,183 (2,205)
	Northbound Right	619 (419)	626 (473)
	Total & Percent Change	**7,003 (7,760)**	**6,912 (7,693) -1.3% (-0.9%)**
West El Camino/I-80 WB Ramps	Eastbound Through	1,836 (1,933)	1,854 (1,829)
	Eastbound Right	1,422 (1,520)	1,412 (1,546)
	Westbound Through	2,211 (2,683)	2,157 (2,685)
	Southbound Left (Off-ramp)	697 (313)	706 (307)
	Southbound Right (Off-ramp)	856 (1,038)	865 (1,064)
	Total & Percent Change	**7,209 (7,993)**	**7,183 (7,874) -0.4% (-1.5%)**
West El Camino/I-80 EB Ramps	Eastbound Through	1,829 (1,394)	1,832 (1,373)
	Eastbound Right	704 (852)	728 (763)
	Westbound Through	1,160 (1,655)	1,142 (1,593)
	Northbound Left (Off-ramp)	1,238 (1,534)	1,204 (1,535)
	Northbound Right (Off-ramp)	177 (339)	210 (338)
	Total & Percent Change	**5,724 (6,213)**	**5,650 (6,037) -1.3% (-2.8%)**
Arena Boulevard/El Centro Road	Westbound Left	411 (608)	406 (577)
	Northbound Through	886 (903)	990 (960)
	Northbound Right	485 (561)	475 (552)
	Southbound Through	994 (843)	1,035 (899)
	Total & Percent Change	**3,987 (3,988)**	**4,247 (4,161) +6.5% (+4.3%)**

Notes:
[3] Derived by using the same version of SACSIM model used in DEIR (and same forecasting techniques) to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

2. **The Revised Project would result in approximately 20 more vehicles during the AM and PM peak hours using the I-80 WB off-ramp at West El Camino Avenue, and no change in AM and PM peak hour traffic at the I-80 EB off-ramp at West El Camino Avenue**. This represents a 1.5% increase during each peak hour.
   Conclusion: The Revised Project would not cause traffic to spillback onto the I-80 mainline under cumulative plus project conditions assuming the improvements identified in the UWSP LTA are implemented.[3]

3. **Although the total traffic volume would increase at the El Centro Road/West El Camino Avenue intersection with the revised project, the critical westbound left and northbound right movements would not experience any increases**.
   Conclusion: The revised project would not be expected to require any modifications to off-site improvements at this intersection.

Effects on Vehicle Miles Traveled (VMT)

The UWSP DEIR included an analysis of the DEIR proposed project's effect on VMT, reaching a conclusion that the impact would be less than significant. This finding would not change under the Revised Project for the following reasons:

1. Table 1 shows a net reduction of 800 ADT entering/exiting the project gateways. As VMT is the product of daily trips and trip length, fewer daily trips means less VMT generated.
2. The Revised Project removes travel routes that are likely more circuitous for project residents. In certain parts of the Plan Area, use of Garden Highway to access external destinations could be quicker than using El Centro Road or West El Camino Avenue but would result in longer travel lengths. Elimination of those connections effectively reduces average trip lengths, albeit very slightly.

[3] Table 16 of the UWSP LTA shows the maximum queue at the westbound off-ramp to be 1,025 feet (under cumulative plus project conditions with recommended improvements). Adding one additional vehicle every three minutes (20 vph) would not cause that queue to grow 50% such that it exceeds the 1,500 feet of available storage.

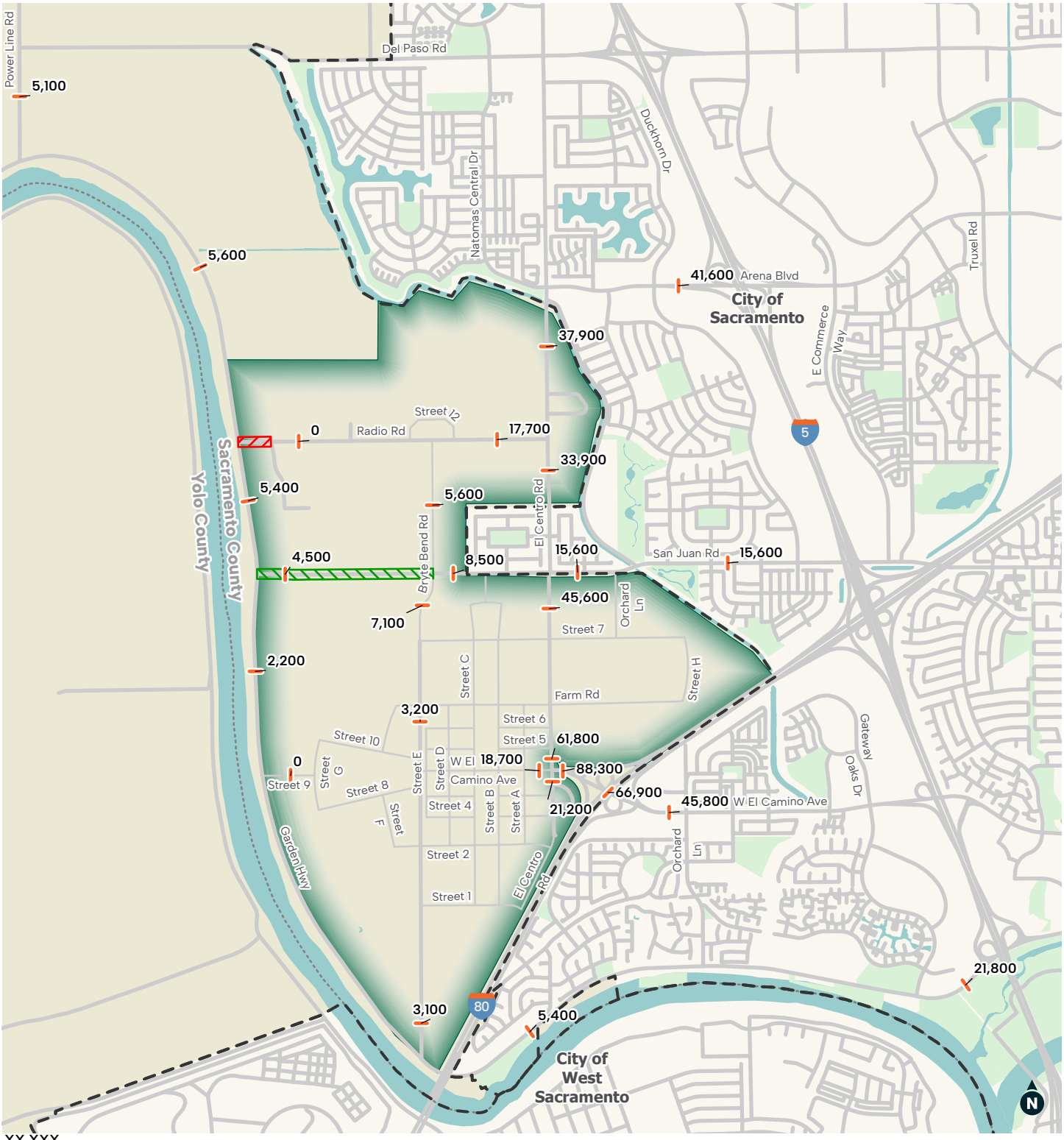
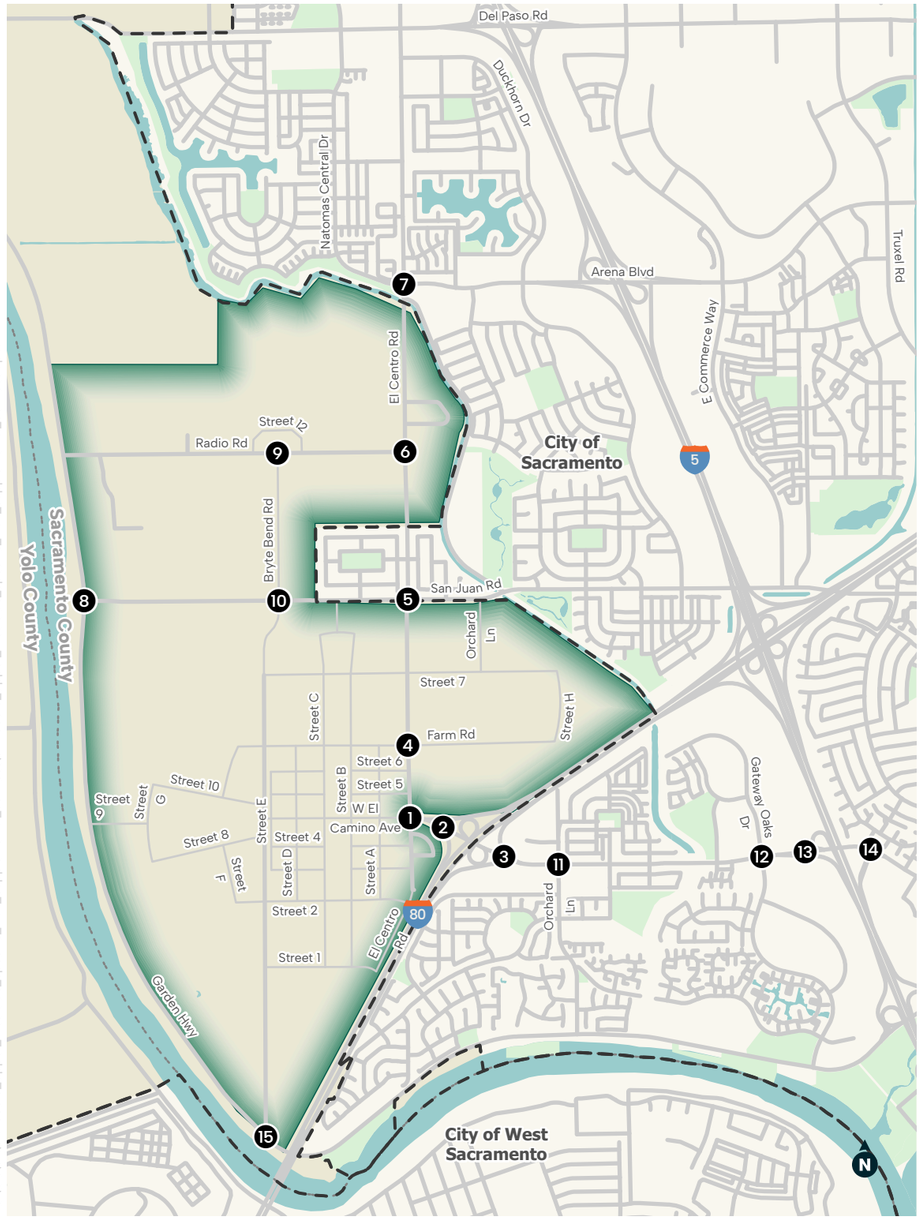
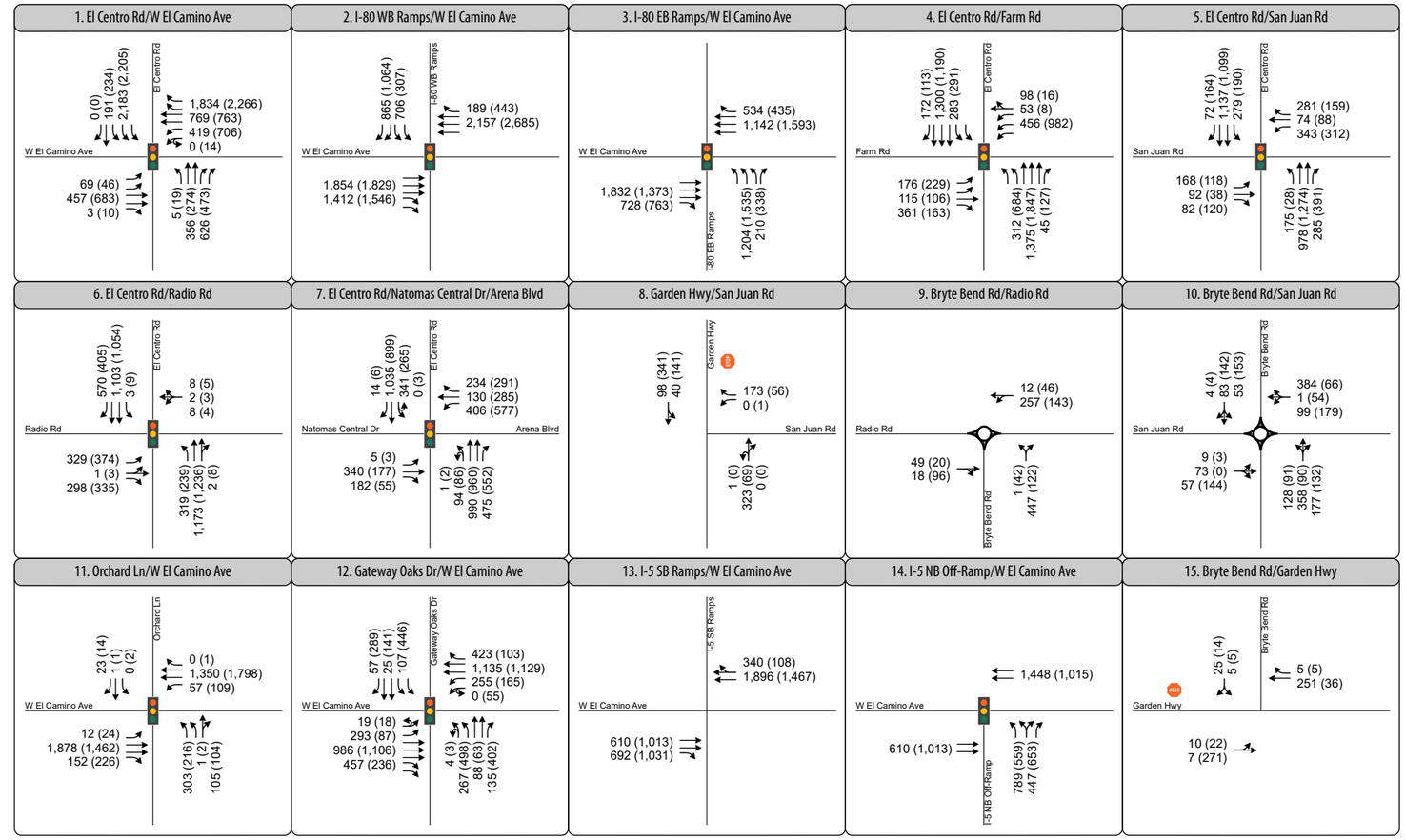


FIGURE 1

Average Daily Traffic – Cumulative Plus Revised Project Conditions

Fehr & Peers





- Study Intersection
- Upper Westside Specific Plan Boundary
- Waterway/Waterbody
- Park
- City Limits
- County Boundary
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign
- Roundabout

FIGURE 2

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions

Fehr & Peers

APPENDIX ALT 5-2

WATER SUPPLY ASSESSMENT

Sacramento County Water Agency

Water Supply Assessment for Upper Westside Specific Plan

Prepared by Sacramento County Water Agency
September 2022
(Revised December 2023)
(Revised February 2023)
(Revised August 2025)
(Revised October 2025)
(Revised November 2025)
(Revised December 2025)

(Administrative Draft Pending Board Approval)

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Appendix G - Upper West Side Specific Plan Water Supply Master Plan

1. INTRODUCTION

BACKGROUND

In 2001, California adopted Senate Bill (SB) 610 and SB 221, thereby amending the California Water Code (Water Code). Under these laws, certain types of development projects are required to provide detailed water supply assessments to planning agencies. The requirements for a water supply assessment (WSA) are set forth in the California Water Code (Water Code) Sections 10910 et seq. A WSA connects water supply and land use planning with the environmental review process. The law also reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process. Any proposed project that is subject to the California Environmental Quality Act (CEQA) and would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project, is subject to SB 610 and is required to prepare a WSA. This WSA has been prepared with the expectation that Sacramento County Water Agency (SCWA) will be the potable water retailer for the proposed Project and will purchase raw water from Natomas Central Mutual Water Company (NCMWC).

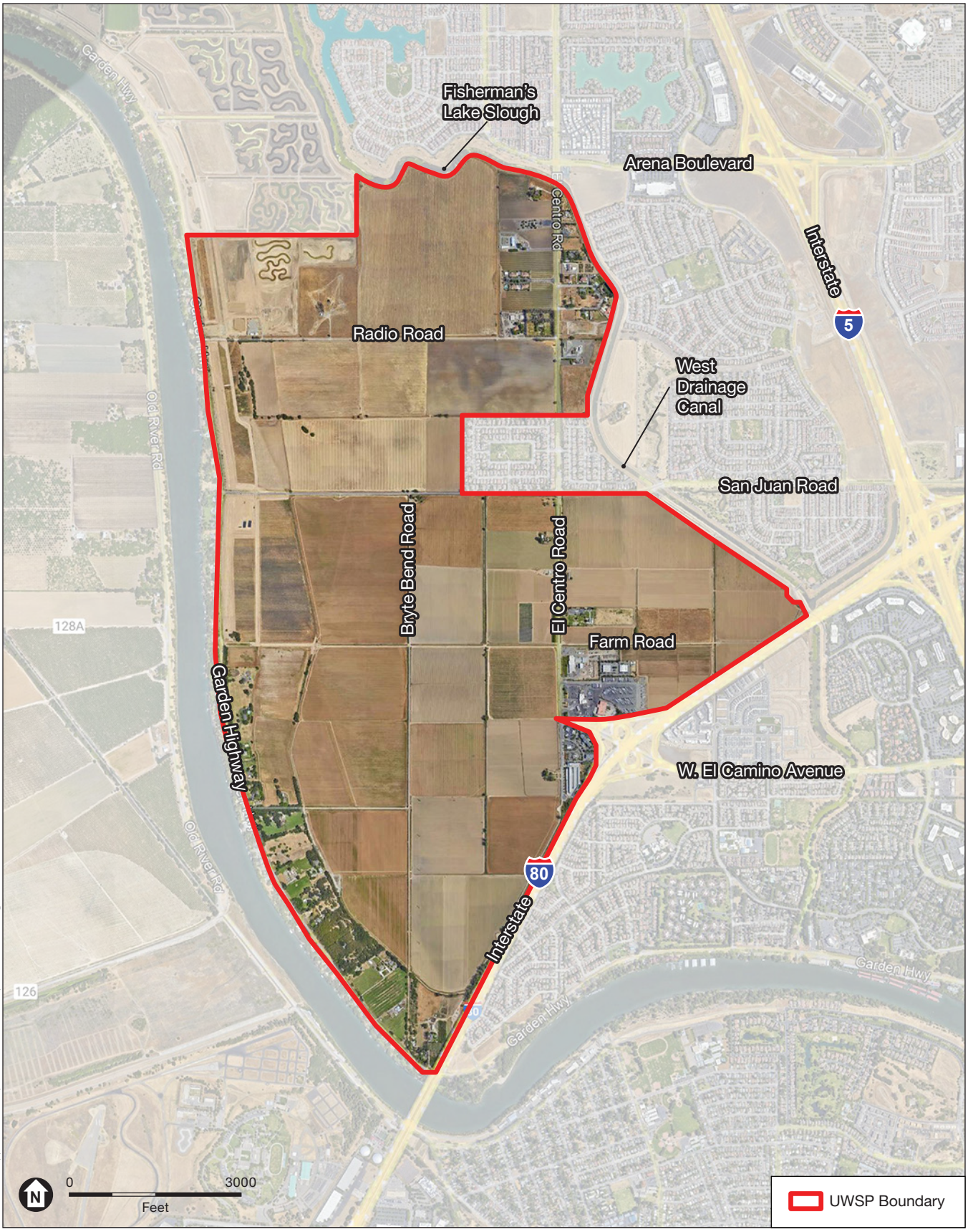
THE PROPOSED DEVELOPMENT PROJECT

The UWSP is in unincorporated Sacramento County adjacent to the existing City of Sacramento communities of North and South Natomas. The UWSP area is bounded by Fisherman's Lake Slough to the north, the West Drainage Canal (Witter Canal) to the east, I-80 to the south, and Garden Highway to the west as shown in **Figure 1**. The UWSP encompasses 2,066 acres of proposed residential, commercial, greenspace and agricultural uses.

The proposed Project is subject to CEQA and would allow for residential and mixed-use developments that may include more than 500 residential units. The UWSP would provide a mix of residential and non-residential land uses to accommodate 9,356 housing units with a mixture of densities that support all population segments, and over 3 million square feet of commercial, retail, and office uses that serve the community's needs. Key features of the UWSP would include a mixed-use Town Center, 10 active parks, and an extensive system of greenbelts and multi-use trails with linkages to downtown Sacramento. Development would be limited to a 1,532-acre Development Area while the remaining 534 acres would serve as an agricultural buffer (Ag Buffer) along the western edge of the UWSP area.

WATER SUPPLY ASSESSMENT OBJECTIVE

The primary purpose of a WSA is to determine whether the identified water supply or water supplier will be able to meet projected demands for the Project, in addition to their existing and planned future uses, over a 20-year planning period in normal, single-dry, and multiple-dry water years. Secondarily, a WSA provides decision-makers a regional framework on which to base a decision about the sufficiency of water supplies for the proposed Project.



SOURCE: Google Earth Pro, basemap, 2021; ESA, 2022

Upper Westside Specific Plan WSA

Figure 1
UWSP Area

This WSA assesses the availability of identified water supplies under normal-, single-dry-, and multiple-dry-year conditions, accounting for the projected water demand of the proposed Project in addition to other existing and planned future uses of the identified water supply.

This WSA examines the service areas of NCMWC and SCWA, (Section 4), wholesale water supplies and the reliability of these supplies (Section 5), the projected water demand of existing and future demand including the proposed Project (Section 6), and a comparison of supply and demand as required in a WSA (Section 7), estimated costs, time frames, and permits for obtaining new surface water supplies (Section 8) and Conclusion (Section 9).

DOCUMENT STRUCTURE

This WSA is organized following a basic hierarchy to describe each issue: regional context NCMWC service area; local context SCWA service area, Project-level analysis for the proposed Project; the assessment as a comparison of water supply and demand for the Project; and existing and future demand in all water year types. The report is as follows:

1. Introduction; project overview, location, and description; and document structure
2. Proposed land use planning and designations
3. General information on water supply planning under SB 610
4. Service area summaries
5. Water supply setting including local climate, water supplies, capacities, and reliability
6. Regional and proposed Project water demands, including historical, projected, and projected dry-year demand
7. Supply-demand comparisons
8. Anticipated Timing, Estimated Costs, and Permits for new surface water supplies
9. Conclusion

2. PROPOSED LAND USE PLAN AND LAND USE DESIGNATIONS

The portion of the UWSP area set aside for development would include a mix of residential, commercial mixed-use, and commercial land uses. Other land uses include schools, parks, urban farm/greenbelt, canals, open space, landscaped corridors, and major roadways. The portion of the plan area set aside for the Ag Buffer includes agricultural residential and cropland.

A summary of proposed land uses within the UWSP area is included in **Table 1**. As shown, the portion of the plan area set aside for development would total 1,532 acres, or approximately 75 percent of the UWSP area, while the portion of the UWSP area set aside for the Ag Buffer would total 534 acres, or about 25 percent of the area. Overall, the UWSP would include 9,356 dwelling units with an estimated population of 25,460 residents and approximately 3.1 million square feet of non-residential space as shown in **Figure 2**. Furthermore, to facilitate the construction of a diverse array of housing types throughout the UWSP area, the UWSP includes

a "Missing Middle Housing Incentive" program, which is intended to encourage the construction of attached, "missing middle" housing units (e.g., duplex, triplex, fourplex) within conventional single-family detached neighborhoods (i.e., LDR, LMDR, MDR). As shown in Table 1, a residential allocation of 300 Missing Middle reserve units have been set aside, which have not been allocated to any parcel. This unit reserve can be used to increase the unit allocation of any LDR, LMDR, and MDR parcel outside the Town Center up to the maximum allowed for a parcel's land use density range, provided that the additional units awarded are used for the construction of attached, missing middle housing units.

Table 1. UWSP Proposed Land Uses

Land Use Map Symbol	Land Use Designation (Density Range)	Net Acres[1]	Anticipated Density/FAR[2]	Dwelling Units[3]/ Square Feet	Population Estimate[4]	Percent Area	Percent Units
Residential Uses							
VLDR	Very Low Density Residential (1.0-4.0 du/ac)	166.7 ac	1.0 du/ac	168 du	504	8.1%	1.8%
LDR	Low Density Residential (4.0-7.0 du/ac)[5]	390.8 ac	5.5 du/ac	2,149 du	6,447	18.9%	23.0%
LMDR	Low Medium Density Residential (6.0-10.0 du/ac)[5]	134.9 ac	8.0 du/ac	1,079 du	3,237	6.5%	11.5%
MDR	Medium Density Residential (8.0-20.0 du/ac)	61.9 ac	12.0 du/ac	743 du	2,229	3.0%	7.9%
HDR	High Density Residential (20.0-40.0 du/ac)	36.4 ac	25.0 du/ac	910 du	2,275	1.8%	9.7%
VHDR	Very High Density Residential (20.0-40.0 du/ac)	22.6 ac	35.0 du/ac	791 du	1,978	1.1%	8.5%
Missing Middle Reserve Units		0.0 ac		300 du	750	0.0%	3.2%
Subtotal		813.3 ac		6,140 du	17,420	39.4%	65.6%
Commercial Uses							
CMU	Commercial Mixed Use[6] (0.02-2.00+ FAR & 30.0-100.0+ du/ac)	83.6 ac	0.60 FAR 39.2 du/ac	3,216 du 2,184,970 SF	8,040	4.0%	34.4%
E/HC	Employment/Highway Commercial[7]	52.9 ac		921,730 SF	--	2.6%	--
Subtotal		*136.5 ac*		3,216 du 3,106,700 SF	*8,040*	*6.6%*	*34.4%*
Public, Park & Open Space Uses							
S	Schools – K-8, HS, CC	124.2 ac				6.0%	
P	Parks	79.1 ac				3.8%	
G/UF	Greenbelt/Urban Farm	44.1 ac				2.1%	
OS-C	Open Space – Canal	15.0 ac				0.7%	
OS	Open Space – Lake Basins & Others	167.9 ac				8.1%	
Subtotal		*430.3 ac*				*20.8%*	
Right-of-way							
	Major Roads A	115.9 ac				5.6%	
	Landscape Corridors	27.8 ac				1.3%	
Subtotal		*143.7 ac*				*7.0%*	
Subtotal Development Area		**1523.8 ac**				**73.7%**	

Land Use Map Symbol	Land Use Designation (Density Range)	Net Acres[1]	Anticipated Density/FAR[2]	Dwelling Units[3]/ Square Feet	Population Estimate[4]	Percent Area	Percent Units
Ag Buffer							
AR	Agricultural Residential[8]	86.1 ac		--		4.2%	
AG	Agricultural Cropland[8]	414.3ac		--		20.1%	
OS	Open Space – Ag Buffer	36.6 ac				1.8%	
	Major Road B – Ag Buffer	5.4 ac				0.3%	
Subtotal		*542.4 ac*				*26.3%*	
	Total	**2,066.2 ac**		**9,356 du 3,106,700 SF**	**25,460**	**100%**	**100%**

NOTES: ac = acres; CC = Community College land use designation; du/ac = dwelling units per acre; FAR = floor area ratio; HS = High School land use designation; K-8 = Kindergarten through 8th Grade School land use designation

1 Net acreage based on Land Use Plan generated in GIS/AutoCAD by Wood Rodgers, February 2025. Arterial and collector roads, some primary residential streets, and adjacent landscape corridors as shown on map, have been netted out.

2 Anticipated density/FAR is an estimate to establish a development allocation for each land use designation in the plan area.

3 Buildout estimates are derived as a cumulative total for each land use designation, which are based on anticipated density/FAR. Each specific plan parcel is permitted to develop within its specified land use density/FAR range, which may be greater or less than the anticipated density/FAR.

4 Estimate assumes 3.0 persons per household for single-family and 2.5 persons per household for multi-family residential uses. Overall average is 2.73 persons per household.

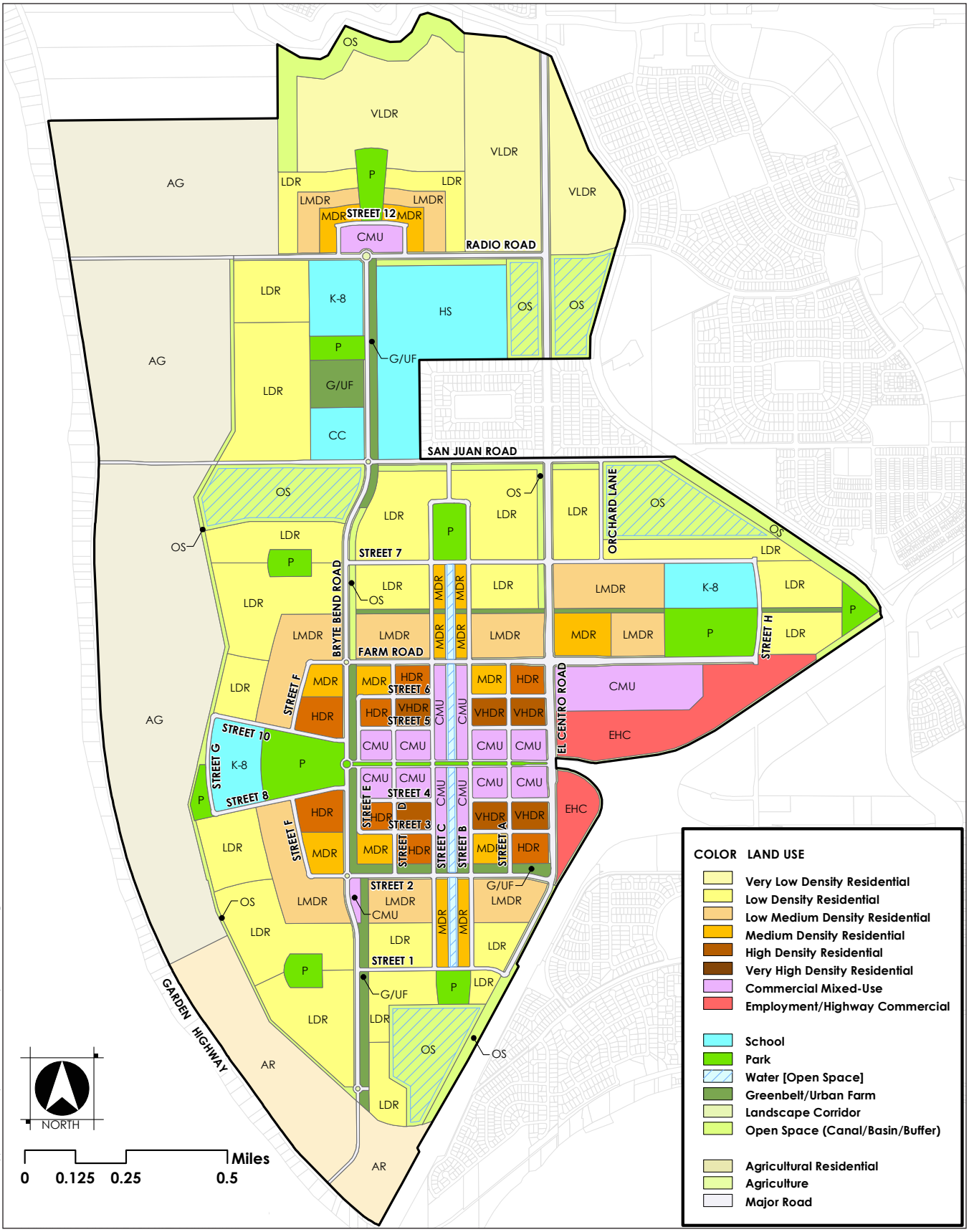
5 Residential density calculations exclude approximately 5.5 acres of Development Area designated for planned public facilities including water storage tank, sewer pump station, and electric substations.

6 No residential units are allocated to the 1.2-acre Commercial Mixed Use (CMU) parcel at the southeast corner of Bryte Bend Road and Street 2 to accommodate a planned fire station.

7 Non-residential square footage allocations are additive to existing commercial uses that were constructed prior to Specific Plan approval.

8 Ag-Buffer uses (AR and AG) have no unit allocation and are not included in the 1,532-acre Development Area or Urban Policy Area/Urban Services Boundary expansion area.

SOURCE: Wood Rodgers 2025



D150587.01 - Upper Westside Specific Plan EIR\05 Graphics-GIS-Modeling-USE AZURE\Illustrator

SOURCE: Upper Westside Specific Plan Admin Draft #4, 2025

Upper Westside Specific Plan WSA

Figure 2
UWSP Land Use Plan

3. WATER SUPPLY PLANNING

California has many different processes through which the development and/or maintenance of water supplies are planned on a local and regional level. Urban Water Management Plans (UWMPs), Groundwater Management Plans (GMPs), Integrated Regional Water Management Plans (IRWMPs), Municipal Service Reviews (MSRs) and water resources components of General Plans all integrate a degree of regional planning of water supply and demand.

To complement these large-scale planning processes, California enacted Senate Bill (SB) 610 and 221 in 2002, both of which emphasize the interrelationships between land use and water supply planning and require the incorporation of water supply and demand analysis at the earliest possible stage in the planning process for sizeable land use projects. These statutes primarily apply to the planning of water supplies and identification of sources for defined "projects" (Water Code, Section 10912) in the case of SB 610 and for individual residential subdivision projects of more than 500 units in the case of SB 221. SB 610 amended portions of the Water Code, including Section 10631, which contains the Urban Water Management Planning Act, and added Sections 10910, 10911, 10912, 10913, and 10915, which describe the required elements of a WSA to be prepared and relied upon during the CEQA process. WSAs are prepared in connection with the environmental review process for defined "projects" (generally very similar to "projects of statewide, regional, or area wide significance," as defined in "CEQA Guidelines" Section 15206), and provide information (along with EIR analysis) to be considered by agency decision-makers at the time of project approval. Nothing in SB 610 prevents a city or county from approving a proposed project even in the face of information concluding that there is not sufficient water supply for build-out of the project.

Under both laws, agencies are required to consider water demands over a 20-year planning horizon, considering normal, single dry, and multiple dry year scenarios in light of the water provider's existing and planned future uses, including agricultural and manufacturing uses.

WATER SUPPLY PLANNING UNDER SB 610 AND SB 221

As the "public water system" that will supply water to the UWSP area, SCWA is required to prepare a WSA and water supply verifications (WSVs), under the requirements of Senate Bills 610 and 221, and the Government Code (Sections 65867.5, 66455.3 and 66473.7). There are three primary areas to be addressed in a WSA:

(1) A description of all relevant water supply entitlements, water rights, and/or water contracts;

(2) A description of the available water supplies and the infrastructure, either existing or proposed, to deliver the water; and

(3) An analysis of the demand placed on those supplies, by the project, and relevant existing and planned future uses in the area.

Where the description of existing water supply entitlements, water rights, and/or water contracts shows insufficient water supplies to serve the proposed project as well as existing and planned uses over the 20-year planning horizon, additional information is required to describe how and where sufficient supplies may be obtained. Such information must include the estimated costs, financing methods, and regulatory approvals needed to obtain new supplies, as well as a projected time frame for obtaining them. This is included in Section 8 of this WSA. WSVs must also contain information regarding existing supplies, as well as more detailed confirmation that the appropriate infrastructure planning and funding is in place to fully commit water supplies to a project. Senate Bill 610, which is applicable to certain large projects subject to CEQA or considered a "project" under Water Code Section 10912(a) or (b), builds on the information that is typically contained in an UWMP. The amendments to Water Code Section 10631 were designed to make WSAs and UWMPs consistent. A key difference between the WSAs and UWMPs is that pursuant to Water Code Section 10621, UWMPs are required to be updated every five years on or before July 1, in years ending in one and six, while WSAs are required as part of the environmental review process for each individually qualifying project. As a result, the 20-year planning horizons for each type of document may cover slightly different planning periods. Additionally, not all water providers who must prepare a WSA under SB 610 are required to prepare an UWMP because these water systems do not meet the requirements in Water Code section 10631. As stated above, only public water systems providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) annually must prepare UWMPs.

SB 610 WATER SUPPLY ASSESSMENT

The SB 610 water supply assessment process involves answering the following questions:

- Is the project subject to CEQA?
- Is it a project under SB 610?
- Is there a public water system?
- Is there a current UWMP that accounts for the project demand?
- Is groundwater a component of the supplies for the project?
- Are there sufficient supplies available to serve the project over the next 20 years?

"Is the Project Subject to CEQA?"

The first step in the SB 610 process is determining whether the project is subject to CEQA. SB 610 amended Public Resources Code Section 21151.9 to read: "Whenever a City or county determines that a project, as defined in Section 10912 of the Water Code, is subject to this division [i.e., CEQA], it shall comply with part 2.10 (commencing with Section 10910) of Division 6 of the Water Code." The County of Sacramento (County) is the CEQA lead agency, as required, the County is conducting an environmental review under the requirements of CEQA. As the CEQA lead agency, the County determined that the proposed Project is a project subject

to CEQA. The information contained in this assessment will be used to inform and support the Recirculated DEIR and will be appended thereto.

"Is It a Project Under SB 610?"

The second step in the SB 610 process is to determine if a project meets the definition of a "Project" under Water Code Section 10912(a). Under this section, a "Project" is defined as meeting any of the following criteria:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet (ft2) of floor space;
- A commercial building employing more than 1,000 persons or having more than 250,000 ft2 of floor space;
- A hotel or motel with more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 ft2 of floor area;
- A mixed-use project that includes one or more of these elements; or
- A project creating the equivalent demand of 500 residential units.

Alternately, if a public water system has less than 5,000 service connections, the definition of a "Project" also includes any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of service connections for the public water system.

As previously stated, the proposed Project would allow for residential and mixed-use developments that may include more than 500 units. In fact, the proposed Project would allow up to 9,356 new dwelling units, and for that reason, it meets the requirements as a "Project" under the Water Code. As a result, a WSA pursuant to Water Code Section 10912 (a) will need to be prepared prior to completion of the Recirculated DEIR. Therefore, the County has determined that a WSA is required as part of the CEQA analysis of the Recirculated DEIR.

"Is There a Public Water System?"

The third step in the SB 610 process is determining if there is a "public water system" to serve the project. Section 10912(c) of the California Water Code states: "[A] public water system means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections."

As the wholesaler, NCMWC will divert and deliver raw water to SCWA. SCWA will be the public water purveyor for the proposed Project that will own and operate the new public water system to treat, store and distribute potable water within the UWSP area.

"Is There a Current Urban Water Management Plan That Accounts for the Project Demand?"

Step four in the SB 610 process involves determining if there is a current UWMP that considers the projected water demand for the project area. The Water Code requires that all public water systems providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 AF annually must prepare an UWMP. Pursuant to Water Code Section 10621, UWMPs are required to be updated every five years on or before July 1, in years ending in one and six.

NCMWC diverts and delivers raw water to agricultural users within its service area and is not required to prepare UWMPs per the Water Code. In 2020, SCWA prepared an UWMP (**Appendix A**), which was adopted in June 2021. At the time of adoption, the UWSP was not within SCWA service area. The SCWA 2020 UWMP shows that current SCWA supplies are fully allocated to existing service areas, taking into account projected growth. The UWS lies outside of all SCWA benefit zones and outside of the POU of SCWA's existing water rights and contracts. SCWA does not currently have any water supplies to serve this area but has the capacity to treat and deliver water supplies obtained through a wholesale contract to serve UWS through the appropriate processes. As discussed below, in the event that SCWA becomes the water purveyor for the UWSP area, a new Benefit Zone with a rate structure to finance the zone would be created and included in subsequent UWMP documents.

Water Code Section 10910(c)(2) states: "If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g) [i.e., the WSA]." If projected water demand associated with the proposed project was not accounted for in the most recently adopted urban management plan, Water Code Section 10910(c)(3) states: "the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

"Is Groundwater a Component of the Supplies for the Project?"

According to the requirements of SB 610, if groundwater is identified as a possible source, Section 10910(f) of the Water Code also applies and a description of the groundwater basin or basins from which the proposed project will be supplied must be included in the WSA. Per the Alternative Water Source Memo by Wood Rodgers (Appendix B), groundwater is not a proposed water source for the UWSP area and is not evaluated further in this WSA.

"Are There Sufficient Supplies to Serve the Project over the Next 20 Years?"

The final step in the SB 610 process is to illustrate the available water supplies, including the availability of these supplies in all water-year conditions (normal year, single dry year, and multiple dry years) over a 20-year planning horizon, and an assessment of how these supplies relate to project-specific and cumulative demands over 20- and 25-year planning periods as compared to the SCWA 2020 UWMP. The water supply and demand comparisons are presented and discussed in Section 7. Section 9 of this WSA provides a conclusion.

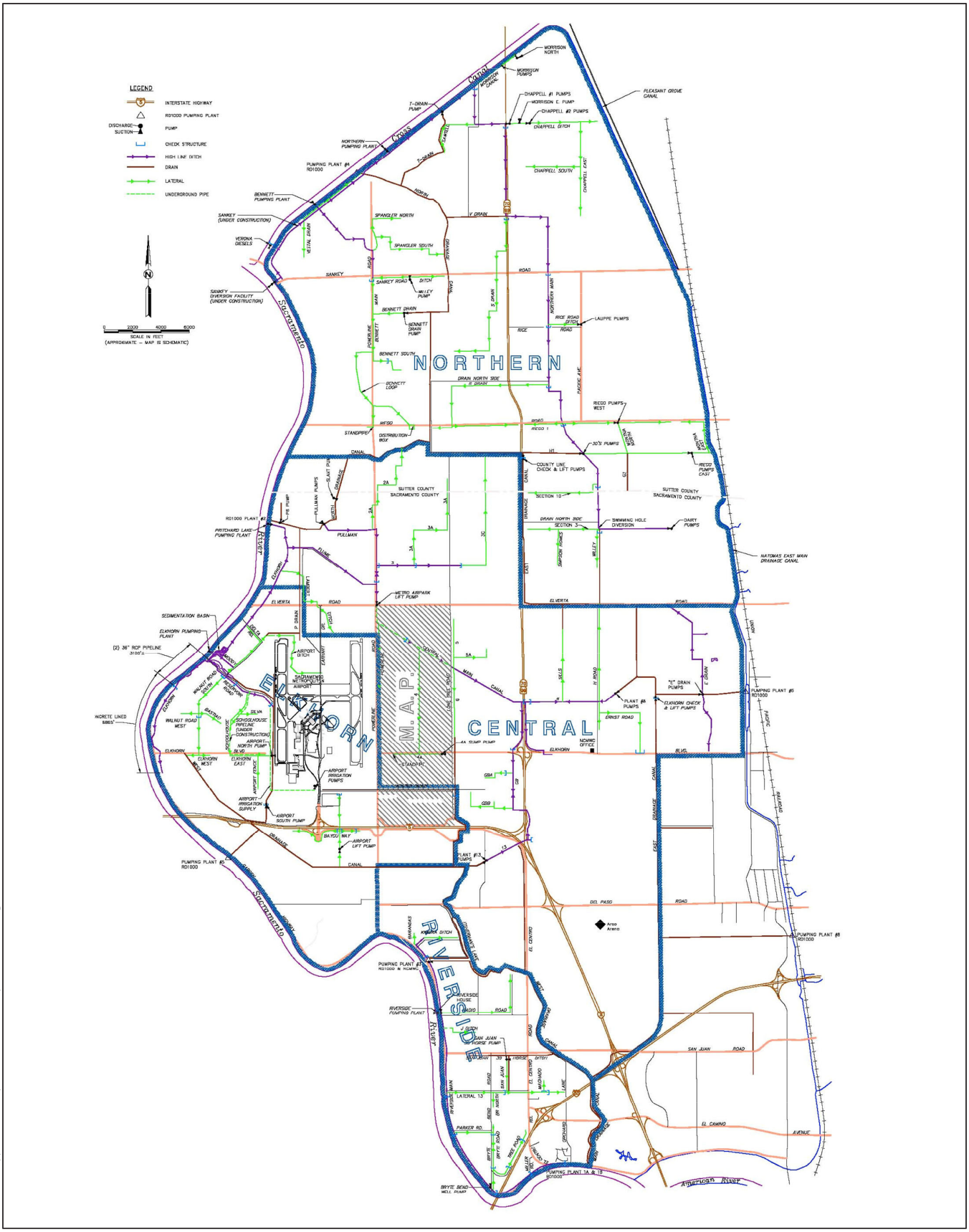
WSA Conclusion: Under normal and dry years, NCMWC would have sufficient CVP water supplies available to serve development implemented under the UWSP plus existing demand and planned future uses between 2025 and 2045. In critical dry years when the Drought Protection Program's measures are in effect, CVP supplies could be reduced by 50 percent, in these cases, NCMWC would not be able to meet projected demand, including demand generated by the UWSP. However, with implementation of a prioritization agreement per the letter from NCMWC (Appendix F) and an amendment to the USBR settlement agreement (Appendix D) to allow for some of those water supplies to be diverted during winter months, water supplies delivered through the NCMWC system for treatment and distribution by SCWA in the UWSP area would meet demand during Drought Protection Program curtailments.

4. SERVICE AREA SUMMARIES

NATOMAS CENTRAL MUTUAL WATER COMPANY

The Natomas Central Mutual Water Company (NCMWC) is a private, not-for-profit corporation representing the interests of its 280 member/shareholders. For more than 80 years, NCMWC has provided irrigation water, at cost, to its shareholders for agriculture use. NCMWC does not provide potable water to any shareholders, nor does it have the capability to treat raw water. NCMWC provides water services to 33,223 acres through pipelines, pumps and more than 50 miles of canals. NCMWC service area is adjacent to the Sacramento River, north to the Cross Canal, east to Natomas East Main Drainage Canal and south to the American River in Sacramento County. Refer to **Figure 3**.

In March 2004, NCMWC authorized its staff and consultants to finalize an operating agreement with another long-time Sacramento water provider, American States Utility Services, Inc. (ASUS), to provide water and wastewater services to municipal and industrial users in the Natomas Basin. The partnership allows NCMWC to serve all development within its service area, while preserving habitat, encouraging conservation and maximizing the value of our shareholders' historic water rights. The partnership with ASUS makes certain that the water NCMWC draws from the Sacramento River, American River and from groundwater wells stays in northern California.



SOURCE: Mead & Hunt

Upper Westside Specific Plan WSA

Figure 3
NCMWC Service Area Facility Map

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SACRAMENTO COUNTY WATER AGENCY

SCWA has created several assessment zones to enable potable water related projects. SCWA currently provides water service to seven different hydraulic areas as well as wholesale water to the Elk Grove Water District. These service areas include: Metro Air Park, Northgate 880, Arden Park Vista, Southwest Tract, Zone 40, Hood Water Maintenance District (Hood), and East Walnut Grove (Walnut Grove). SCWA's Zone 40 service area represents the largest group of customers and linked hydraulic service areas. Through its water service area, SCWA is currently providing water service to approximately 70,000 residential, commercial, irrigation, industrial and institutional/governmental service connections throughout all the water service areas. Much of the development is low-density, single-family housing and retail related commercial use, except for the Northgate and Metro Air Park service areas which are predominantly warehouse and light industrial customers. Refer to **Figure 4**.

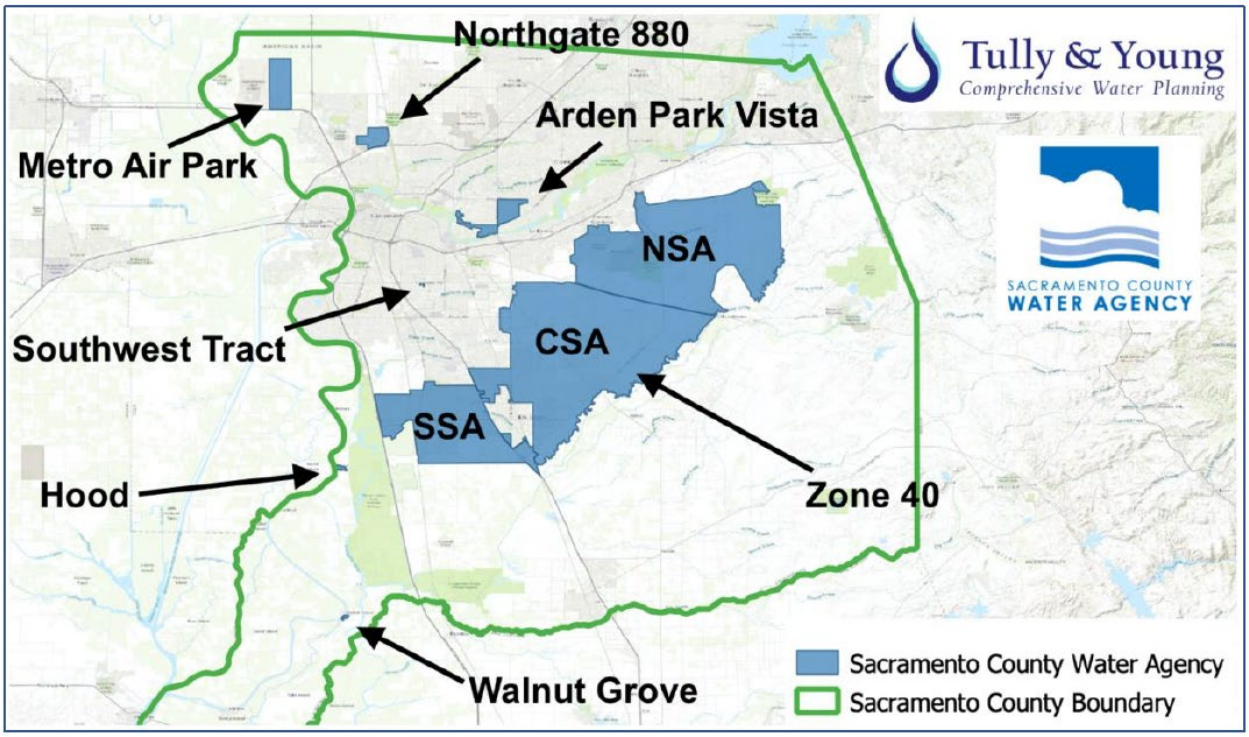


Figure 4. SCWA Service Area

The proposed UWSP area is currently within the NCMWC agricultural service area to receive surface water for agricultural uses, consistent with Sacramento County's approval of the UWSP project, therefore, to receive for municipal and industrial (M&I) water services the UWSP area would need to be designated as a new benefit zone within SCWA's service area. NCWMC would be the water supply wholesale agency and would divert raw water at its Riverside Pumping Plant and deliver raw water to a new water treatment plant within the UWSP area. The new UWSP

water treatment plant, appurtenances and related facilities would be owned and operated by Sacramento County Water Agency.

5. WATER SUPPLY SETTING

This section presents local climate conditions and reviews water supply sources, entitlements, water rights and contracts.

CLIMATE

Typical of the California Central Valley, Sacramento County has a Mediterranean climate with hot, dry summers and cool, wet winters. Historical averages show January as the coolest and wettest month, and July as the hottest and driest. The wet season is from October to April with a 30-year annual average rainfall of 19.94 inches. The annual mean temperature is 61.5 degrees, but the summer months can regularly see average highs in the mid-high 90s, and average winter lows hover down in the 30s and 40s. Other climate characteristics include frequent tule fog coinciding with the rainy season which brings dense fog caused by high relative humidity (after rain) and rapid cooling during the night. The fog can get trapped, due to temperature inversions common in the Sacramento valley, for days or even weeks. Snow is rare but cold fronts can bring freezing temperatures with trace amounts of snow and ice. Autumn starts warm and dry and becomes cooler, wetter, and foggier later into the season. The last rains in spring are generally in late April or early May.

Figure 5 shows the average monthly temperature, rainfall, and evapotranspiration (ETo) for the service area.

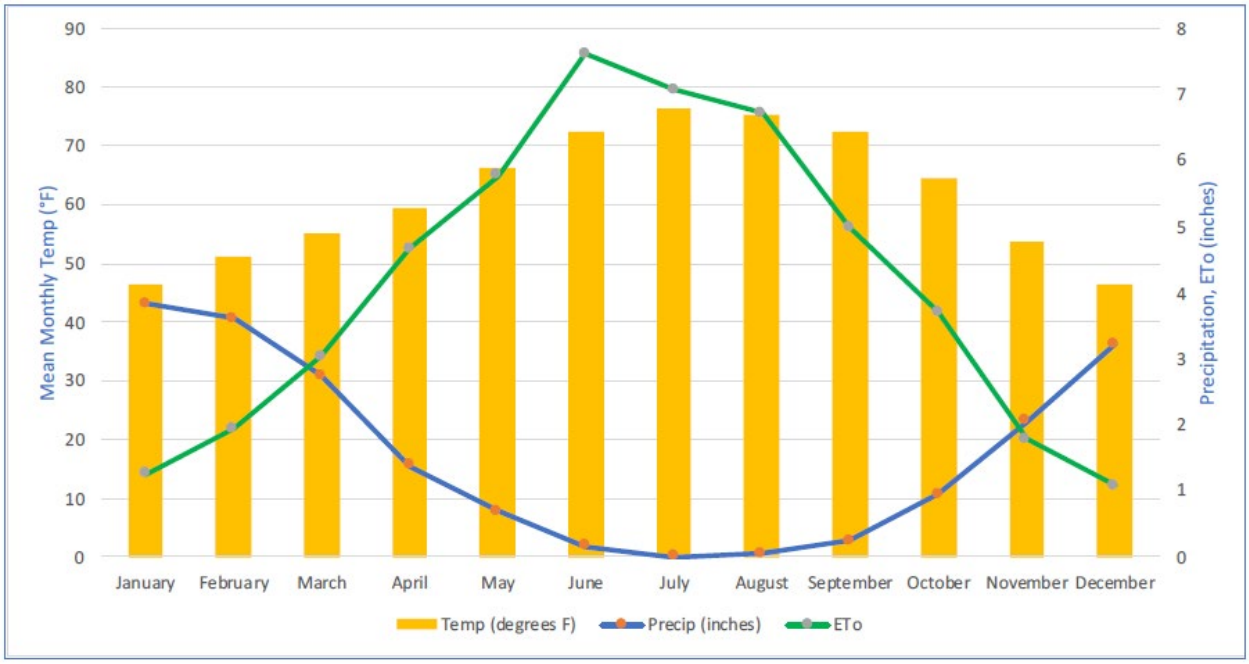


Figure 5. Sacramento County Average Climate Conditions

As noted in the 2020 SCWA UWMP, actual annual rainfall totals deviate quite significantly from the 30-year average. In most years, precipitation totals fall below the mean.

WATER SUPPLY ENTITLEMENTS, WATER RIGHTS AND CONTRACTS

Water Code Section 10910(d)(1) states: "The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the City or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights or water service contracts."

Water Supply Sources

Background

The NCMWC is the combination of the four original mutual water companies that were established to divert and deliver Sacramento River water to the reclaimed areas in the American Basin. At the time each water company constructed their distinct diversion facility and obtained individual water permits from the State of California. However, operating independent and distinct water companies was expensive and the Boards of Directors and management, in an effort to benefit from "economies of scale," decided to combine all of the water rights and facilities through a series of mergers. The final merger in 1963 set the stage for the American Basin to be represented by one governing body during very important negotiations with the United States Bureau of Reclamation (USBR) concerning its Central Valley Project (CVP).

In 1964, the re-formed NCMWC, along with hundreds of other Sacramento River water rights holders (diverters), signed a Sacramento River Settlement Contract with USBR to purchase water from the CVP. In exchange for the right to purchase water, the diverters (contractors) agreed to limit their diversions from the Sacramento River to a monthly allocation which represented a good faith estimate of their historical use.

The CVP has long-term agreements to supply water to more than 250 contractors in 29 of California's 58 counties. Deliveries by the CVP include providing an annual average of 5 million acre-feet of water for farms; 600,000 acre-feet of water for municipal and industrial uses; and water for wildlife refuges and maintaining water quality in the Sacramento-San Joaquin Delta.

Prior to delivering surface water to the UWSP area, NCMWC would need to amend its contract with USBR to supply surface water for municipal and industrial uses and modify its delivery schedule from seasonal deliveries for agricultural uses to year-round deliveries to the UWSP area. Moreover, to receive surface water for use within the UWSP area, NCMWC and SCWA would need to execute a water service agreement that describes annual delivery schedules and quantities in all water year types. This agreement would include a commitment to prioritize surface water deliveries for M&I use during drought and critical drought years at current market

prices[1], a defining feature of the California water market which encourages water rights holders, including agricultural users, to buy, sell or lease water to others who need it, helping allocate water more efficiently during droughts or shortages.

Sacramento River Water Supplies

Currently NCMWC water supplies are surface water diversions from the Sacramento River necessary to serve the agricultural users in the Natomas Basin. As a Sacramento River contractor, it can divert up to 120,200 AFY. As previously mentioned, NCMWC along with several Sacramento River diverters is contracted with USBR pursuant to the Natomas Settlement Contract (14-06-200-885A-R-1). The USBR Settlement Agreement addresses portions of NCMWC's surface water rights and provides CVP supplies for use in the Natomas Vision Plan Area. The USBR Settlement Contract can be amended to serve the UWSP area. Furthermore, NCMWC has sufficient capacity to serve the UWSP area as well as the broader Natomas Vision Plan Area. However, as illustrated in **Table 2**, NCMWC Sacramento River diversions have seasonal restrictions that only allow diversions and deliveries during specific months of the year. During late fall to early spring (October through March), permit 19400 allows for direct diversion and delivery of another 10,000 AF. However, Permit 19400 is Term 91 limited (refer to detailed discussion of Critical Year Supplies, page 19) and is therefore not always available. To ensure year-round raw water deliveries, the delivery schedule of the USBR Contract entitlements would have to be modified for year-round diversions and deliveries. It should be noted that delivery of wholesale raw water from NCMWC to the UWSP area will also require a wholesale agreement with SCWA to serve M&I water to the proposed development.

Table 2. NCMWC Total Water Supplies

	USBR	California Water Rights Permits						
	Contract	A000534	A001056	A001203	A001413	A015572	A022309	A025727 Permit:19400
Priority		3/1/1905	8/1/1918	3/1/1919	8/1/1919	10/1/1953	10/1/1965	5/1/1978
Source	CVP Settlement Contract	Sacramento River	Sacramento River	Sacramento River	Sacramento River	Sacramento River	Drain	Sacramento River and Drain (Winter)
Permit Total (AFY)	120,200	15,394.20	16,205.20	58,394.20	36,655.10	11,846.00	2,627.00	10,000.00
Delivery Period	April - October	April - October	April - October	May - October	May - October	April - June and October	March - June Sept and October	October - March
October	2,000							
November	0	0	0	0	0	0	0	
December	0	0	0	0	0	0	0	
January	0	0	0	0	0	0	0	
February	0	0	0	0	0	0	0	
March	0	0		0	0	0		
April	14,000			0	0			0
May	27,700							0

[1] NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

	USBR	California Water Rights Permits						
June	23,000							0
July	18,700					0	0	0
August	18,700					0	0	0
September	16,100					0		0
Totals (AFY)	**120,200**	**15,394**	**16,205**	**58,394**	**36,655**	**11,846**	**2,627**	**10,000**

Note: Table adapted by ESA, October 2025.
Source: Natomas Central Mutual Water Company, August 13, 2025.

Surface Water Deliveries

In order to divert and deliver Sacramento River water to the urban developments within its service area, NCMWC will need to apply for or request modifications to its USBR Settlement Contract and water rights permits from strictly agricultural uses to M&I uses. Notably, NCMWC maintains specific M&I water rights for use at the Sacramento Airport and Metro Airpark areas.

Normal Year Supplies

As shown in Table 3, under the USBR Settlement Agreement, NCMWC can divert and deliver up to 120,200 AFY of CVP Sacramento River water to agricultural users within its service area although delivery periods are limited to specific months pursuant to the Sacramento River Settlement Agreement and the conditions of individual water rights permits. Water Permit 19400 (1978) allows for direct diversion and delivery of up to 10,000 AFY from October through March.

CRITICAL YEAR SUPPLIES AND CVP DROUGHT PROTECTION PROGRAM

USBR Settlement Contract Critical Year Reductions

CVP water deliveries to Sacramento River Settlement Contractors are based on inflow quantities to Shasta Reservoir above Redding, California. Pursuant to the renewal of the USBR Settlement Agreement (May 2005), USBR may declare a Critical Year condition when the natural flows into Shasta Reservoir are equal to or less than 3.2 million acre-feet (MAF), or when total actual deficiencies below 4 MAF in the prior water year or series of successive prior water years experienced inflows of less than 4 MAF and current year forecasted inflow deficiencies exceed 800,000 acre-feet – in Critical Years, Sacramento River Settlement Contractors CVP water diversions are reduced by 25 percent.

Pursuant to the Agreement between USBR and Sacramento River Settlement Contractors for Establishment of a Drought Protection Program (January 2025) the signatories established a new program designed to improve water supply reliability and avoid severe storage deficiencies, such as the one that occurred in 2022. Under the Drought Protection Program when USBR declares a Critical Year and the Sacramento-San Joaquin Delta (Delta) is in a "balanced condition"[2]

[2] Balanced Condition when Supplemental Project Water (SPW) releases are being made by the Central Valley Project or State Water Project (collectively Projects). The Delta is referred to be in "Balanced Condition" when the Projects are being operated to meet water quality and flow requirements in the Delta. SPW releases are releases of

Sacramento River Settlement Contractors have agreed to further reduce diversions an additional 25 percent. As shown in **Table 3**, NCMWC diversions of CVP water in Critical Years are reduced by 25 percent, or 90,150 AFY. Furthermore, in Critical Years, an additional 25 percent reduction can be imposed under the new Drought Protection Program (January 2025), in these years, NCMWC diversions of CVP water can be reduced by up to a total of 50 percent or 60,100 AFY.

Table 3. NCMWC Water Supplies and USBR CVP Water Reductions

USBR Contract Amount	Critical Year 25% Curtailment	Drought Protection Program 50% Curtailment
120,200 AFY	90,150 AFY	60,100 AFY
Source: Natomas Central Mutual Water Company, August 2025.		

Water Rights Permit Curtailments

As shown in Table 2, water rights permit 19400, was acquired after the 1963 USBR Settlement Agreement and can be used to divert and deliver water from October to March in any given year. On an annual basis, if the State Water Resources Control Board (SWRCB) determines that the Delta is in "Balanced Condition" and can declare a Term 91 condition when the natural flows in the Sacramento River are insufficient to meet the various water quality and water flow requirements in the Delta, and Supplemental Project Water releases are being made by the CVP and SWP. It is likely that Term 91 will be declared more often in the future, reducing the diversions from the Sacramento River. Permit 19400 is subject to potential curtailment pursuant to Term 91. To address these potential curtailments under Term 91 during winter months, NCMWC has proposed seeking an amendment to its USBR Settlement Agreement that would allow for year-round diversions by reallocating some summer diversions to the winter period.

Historical and Existing Deliveries – All Water Year Types

As shown in **Tables 4 and 5**, NCMWC's historical diversions and deliveries range from as low as 29,012 AFY in 2022 to as high as 81,580 AFY in 2016; over this 12-year time period NCMWC delivered an average of 68,099 AFY. In normal, wet or above normal water years, the average surface water delivery was 71,595 AFY. In dry and critical dry years (2014, 2015, 2021 and 2022), the surface water deliveries averaged 61,107 AFY. However, in 2022, NCMWC was only able to deliver 29,012 AFY to its agricultural users, in all other dry years, deliveries were above the Drought Protection Program, 50 percent curtailment of 60,100 AFY. Though the Drought Protection Program is designed, in part, to improve water supply reliability, decreased deliveries could potentially occur in the future, such as in 2022 when it is possible for curtailments to reduce water supplies below the 50percent value in Drought Protection Program years. The letter from NCMWC included in Appendix F, however, states that M&I water for the

imported and previously stored Project water to meet in-basin entitlements, including maintenance of Delta water quality and flow requirements.

UWSP will be critical and prioritized. Thus, the project is expected to have sufficient supplies during these times to serve prioritized water to UWS.

Table 4. Annual Surface Water Use

Year	Annual Surface Water (AFY) Deliveries
2024	60,799
2023	72,593
2022	29,012
2021	74,450
2020	75,053
2019	63,188
2018	74,879
2017	63,763
2016	81,580
2015	67,618
2014	73,348
2013	80,903
Note: Table adapted by ESA, October 2025. Source: Natomas Central Mutual Water Company, August 13, 2025.	

Table 5. Average Surface Water Deliveries in all Water Year Types

Average Deliveries[1]	68,099
Average Deliveries[2]	71,595
Average Drought Year Deliveries[3]	61,107
1. All water year types 2. Wet, above normal and normal years 3. 2014, 2015, 2021 and 2022 Note: Table adapted by ESA, October 2025. Source: Natomas Central Mutual Water Company, August 2025.	

6. WATER DEMAND ANALYSIS

This section shows the calculated water demand for the proposed project as well as projected demand for NCMWC and SWCA systems.

EXISTING UWSP AREA AGRICULTURE WATER DEMAND

As shown in **Table 6**, between 2013 and 2024 NCMWC delivered surface water to its agricultural users within the UWSP area, deliveries ranged from 1,307 AFY to 4,860 AFY with an average of 2,703 AFY. It is important to note that in the drought years of 2014, 2015, 2021 and 2022, surface water deliveries for agricultural uses ranged from 1,307 AFY to 4,014 AFY with an average of 2,956 AFY. As a result of low precipitation, the average water use was higher in the drought years compared to 2013-2024 average of 2,703 AFY.

Table 6. Summary of Water Deliveries within UWSP Area (AFY)

Year/Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2024					216	542	599	584	58	364	1	0	2,365
2023				0	38	712	616	353	91	75	3	2	1,892
2022			307	389	133	165	335	220	59	7			1,307
2021			145	1,085	155	312	654	730	221	127			3,284
2020				63	325	341	204	229	160				1,321
2019						227	415	458	238	10			1,353
2018					247	739	944	699	367	6			3,002
2017					217	441	555	586	245				2,045
2016				90	539	935	951	758	430	80			3,782
2015				483	653	786	760	417	94	24			3,218
2014				174	843	1,104	969	733	162	28			4,014
2013				373	1,265	1,041	865	807	237	14		256	4,860
Minimum					4	165	204	220	58				**1,307**
Average			38	221	386	612	656	548	197	61	0	22	**2,703**
Maximum			307	1,085	1,265	1,104	969	807	430	364	3	256	**4,860**

Source: Natomas Central Mutual Water Company, August 2025.

PROPOSED UWSP PROJECT WATER DEMAND - OPERATIONS

The UWSP area is estimated to be 2,066 acres as shown in Figure 2. The estimated annual water demand for the UWSP is 3,139 AFY and is consistent with SCWA's 2020 Urban Water Management Plan. The proposed land uses and projected water demand for the UWSP area are presented in **Table 7**. It should be noted that the Agricultural Reserve, General Agriculture and Regional Commercial land uses are considered existing conditions and would not generate new water demands within the UWSP area[3].

Table 7. UWSP Estimated Water Demand (AFY)

Land Uses	Corresponding Land Use Classification in WSMP[(2)]	Unit Water Demand (AFY/Acre) [(1)(3)]	Gross Acreage	Water Demand (AFY)[(3)]
Residential Designations				
Low Density Residential (RD-2)	Residential Low	1.47	164.5	242.3
Low Density Residential (RD-5)	Residential Low	2.29	429.2	982.8
Low Density Residential (RD-7)	Residential Low	2.29	133.0	304.5
Medium Density Residential (RD-10)	Residential Medium	3.58	62.5	102.0
High Density Residential (RD 25)	Residential Medium	3.58	36.4	130.2
High Density Residential (RD 40)	Residential Medium	3.58	22.6	164.0

[3] Upper Westside Water Master Plan, page 7

Land Uses	Corresponding Land Use Classification in WSMP[2]	Unit Water Demand (AFY/Acre) [1][3]	Gross Acreage	Water Demand (AFY)[3]
Non-Residential				
Landscape Corridor	Park	3.01	38.2	115.1
Mixed Use	Mixed Use	5.75	82.0	471.5
Agricultural Reserve	-	n/a	410.2	n/a
General Agriculture	-	n/a	86.1	n/a
Agricultural Urban Reserve	Park	3.01	45.1	84.0
Commercial & Office (CC)	Commercial/Office	2.17	1.2	2.7
Commercial & Office (E/HC)	Commercial/Office	2.17	52.9	114.9
Roads	-	0.19	122.0	23.6
Public/Quasi-Public	Public	0.87	141.1	122.8
Public/Quasi-Public	-	0	15.0	0
Natural Reserve	-	0	141.9	0
Recreation	Park	3.01	82.3	153.0
Regional Commercial	Regional Commercial (RC)	n/a	n/a	n/a
TOTALS			**2,066**	**3,138.9**

Notes:
1. Demand estimates per SCWA 2016 WSIP include 7.5 percent system losses
2. Proposed land use from UWS WSMP, October 2023.
3. Demands may vary slightly due to land use plan modifications.

ANTICIPATED UWS NCMWC WATER DEMANDS

The proposed UWSP area is anticipated to generate a water demand of 3,139 AFY (refer to Table 7) to meet M&I uses. Anticipated monthly deliveries to the UWSP area are shown in Table 8 and are consistent with the monthly water uses provided in the 2020 SCWA UWMP. In October through March, NCMWC would divert and deliver water to the UWSP area under its water right permit 14900. As shown in **bold** in **Table 8**, NCMWC would divert an additional 1,300 AFY during the late fall (October) through early spring (March) to meet demand generated by the UWSP area.[4]

Under the UWSP, agricultural uses would taper out as the proposed development would convert the existing agricultural lands to developed land uses. From October through March, NCMWC does not deliver raw water to meet agricultural uses in the UWSP area as existing agricultural uses that do not irrigate crops during the winter months. However, water use to meet M&I demand in the UWSP area between October and March will be required, as a result, NCMWC will increase monthly diversions from the Sacramento River. Water supplies needed to serve the UWSP area during these months are expected to be as high as 331 acre-feet in October to as low as 122 acre-feet in March in any given year.[5]

[4] UWSP Alternative Water Source Memorandum, Wood-Rodgers, October 2025.
[5] UWSP Alternative Water Source Memorandum, Wood-Rodgers, October 2025.

Table 8 UWSP Water Demand by Month

Month	Proposed Surface Water Demand (acre-feet)
January	**140**
February	**133**
March	**122**
April	154
May	245
June	351
July	401
August	430
September[1]	**406**
October[1]	**331**
November	**258**
December	**168**
Yearly Total	**3,139**

Notes:
1. Under existing conditions in September and October, NCMWC currently delivers 197 acre-feet and 61 acre-feet to agricultural users. Supplemental water supplies would be needed to meet the additional demand above average water use within the UWSP area.
Source: UWSP Alternative Water Source Memorandum, Wood-Rodgers, October 2025.

As shown in **Table 9**, based on historical diversions and deliveries to existing agricultural users, the WSA estimated NCMWC's projected diversions and water supply deliveries over the next 20 years to meet agricultural and M&I within its service area including the UWSP area. It should be noted that prior to serving the UWSP area with M&I water, NCMWC will need to apply for modifications to its State water rights permits and amend its USBR Settlement Agreement. This modification of rights is expected to have a cost of approximately $3 million and take multiple years to complete.

Table 9. Projected Water Deliveries

	2030	2035	2040	2045	2050
NCMWC – Service Area[1,2,3]	71,595	71,595	71,595	71,595	71,595
NCMWC – Service Area (Dry Years)[2,3]	61,107	61,107	61,107	61,107	61,107
UWSP – Average Annual	3,139	3,139	3,139	3,139	3,139
UWSP – Dry Years Annual	2,668	2,668	2,668	2,668	2,668

NOTES:
1 Based on average annual pumping at the Riverside Pumping Plan and annual deliveries to existing agricultural users, including the UWSP area and other proposed developments, i.e., GrandPark Southwest Specific Plan and Grandpark Trails Specific Plan.
2. Annual diversions and deliveries are expected to decrease over the next twenty years as agricultural uses within NCMWC service area are converted to urban uses. For conservative water supply planning purposes, diversions and deliveries are held constant through the 20-year planning horizon.
3. Average Annual deliveries include additional water supplies of 436 acre-feet needed to meet UWSP demands
SOURCE: Table derived by ESA from Natomas Central Mutual Water Company data and information based on demand management measures during dry years to achieve water conservation (Stage 2, up to 20%) pursuant to SCWA's Water Shortage Contingency Plan *(ver 4-19-21)*.

7. COMPARISON OF AVAILABLE WATER SUPPLIES VERSUS DEMAND

Section 10910(c)(3) of the Water Code states, "the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available for normal, dry and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

WATER SUPPLY RELIABILITY – IN ALL WATER YEAR TYPES

NCMWC Service Areas – Supply and Demand

Table 10 presents a water supply and demand comparison in all water year types, normal, dry and Drought Protection Program years when supplies could be curtailed by 50 percent. Normal year supply quantities are assumed to be similar to historical average supplies presented in Table 2. In normal water years, NCMWC has adequate water supply to meet existing and projected demand, including the UWSP estimated 3,139 AFY of water demand. In normal years, NCMWC would have access to another 48,605 AFY after delivering water to UWSP and agricultural consumers.

Table 10. NCMWC Supply and Demand in All Water Years

		2030	2035	2040	2045	2050
Normal Year						
Supply	USBR CVP Settlement Agreement	120,200	120,200	120,200	120,200	120,200
Demand	NCMWC – Service Area[1,2,3]	71,595	71,595	71,595	71,595	71,595
	Surplus/(Deficit)	48,605	48,605	48,605	48,605	48,605
Critical Year aka Dry Year						
Supply	USBR CVP (25% Curtailment)	90,150	90,150	90,150	90,150	90,150
Demand	NCMWC – Service Area (15% conservation or fallow lands and reduced planting)[1,2,3]	61,107	61,107	61,107	61,107	61,107
	Surplus/(Deficit)	29,043	29,043	29,043	29,043	29,043
Drought Protection Program Curtailment						
Supply	USBR CVP (50% Curtailment)	60,100	60,100	60,100	60,100	60,100
Demand	NCMWC – Service Area (Dry Years 15% conservation or fallow lands and reduced planting)[1,2,3]	61,107	61,107	61,107	61,107	61,107
	Surplus/(Deficit)	(1,007)	(1,007)	(1,007)	(1,007)	(1,007)
Supply	USBR CVP (50% Curtailment)	60,100	60,100	60,100	60,100	60,100
Demand	NCMWC – Service Area (Dry Years 17% reduction or fallow lands and reduced planting)[1,2,3]	60,099	60,099	60,099	60,099	60,099
	Surplus/(Deficit)	1	1	1	1	1

NOTES:

1. Based on average annual pumping at the Riverside Pumping Plan and annual deliveries to existing agricultural users, including the UWSP area and other proposed developments, i.e., GrandPark Southwest and Grandpark Trails.

2. Annual diversions and deliveries are expected to decrease over the next twenty years as agricultural uses within NCMWC service area are converted to urban uses. For conservative water supply planning purposes, diversions and deliveries are held constant through the 20-year planning horizon.

3. Average Annual deliveries include additional water supplies of 436 acre-feet needed to meet UWSP demands

Table derived by ESA from NCMWC data and information and based on demand management measures during dry years to achieve water conservation (Stage 2, up to 20%) pursuant to SCWA's Water Shortage Contingency Plan *(ver 4-19-21)*.
Source: UWSP Alternative Water Source Memo and NCMWC, October 2025

In Critical Years (aka, dry years) CVP supplies are assumed to be reduced by 25 percent to 90,150 acre-feet (refer to Table 3). In Critical Years, NCMWC has adequate water supplies to meet existing and projected demand including the UWSP area estimated 3,139 AFY of water demand. As shown in Table 10, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC will prioritize M&I deliveries to UWSP area to meet demand during Critical Years. As a result, in Critical Years when supplies are reduced by 25 percent, NCMWC can meet existing and projected demand and NCMWC would have access to another 29,043 AFY after delivering water to UWSP and agricultural consumers. This assumes a projected 15 percent reduction in demand due to water conservation pursuant to SCWA's Water Shortage Contingency Plan (WSCP)[6].

In years when the Drought Protection Program is in effect, CVP water is reduced by 50 percent or 60,100 acre-feet (refer to Table 3). Under the Drought Protection Program, NCMWC could experience a potential shortfall of 1,007 AFY as shown in Table 10. In these Drought Protection Program years when supplies are reduced by 50 percent, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC will prioritize M&I deliveries to UWSP area to meet demand during Critical Years. As a result, in Critical Years when CVP supplies are reduced by 50 percent, NCMWC can meet existing and projected demand. This assumes a projected 17 percent reduction in demand due to water conservation pursuant to SCWA's WSCP[6].

Upper Westside Specific Plan Service Area - – Supply and Demand

Table 11 presents a water supply and demand comparison in all water year types, in these cases, normal, dry and Drought Protection Program years when supplies could be curtailed by 50 percent. Normal year supply quantities are assumed to be similar to historical average supplies presented in Table 2. In normal water years, NCMWC has adequate water supply to meet existing and projected demand, including the UWSP estimated 3,139 AFY of water demand. In normal years, NCMWC has sufficient supplies to meet demand generated by the UWSP area.

In Critical Years, when CVP water supplies are reduced by 25 percent as presented in Table 3. NCMWC can meet existing and projected demand including demand generated by the UWSP area and would have access to another 29,043 AFY after delivering water to UWSP and agricultural consumers. This assumes a projected 15 percent reduction in demand due to water

[6] SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. SCWA Water Shortage Contingency Plan (ver 4-19-21)

conservation pursuant to SCWA's WSCP[7]. As shown in Table 11, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC will prioritize M&I deliveries to UWSP area to meet demand during Critical Years. As a result, in Critical Year when CVP supplies are reduced by 50 percent, NCMWC can meet existing and projected demand including demand generated by the UWSP area.

Table 11. UWSP Area Supply and Demand in All Water Years

		2030	2035	2040	2045	2050
Supply	NCMWC - UWSP Deliveries	3,139	3,139	3,139	3,139	3,139
Demand	UWSP Service Area[1]	3,139	3,139	3,139	3,139	3,139
	Surplus/(Deficit)	0	0	0	0	0
Supply	USBR CVP (25% Curtailment)	3,139	3,139	3,139	3,139	3,139
Demand	UWSP Service Area[1]	3,139	3,139	3,139	3,139	3,139
	Surplus/(Deficit)	0	0	0	0	0
Supply	USBR CVP (50% Curtailment)	3,139	3,139	3,139	3,139	3,139
Demand	UWSP Service Area[1]	3,139	3,139	3,139	3,139	3,139
	Surplus/(Deficit)	0	0	0	0	0

NOTES:

1. For conservative water supply planning purposes, UWSP demand is held constant through the 20-year planning horizon. Under SCWA's Water Shortage Contingency Plan (ver. 4-19-21) demand would be reduced in response to applicable water conservation measures.

Table derived by ESA from NCMWC data and information and based on demand management measures during dry years to achieve water conservation (Stage 2, up to 20%) pursuant to SCWA's Water Shortage Contingency Plan *(ver 4-19-21)*.

Source: Alternative Water Source Memo and NCMWC, October 2025

In years when the Drought Protection Program is in effect, CVP water is reduced by 50 percent or 60,100 acre-feet (refer to Table 3). Under the Drought Protection Program when CVP supplies are curtailed by 50 percent, NCMWC could experience a supply shortfall. In these Drought Protection Program years, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC will prioritize M&I deliveries to UWSP area to meet demand during Critical Years. This assumes a projected 17 percent reduction in demand due to water conservation pursuant to SCWA's WSCP.[8] As a result, in Critical Year when CVP supplies are reduced by 50 percent, NCMWC can meet existing and projected demand including demand generated by the UWSP area.

[7] SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. SCWA Water Shortage Contingency Plan (ver 4-19-21)

[8] SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. SCWA Water Shortage Contingency Plan (ver 4-19-21)

Drought Risk Assessment

As part of the 2020 UWMP, the California Water Code, as amended added Section 10635(b) requiring urban water suppliers to develop a drought risk assessment (DRA) as part of their UWMPs. The DRA is a planning exercise that considers the effects on available water supply sources should a five-year drought occur immediately following the preparation of the DRA, in this case, 2021 through 2025. The DRA evaluates the effects of an immediate five-year drought. A discussion of SCWA's DRA is presented in Section 5.1 of its 2020 UWMP and analyzes five years of supply and demand scenarios under a long-term drought scenario. The DRA also considers the implementation of SCWA's 2020 Water Shortage Contingency Plan (WSCP) and its effect on available supply and total demand, however the WSCP was not created with UWSP being a new benefit zone.

WATER SHORTAGE CONTINGENCY PLAN

Pursuant to the Urban Water Management Planning Act (Water Code Section 10632), water suppliers with a Water Shortage Contingency Plan (WSCP) can implement subsequent stages of demand reduction measures listed in its UWMP as a strategy to balance supply and demand.

A WSCP allows SCWA to reduce water deliveries to customers and implement demand reductions during periods of water shortage. Therefore, to overcome the potential supply deficits the SCWA will follow its adopted WSCP to implement drought-planning sequences and associated operating procedures that subsequently initiate different levels of demand management relative to surface water supply rationing imposed by NCWMC. The WSCP can be found in SCWA's 2020 UWMP Attachment 2.

The Water Code Section 10632 requires water suppliers to adopt six water shortage stages, which correspond to progressively severe water shortage conditions (up to 10%, 20%, 30%, 40%, 50%, and greater than 50% shortage) as compared to the normal reliability condition. The following six stages list the shortage response actions:

- **Stage 1 (Up to 10% shortage)** – Stage 1 is a "Water Alert" where voluntary conservation is encouraged.
- **Stage 2 (Up to 20% shortage)** – Stage 2 is a "Moderate Shortage" and will be implemented if the Stage 1 restrictions are deemed insufficient to achieve necessary demand reductions due to water supply shortages.
- **Stage 3 (Up to 30% shortage)** – Stage 3 is a "Severe Shortage" that requires water allocations and mandatory conservation.
- **Stage 4 (Up to 40% shortage)** – Stage 4 is a "Critical Shortage" that includes all steps taken in prior stages regarding allocations and mandatory conservation.
- **Stage 5 (Up to 50% shortage)** – Stage 5 is a "Shortage Crisis" that includes all steps taken in prior stages regarding allotments and mandatory conservation. This stage will be

implemented in the event that the source of supply is severely curtailed to the level that requires each customer to restrict their water use for only human health and safety purposes.

- **Stage 6 (Greater than 50% shortage)** – Stage 6 is an "Emergency Shortage" condition that includes all steps taken in prior stages regarding allotments and mandatory conservation.

8. ANTICIPATED TIMING, ESTIMATED COSTS, AND PERMITS

NCMWC wholesale deliveries of raw water would be conveyed via new raw water transmission lines and treated by SCWA at a new on-site 7 million gallons per day surface water treatment plant to meet potable water standards. In addition, two 2.5-million-gallon storage tanks would be required to meet peak day demand, fire flows and provide redundancy. Engineering, design and construction of the new water treatment facility and tanks would be required. Conceptual designs for these new facilities are attachments to Appendix B. **Table 12** contains the estimated cost for this option, which would be the responsibility of the project applicant, and the estimated timing is discussed below.

Table 12. Estimated Costs of Water Supply Option to Be Borne By Project Applicant

Cost Item	Estimated Cost
Wholesale agreement with NCMWC	$0.3M
Capital buy-in into existing system	N/A
New infrastructure (transmission and distribution systems)[1,2]	$31.5M
New water treatment plant and storage tanks[1,2]	$25.3M
Local permits and approvals	$2M
Conversion of Agricultural Rights to M&I Rights	$3M
SGMA compliance – NASb GSP Revisions	N/A
New groundwater wells and equipment	N/A
Environmental Compliance	$2M
System Design	$5M
Total Estimated Cost	**$69.1M**

Notes:
1. Contingency is 30% of treatment plant and tank estimated construction costs and 20% of other construction costs.
2. Costs for design, engineering, local permitting and environmental clearance
Source: Sacramento County Water Agency, Wood Rodgers.

SCWA expects that negotiating wholesale water agreements with NCMWC would take approximately two years for negotiations and governing body approvals. The timeline for a CVP contract amendment process varies significantly, often taking several months to multiple years, depending on the complexity of the proposed changes and associated environmental compliance requirements. There is no single, fixed timeframe as each amendment is evaluated on a case-by-case basis. As such, for consistency with the projected timeframe for construction of the proposed surface water facilities, this WSA also assumes up to 4 years for approval of modifications to NCMWC's Natomas Settlement Agreement.

Construction of the surface water facilities (including treatment, storage, transmission, etc.) would require an estimated 4 years.

Use of NCMWC supplies would require a wholesale agreement with NCMWC in which raw water for UWSP would be first priority water. Existing NCMWC surface water supplies are for agricultural use and would need to be modified to allow M&I water use and as discussed in Section 5 would need to be modified for year-round deliveries. There could be additional modifications needed depending upon the legal process to update and amend the Natomas Settlement Agreement. NCMWC's Riverside Pumping plant and intakes have adequate fish screens to prevent entrainment of special-status salmonids.

The new surface water facilities will require various permits, new contracts, and contract modifications. SCWA currently holds a public water system permit issued by the California Department of Public Health (CDPH). The engineering and design of any new production, water treatment, transmission and storage would require review and approval by CDPH.

9. CONCLUSION

According to the requirements of Water Code Section 10910(c)(3) "the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

As discussed in Section 4, implementation of the UWSP would result in changes to NCMWC purpose of use (from agricultural deliveries to M&I uses) and add the UWSP area as a new benefit zone in SCWA's service area. As a result of implementation of the UWSP and conversion of land uses, (agricultural to urban) total water demand within NCMWC service area is expected to decrease over the 20-year planning horizon.

As discussed in Section 7, under normal, Critical Dry conditions, NCMWC would have sufficient CVP water supplies available to serve development implemented under the UWSP plus existing demand and planned future uses between 2030 and 2050. However, under the Drought Protection Program reductions when CVP diversions are reduced by 50 percent, as shown in Tables 10 and 11, projected demand could exceed available supplies, including demand generated by the UWSP area. As discussed in Section 7 and shown in Tables 10 and 11, pursuant to the NCMWC and SCWA water service agreement discussed in Section 5, NCMWC will prioritize M&I deliveries to UWSP area to meet demand during Critical Years. As a result, in Critical Year when CVP supplies are reduced by 50 percent, NCMWC can meet existing and projected demand including demand generated by the UWSP area. Therefore, in all water years including Critical Years and under the Drought Protection Program years water supplies delivered through NCMWC's water service systems for treatment and distribution by SCWA in

the UWSP area would be able to meet existing and projected demand including demand generated by the UWSP area.

WATER SUPPLY ASSESSMENT APPROVAL PROCESS

Pursuant to California Water Code 1910 et seq. and CEQA Guidelines 15155 on **DATE**, the Sacramento County Board of Supervisors, by resolution adopted this WSA as it pertains proposed development contemplated in the UWSP, as a new benefit zone within SCWA's service area.

10. REFERENCES

Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, California Department of Water Resources

2020 Urban Water Management Plan, Sacramento County Water Agency

Alternative Water Source Memorandum, Wood Rodgers

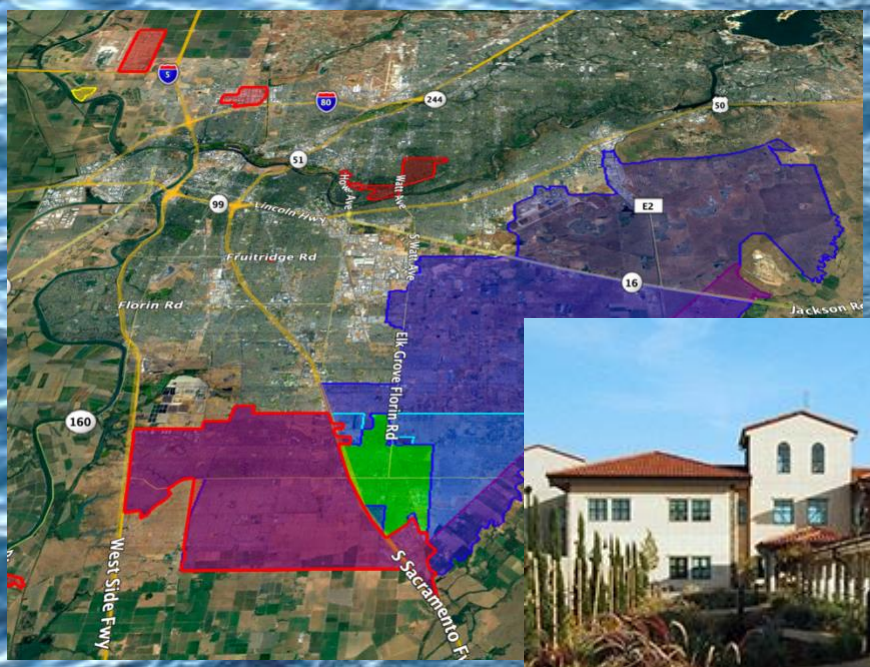
USBR Settlement Agreement with Natomas Central Mutual Water Company

USBR Settlement Agreement with Sacramento River Settlement Contractors to establish a Drought Protection Program

2020 Water Shortage Contingency Plan, Sacramento County Water Agency

NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

Appendix A - 2020 Urban Water Management Plan, Sacramento County Water Agency



2020 Urban Water Management Plan

DEPARTMENT OF WATER RESOURCES
SACRAMENTO COUNTY
WATER AGENCY

Prepared by

Tully & Young
Comprehensive Water Planning

Final: Adopted June 15, 2021

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Appendices

Appendix A Water Shortage Contingency Plan A-1

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This 2020 Urban Water Management Plan was prepared under the direction of a California licensed civil engineer.

Executive Summary
Layperson's Description

After the devastating drought in the late 1970s, the California Legislature declared California's water supplies a limited resource, subject to ever-increasing demands and that the long-term, reliable supply of water is essential to protect California's businesses, communities, agricultural production, and environmental interests. The Legislature also recognized a need to strengthen local and regional drought planning and increase statewide resilience to drought and climate change. Thus, in 1983, the California Legislature created the Urban Water Management Planning Act (UWMPA).[1] The UWMPA requires urban water suppliers serving over 3,000 customers or supplying at least 3,000 acre-feet of water annually to prepare and adopt an urban water management plan every five years,[2] and demonstrate water supply reliability in a normal year, single dry year, and droughts lasting at least five years over a twenty-year planning horizon.[3] The UWMPA also requires each urban water supplier to prepare a drought risk assessment and water shortage contingency plan.[4] And last, beginning in July 2022, each urban water supplier must prepare an annual water supply and demand assessment.[5] The California Legislature asserts that aggregating all of these legal requirements at the urban water supplier level will improve local, regional, and statewide water planning and water resilience.

At a practical level, the Urban Water Management Plan (UWMP) is the legal and technical water management foundation for urban water suppliers throughout California. A well-constructed UWMP will provide the supplier's elected officials, management, staff, and customers with an understanding of past, current, and future water conditions and management. The UWMP integrates local and regional land use planning, regional water supply, infrastructure, and demand management projects as well as providing for statewide challenges that may manifest through climate change and evolving regulations. Thoughtful urban water management planning provides an opportunity for the supplier to integrate supplies and demands in a balanced and methodical planning platform that addresses short-term and long-term planning conditions. In brief, the UWMP gathers, characterizes, and synthesizes water-related information from numerous sources into a plan with local, regional, and statewide practical utility.

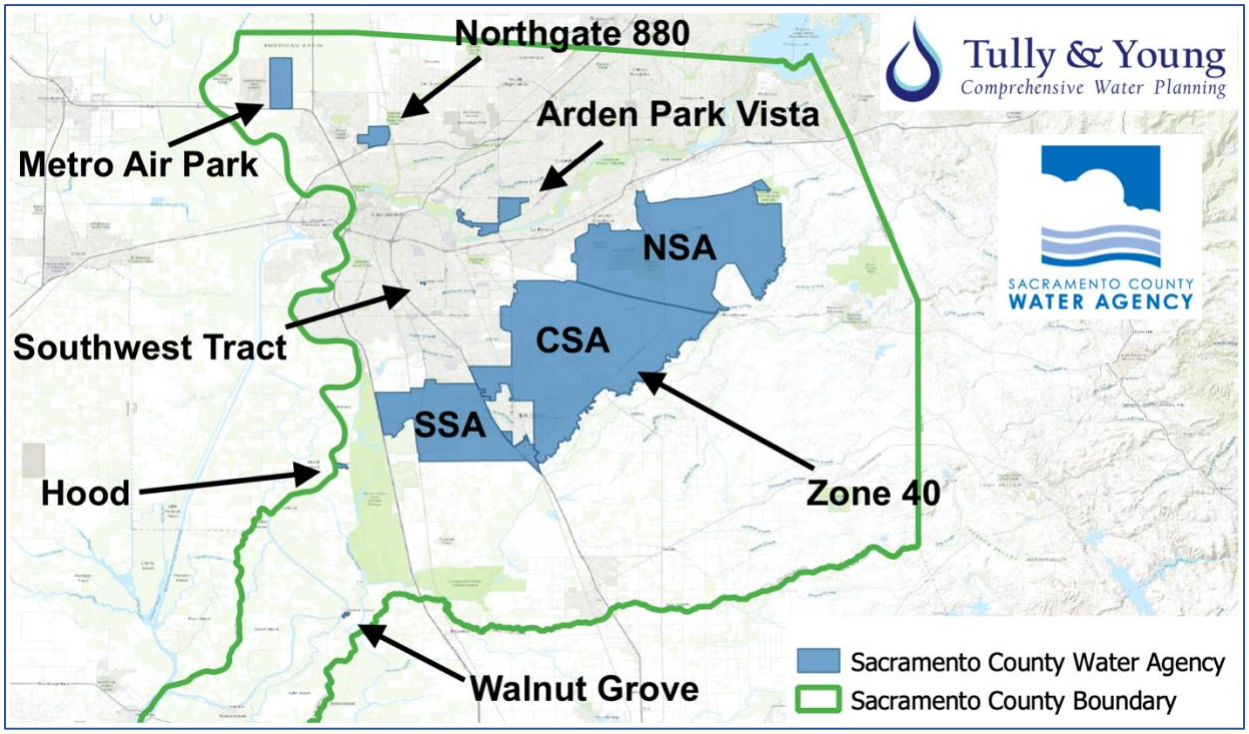
[1] California Water Code Section 10610 *et seq*. (Chapter 1 added by Stats. 1983, Ch. 1009, Sec. 1) and its subsequent amendments
[2] California Water Code Section 10610 *et seq*.
[3] California Water Code Sections 10631-10635
[4] California Water Code Sections 10632
[5] California Water Code Sections 10632.1

ES-1 Sacramento County Water Agency

The Sacramento County Water Agency (SCWA) was formed in 1952 as a special act district codified in Chapter 66 of the California Water Code Appendix.[6] The SCWA Act states that SCWA was created, in part, "for purposes of controlling and conserving storm, flood and other surface water for any beneficial purpose… and obtaining of ground or other water or a water supply and the production, storage, transmission, distribution, sale, or other disposition of such water…."[7] The SCWA Act further establishes that SCWA's service area boundaries include "all of the territory within the County of Sacramento."[8] As such, SCWA's fundamental purpose is to provide safe and reliable drinking water to its wholesale and retail customers throughout Sacramento County.

SCWA encompasses seven water service areas and provides retail water service to approximately 59,000 residential and commercial customers in Sacramento County.[9] SCWA also wholesales water to Elk Grove Water District and works with neighboring water suppliers and land use agencies to ensure long-term water system reliability. Figure ES-1 below shows SCWA's service area boundary as well as the seven service areas: Metro Air Park, Northgate 880, Arden Park Vista, Southwest Tract, Zone 40, Hood Water Maintenance District (Hood), and East Walnut Grove (Walnut Grove). Within Zone 40 there are further subdivisions into the North Service Area (NSA), Central Service Area (CSA), and South Service Area (SSA).

Figure ES-1: SCWA Water Service Area



[6] California Water Code Appendix, Sacramento County Water Agency Act, Section 66-1 *et seq*., 1952. (SCWA Act)
[7] California Water Code Appendix, Sacramento County Water Agency Act, Chapter 66, 1952.
[8] SCWA Act Section 66-1.
[9] SCWA has eight public water systems but those are contained wholly within the seven service areas.

ES-2 SCWA Water Service Reliability

Each of SCWA's seven service areas are served with a unique set of water supplies. Each of the seven service areas have long-term water reliability in normal, single dry years, and five consecutive dry years through 2045. The details related to these conclusions are contained in the main chapters of SCWA's 2020 UWMP. The information below generally describes the water system reliability for each service area.

- **Metro Air Park**: Water supply delivered from the City of Sacramento to meet current demands of approximately 125 acre-feet and 2045 demands of approximately 5,715 acre-feet.
- **Northgate 880**: Water supply is derived from SCWA's groundwater supplies to meet current demands of approximately 1,345 acre-feet and 2045 demands of approximately 1,365 acre-feet
- **Arden Park Vista**: Water supply is derived from SCWA's groundwater supplies to meet current demands of approximately 3,560 acre-feet and 2045 demands of 3,217 acre-feet.
- **Southwest Tract**: Water supply is derived from a water supply contract with California American Water Company to meet current demands of approximately 30 acre-feet and 2045 demands of approximately 24 acre-feet.
- **Zone 40**: Zone 40 has a number of potable surface water supplies, a non-potable surface water supplies, and groundwater available to meet its customers' demands.
  - Zone 40 potable water supplies consist of three water rights from the Sacramento River, two Central Valley Project contracts for water, a contract for water with Aerojet, a contract supply from North Delta Water Agency, and groundwater supplies to meet current demands of approximately 37,620 acre-feet and 2045 demands of 74,388 acre-feet.
  - Zone 40 non-potable supplies consist of a contract for recycled water supplies from Sacramento Regional County Sanitation District to meet current non-potable demands of approximately 962 acre-feet and 2045 demands of approximately 3,300 acre-feet.
- **Hood Water Maintenance District**: The Hood Water Maintenance District service area water supply is entirely derived from SCWA's groundwater supplies to meet current demands of approximately 30 acre-feet and 2045 demands projected to be 31 acre-feet
- **East Walnut Grove**: The East Walnut Grove service area water supply is entirely derived from SCWA's groundwater supplies to meet current demands of approximately 60 acre-feet and projected 2045 demands of 56 acre-feet.

In summary, SCWA's diverse potable and non-potable surface water supply portfolio, combined with its conjunctive management of groundwater resources, provide stable and reliable water supplies to meet SCWA's current and 2045 future water demands in all seven service areas as well as its wholesale delivery obligations. This supply reliability encompasses normal, single dry, and five consecutive dry year scenarios.

Chapter 1
Introduction

Formed in 1952, the Sacramento County Water Agency (SCWA) provides safe and reliable drinking water to approximately 59,000 residential and commercial customers in Sacramento County. SCWA is an independent Agency but operates as a department within the Sacramento County government structure. SCWA's service area boundaries coincide with Sacramento County boundaries. However, its retail water service encompasses seven specific geographic areas within the county boundary, each of them created within SCWA's enabling legislation as a separate "benefit zone".[10] SCWA also provides wholesale water to the City of Elk Grove.

Ensuring an adequate supply of water is available to serve the existing and future needs for SCWA's residential and Commercial, Institutional and Industrial (CII) customers is a critical component of successful operations. This Urban Water Management Plan (UWMP) draws on local, regional, and statewide inputs to synthesize information from numerous sources into a reliable water management action plan designed to be referred by SCWA's Board, Management, and Staff.

1.1 Background and Purpose

SCWA has prepared this 2020 UWMP to comply with the Urban Water Management Planning Act (UWMPA) requirements for urban water suppliers.[11] This 2020 UWMP addresses SCWA's water management planning efforts to assure adequate water supplies to meet forecast demands over the next 25 years. As required by the UWMPA, SCWA's 2020 UWMP specifically assesses the availability of its supplies to meet forecast water uses during average, single-dry and five consecutive drought years through 2045. Verification that future demands will not exceed supplies and assuring the availability of supplies in dry-year conditions are critical outcomes of this 2020 UWMP.

The 2020 UWMP is an update to SCWA's 2015 UWMP and presents new data and analysis as required by the California Department of Water Resources (DWR) and the California Water Code (CWC) since 2015. The 2020 UWMP is also a comprehensive water planning document that describes existing and future supply reliability, forecasts future water uses, presents demand management progress, and identifies local and regional cooperative efforts to meet projected water use.

The UWMP is designed to be a valuable water management and planning tool to guide and inform the SCWA Board of Directors, managers, customers, and the State of California about its water management

[10] Although there are seven service areas, SCWA has eight public water systems contained in those service areas.
[11] California Water Code sections 10610 through 10657.

practices. The 2020 UWMP reflects SCWA's planning assumptions and goals and should be used in combination with other planning resources and documents over the UWMP planning horizon.

The State of California's drought vulnerability and the additional pressures of climate change and population growth have emphasized the importance of planning ahead to meet water demands with potentially at-risk water supplies. This forward planning is an important outcome of the 2020 UWMP.

1.2 Basis for Plan Preparation

SCWA operates Public Water Systems as described in California Health and Safety Code 116275. SCWA qualifies as both a Wholesale Water Supplier and Retail Urban Water Supplier as described in Water Code Section 10617, providing water for municipal purposes to more than 3,000 customers or 3,000 acre/feet of water per year. SCWA wholesales water to Elk Grove Water District. These characteristics require SCWA to prepare an Urban Water Management plan every five years. SCWA owns and operates smaller water systems which fall below the service threshold for UWMP reporting; however, these systems are included in this plan. SCWA's Public Water System details are listed in Table 1-1.

Table 1-1: Public Water System Information

Public Water System Number	Public Water System Name
CA3400101	Hood Water Maintenance District
CA3400106	East Walnut Grove
CA3400156	Southwest Tract Water Maintenance District
CA3400173	Northgate 880
CA3410002	Arden Park Vista
CA3410029	Laguna Vineyard
CA3410704	Mather-Sunrise
CA3400473	Metro Air Park[12]
Total Connections approximately 59,000[13]	

The State Legislature passed numerous new requirements since the 2015 UMWP which are detailed throughout this 2020 UWMP.[14] Major updates to the requirements are listed below along with a reference to the corresponding section in which they are addressed in this document.

- **Five Consecutive Dry-Year Water Reliability Assessment:** The Legislature modified the dry-year water reliability planning from a "multiyear" time period to a "drought lasting five consecutive water years" designation. This statutory change requires a Supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period. This new

[12] SCWA designated Zone 50: Metro Air Park Special Planning Area

[13] Total connections are described in more detail in Chapter 2.

[14] California Water Code Section 10608 to 10608.44; Section 10609 to 10609.38; Section 10610 to 10657

requirement is addressed in Chapter 3—Water Supply Characterization, Chapter 4–Water Use, and Chapter 5— Water Service Reliability Assessment.

- **Drought Risk Assessment (DRA):** Due to the severity of recent California droughts and the variability associated with climate change predictions, the California Legislature created a DRA requirement for UWMPs. The DRA requires assessment over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability for five consecutive dry years. The DRA is informed by Chapter 3 – Supply Characterization and formally addressed in Chapter 5— Water Service Reliability Assessment and Chapter 6—Water Shortage Contingency Plans.
- **Seismic Risk:** Evaluating seismic risk to water system infrastructure and facilities and having a mitigation plan is now required by the Water Code. Incorporating the water system into regional or county hazard mitigation planning is an important aspect of this new statue. Seismic risk is addressed in Chapter 6.
- **Water Shortage Contingency Plan:** In 2018, the Legislature modified the UWMPA to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides a Supplier with an action plan for a drought or catastrophic water supply shortage. The WSCP is described in Chapter 6 of this UWMP.
- **Groundwater Supplies Coordination:** 2020 UWMPs are required to be consistent with Groundwater Sustainability Plans following the 2014 Legislature enactment of the 2014 Sustainable Groundwater Management Act (SGMA). SCWA's Groundwater Supplies are described in Chapter 3—Water Supply Characterization.
- **Lay Description:** A synopsis of the fundamental determinations of the UWMP is a new statutory requirement in 2020. This section of the is intended for new staff, new governing members, customers, and the media, and it can ensure a consistent representation of the Supplier's detailed analysis.

1.3 Coordination and Outreach

As required by the UWMPA, Sacramento County Water Agency has coordinated with nearby agencies while developing this UWMP to ensure consistency with other related planning efforts such as city and county General Plans, Water Master Plans (WMP) and Groundwater Sustainability Plans (GSP). This requirement includes coordination with (a) water suppliers that share a common water source, (b) relevant water management agencies that affect SCWA's water assets, and relevant public agencies that may have land use or other regulatory relationships with the SCWA. SCWA has prepared this 2020 UWMP in coordination with regional water purveyors and has appropriately notified and coordinated with other appropriate local government agencies as listed in Table 1-2.

SCWA is also a member of the Regional Water Authority (RWA), a joint powers authority, created by water purveyors in the Sacramento region to have a unified approach to regional water issues. The RWA provides members and associates significant regional coordination to enhance water management practices. Moreover, SCWA encourages active involvement by diverse populations in preparing its UWMP and gathers input through public communications and public meetings.

Further, as stipulated in Water Code Section 10621(b), every urban water supplier shall seek active involvement from diverse elements of the community. SCWA sought public participation with a hearing and notices to members of the community. These coordination efforts and Statutory Requirements for Notice are also included in Table 1-2.

Table 1-2: Public and Agency Coordination

Coordinating Agencies	Coordinate Regarding Demands	Sent Copy of Draft UWMP	Sent 60-Day Notice	Notice of Public Hearing
Cities, Counties, Customers, and Interested Parties				
Sacramento Groundwater Authority			X	
City of Elk Grove	X		X	
City of Sacramento	X		X	
Regional Water Authority			X	
Sacramento County Department of Water Resources	X		X	
Golden State Water Company			X	
U.S. Bureau of Reclamation			X	
Sacramento Central Groundwater Authority			X	
Cal American Water Company			X	
City of Rancho Cordova			X	
General Public				

1.3.1 Water Supplier Information Exchange

Water Code Section 10631 requires wholesale and retail water agencies to provide each other with information regarding water supply and demand. Since SCWA receives water from other entities and provides water as a wholesaler to its retail customers, it has coordinated on both sides with supply and demand information. SCWA has water supplies derived from appropriative water rights issued by the State Water Resources Control Board, regional agency contract rights with various entities – including the City of Sacramento, Sacramento Regional County Sanitation District, and Aerojet-Rocketdyne, and contract rights with the United States Bureau of Reclamation. SCWA's wholesale customer is Elk Grove Water District. SCWA exchanged wholesale water supplier information with the City of Sacramento and the United States Bureau of Reclamation in accordance with the UWMP Act. SCWA exchanged retail water supplier information with Elk Grove Water District in accordance with the UWMP Act.

1.3.2 Statutory Requirements for Notice

In accordance with the UWMPA, notification of the UWMP update was provided to cities and counties within the service area at least 60 days prior to the public hearing of the plan as required by Section 10621(b) of the Water Code. Since SCWA is a part of the County of Sacramento it did not need to notify the County. Electronic copies of the final UWMP will be provided to the County no later than 30 days after its submission to DWR.

1.4 UWMP Adoption

SCWA held a public hearing regarding its 2020 UWMP on June 15, 2021. Before the hearing, a draft was made available for public inspection at the SCWA administration building and on the SCWA's website. Pursuant to CWC Section 10642, general notice of the public hearing was provided through publication of the hearing date and time in the Sacramento Bee in accordance with Government Code 6066 and posting of the hearing at the SCWA administration building.

SCWA's elected body adopted this 2020 UWMP on June 15, 2021. A copy of the adopted 2020 UWMP will be submitted to DWR, provided to the County and the California State Library, and posted onto SCWA website.

SCWA plans to submit all required documentation related to the UWMPA through the DWR submittal website soon after adoption. These include the following required DWR Excel workbooks:

- "FINAL Submittal 2020 UWMP Tables 04.02.2021.xls"
- "FINAL SBX7-7 Verification Form 04.02.2021.xls"
- "FINAL Energy Use Tables 04.01.21.xls"

The contents of this UWMP are meant to provide flexible management options for the recommended actions. The reliability assessments, for example, follow predicted land use planning and suggested water supply management actions that should be implemented or adjusted in the five year period between this UWMP and the 2025 UWMP update. Thus, implementation of this plan is intended to be flexible to meet changing conditions over the 2020 UWMP's five year planning horizon.

1.5 Document Organization

This UWMP is organized as follows:

- Chapter 2 provides a description of the SCWA service area, demographic characteristics and climate, and describes the future population the Agency anticipates needing to serve.
- Chapter 3 describes SCWA's current and future water supplies and the availability of the supplies through 2045.
- Chapter 4 details the customer uses, including the past and future estimated uses, and describes the SCWA's past and on-going demand management measures.
- Chapter 5 presents the SCWA's water system service reliability into the future, including an assessment of reliability if a drought occurred over the next five consecutive years.
- Chapter 6 is SCWA's stand-alone water shortage contingency plan, incorporated as a chapter in this UWMP, but also available to be shared and utilized separate from the UWMP.

NOTE TO DWR:

Sacramento County Water Agency has written this Urban Water Management Plan (UWMP) primarily as a water resources planning tool to effectively manage water supply, reliability and demand. This UWMP also satisfies all the requirements of the Urban Water Management Planning Act (UWMPA).

The body of the document provides narratives, analysis and data that DWR requests in its 2020 UWMP Guidebook, including changes to the California Water Code since 2015. Efforts have also been made to include enhancements to this document wherever possible as recommended in the 2020 UWMP Guidebook.

To facilitate review by DWR for compliance with the UWMPA, data from the body of the document has been transferred into required DWR submittal tables consistent with the organization of the tables in Appendix E of the 2020 UWMP Guidebook. These tables are separately uploaded to DWR's web portal. This UWMP has been reviewed for adequacy according to the UWMP Checklist as contained in Appendix F in the 2020 UWMP Guidebook.

Chapter 2
Water Service and System Description

Sacramento County is located in the northern part of California's Central Valley, east of the San Francisco Bay Area along the confluence of the Sacramento and American Rivers. The County stretches from the Sacramento River on the West to the base of the Sierra Foothills on the east and covers about 994 square miles. The northern portion of the county is dominated by the City of Sacramento and its metro area whereas the southern portion is dominated by crop lands and the delta.

Sacramento County Water Agency (SCWA) was formed by a special legislative act in 1952 giving the County the Authority to create assessment zones to fund and manage water projects. SCWA is one of 27 water purveyors within Sacramento County and primarily provides for southern and southeastern Sacramento County as well as some industrial areas, suburban communities, small county enclaves, and future development areas which lie outside of other purveyor service areas.

2.1 SCWA Water Service Areas

Operated as the County Water Resources Department, SCWA has created several assessment zones to enable potable water related projects. SCWA currently provides water service to seven different hydraulic areas as well as wholesale water to the Elk Grove Water District. These service areas include: Metro Air Park, Northgate 880, Arden Park Vista, Southwest Tract, Zone 40, Hood Water Maintenance District (Hood), and East Walnut Grove (Walnut Grove). SCWA's Zone 40 service area represents the largest group of customers and linked hydraulic service areas (see Figure 2-1). Each service area is further described below.

2.1.1 Zone 40 Service Area

The Zone 40 service area is the largest area served by SCWA and includes interconnected infrastructure facilities that facilitate the use of a diversity of water supplies. The Zone 40 has three service areas as follows:

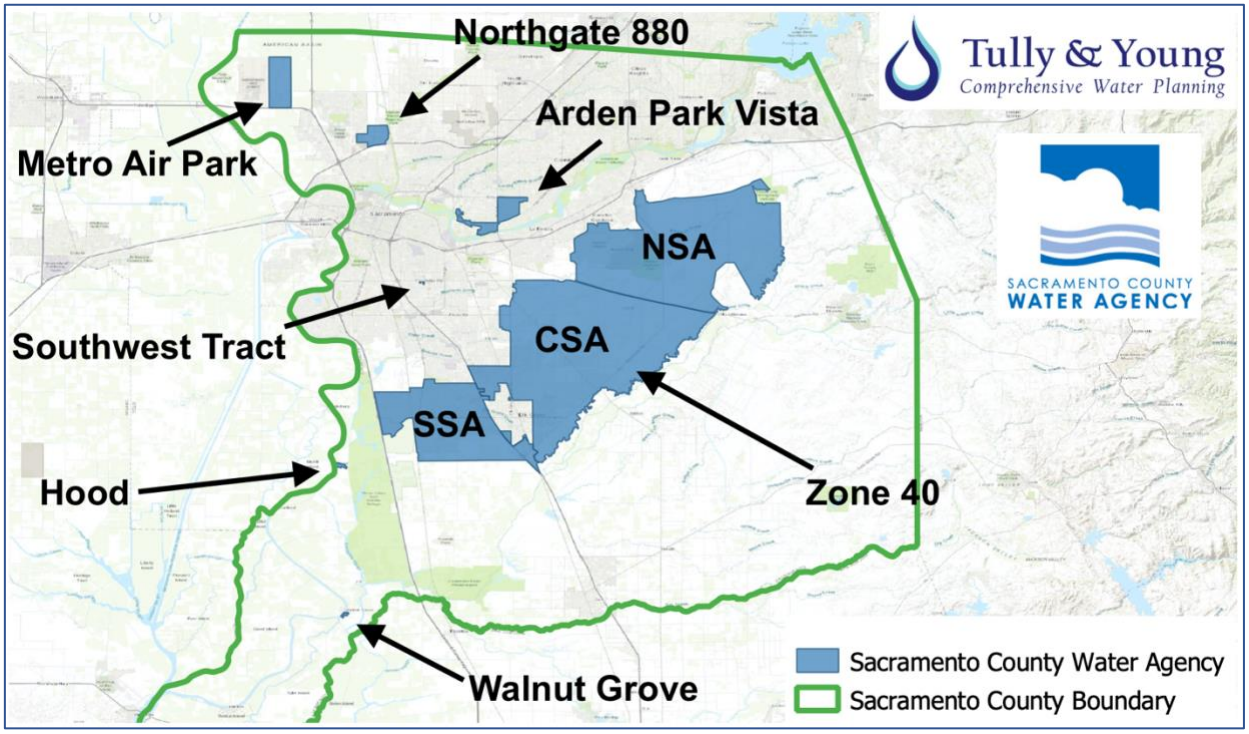
- North Service Area (NSA)
- Central Service Area (CSA)
- South Service Area (SSA)

North Service Area

The NSA is located south of the American River and includes part of the City of Rancho Cordova. Historically, the NSA was supplied exclusively by groundwater. In recent years, SCWA has supplied

surface water supply to the NSA from the Vineyard Water Treatment Plant (WTP), as part of the agency's conjunctive use program. The NSA is the least developed of the three service areas, with currently less than 10 percent of the projected build out population. This service area includes the old Mather and Sunrise Corridor systems. SCWA assumed ownership of the Mather System shortly after the County of Sacramento took over Mather Air Force Base after it was decommissioned by the United States Air Force in the mid-1990s. In the case of the Sunrise Corridor System, SCWA was asked to take ownership and provide water service after the system was constructed through an assessment district in the late 1980's. Most of the land within the NSA boundary is rural and undeveloped but significant growth is anticipated over the next 30 years.[15]

Figure 2-1: Water Service Area



Central Service Area

The CSA is located to the south of the NSA and is supplied by surface water from the Vineyard WTP and groundwater. The CSA is partially developed with approximately 38% of the projected build out population.[16] SCWA provides wholesale water to Elk Grove Water District within the CSA. This service area includes the old Grantline-99 system, as well as the newer Vineyard, Vineyard Springs, and North Vineyard Station areas. The CSA is predominately residential with a small number of commercial and institutional customers and a large rural component to the east.

[15] According to current customer account information, NSA has nearly 6,800 connections of the 28,800 anticipated at build-out.

[16] According to current customer account information, CSA has nearly 14,400 connections of the 38,300 anticipated at build-out.

South Service Area

The SSA is located south of the CSA and to the west of Highway 99. The SSA is the most developed of the three service areas, with currently nearly 90% of the projected build out population.[17] The SSA is supplied by a mix of surface water, groundwater, and recycled water. The surface water comes from the Vineyard SWTP and is conveyed through the CSA. The Franklin Intertie can also supply treated surface water from the City of Sacramento. This service area currently supplies the Laguna, East Franklin, and Laguna Ridge areas. The SSA is predominantly residential with some commercial and institutional customers.

2.1.2 Arden Park Vista

The Arden Park Vista service area is located north of the American River and east of the City of Sacramento. The system began with the development of the Sierra Oaks and Arden Park areas approximately 80 years ago. The service area predominantly consists of single-family residential customers. The Arden Park Vista service area water system is supplied by groundwater wells with the ability to purchase water from adjacent agencies, if necessary, and consists of one pressure zone. The system remains a groundwater-based system dependent on system pressure to cycle well pumps on and off, along with supplemental water supplied from interconnections with the City of Sacramento and Sacramento Suburban Water District (SSWD). As this area was constructed long before water meters were standard practice, it is the only remaining area with a significant number of unmetered customers. SCWA anticipates completing conversion of all customers to meters by 2025.

2.1.3 Metro Air Park

Metro Air Park is a newer retail service area located north of Highway 5 next to the Sacramento International Airport. This area is planned as an industrial hub with two shipping facilities and warehouses currently operating and more in development. Wholesale water service for this area is a contract supply from the City of Sacramento. As this area has no residential or institutional uses, demand patterns will be different than typical service areas.

2.1.4 Northgate 880

The Northgate 880 service area is located east of Highway 5 and north of Highway 80. This area is isolated from other SCWA service area and is fed only by local groundwater supplies. The area is nearly built out with the majority of uses being commercial and industrial. Development of the area is primarily industrial and heavy commercial use.

2.1.5 Hood Water Maintenance District (Hood)

The Hood Water Maintenance District (Hood) service area is located in the southern part of Sacramento County along the east side of the Sacramento River. The approximately 75 residential and six

[17] According to current customer account information, SSA has nearly 33,000 connections of the 38,100 anticipated at build-out.

commercial customers are supplied by groundwater wells using a single pressure zone system. SCWA took over operation and maintenance of this water system in the 1970s.

2.1.6 East Walnut Grove (Walnut Grove)

The East Walnut Grove service area is located in the southern part of Sacramento County along the east side of the Sacramento River within the town of Walnut Grove. Water is supplied from groundwater wells using a single pressure zone. Service is provided to just over 100 residential and 30 commercial customers, with additional services for a few institutional users and park landscaping. SCWA took over operation and maintenance of this water system in 2002.

2.1.7 Southwest Tract Water Maintenance District

The Southwest Tract Water Maintenance District (Southwest Tract) service area is located in central Sacramento County, south of the American River, near Fruitridge Road and Stockton Boulevard. Southwest Tract is a small service area with approximately 18 single-family accounts, 12 multi-family connections and one institutional service. The Southwest Tract is served by groundwater supply derived from the SCWA's formation of the Southwest Water Maintenance District in 1958 and a water service agreement with Fruitridge Vista Water Company (Fruitridge) executed in 1970. This agreement was subsequently assumed by another water agency that is serving the Southwest Tract area.

2.1.8 Service Area Summary

Altogether SCWA provides water service to approximately 59,000 residential, commercial, irrigation, industrial and institutional/governmental service connections throughout all the water service areas. Much of the development is low-density, single-family housing and retail related commercial use, with the exception of the Northgate and Metro Air Park service areas which are predominantly warehouse and light industrial customers. Table 2-1(a) through Table 2-1(g) provide the historical and current number of service connections by customer class.

Table 2-1(a): Zone 40 Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Single Family Residential	46,909	47,962	48,827	49,457	50,708	51,657
Multi-Family Residential	238	276	279	306	313	317
Commercial/Institutional	1075	1089	1,103	1,093	1,122	1,108
Industrial	117	118	117	117	119	118
Landscape Irrigation	866	891	906	912	937	948
Other	45	43	43	43	42	41
Total	49,250	50,379	51,275	51,928	53,241	54,189

Table 2-1(b): Arden Park Vista Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Single Family Residential	2,777	2,789	2,831	2,834	2,830	2,692
Multi-Family Residential	1,305	1,305	1,425	1,425	1,283	1,283
Commercial/Institutional	195	198	201	198	201	202
Landscape Irrigation	17	16	16	17	19	19
Other	6	6	7	5	7	2
Total	4,300	4,314	4,480	4,479	4,340	4,198

Table 2-1(c): Northgate 880 Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Commercial/Institutional	153	164	186	197	213	213
Industrial	89	79	58	23	30	30
Landscape Irrigation	20	20	26	29	29	29
Other	14	14	14	14	14	14
Total	276	277	284	263	286	286

Table 2-1(d): Metro Air Park Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Commercial/Institutional	0	0	1	2	2	4
Landscape Irrigation	0	0	2	2	2	6
Total	0	0	3	4	4	10

Table 2-1(e): Hood Water Maintenance District Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Single Family Residential	76	76	75	75	75	76
Commercial/Institutional	6	6	6	6	6	6
Total	82	82	81	81	81	82

Table 2-1(f): East Walnut Grove Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Single Family Residential	110	110	112	112	116	116
Multi-Family Residential	5	5	5	5	5	5
Commercial/Institutional	38	38	39	39	41	41
Landscape Irrigation	4	4	4	4	4	4
Total	157	157	160	160	166	166

Table 2-1(g): Southwest Tract Customer Water Service Connections

Customer Class	2015	2016	2017	2018	2019	2020
Single Family Residential	17	17	17	17	18	18
Multi-Family Residential	12	12	12	12	12	12
Commercial/Institutional	1	1	1	1	1	1
Total	30	30	30	30	31	31

2.2 Service Area Climate

Typical of the California Central Valley, Sacramento County has a Mediterranean climate with hot, dry summers and cool, wet winters. Historical averages show January as the coolest and wettest month, and July as the hottest and driest. The wet season is from October to April with a 30-year annual average rainfall of 19.94 inches. The annual mean temperature is 61.5 degrees, but the summer months can regularly see average highs in the mid-high 90s, and average winter lows hover down in the 30s and 40s. Other climate characteristics include frequent tule fog coinciding with the rainy season which brings dense fog caused by high relative humidity (after rain) and rapid cooling during the night. The fog can get trapped, due to temperature inversions common in the Sacramento valley, for days or even weeks. Snow is rare but cold fronts can bring freezing temperatures with trace amounts of snow and ice. Autumn starts warm and dry and becomes cooler, wetter, and foggier later into the season. The last rains in spring are generally in late April or early May.

Figure 2-2 shows the average monthly temperature, rainfall, and evapotranspiration (ETo) for the service area. Actual annual rainfall totals deviate quite significantly from the 30-year average as illustrated in Figure 2-3. In most years, precipitation totals fall below the mean.

2.2.1 Climate Change

While the California Water Code does not prescribe specific climate change planning and management measures for water suppliers, it does emphasize that climate change is appropriate to consider when assessing drought risk assessment, water conservation and use efficiency, and demand management and supply—both in a historical and projected context.

Sacramento County's climate is highly variable with respect to precipitation and temperature. The dry summer months make the state extremely susceptible to drought when a deficiency in precipitation materializes, especially in mountain snowpack. Much of the water supply comes from the mountains falling as winter rain or snow and is then stored as snowpack and subsequently captured in reservoirs and appropriated throughout the year.

Figure 2-2: Average Climate Conditions[18]

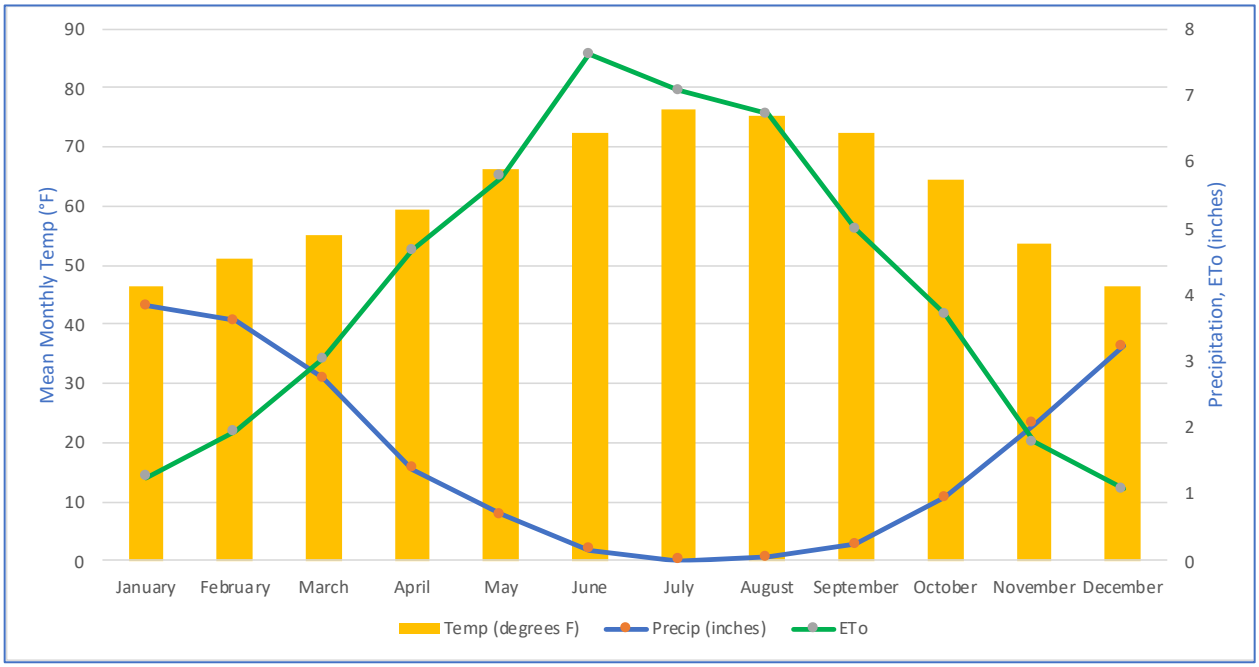
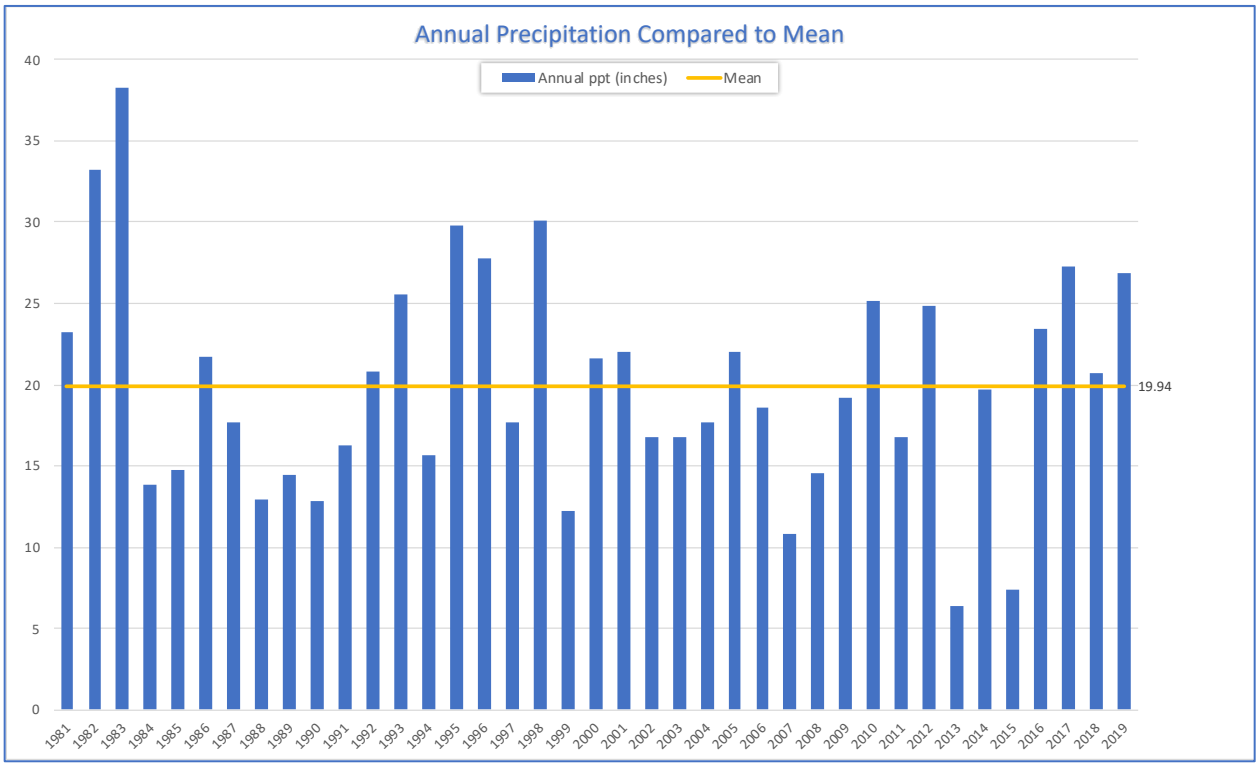


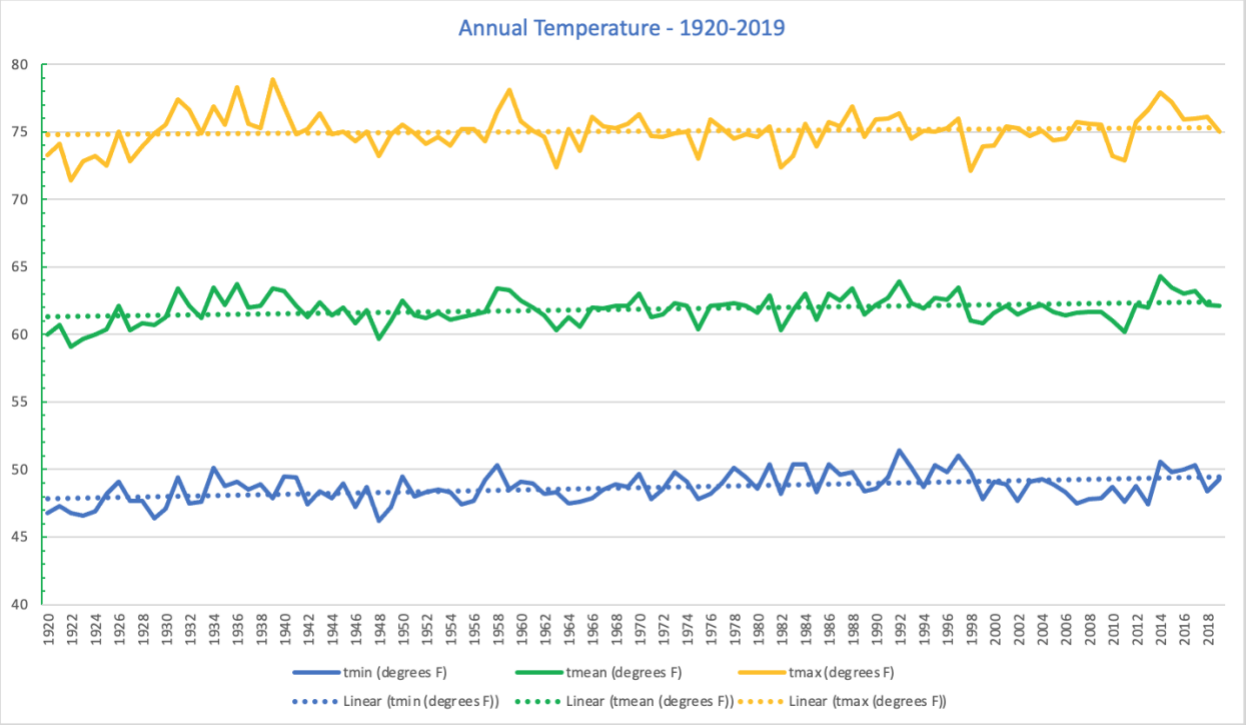
Figure 2-3: Annual Precipitation Variability (1981-2019)



[18] Temperature and rainfall data represents annual averages from 1981-2019 from the PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 38.4474 Lon: -121.4110 Elev: 26ft; ETo data is from CIMIS Verona - Sacramento Valley - Station 235 from May 2012 – Oct 2020.

The Regional Water Authority (RWA), of which SCWA is a member, partnered with other local water purveyors and the U.S. Department of the Interior, Bureau of Reclamation on a climate change study called the American River Basin Study (ARBS) with the purpose of developing climate change adaptation strategies specific to the Basin[19]. Much of Sacramento County is located in the western portion of the basin and study area. Sacramento County has experienced a general warming trend over the last 100 years, as shown by the trendlines in Figure 2-4.

Figure 2-4: Historical Annual Temperature (1920-2019)[20]



Surface air temperatures are projected to increase steadily, with average summer temperatures increasing by approximately 7.2 degrees Fahrenheit (°F) by the end of the 21st century (Figure 2), and winter temperatures increasing by 4.9°F. Projections of daily maximum and minimum temperatures suggest similar warming trends during all seasons, with maximum temperatures projected to increase as much as 7.3°F during the summer months.

Climate change is generally forecast to bring higher temperatures, more variability in precipitation and more frequent and prolonged droughts. Although there is a lack of a clear trend in projected annual precipitation, by the end of the 21st century the average fall and spring precipitation is expected to decrease, with winter and summer precipitation increasing. Increasing variability is also projected in winter and fall precipitation.

[19] Full findings and approved ARBS study can be found at www.pcwa.net/planning/arbs

[20] Temperature and rainfall data represents annual averages from 1981-2019 from the PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 38.4474 Lon: -121.4110 Elev: 26ft

Water supplies in the SCWA region are inextricably tied to the Sierra snowpack runoff, and the ARBS indicates that the Snow Water Equivalent (SWE) is projected to decrease significantly due to higher average surface temperatures and precipitation variability. Historical average SWE for the American River basin is 3.1 inches. It is forecasted to decrease to 2.0 inches across all climate scenarios and future time periods. Areas that accumulate snow are projected to have up to a 12-inch decrease in average annual SWE, resulting in a loss of snow by 50-75% through the end of the century[21]. This will place strain on summer and fall water supply in Sacramento County and throughout the state due to earlier runoff. Peak runoff is expected to shift by more than a month earlier by mid to late century. Increased evapotranspiration would also accompany the intensification of hotter extreme temperatures.

Currently available documents from SCWA assume that current supply availability remains flat but recent documents qualify this with the uncertainties related to climate change impacts on supply availability, habitat and species considerations, and changing flow requirements.

This 2020 UWMP Update includes additional Climate Change discussion in Chapters 3 and 4.

2.3 Current and Projected Population, Land Use, Economy, and Demographics

Service area population and land use projections are critical to developing a useful planning framework as population dynamics and growth are a primary influence on water use. These projections directly influence planning measures for system supply, delivery, infrastructure, and demand management. Similarly, understanding the SCWA's economic, social, and demographic trends give valuable insight to water management and planning. This section of the UWMP addresses these factors to provide a supportable basis for forecasting future water use.

2.3.1 Current Population and Historic Trends

Since being the largest major settlement adjacent to the first major gold find during the California Gold Rush, Sacramento grew at a rapid rate. With the City of Sacramento tripling in size between 1850 and 1860, there was a rapid development of lands around the City of Sacramento to provide food and resources to the growing City. As such, growth in the County started in the northwestern portion adjacent to the City of Sacramento and has grown in all directions. Currently, the population is primarily growing in the remaining areas to the east and southeast of the City – areas predominantly served by the SCWA in the Zone 40 service area (see Figure 2-1).

Table 2-2 presents the recent and estimated current population for the various SCWA service areas. Because the various service areas do not easily correlate to existing boundaries represented by the California Department of Finance in their historic and recent population analyses, the estimates in the table are derived using a variety of methods as represented in the footnotes. There is no estimated

[21] American River Basin Study

population present in the Northgate 880 or Metro Air Park areas because those areas have no residential developments.

Table 2-2: Estimated Population – Historical and Current

Service Area	2010	2015	2020
Zone 40[22]		~146,000	~169,000
Arden Park Vista[23]		~11,500	~11,500
Southwest Tract	~150	~150	~150
Hood[24]	~200	~300	~300
East Walnut Grove	~450	~450	~450
Elk Grove WD Wholesale Area		~10,500	~12,000
Total		~168,900	~193,400

2.3.2 Current and Projected Land Use

While the SCWA has several water service areas, Zone 40 is the predominant area that has experienced growth and is expected to continue to grow significantly. As described previously, Zone 40 is comprised of three subareas: the North Service Area (NSA), the Central Service Area (CSA) and the South Service Area (SSA). Growth in these three service areas was evaluated and documented in the SCWA's Zone 40 Water System Infrastructure Plan Update (WSIP), completed in September 2016.[25]

In addition to growth in Zone 40, the SCWA's Zone 50 (Metro Air Park) also anticipates significant growth. However, this service area only includes commercial and industrial customers and is served by a contract with the City of Sacramento. As such, the Metro Air Park area has a reliable water supply system for its future growth potential.

All other SCWA water service areas are either fully built out or nearing buildout and therefore are not described here.

Zone 40 Land Use and Growth Projections

The WSIP included a projection of total connections over time for each of the three subareas (see Figure 2-5). As indicated in the WSIP table, projections were made beginning in 2010 and reflected anticipated

[22] Estimated based upon residential connection data from SCWA for 2015 and 2020 multiplied by Department of Finance occupancy data for Sacramento County.

[23] 2020 APV population based on residential connection count and Sacramento County occupancy rate of 2.80 people per house according to the Department of Finance data at: https://www.dof.ca.gov/Forecasting/Demographics/Estimates/

[24] https://datacommons.org/tools/timeline#&place=geoId/0634484&statsVar=Count_Person

[25] In January 2021, the SCWA prepared a draft Zone 40 Water Supply Master Plan Amendment that repeated much of the analysis and growth projections in the WSIP. This recent draft amendment was prepared to address the proposed Elk Grove Sports Complex, located in the SSA, which would be served by the SCWA.

developments until a build-out condition was reached. For SSA, build-out was expected by 2035, while the NSA and CSA areas were expected to build-out shortly after 2050.

Figure 2-5: Projected Connections for Zone 40[26]

Table 3-9. Projected Connections in 5-Year Increments

Service area	2010	2015	2020	2025	2030	2035	2040	2045	2050	Buildout (2052)
NSA	4,600	5,600	7,500	10,000	12,500	16,100	19,800	23,600	27,300	28,800
CSA	15,600	16,600	18,400	20,900	23,400	27,000	30,800	34,500	38,300	38,300
SSA	28,900	30,300	32,800	35,300	37,800	38,100	38,100	38,100	38,100	38,100
Total Zone 40	49,100	52,600	58,800	66,300	73,800	81,300	88,800	96,300	103,800	105,200

Using actual customer connection information from the SCWA for 2015 and 2020, a comparison can be made to the expected connections in 2020, and adjustments, if necessary, can be presumed for on-going growth rates for purposes of this 2020 UWMP.

Table 2-3: Comparison of Projected Connections to Actual Connections

		2015	2020
SSA	Actual Count	28,393	32,929
	WSIP Projection	30,300	32,800
	Diff.	94%	100%
CSA	Actual Count	13,165	14,434
	WSIP Projection	16,600	18,400
	Diff.	79%	78%
NSA	Actual Count	5,344	6,803
	WSIP Projection	5,600	7,500
	Diff.	95%	91%

Note: The "Diff." value is the actual count divided by the WSIP projected number of connections.

As shown in Table 2-5, the SSA and the NSA actual connection count match or are reasonably consistent with the WSIP projection for 2015 and 2020 as shown in Figure 2-5. Growth in the CSA, however, has lagged from the WSIP projections. However, the SCWA anticipates the long-term growth in total CSA connections shown in Figure 2-5 to still occur such that they will match by 2045.

For purposes of the 2020 UWMP, connection forecasts for each five-year increment are evenly distributed between 2025 and 2045 for the NSA and CSA subareas, with 2045 connection estimates

[26] SCWA's 2016 WSIP, Table 3-9. The figures depicted in this Table are updated per the additional tables in this section and Chapter 4.

matching the WSIP's 2045 forecast. For SSA, which is expected to reach build-out by 2035, the remaining growth was equally spread between 2025 and 2035. Table 2-6 presents the incremental accumulated connections that are used to forecast water use for this 2020 UWMP (further described in Chapter 4) and compares them to the WSIP projections through 2045 for each subarea.

Table 2-4: Zone 40 Forecast Connections for UWMP and Comparison to WSIP

		2020	2025	2030	2035	2040	2045
SSA	New Connections (cumulative)		1,724	3,447	5,171	5,171	5,171
	UWMP Forecast	32,929	34,653	36,376	38,100	38,100	38,100
	WSIP Projected	32,800	35,300	37,800	38,100	38,100	38,100
CSA	New Connections (cumulative)		4,013	8,026	12,040	16,053	20,066
	UWMP Forecast	14,434	18,447	22,460	26,474	30,487	34,500
	WSIP Projected	18,400	20,900	23,400	27,000	30,800	34,500
NSA	New Connections (cumulative)		3,359	6,719	10,078	13,438	16,797
	UWMP Forecast	6,803	10,162	13,522	16,881	20,241	23,600
	WSIP Projected	7,500	10,000	12,500	16,100	19,800	23,600

A number of development areas were identified as part of the WSIP when projecting the future total growth in the connections. Figure 2-6 shows the projected development locations within Zone 40. Because the timing and configuration of various previously approved and proposed development is dynamic and reacts to market conditions and other growth factors, the forecast connections are not assigned to any particular named development shown in Figure 2-6.

2.3.3 Economic Trends & Other Social and Demographic Factors

Sacramento County has a large, diverse economy, which includes being home to the State Capitol of California, the eighth-largest economy in the world. Its economic history has been tied to California's globally significant agricultural production centered in the Sacramento Valley. Agriculture is still an important part of the economy in the county, but key industries such as transportation, agribusiness, manufacturing, clean energy, technology, health care, and a robust housing market fuel its growth.

The SCWA service area is one of the more undeveloped parts of the county, with much of the land use being dedicated to residential, commercial, retail, light industrial, and agriculture. Elk Grove is the largest city in the area and hosts a significant tech sector, including an Apple, Inc. campus which employs approximately 5,000 people. Other large employment sectors include healthcare, education, and retail. The residential population of the SCWA also has a significant number of commuters that travel outside of the area to the greater metropolitan region for work. The SCWA Zone 40 service area is continuing to grow and therefore could see significant residential and commercial growth during the UWMP planning horizon through 2045.

The coronavirus pandemic crippled the national and global economy in 2020 and Sacramento County was no exception. The County's unemployment rate spiked to almost 14% in May 2020. Since then, the County has regained some of the jobs and the reported unemployment rate has declined sharply but there remains a level of uncertainty with the pace of economic recovery due to the pandemic.

Figure 2-6: Zone 40 Existing or New Development Project Locations [source: WSMP Amendment[27]]

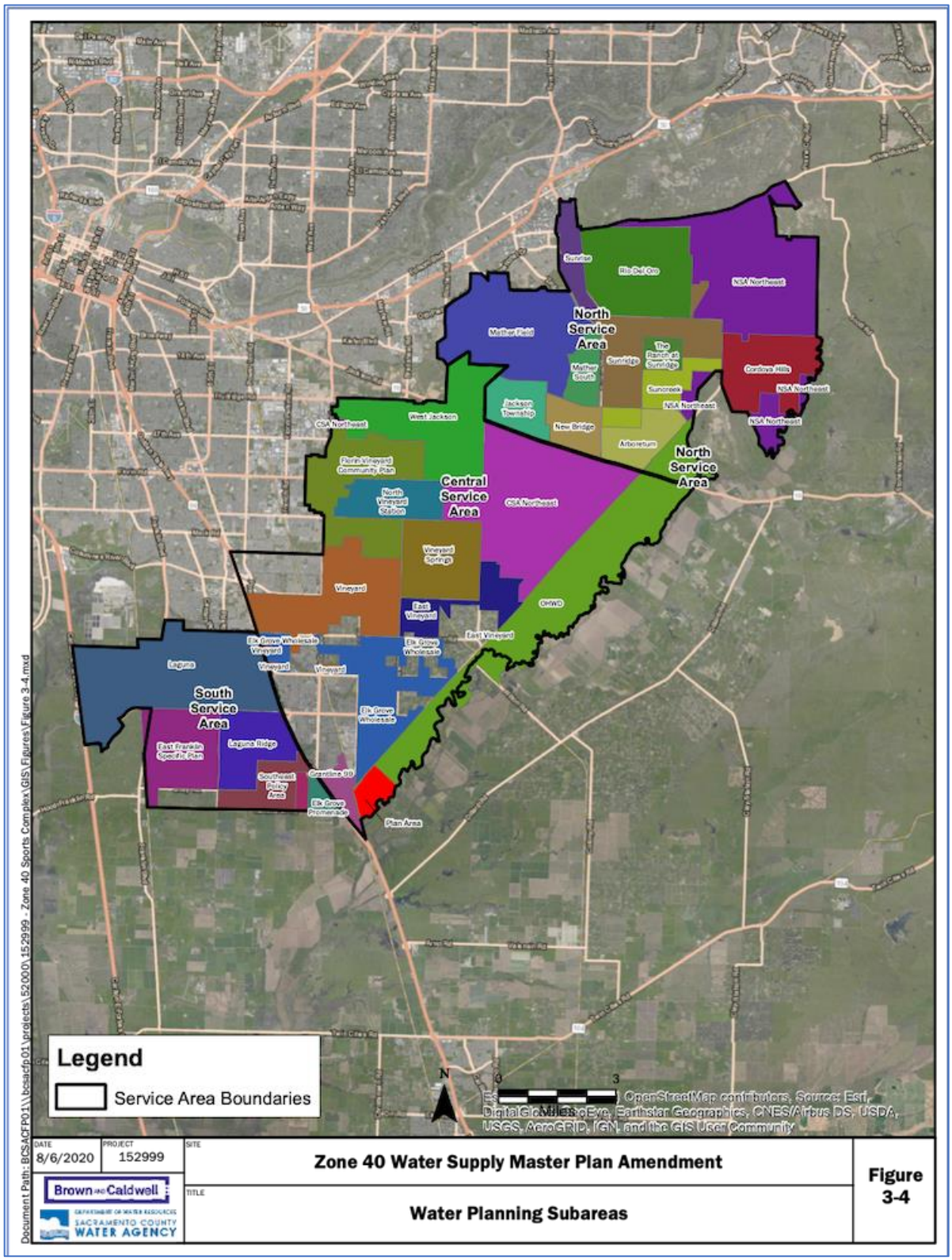
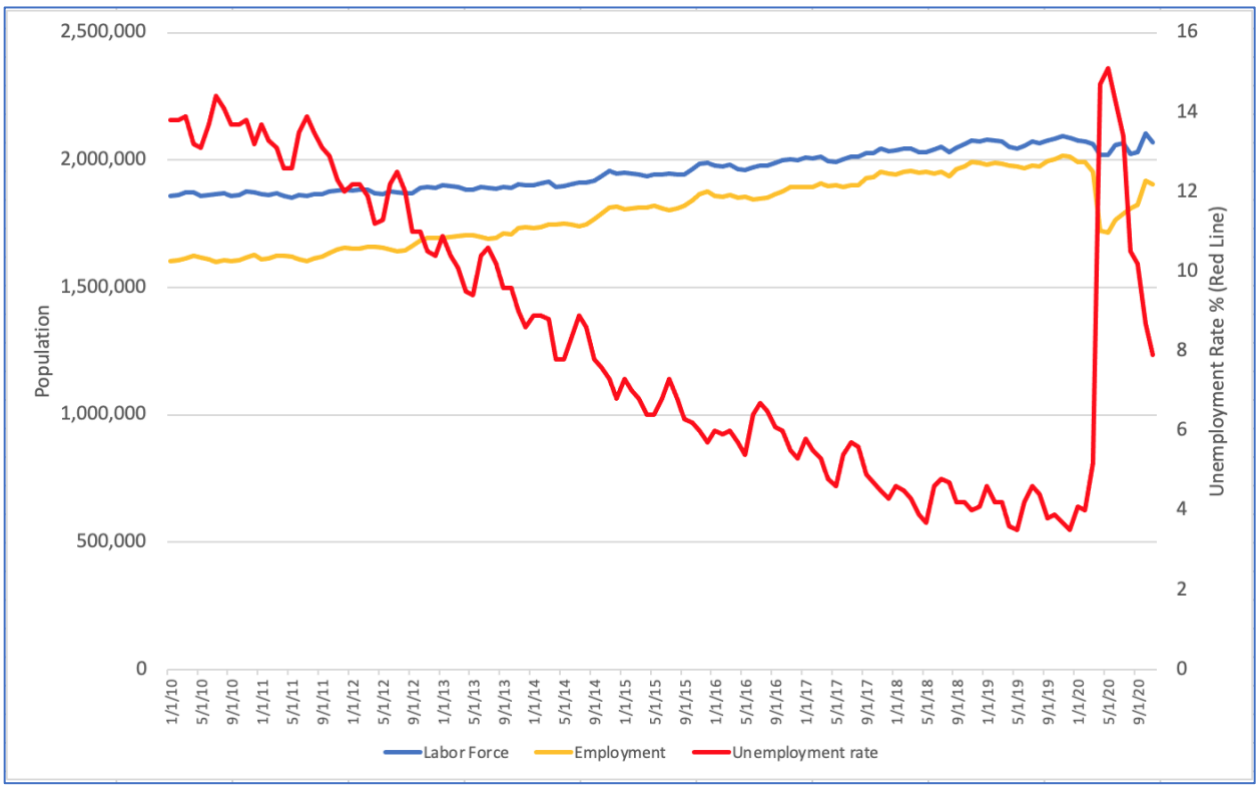


Figure 2-7: Sacramento County Employment Data



According to the 2010 US Census, the ethnic makeup of the census designated places within the SCWA service area is 55% White, 19% Hispanic/Latino, 15% Asian, 11% African American, and 8% other races or mixed race. The median income for Sacramento County is $77,262. Within the census designated places, the SCWA service area median income is $74,715.[28]

Using the connections methodology shown in Table 2-7, there are an estimated 56,000 households in the SCWA service area. Although Sacramento County has an average of 2.71 persons per household, the SCWA service areas have higher occupancy rates estimated to be equivalent to that listed by the Department of Finance for Elk Grove.[29]

Expected Population Based Upon Land-Use Planning

To forecast projected service area population as accurately as possible requires consideration of the past growth rate, local economic predictions, and current and projected land uses. Importantly, one of the recent statutory updates to the UWMP Act states urban water suppliers "shall coordinate with local or regional land use authorities"[30] regarding land uses that may affect water management planning.

[27] Figure is from the SCWA's January 2021 draft Zone 40 Water Supply Master Plan Amendment, Figure 3-4.
[28] American Community Survey - Income, Poverty, Employment 2019
[29] California Department of Finance, E-5 Population and Housing Estimates for Cities, Counties
[30] CA Water Code Section 10631(a).

Since boundaries used for various population projections made by the Department of Finance do not correlate to SCWA's service areas, the projected population for this UWMP is estimated using the projections of total new connections shown in Table 2-6. Population projections are only provided for Zone 40 as the other SCWA water service areas with residential customers – Arden Park Vista, Hood, Southwest Tract and East Walnut Grove – are not expected to grow as they are already at build-out conditions.[31]

The Zone 40 projected future population is based upon estimating the mix of the total connections shown in Table 2-6 among residential and non-residential customers. While the actual mix will depend on the proposed projects within each Zone 40 subarea, using the existing mix of residential to non-residential connections can be a proxy for estimating the future mix for the incremental new connections. With an estimate of new residential connections, California Department of Finance (DoF) occupancy rates for Sacramento County can be applied to estimate future populations for each subarea. Table 2-7 provides the estimated number of new residential connections, the assumed occupancy rate, and a projected population for each subarea, as well as a total population projection for Zone 40.

Table 2-5: Zone 40 Population Forecast tied to UWMP Connection Projections

SSA	Residential Unit Ratio			2020 = 97%		Forecast =	96%
	Occupancy Rate [using DoF estimate for Elk Grove]			3.27	people per unit		
	Cumulative New Residential Units		2025	2030	2035	2040	2045
			1,655	3,309	4,964	4,964	4,964
	Population Forecast	2020	2025	2030	2035	2040	2045
		102,966	108,377	113,788	119,199	119,199	119,199
CSA	Residential Unit Ratio			2020 = 95%		Forecast =	97%
	Occupancy Rate [using DoF estimate for Sacramento Co.]			3.27	people per unit		
	Cumulative New Residential Units		2025	2030	2035	2040	2045
			3,893	7,786	11,678	15,571	19,464
	Population Forecast	2020	2025	2030	2035	2040	2045
		45,819	58,549	71,278	84,008	96,737	109,467
NSA	Residential Unit Ratio			2020 = 91%		Forecast =	90%
	Occupancy Rate [using DoF estimate for Rancho Cordova]			3.27	people per unit		
	Cumulative New Residential Units		2025	2030	2035	2040	2045
			3,023	6,047	9,070	12,094	15,117
	Population Forecast	2020	2025	2030	2035	2040	2045
		20,215	30,102	39,989	49,875	59,762	69,649
Zone 40 Total Population		169,000	197,027	225,054	253,081	275,698	298,314

[31] Minor population increases may occur in these areas if occupancy rates increase. But for purposes of this 2020 UWMP, occupancy rates and total residential customer connections are expected to stay consistent over the UWMP planning horizon.

2.4 Delivery System Details

SCWA serves customers in all its service areas through several small- and large-scale potable infrastructure systems, as well as a recycled water system that serves the SSA.

Further discussion of these systems and the water supply used within each is included in Chapter 3, with current and future customer water use described in detail in Chapter 4.

2.4.1 Potable System

SCWA's primary function is delivering potable water to its customers in the previously described service areas. While a small percentage of total delivery is recycled water is delivered in the SSA, SCWA efficiently delivers more than 40,000 acre-feet of potable water annually. The following provides a brief overview of SCWA's potable water systems.

Zone 40 Delivery System

Zone 40, SCWA's largest customer service area, also has the most complex infrastructure. SCWA supplies a combination of groundwater and surface water into an interconnected system with multiple pressure zones. As shown in Figure 2-8, SCWA's Zone 40 distribution system is served by two primary surface water inputs and multiple groundwater inputs.[32]

SCWA surface water supplies for Zone 40 are diverted from the Sacramento River at Freeport and through the City of Sacramento's (City) Sacramento River WTP and Fairbairn WTP. Surface water diverted from the Sacramento River at the Freeport diversion structure is conveyed through the Freeport Regional Water Authority (FRWA) pipeline, treated at the Vineyard WTP (currently permitted at 60 MGD), and then delivered to customers in the CSA, SSA, and NSA.

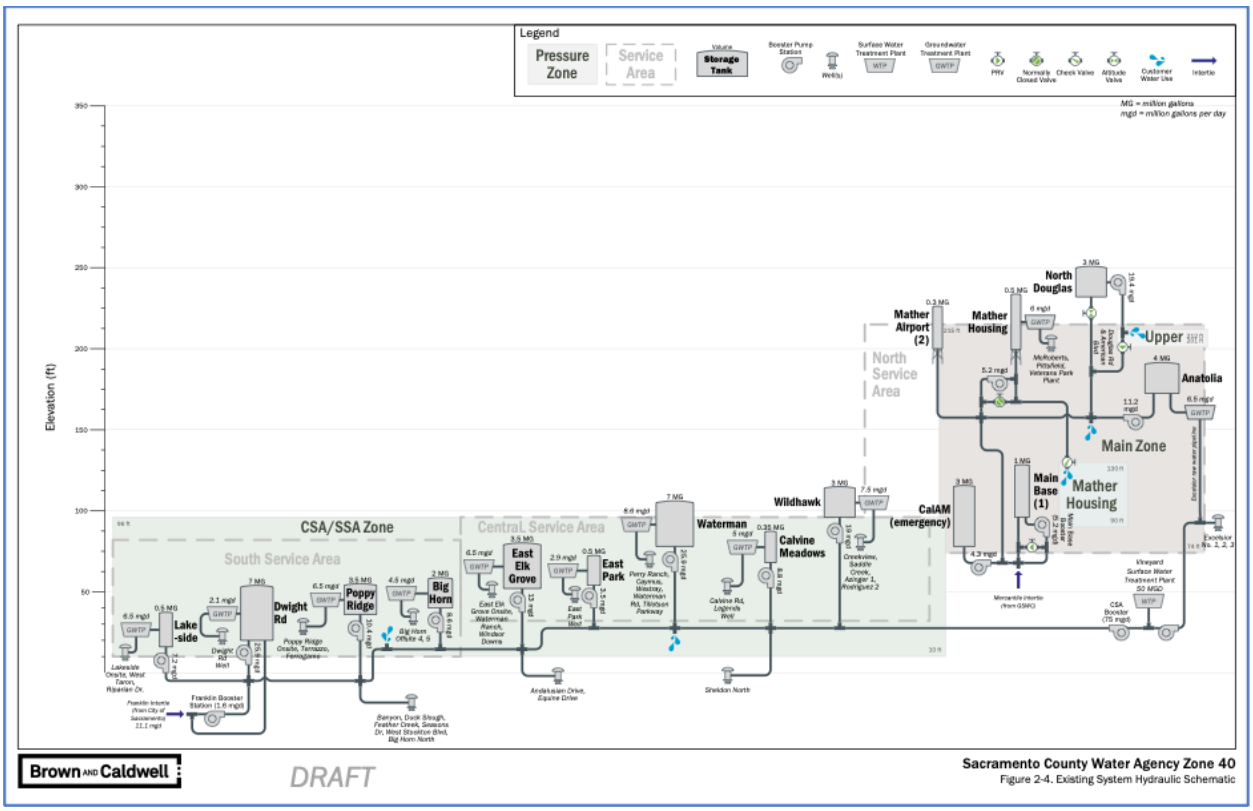
Surface water can also be provided to the SSA through the Franklin Intertie between the City's and SCWA's distribution systems. The City could divert and treat a portion of SCWA's surface water, and then wheel that water through their distribution system to the Franklin Intertie to Zone 40.

Groundwater is supplied to Zone 40 from wells that that are connected to groundwater treatment plants (GWTPs) and from wells that pump directly into the distribution system (direct feed). Most GWTP facilities consist of wells that supply raw water into a treatment plant, a ground level storage tank, and a pump station. Most GWTPs are supplied by more than one well. The direct feed wells pump directly into the distribution system and do not require treatment. Direct feed wells are located in some areas of the CSA and SSA.

In addition to the source and primary conveyance of the supplies, SCWA maintains an array of booster pumps, storage tanks, and distribution pipelines to assure continued and reliable pressurized potable water service.

[32] More detailed information regarding the Zone 40 infrastructure is available in the SCWA's January 2021 draft Zone 40 Water Supply Master Plan Amendment.

Figure 2-8: Zone 40 Potable Water System Schematic[33]



Non-Zone 40 Delivery Systems

All of the other water delivery systems, with the exception of Metro Air Park, are supplied by groundwater systems that extract, and in some cases treat, then pump water into single pressure zone distribution systems. Metro Air Park is served with a combination of surface and groundwater resources (surface or groundwater is provided at the discretion of the City of Sacramento) treated and provided to the SCWA at the Metro Air Park location for SCWA management and delivery to customers in that specific service area.

2.4.2 Non-potable System

As described in further detail in Chapter 3, SCWA operates a recycled water system to serve non-potable needs within the SSA. In May 2003 the recycled water system officially went online and is currently delivering recycled water to the communities of Laguna West, Lakeside, and Stonelake in the Elk Grove and Laguna areas in the SSA to irrigate street medians, commercial landscaping, parks, and school sites.

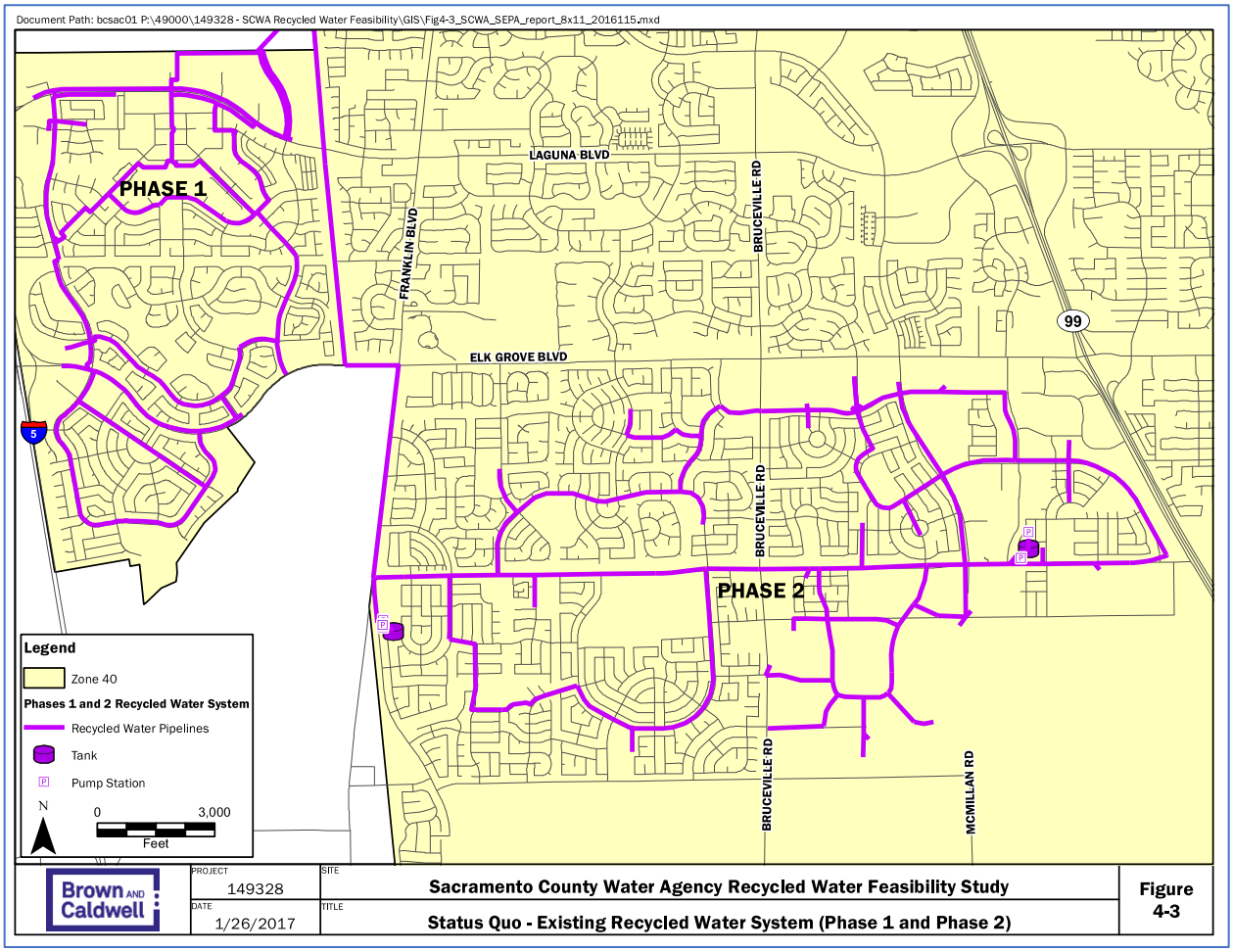
Tertiary treated wastewater is produced for SCWA at Sacramento Regional County Sanitation District's (SRCSD) 5-MGD Water Reclamation Facility (WRF) located at the Sacramento Regional Wastewater

[33] Figure is from the SCWA's January 2021 draft Zone 40 Water Supply Master Plan Amendment, Figure 2-4, modified to also show the NSA Phase A Pipeline.

Treatment Plant site. Recycled water is conveyed from the WRF via a single 24-inch transmission main that then drops to a 20-inch pipeline to SCWA's branched distribution system shown in Figure 2-9.

SCWA owns and maintains this recycled water distribution system. The Phase 1 portion of the program has 54 user sites which include parks, schoolyards, commercial landscaping, and roadway medians. All operations are conducted in accordance with the Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board recycled water standards and SRCSD's Master Reclamation Permit Waste Discharge Requirement (WDR) #97-146). SCWA's Phase 2 system is currently in progress and expected to begin treated recycled water deliveries upon completion of the Harvest Water pipeline.

Figure 2-9: SSA Non-Potable Water System Schematic [source: Recycled Water Feasibility Study[34]]



[34] Figure is from the SCWA's July 2017 Recycled Water Feasibility Study, Figure 4-3.

2.5 Energy Intensity

Among the statutory changes enacted with new requirements for 2020 UMWPs, an urban supplier shall include any of the following information it can readily obtain in the 2020 UWMP:[35]

- An estimate of the amount of energy used to extract or divert water supplies.
- An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.
- An estimate of the amount of energy used to treat water supplies.
- An estimate of the amount of energy used to distribute water supplies through its distribution systems.
- An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.
- An estimate of the amount of energy used to place water into or withdraw from storage.
- Any other energy-related information the urban water supplier deems appropriate.

Referred to as "Energy Intensity Reporting" for urban water suppliers, energy Intensity is defined as: total amount of energy expended in kilowatt-hours (kWh) by the urban water supplier on a per acre-foot basis to take water from the location where the urban water supplier acquires the water to its point of delivery.

Due to the way that water is supplied in the various SCWA service areas, it is not currently possible to separate out extraction, treatment, storage, and distribution energy uses. This is due to the number of well head treatment facilities on a single power meter as well as wells located at tank sites with only a single power meter. Given this, SCWA uses the Total Utility Approach. This method sums the annual energy consumed for all water management processes, divided by total volume of water in acre feet. These processes include extraction, diversion, conveyance, placement into storage, treatment, and distribution. The total energy intensity is reported in Table 2-8.

Table 2-6: Energy Intensity – Total Utility Approach

Sum of All Water Management Processes	
Volume of Water Entering Process (acre-feet)	52,465
Energy Consumed (kWh)	25,829,586
Energy Intensity (kWh/acre-foot)	492

[35] California Water Code Section 10631.2(a).

Chapter 3
Water Supply

Sacramento County Water Agency (SCWA) has numerous water assets that are available to serve the separate service areas throughout its broad boundary. The water assets consist of surface water rights, groundwater rights, and surface water and groundwater supply contracts. The purpose of this section is to describe each of these water assets in detail as they relate to the various water service areas within SCWA and provide a detailed summary for SCWA water supply portfolio under normal, single dry, and five-consecutive dry year conditions through 2045.

3.1 Description of SCWA's Surface Water Rights and Contracts

SCWA has twelve surface water rights and water supply contracts – all with varying terms and conditions and all with varying degrees of water supply reliability. The rights and contracts are as follows:

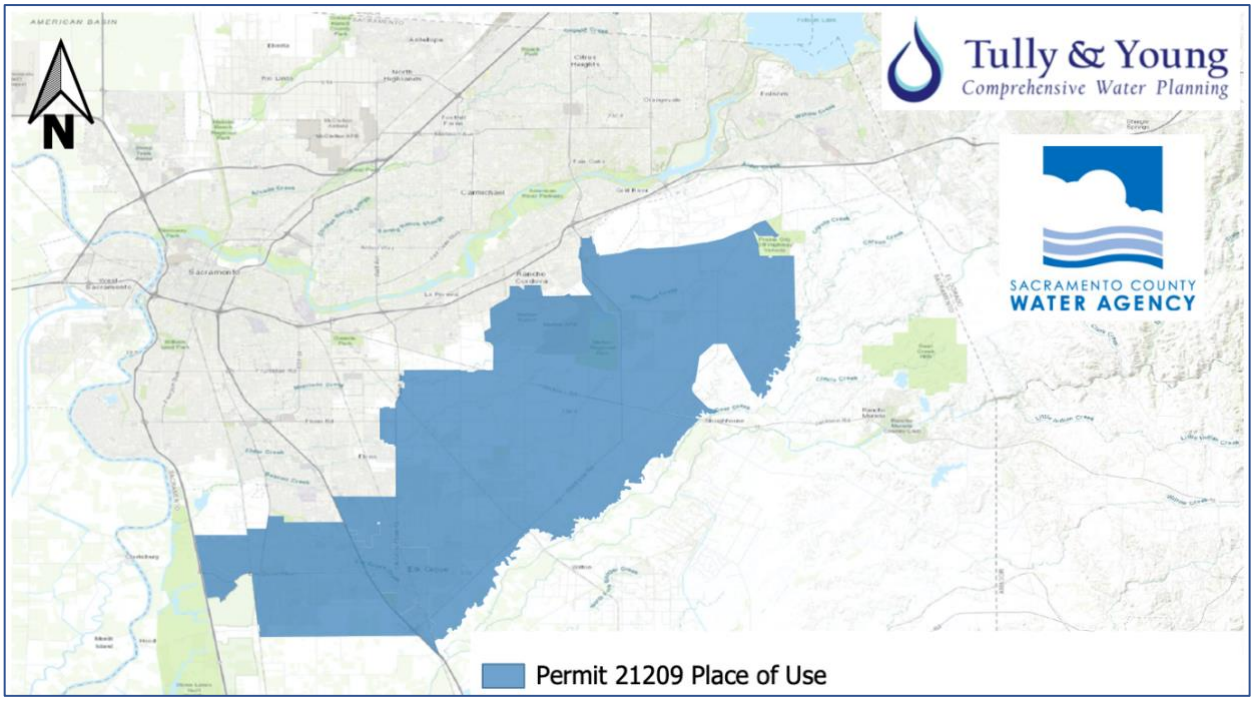
1. SWRCB Appropriative Water Right Permit 21209
2. SCWA CVP Contract 14-06-200-5198B-IR1-P (Feb 2020) ("SMUD Contract")
3. SCWA CVP Contract 6-07-20-W1372-P (Feb 2020) ("Fazio Contract")
4. Agreement Between Sacramento County, SCWA and Aerojet with respect to Transfer of GET Water
5. SWRCB Appropriative Water Right License 1062
6. SWRCB Appropriative Water Right License 4060
7. Contract Between State of California Department of Water Resources and North Delta Water Agency
8. 2002 Wholesale Agreement Between SRCSD and SCWA
9. 2004 Agreement with the City of Sacramento for Wholesaling and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park
10. 2000 Agreement Between City of Sacramento and the Sacramento County Water Agency to Treat and Deliver (Wheel) Surface Water
11. 2000 Memorandum of Understanding Regarding the Operation of A Water System Interconnection at 2750 Mercantile Drive
12. Fruitridge Vista Water Company Contract now held by Cal American Water Company

Each of these water supply sources is described separately in this section with an analysis of the historic uses and future supply opportunities. Importantly, the water management actions described in this chapter as well as chapters 4 and 5, demonstrate SCWA's use of local water supplies reducing its need to import water from other regions in California.

3.1.1 SWRCB Appropriative Water Right Permit 21209

In 1995, SCWA filed Application 30454 and obtained Water Right Permit 21209 (Permit 21209). Permit 21209 allows SCWA to divert up to 132 cubic feet per second in all months of the year from the Sacramento River. Permit 21209 may be used anywhere in SCWA's Zone 40 for municipal uses. Figure 3-1 shows Permit 21209's place of use. The total supply potentially available under Permit 21209 is 71,000 acre-feet per year.

Figure 3-1: Permit 21209 Place of Use



SCWA's diversion under this water right is subject to "Term 91." The State Water Resources Control Board (SWRCB) may declare a Term 91 condition when the natural flows in the Sacramento River are insufficient to meet the various water quality and water flow requirements in the Delta. When SWRCB declares Term 91, SCWA must cease diversions under Permit 21209. In normal water years, Term 91 is usually declared on June 1 and then released on October 1. Occasionally, the normal year Term 91 declaration varies where runoff patterns and amounts deviate from anticipated conditions. For example, in 2018 (a normal water year), Term 91 was released on October 1 then reinstated on October 15. It was then re-released on November 1. It is likely that Term 91 will be declared more often in the future, reducing the diversion periods available for SCWA's Permit 21209.[36] It is important to note that the diversion limitation of 132 cfs in Permit 21209 limits the monthly availability of the water in a normal year (that includes Term 91) to 7,855 acre-feet per month.

[36] A short review of SCWA's Permit Progress Reports shows that the diversion and use reporting may deviate from the legal requirements under the water right and under-reports the conserved water, reclaimed/recycled water, and conjunctive groundwater uses in SCWA's service area.

Term 91 has significant implications for diversions in dry years and dry conditions. In 2014, one of the driest years on record, Term 91 was declared on April 1 and lasted through December. In the Fall and Winter of 2020-2021, Term 91 was in effect from October 15 through January 4. Accordingly, Term 91 will likely impact SCWA's ability to directly divert and deliver Sacramento River water supplies in the future under Permit 21209. Table 3-1 shows the last 10 years of Permit 21209's monthly supply deliveries.

Table 3-1: Last 10 Years of SCWA Permit 21209 Monthly Water Deliveries (acre-feet per year)[37]

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	101	584	360	1,061	1,362	1,458	1,113	732	598
2012	515	479	505	565	845	1,120	1,391	1,413	1,306	1,089	65	0
2013	374	648	775	810	1,521	1,436	1,533	1,459	1,345	1,389	1,267	437
2014	9	0	485	695	1,124	0	0	0	0	0	0	0
2015	0	0	555	825	0	0	0	0	0	0	0	0
2016	0	0	0	872	223	17	0	0	0	0	0	0
2017	0	0	0	0	767	638	640	459	861	967	658	436
2018	0	238	949	1,217	1,732	0	0	0	0	0	0	0
2019	667	728	917	371	460	594	570	761	702	947	993	690
2020	57	387	1,658	1,746	2,043	303	0	0	0	688	0	0

Last Permit 21209 is just that – a Permit Supply. Under California water rights law, SCWA must demonstrate full beneficial use of the water supply by December 31, 2030. In the event SCWA does not put all the water under Permit 21209 to beneficial use by that date, the SWRCB may either grant a permit extension or allow the permit to expire, which may reduce the amount of water SCWA could use. Nevertheless, for purposes of this UWMP we assume that SCWA has the capability to use the permitted water supplies for beneficial uses in its service area through 2045.

Table 3-2 shows the projected annual water supplies under Permit 21209 for normal, single dry, and five consecutive dry years through 2025. It is important to note the limitation on this supply on a monthly timestep as shown in the master supply table at the end of this chapter.

[37] Table 3-1 indicates that diversions under Permit 21209 may have occurred, or been misreported, when Term 91 was in effect.

Table 3-2: Permit 21209 Normal Year, Single Dry Year, and Five Consecutive Year Availability

Year	Acre-feet per Year
Normal	62,840
Single Dry	31,420
Dry Year 1	47,130
Dry Year 2	39,275
Dry Year 3	31,420
Dry Year 4	39,275
Dry Year 5	47,130

Table 3-3 shows the anticipated annual water supply deliveries for normal, single dry, and five consecutive dry years for Permit 21209 through 2045.

Table 3-3: Permit 21209 Annual Deliveries in Varying Year Types Through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		62,840	62,840	62,840	62,840	62,840
Single Dry Year		31,420	31,420	31,420	31,420	31,420
Multi-Year Drought	Year 1	47,130	47,130	47,130	47,130	47,130
	Year 2	39,275	39,275	39,275	39,275	39,275
	Year 3	31,420	31,420	31,420	31,420	31,420
	Year 4	39,275	39,275	39,275	39,275	39,275
	Year 5	47,130	47,130	47,130	47,130	47,130

A normal year for this water right relates to the probability of Term 91 implementation. Normally, Term 91 is implemented on June 1 and lifted on October 1. Thus, we have used the historical highest supply deliveries during these time periods to show the supply availability in 2025 and then gradually increased the amount through 2045 by approximately 2,000 acre-feet per year based upon reasonable demand growth projections. The supply figures in Table 3-3 represent supplies that would likely be delivered and used through 2045. Table 3-2 shows actual supply availability.

A single dry year under this water right is defined by an extended implementation of Term 91. In this instance, 2014 and 2015 represent the most drastic water years where Term 91 was in place all or part of nine months of the year. As such, we will use three months of availability to reflect the single dry year scenario and base the condition on 2015 – the most conservative dry year representation. We increase the demand by 300 acre-feet per year into the future to represent a reasonable demand increase in each month (100 acre-feet per month) when the water supply is available.

Multiple dry years under this water right permit represent conditions where Term 91 is in effect over varying periods for the water right. In this future scenario, we anticipate conditions where Term 91 is in effect in Year 1 and Year 2 from May through October – representing an extension of two months beyond the normal Term 91 implementation. Thus, this water supply is available for six of twelve months out of the year. We increase the potential supply availability by 100 acre-feet per month of

availability into the future (still well within the total available water supply under the water right). Years 3 and 4 represent nine months of Term 91 implementation in accordance with 2014 and 2015, yet replace monthly usages with the highest usage during those periods on record. Again, we increase the supply available under these years as increasing by 100 acre-feet per month into the future. Last, Year 5 represents a reduced Term 91 extension in May and October like Years 1 and 2 and has a 100 acre-feet per month of availability increase into the future. All of these figures represent the highest historical water uses in the identified water months with reasonable water supply augmentation.

3.1.2 SCWA CVP Contract 14-06-200-5198B-IR1-P (Feb 2020) (SMUD Contract)

In 1970, the Sacramento Municipal Utility District (SMUD) entered a Central Valley Project (CVP) water service contract with the United States Bureau of Reclamation (Reclamation). SMUD was unable to utilize all of the water supplies under that contract and assigned a portion of its CVP contract to SCWA in 2006. SCWA received the contract and in February of 2020 converted the contract to a lasting supply under the Water Infrastructure Improvements for the Nation (WIIN) Act. These activities created the final SCWA CVP Contract 14-06-5198B-IR1-P (hereafter, "SMUD Contract") that has no expiration or renewal date. SMUD Contract has a total supply volume of 30,000 acre-feet of CVP Project Supply water. CVP Project Supply water is derived from Reclamation's SWRCB issued appropriative water rights on the American River watershed system that allow Reclamation to divert water to storage in Folsom Reservoir for delivery throughout the calendar year. SCWA's water supply under this contract may be used for Municipal and Industrial purposes and may be diverted during any month of the year. Moreover, Article 3(g) allows SCWA to "carryover" or "pre-use" water supplies made available under the contract. Table 3-4 shows the last 5 years of use for SCWA SMUD Contract.

Table 3-4: Last Five Years of SMUD Contract Deliveries (acre-feet per year)

Year	Percent Allocation	CVP Supplies
2015	25%	0
2016	100%	0
2017	100%	0
2018	75%	9,329
2019	100%	10,671
2020	75%	4,758

The water supplies available under SMUD Contract are subject to Reclamation's Municipal and Industrial Shortage Policy (M&I Shortage Policy).[38] The M&I Shortage Policy allocates water supplies under constrained conditions based upon Reclamation's water year percentage allocation number applied against the last three years of CVP Project Supply use in unconstrained conditions. Adjustments to the historical use numbers can be made based on alternative water supplies used in lieu of CVP Project Supply, population growth, extraordinary conservation measures, and other unique or unusual

[38] https://cawaterlibrary.net/wp-content/uploads/2017/10/miwsp-guidelines.pdf

circumstances. The primary component for obtaining larger dry year supplies, however, is that SCWA should use CVP Project Supply in unconstrained water years to access more CVP Project Supply in constrained water years.

SMUD Contract water may be used anywhere in SCWA's Zone 40 as depicted in Exhibit A to the contract. The place of use includes all of Elk Grove including service areas served by Elk Grove Water District. Figure 3-2 shows the SMUD Contract place of use. In addition, Article 9 allows transfers and exchanges of water supplied under the contract described later in this section.

Table 3-5 shows the anticipated annual water supply deliveries for normal, single dry, and five consecutive dry years for SCWA SMUD Contract through 2045.

Table 3-5: SMUD Contract Annual Deliveries in Varying Year Types (acre-feet per year)

Year		Last 3 Years of 100% Allocation*	Percent Allocation	Allocation Amount
Normal		8,253	100%	30,000
Single Dry		8,253	25%	2,063
Multi-Year Drought	2021 (1st year)	8,253	75%	6,190
	2022 (2nd year)	8,253	50%	4,126
	2023 (3rd year)	8,253	25%	2,063
	2024 (4th year)	8,253	25%	2,063
	2025 (5th year)	8,253	50%	4,126

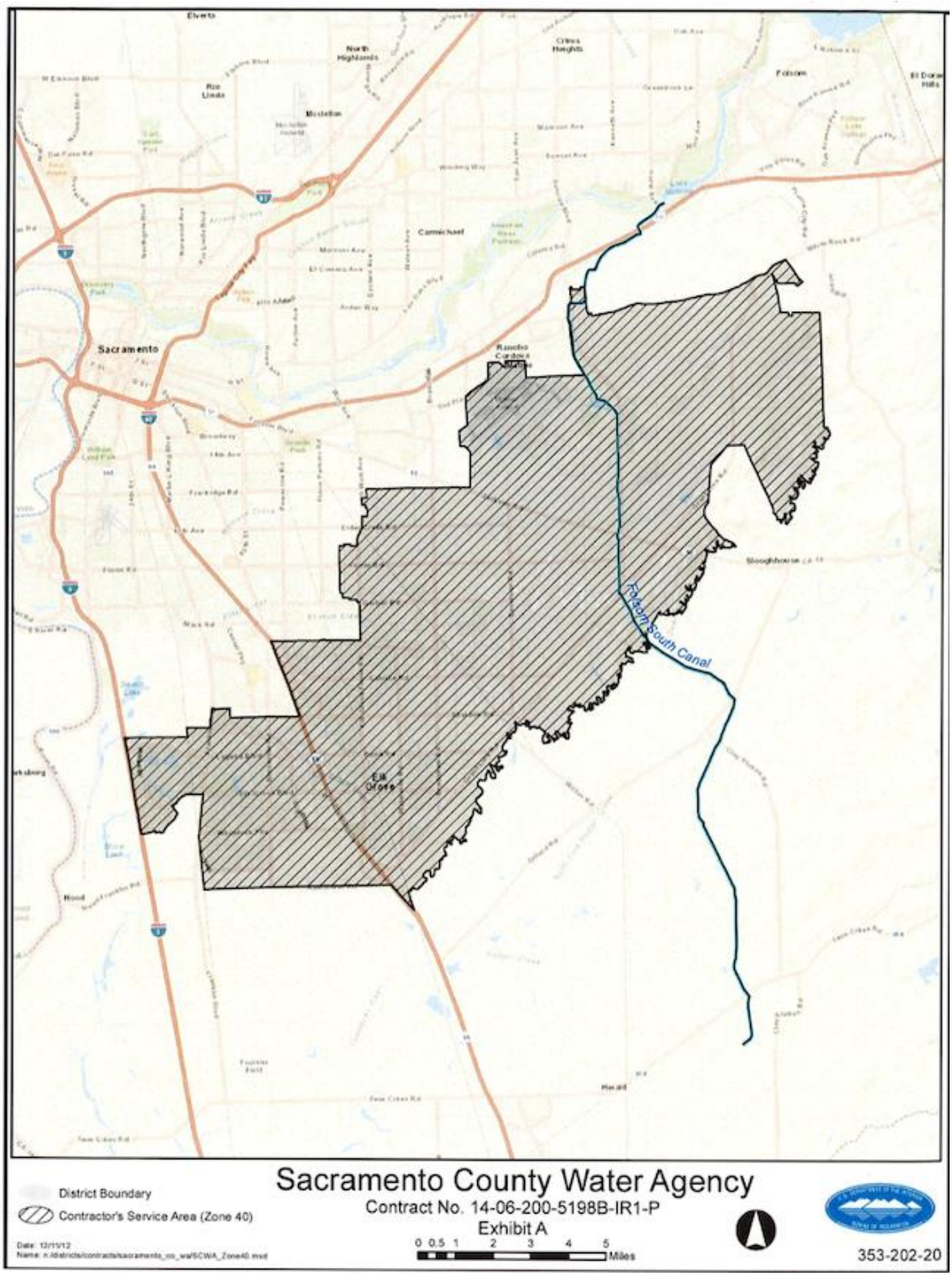
*The allocation number is based upon the M&I Shortage Policy available use adjustments

Projected water supply availability under this water supply is shown in Table 3-6.

Table 3-6: SMUD Contract Future Projected Supply Availability Through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		30,000	30,000	30,000	30,000	30,000
Single Dry Year		2,023	2,500	3,750	5,000	7,500
Multi-Year Drought	Year 1	6,068	7,500	11,250	15,000	22,500
	Year 2	4,045	5,000	7,500	10,000	15,000
	Year 3	2,023	2,500	3,750	5,000	7,500
	Year 4	2,023	2,500	3,750	5,000	7,500
	Year 5	4,045	5,000	7,500	10,000	15,000

Figure 3-2: Place of Use under SCWA SMUD Contract



3.1.3 SCWA CVP Contract 6-07-20-W1372-P (Fazio Contract)

In 1999, the SCWA entered a Central Valley Project (CVP) water service contract with Reclamation for 22,000 acre-feet of CVP Project Supply. In 2016, SCWA assigned 7,000 acre-feet of the CVP Project Supply to the City of Folsom, leaving 15,000 acre-feet of CVP Project Supply remaining on the contract. SCWA converted the contract to a lasting supply under the Water Infrastructure Improvements for the Nation (WIIN) Act in February 2020. All of these activities created the final SCWA CVP Contract 6-07-20-W1372-P (hereafter, "Fazio Contract") that has no expiration or renewal date. Fazio Contract has a total supply volume of 15,000 acre-feet of CVP Project Supply water. CVP Project Supply water is derived from Reclamation's SWRCB issued appropriative water rights on the American River watershed system that allow Reclamation to divert water to storage in Folsom Reservoir for delivery throughout the calendar year. SCWA's water supply under this contract may be used for Municipal and Industrial purposes and may be diverted during any month of the year. Moreover, Article 3(g) allows SCWA to "reschedule" water supplies made available under the contract for use in a subsequent year. Table 3-7 shows the use for Fazio Contract since 2015.

Table 3-7: Fazio Contract Deliveries 2015-2020 (acre-feet per year)

Year	Percent Allocation	CVP Supplies
2015	25%	125
2016	100%	8,381
2017	100%	9,396
2018	75%	104
2019	100%	0
2020	75%	2,375

The water supplies available under Fazio Contract are subject to Reclamation's Municipal and Industrial Shortage Policy (M&I Shortage Policy).[39] The M&I Shortage Policy allocates water supplies under constrained conditions based upon Reclamation's water year percentage allocation number applied against the last three years of CVP Project Supply use in unconstrained conditions. Adjustments to the historical use numbers can be made based on alternative water supplies used in lieu of CVP Project Supply, population growth, extraordinary conservation measures, and other unique or unusual circumstances. The primary component to obtain significant supplies requires SCWA to use CVP Project Supply in unconstrained water years in order to have access to CVP Project Supply in constrained water years.

Fazio Contract water may be used anywhere in SCWA's Zone 40 as depicted in Exhibit A to the contract. The place of use includes all the City of Elk Grove including service areas served by Elk Grove Water District. Figure 3-3 shows the Fazio Contract place of use. Unlike the SMUD Contract, Article 9 restricts the transfer or exchange of this water supply to within Sacramento County.

[39] https://cawaterlibrary.net/wp-content/uploads/2017/10/miwsp-guidelines.pdf

Table 3-8 shows the anticipated annual water supply deliveries for normal, single dry, and five consecutive dry years for Fazio Contract through 2025.

Figure 3-3: Place of Use under Fazio Contract

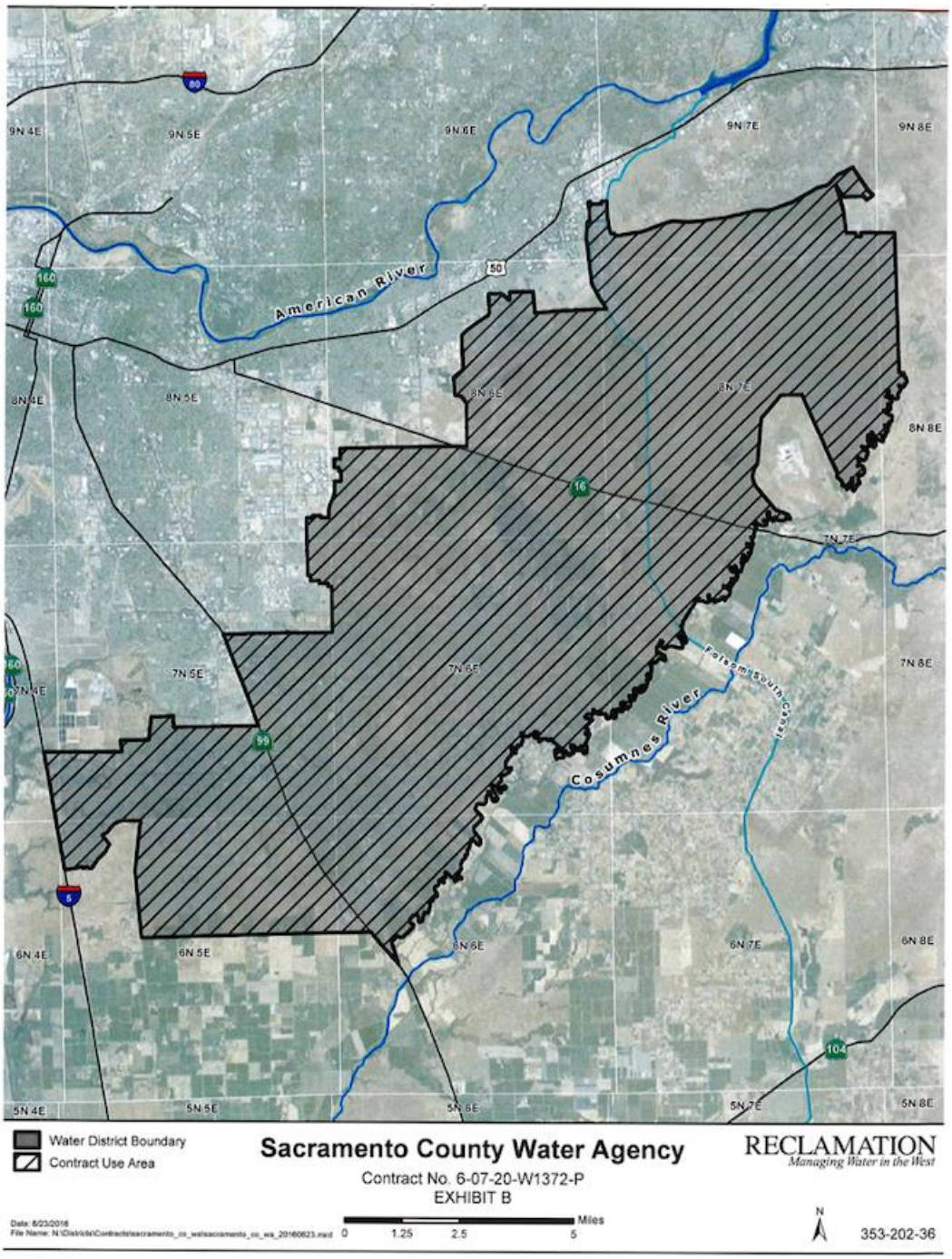


Table 3-8: Fazio Contract Annual Deliveries in Varying Year Types (acre-feet per year)

Year		Last 3 years of 100% allocation	Percent Allocation	Allocation Amount
Normal		5,926	100%	15,000
Single Dry		5,926	25%	1,481
Multi-Year Drought	2021 (1st year)	5,926	75%	4,444
	2022 (2nd year)	5,926	50%	2,963
	2023 (3rd year)	5,926	25%	1,481
	2024 (4th year)	5,926	25%	1,481
	2025 (5th year)	5,926	50%	2,963

The total projected water supply available under the Fazio Contract through 2045 is shown in Table 3-9.

Table 3-9: Future Projected Supply Availability Through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		15,000	15,000	15,000	15,000	15,000
Single Dry Year		2,500	2,500	2,500	2,500	2,500
Multi-Year Drought	Year 1	7,500	7,500	7,500	7,500	7,500
	Year 2	5,000	5,000	5,000	5,000	5,000
	Year 3	2,500	2,500	2,500	2,500	2,500
	Year 4	2,500	2,500	2,500	2,500	2,500
	Year 5	5,000	5,000	5,000	5,000	5,000

3.1.4 SCWA Aerojet GET Water

In 2010, Aerojet General Corporation (Aerojet) and Sacramento County Water Agency entered a formal settlement agreement related to groundwater contamination issues caused by Aerojet in the SCWA service area. As part of this agreement, Aerojet agreed to deliver and SCWA agreed to receive up to 8,900 acre-feet of Aerojet Groundwater Extraction and Treatment (GET) water. Aerojet extracts and treats contaminated groundwater at its GET facilities from the American River watershed region and discharges the treated water to the American River. SCWA diverts this water at the Freeport Regional Water Project facility for use throughout its service area. Article 2.3 of the settlement agreement states that SCWA "assumes all risks concerning Aerojet's right, title, and interest in GET Transferred Water." Nevertheless, the supply availability has not diminished and SCWA uses the water in its service area. The delivery pattern available for the water may allow SCWA to take larger portions of the supply, if not all the supply, as needed and made available by Aerojet. The water supply is 100% reliable in all year types because the groundwater extraction and treatment are part of a federally mandated remediation program. Aerojet's remediation program will continue beyond the planning horizon of this SCWA's UWMP. Table 3-10 shows the total Aerojet GET water used over the last 5 years in SCWA's service area.

Table 3-10: Last Five Years of SCWA Aerojet GET Water Deliveries (acre-feet per year)

Year	Total
2015	4,529
2016	423
2017	0
2018	3,224
2019	0
2020	3,587

Table 3-11 shows the total Aerojet GET water available in normal, single dry, and five consecutive dry years through 2025.

Table 3-11: Aerojet GET Water Supply Availability Through 2025 (acre-feet per year)

Year		GET Contract Amount
Normal		8,900
Single Dry		8,900
Multi-Year Drought	2021 (1st year)	8,900
	2022 (2nd year)	8,900
	2023 (3rd year)	8,900
	2024 (4th year)	8,900
	2025 (5th year)	8,900

Table 3-12 shows the supply availability of the Aerojet GET water through 2045.

Table 3-12: Aerojet GET Water Supply Availability 2025-2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		8,900	8,900	8,900	8,900	8,900
Single Dry Year		8,900	8,900	8,900	8,900	8,900
Multi-Year Drought	Year 1	8,900	8,900	8,900	8,900	8,900
	Year 2	8,900	8,900	8,900	8,900	8,900
	Year 3	8,900	8,900	8,900	8,900	8,900
	Year 4	8,900	8,900	8,900	8,900	8,900
	Year 5	8,900	8,900	8,900	8,900	8,900

3.1.5 SWRCB Appropriative Water Right License 1062

SCWA holds Water Right License 1062 to divert 4.09 cubic feet per second from the Sacramento River from April 1 to October 1 each year for a maximum annual total diversion of 805 acre-feet.[40] The water right has a priority date of August 28, 1918 and is not subject to Term 91. Assuming the recent SWRCB Order is finalized, the water supply may be used for municipal uses in Zone 40 in the future. Figure 3-4

[40] Draft SWRCB Order dated January 22, 2021 for license 1062 and 4060

shows the place of use of License 4060. Table 3-13 shows the total License 1062 water available in all year types.

Table 3-13: License 1062 Water Supply Availability (acre-feet per year)

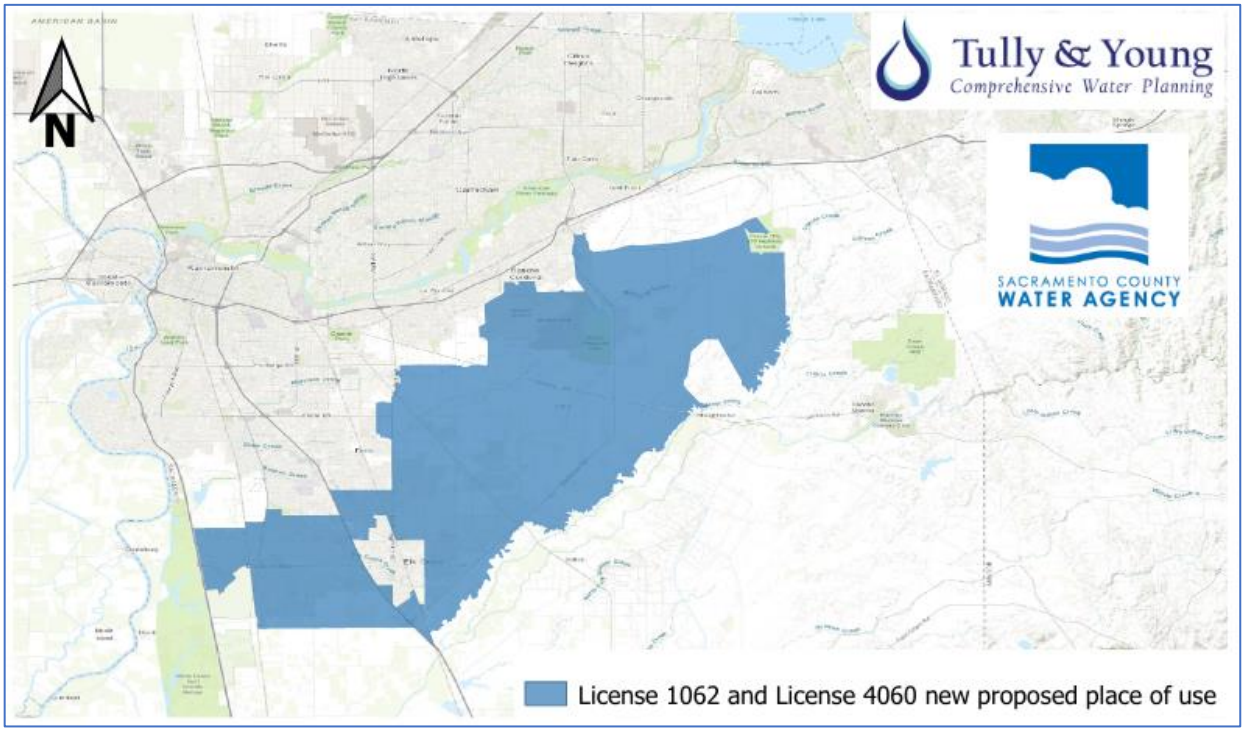
Total Supply		2025	2030	2035	2040	2045
Normal		805	805	805	805	805
Single Dry Year		805	805	805	805	805
Multi-Year Drought	Year 1	805	805	805	805	805
	Year 2	805	805	805	805	805
	Year 3	805	805	805	805	805
	Year 4	805	805	805	805	805
	Year 5	805	805	805	805	805

3.1.6 SWRCB Appropriative Water Right License 4060

SCWA holds Water Right License 4060 to divert 1.48 cubic feet per second from the Sacramento River from May 1 to October 1 each year for a maximum annual total diversion of 101 acre-feet.[41] The water right has a priority date of September 20, 1951. The water supply may be used for irrigation in an area in northern Sacramento County. Figure 3-4 shows the place of use of License 4060.

Table 3-14 shows the total License 4060 water available in all year types.

Figure 3-4: Place of Use of License 1062 and License 4060



[41] Draft SWRCB Order dated January 22, 2021 for license 1062 and 4060

Table 3-14: License 4060 Water Supply Availability (values in acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		101	101	101	101	101
Single Dry Year		101	101	101	101	101
Multi-Year Drought	Year 1	101	101	101	101	101
	Year 2	101	101	101	101	101
	Year 3	101	101	101	101	101
	Year 4	101	101	101	101	101
	Year 5	101	101	101	101	101

3.1.7 Contract Between State of California DWR and North Delta Water Agency

The North Delta Water Agency was formed in 1974 to protect the water resources in specific portions of Yolo, Solano, Sacramento, and San Joaquin counties. In 1981, the NDWA executed the "*Contract Between the California Department of Water Resources for the Assurance of a Dependable Water Supply of Suitable Quality*" (NDWA Contract) as a settlement of claims related to the then-proposed "Peripheral Canal." The NDWA Contract assures that the State, through both the State Water Project (SWP) and the California Department of Water Resources' (DWR) water right permits, will maintain a dependable water supply of adequate quantity and quality for municipal, industrial, and agricultural purposes within the NDWA service area. Specifically, Article 8(a) states in relevant part "…the State shall furnish such water as may be required within the Agency to the extent not otherwise available under the water rights of water users." SCWA analyzed its service area boundary in October of 2020 and determined that a portion of its service area lies within the NDWA service area and that property owners within the NDWA boundary are paying property tax assessments to secure NDWA water supplies. Figure 3-5 shows the overlap between SCWA service area and the NDWA service area.

SCWA has never delivered the NDWA water supplies for uses within its service area boundary. NDWA water supplies are 100% reliable in all year types. SCWA plans to deliver these supplies in future years to meet a portion of its service area demands – including all current and projected future demands in the NDWA service area.

Table 3-15 shows the projected NDWA water supply availability for normal, single dry, and five consecutive dry years through 2025.

Table 3-16 shows the projected monthly future NDWA water deliveries into SCWA's service area through 2045.

Figure 3-5: SCWA Service Area and NDWA Service Area

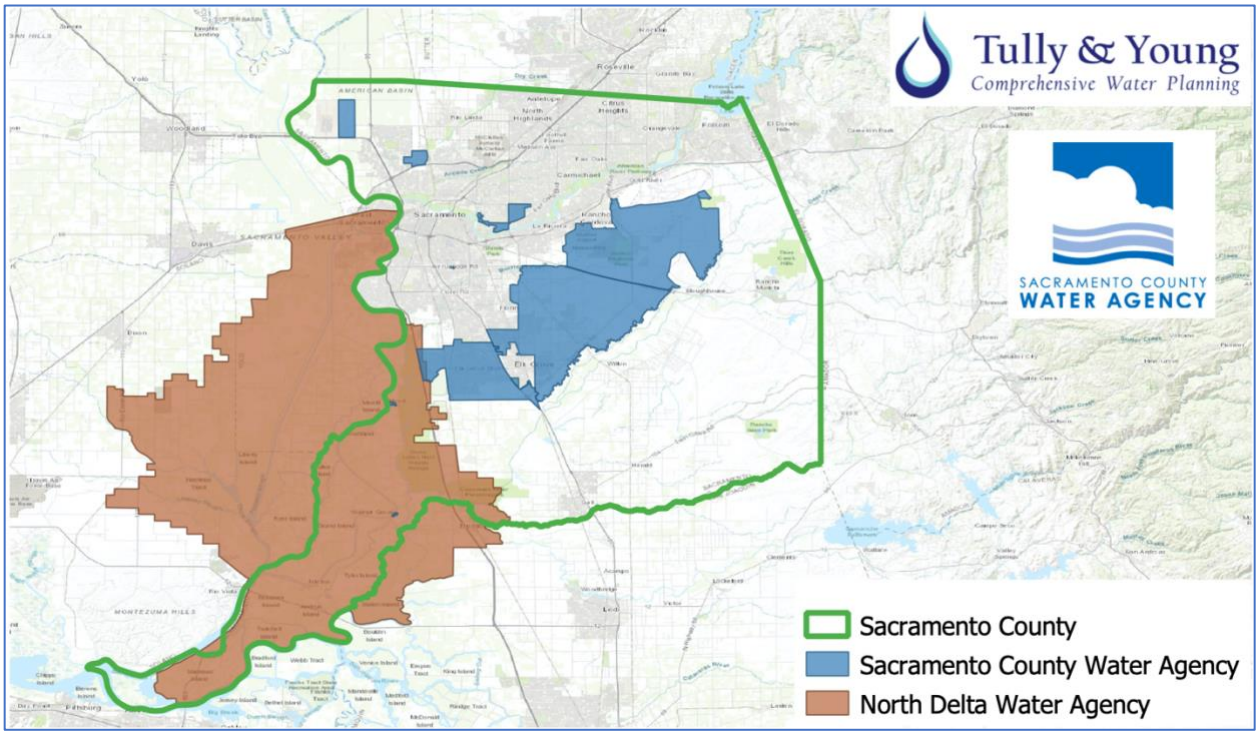


Table 3-15: NDWA Water Supply for SCWA through 2025 (values in acre-feet per year)

Year		North Delta Water Agency
Normal		450
Single Dry		450
Multi-Year Drought	2021 (1st year)	450
	2022 (2nd year)	450
	2023 (3rd year)	450
	2024 (4th year)	450
	2025 (5th year)	450

Table 3-16: NDWA Water Supply for SCWA (values in acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		450	450	450	450	450
Single Dry Year		450	450	450	450	450
Multi-Year Drought	Year 1	450	450	450	450	450
	Year 2	450	450	450	450	450
	Year 3	450	450	450	450	450
	Year 4	450	450	450	450	450
	Year 5	450	450	450	450	450

3.1.8 2002 Wholesale Agreement Between SRCSD and SCWA

In 2002, Sacramento Regional County Sanitation District (SRCSD) agreed to deliver up to 3.5 million gallons a day of recycled water to SCWA. Section V of the agreement allows SCWA to only take the amount of recycled water "needed to meet the recycled water demands of [its] customers." SRCSD will sell the water to SCWA at a discounted cost of 60% of SCWA's current water rate. Moreover, Section XIII requires SRCSD to provide a backup well at approximately 1500 GPM in the event that the recycled water supply does not meet the standards of Order No. 97-146 (Master Water Reclamation Permit). The agreement has no expiration date. Although no formal amendments to the agreement have occurred, SCWA recognized its maximum use was 1.98 mgd of recycled water and allowed SRCSD to deliver the remaining water to the S.P.A. Cogeneration Facility located near the Campbell Soup Plant site. To date, recycled water has only been delivered to the Phase 1 area. Nevertheless, SCWA continues to receive recycled water supplies under this agreement for use in the Elk Grove area. Figure 3-6 shows the area receiving recycled water from SRCSD.

Figure 3-6: Place of Use of SCWA Recycled Water

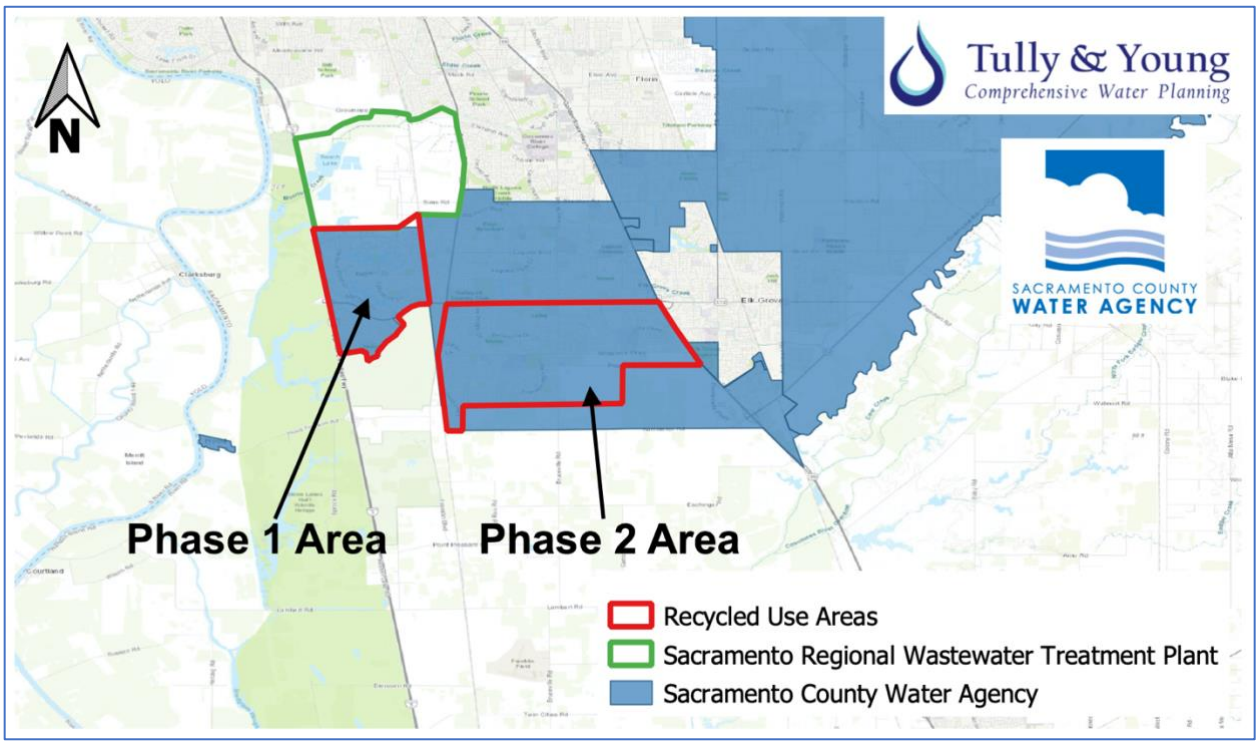


Table 3-17 shows the last five years of recycled water deliveries into SCWA's service area.

Table 3-17: Last Five Years of SCWA Recycled Water Deliveries (values in acre-feet per year)

Year	Total
2015	745
2016	720
2017	845
2018	861
2019	901
2020	962

The recycled water supply is derived from consumed indoor water supplies in the SRCSD service region. As such, this supply of water is 100% reliable in all year types barring some unforeseen issue impacted by the Master Water Reclamation Permit. Table 3-18 shows the projected recycled water supplies for normal, single dry, and five consecutive dry years through 2025 and Table 3-19 shows the reliability through 2045.

Table 3-18: SCWA Recycled Water Supply (values in acre-feet per year)

Year		Recycled Production
Normal		3,921
Single Dry		3,921
Multi-Year Drought	2021 (1st year)	3,921
	2022 (2nd year)	3,921
	2023 (3rd year)	3,921
	2024 (4th year)	3,921
	2025 (5th year)	3,921

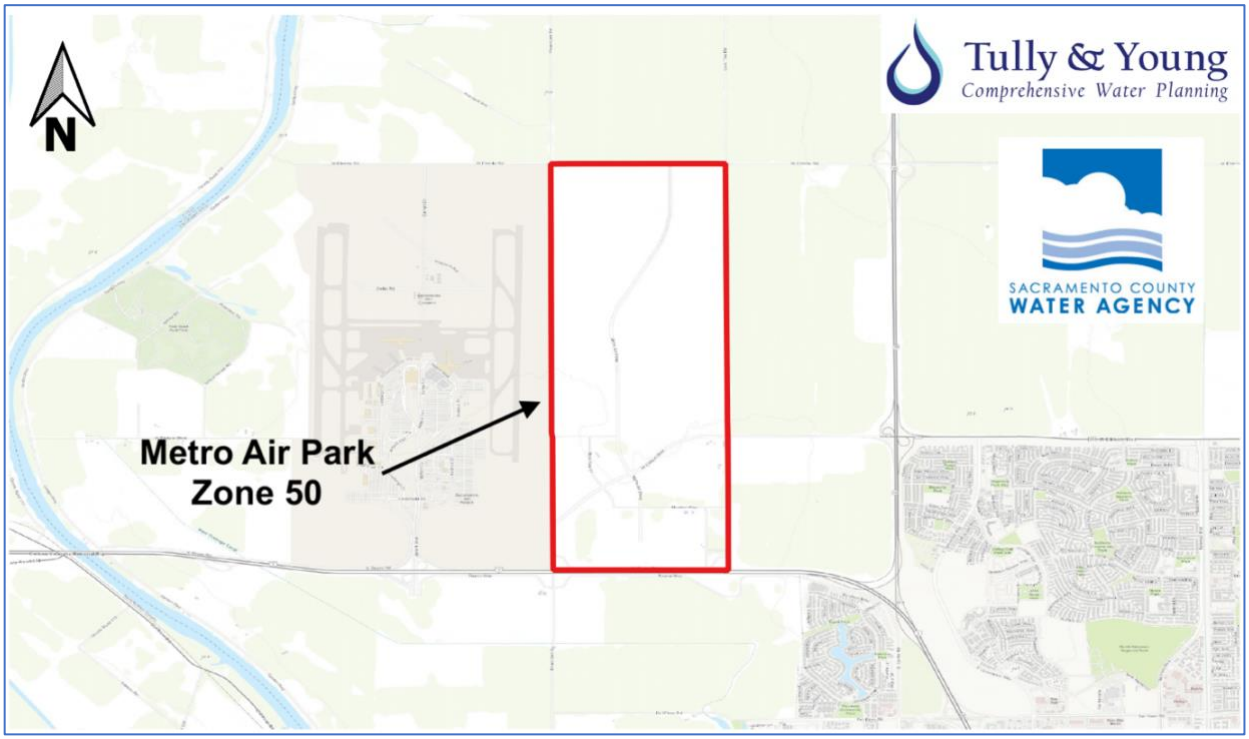
Table 3-19: Future Projected Supply Availability Through 2045 (values in acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		3,921	3,921	3,921	3,921	3,921
Single Dry Year		3,921	3,921	3,921	3,921	3,921
Multi-Year Drought	Year 1	3,921	3,921	3,921	3,921	3,921
	Year 2	3,921	3,921	3,921	3,921	3,921
	Year 3	3,921	3,921	3,921	3,921	3,921
	Year 4	3,921	3,921	3,921	3,921	3,921
	Year 5	3,921	3,921	3,921	3,921	3,921

3.1.9 2004 Agreement with the City of Sacramento for Wholesaling And/Or Wheeling Water Service for Sacramento International Airport and Metro Air Park

The City of Sacramento (City) and SCWA entered an agreement in October of 2004 to enable the City to provide wholesale water or wheel SCWA water to Sacramento International Airport and to SCWA Zone 50 for use at the proposed Metro Air Park (2004 Agreement). Although there have been attempts to subsume this agreement into subsequent agreements, the 2004 Agreement remains valid and enforceable. The City has delivered City water to the SCWA service areas described in the 2004 Agreement but, to date, SCWA has not wheeled any of its water supplies as allowed by the agreement. The context for this assessment is to describe the supply-side of the 2004 Agreement where the City provides a water supply to meet Airport and Metro Air Park water demands. Figure 3-7 shows the Metro Air Park service areas where City of Sacramento water could be directly delivered.

Figure 3-7: SCWA Metro Air Park (Zone 50) Service Area



The total water supply that the City delivers to the Airport and Metro Air Park will not exceed 11.7 million gallons per day (mgd) assuming that SCWA provides notice to the City in accordance with Article 5a that it needs more than 5 mgd. To date, SCWA has not reached the 5 mgd threshold. Moreover, the reductions in wholesale supply availability will be consistent with City reductions to its own customers and be curtailed upon "the occurrence of an emergency conditions." Thus, the future supply availability for these service areas may be adjusted on a monthly basis but may not exceed 5 mgd in the near term and 11.7 mgd in the long term. Table 3-20 shows the projected water supplies under the 2004 Agreement for normal, single dry, and five consecutive dry years through 2025. Table 3-21 shows the projected future annual deliveries under the 2004 Agreement for a normal, single dry, and five consecutive dry years through 2045.

Table 3-20: 2004 Agreement Annual Deliveries in Varying Year Types (acre-feet per year)

Year		Air Park Production
Normal		500
Single Dry		500
Multi-Year Drought	2021 (1st year)	500
	2022 (2nd year)	500
	2023 (3rd year)	500
	2024 (4th year)	500
	2025 (5th year)	500

Table 3-21: Future Projected Supply Availability Through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		1,058	2,088	3,112	4,142	5,195
Single Dry Year		1,058	2,088	3,112	4,142	5,195
Multi-Year Drought	Year 1	1,058	2,088	3,112	4,142	5,195
	Year 2	1,058	2,088	3,112	4,142	5,195
	Year 3	1,058	2,088	3,112	4,142	5,195
	Year 4	1,058	2,088	3,112	4,142	5,195
	Year 5	1,058	2,088	3,112	4,142	5,195

3.1.10 2000 Agreement Between City of Sacramento and the Sacramento County Water Agency to Treat and Deliver (Wheel) Surface Water

In 2000, the City and SCWA entered an agreement where the City would treat, wheel, and deliver SCWA water supplies to the lawful places of use of SCWA's water assets (2000 Agreement). The 2000 Agreement does not include additional water supply sources beyond those already possessed by SCWA but is an important component in potentially meeting water supply obligations in areas that are better connected to the City's water system. The 2020 UWMP does not incorporate the 2000 Agreement as a basis for any additional water supply reliability. SCWA does, however, have access to 11 MGD of firm capacity in the City's System.[42]

3.1.11 2000 Memorandum of Understanding Regarding the Operation of A Water System Interconnection at 2750 Mercantile Drive

In 2000, SCWA entered a water supply MOU with Southern California Water Company (Company) for potential water service through an interconnection at Mercantile Drive. Company could provide SCWA with 1,000 gallons per minute, or 1,613 acre-feet per year, on a maximum sustained flow rate through the eight inch system interconnection. SCWA may take the water and will be billed in accordance with Company Schedule No. AC-1, Arden-Cordova District. The dry-year reliability of this water source is less

[42] 2000 Agreement at 4.

certain as it relates directly to the reliability of the Company's overall supply system. Specifically, Article E states in relevant part that the Company "may limit supply to the County if operations of the Interconnection would adversely affect water service to Company's customers." Table 3-22 shows the last five years of Company water deliveries into SCWA's service area.

The Company water supply is derived from groundwater systems in Company's service area. As such, this supply of water is very reliable in all year types barring some unforeseen issue impacted by a significant outage or curtailment of Company's pre-1914 appropriative water right. As such, Table 3-23 shows the future planned use for Company's water in SCWA's service area.

Table 3-22: Last Five Years of Company Water Deliveries to SCWA (acre-feet per year)

Retail Area	GSWC Wholesale
2016	0.31
2017	0.49
2018	0.25
2019	0.72
2020	2.25

Table 3-23: Company Water Supply in SCWA Through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		1,613	1,613	1,613	1,613	1,613
Single Dry Year		1,613	1,613	1,613	1,613	1,613
Multi-Year Drought	Year 1	1,613	1,613	1,613	1,613	1,613
	Year 2	1,613	1,613	1,613	1,613	1,613
	Year 3	1,613	1,613	1,613	1,613	1,613
	Year 4	1,613	1,613	1,613	1,613	1,613
	Year 5	1,613	1,613	1,613	1,613	1,613

3.1.12 Fruitridge Vista Water Company Contract

The Southwest Tract is served by a water supply derived from the County's formation of the Southwest Water Maintenance District in 1958 and a water service agreement with Fruitridge Vista Water Company (Fruitridge) executed in 1970. Under the 1970 Agreement, Fruitridge would deliver a portion of its groundwater supplies to the Southwest Tract customers. The 1970 Agreement has no expiration. The current water supply entity assigned the obligations under the contract resides with Cal American Water Company. Nevertheless, the Southwest Tract customers still receive water supplies under the terms of the 1970 Agreement. Figure 3-8 shows the geographical location of the Southwest Tract. Table 3-24 shows the last five years of water deliveries to the Southwest Tract. Table 3-25 shows the projected water supplies for the Southwest Tract for normal, single dry, and five consecutive dry years through 2025. Table 3-26 shows the normal year, dry year, and five consecutive dry year water supply availability through 2045.

Figure 3-8: Southwest Track Location

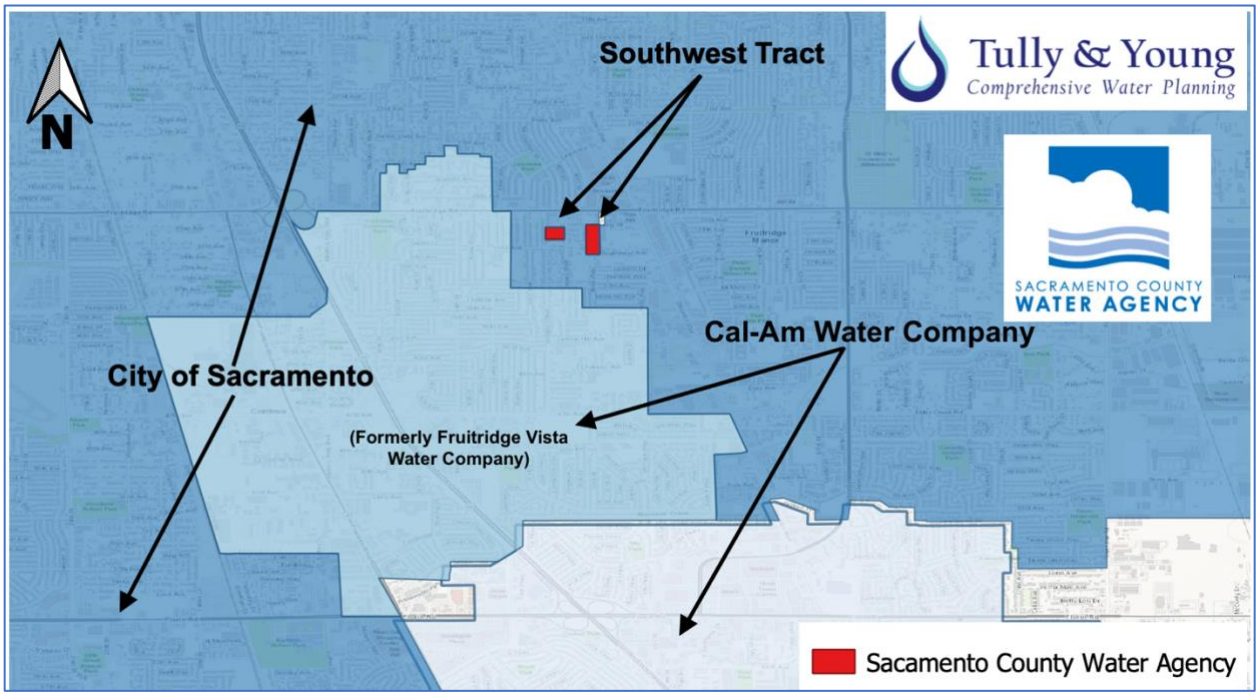


Table 3-24: Last Five Years Southwest Tract Deliveries (acre-feet per year)

Year	Southwest Tract
2016	26
2017	22
2018	21
2019	21
2020	23

Table 3-25: Southwest Tract Water Supply for SCWA through 2025 (acre-feet per year)

Year		Southwest Tract
Normal		30
Single Dry		30
Multi-Year Drought	2021 (1st year)	30
	2022 (2nd year)	30
	2023 (3rd year)	30
	2024 (4th year)	30
	2025 (5th year)	30

Table 3-26: Future Projected Supply Availability Through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		30	30	30	30	30
Single Dry Year		30	30	30	30	30
Multi-Year Drought	Year 1	30	30	30	30	30
	Year 2	30	30	30	30	30
	Year 3	30	30	30	30	30
	Year 4	30	30	30	30	30
	Year 5	30	30	30	30	30

3.2 Groundwater

Groundwater supplies constitute a major component of SCWA's water supply portfolio. In some service areas, groundwater is the sole source of supply while in other service areas groundwater is managed conjunctively with surface water supplies. This section separates the various service areas' groundwater supplies to address long-term groundwater supply management issues within those areas.

3.2.1 Groundwater Basin Descriptions

This section provides a description of SCWA's groundwater supplies including descriptions of the applicable groundwater basins, the status of groundwater management, overdraft conditions, historical groundwater pumping, and the remediated groundwater supply.

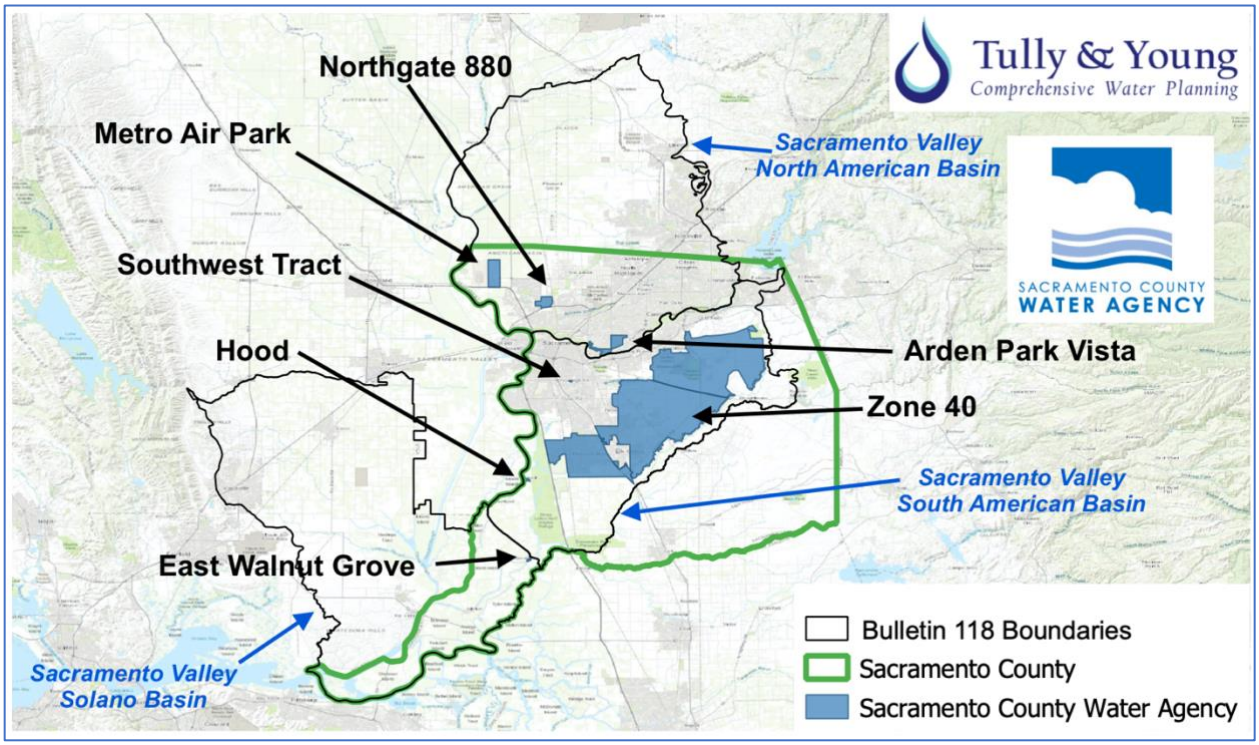
There are two primary groundwater subbasins described in the California Department of Water Resources' (DWR) Bulletin 118 that affect SCWA's groundwater extraction and use: The Sacramento Valley Basin – North American Subbasin (5-21.64) and the Sacramento Valley Basin – South American Subbasin (5-21.65). The total extent of these two groundwater subbasins are shown in Figure 3-9 below. SCWA also extracts groundwater from the Solano Subbasin in its East Walnut Grove service area. The relevant Solano Subbasin characteristics are described later in this document in the context of East Walnut Grove groundwater.

Sacramento Valley Basin– North American Subbasin

The North American Subbasin covers an area of approximately 548 square miles and is located under lands contained in Placer, Sutter, and Sacramento counties. The North American Subbasin is bound on the south by the American River, on the north and west by the Sacramento, Feather, and Bear Rivers, and on the east by the bedrock of the Sierra Nevada foothills. The North American Subbasin is categorized as a "high priority basin" because there is a large population overlying the basin that relies upon its supplies to meet its potable and raw water needs and other factors as determined by DWR.[43] The North American Subbasin is not in an overdraft condition and has no adjudicated areas.

[43] May 2020, Sustainable Groundwater Management Act 2019 Basin Prioritization – Process and Results Document

Figure 3-9: North American and South American Groundwater Subbasins



The North American Subbasin is stratified into different hydrogeological layers with regional differences in groundwater quality and transmissivity. The stratigraphic succession of geologic formations in the subbasin include, from oldest to youngest: crystalline basement rock, Miocene/Pliocene Volcanics, Older Alluvium of Pliocene and Pleistocene, and Younger Alluvium. Those formations which consist of the main freshwater-bearing aquifer system underlying the SCWA service areas include (from oldest to youngest):

- Miocene/Pliocene Volcanics (Mehrten Formation)
- Older Alluvium of Pliocene and Pleistocene (Laguna Formation)
- Younger Alluvium

The deepest deposits consist of Miocene and Pliocene Volcanic of the Mehrten Formation. It is composed of black sands, gravels, silts, and clays interbedded with tiff breccia. The thickness ranges from between 200 and 1,200 feet thick. The sand and gravel intervals are found to be highly permeable.

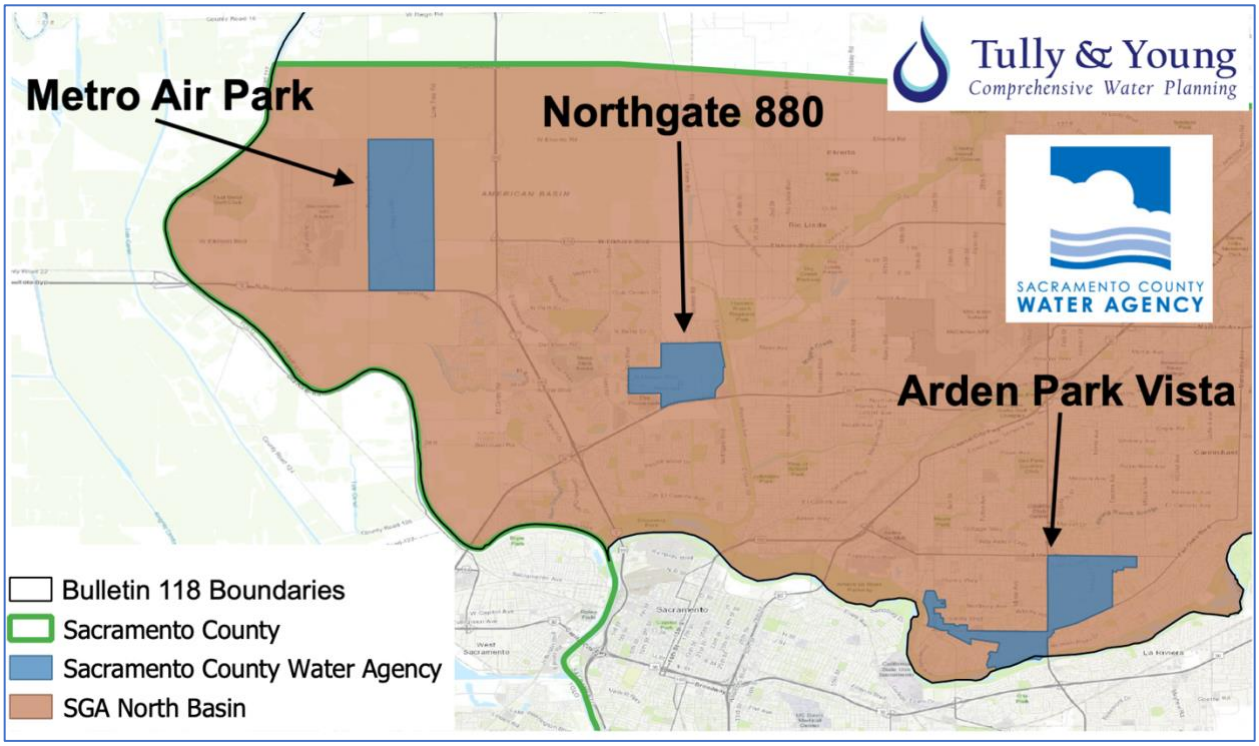
The older alluvium of Pliocene and Pleistocene age is the primary freshwater bearing formation within the North American Subbasin. The older alluvium consists of loosely compacted sands, silts, and gravels. This alluvial unit is exposed between the Sierra Nevada Foothills and the younger alluvium. Thicknesses range from 100 to 650 feet thick and is moderately permeable.

The younger alluvium is a formation of silts and clays that overlies the older alluvium. This alluvium consists of flood basin deposits and stream channel deposits from the nearby Sacramento River. The estimated thickness ranges from zero to 100 feet and may be locally interbedded with stream channel

deposits of the Sacramento River. Due to the small grain sizes of the clays and silts, this layer generally has lower permeability and low well yield. However, sand and gravel zones interbedded in the younger alluvium are highly permeable and commonly have high well yields.

The 2000 Water Forum Agreement help characterize a smaller sub-component of the North American Subbasin as the "North Basin." The North Basin is shown in Figure 3-10 below. The North Basin contains all the SCWA service areas discussed in this section. SCWA has three primary service areas that overlie the North Basin – the Airport and Metro Air Park, Northgate 880, and Arden Park Vista. Figure 3-10 shows the location of these service areas in Sacramento County.

Figure 3-10: Location of SCWA Service Areas in North American Subbasin



All of these service areas have extracted and delivered groundwater over the course of the last ten years. Table 3-27 shows SCWA's historic annual groundwater extractions in the North American Subbasin in each service area.

Table 3-27: 2015-2020 Annual North American Subbasin Groundwater Use (acre-feet per year)[44]

North Basin Use	Arden Park Vista	Northgate 880	Metro Air Park
2015	2,803	1,074	
2016	3,096	968	47
2017	3,474	1,281	150
2018	3,430	1,387	277
2019	3,382	1,200	441
2020	3,726	1,365	460

Sacramento Valley – South American Subbasin

The South American Subbasin (5-21.65) is defined as the area bounded on the west by the Sacramento River, on the north by the American River, on the south by the Cosumnes and Mokelumne rivers, and on the east by the Sierra Nevada Range covering 388 square miles. The eastern basin boundary is defined by the Sierra Nevada foothills and follows a north-south line extending from Folsom Reservoir to Rancho Murieta. Along this line, little groundwater flows into or out of the groundwater basin. The rivers that surround the South American Subbasin generally create a groundwater divide in the shallow subsurface although there is interaction between groundwater subbasins at greater depths. The western portion of the subbasin consists of nearly flat floodplain deposits from the surrounding rivers and tributaries.

Bulletin 118-3 identifies and describes various geologic formations that constitute the water-bearing deposits underlying Sacramento County. These formations include an upper, unconfined aquifer system consisting of the Victor, Fair Oaks, and Laguna Formations (now known as the Modesto Formation), and a lower, semiconfined aquifer system consisting primarily of the Mehrten Formation. These formations are typically composed of lenses of interbedded sand, silt, and clay, interlaced with coarse-grained stream channel deposits. The Mehrten formation outcrops near the Sierra Foothills along the eastern Central Basin boundary and is typically characterized as a black sandy lens.

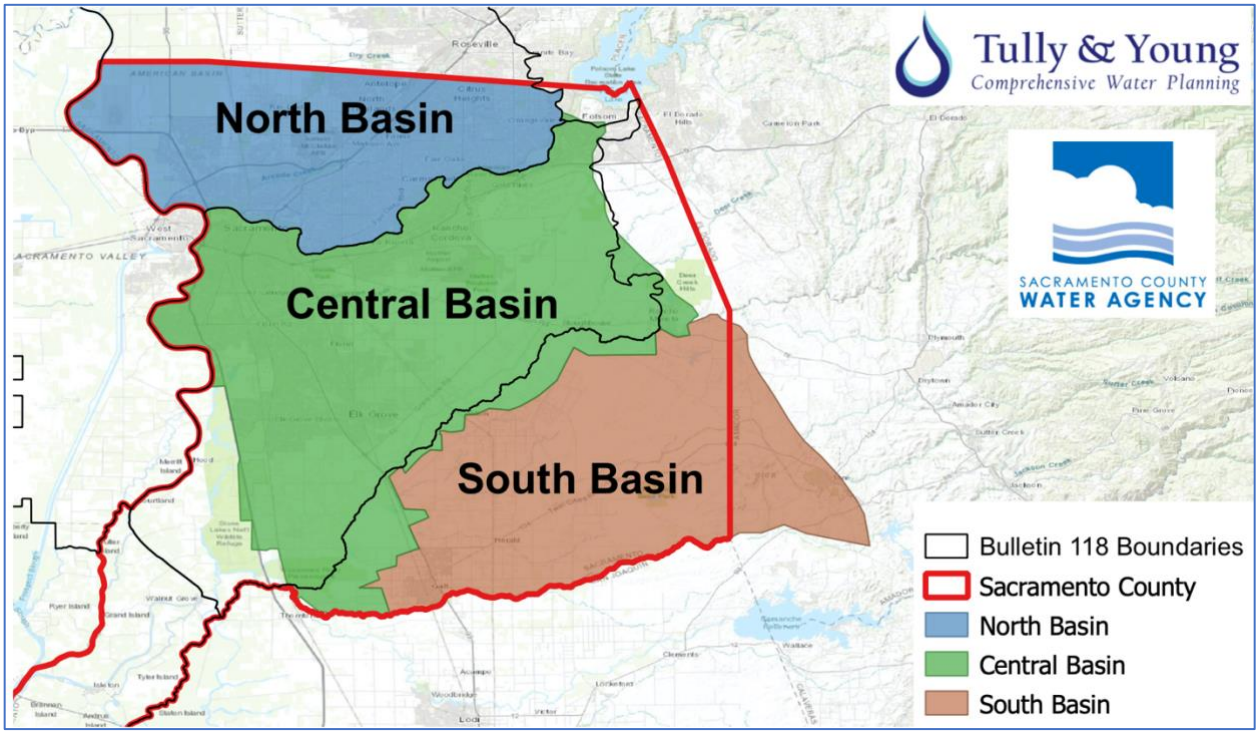
Groundwater in the South American Subbasin generally occurs in a shallow aquifer zone (Laguna or Modesto Formation) or in an underlying deeper aquifer zone (Mehrten Formation). Within the subbasin, the shallow aquifer extends approximately 200 to 300 feet below the ground surface and, in general, water quality in this zone is considered good with the exception of arsenic detections in a few locations. The shallow aquifer is typically used for private domestic wells requiring no treatment unless high arsenic values are encountered, causing owners to possibly target other water-bearing strata.

The deep aquifer is separated from the shallow aquifer by a discontinuous clay layer that serves as a semi-confining layer for the deep aquifer. The base of the potable water portion of the deep aquifer averages approximately 1,400 feet below ground surface (bgs). Water in the deep aquifer typically has higher concentrations of total dissolved solids (TDS), iron, and manganese. Groundwater used in the South American Subbasin is supplied from both the shallow and deeper aquifer systems.

[44] Metro Air Park groundwater supplies are derived from the 2004 SCWA and City of Sacramento Contract.

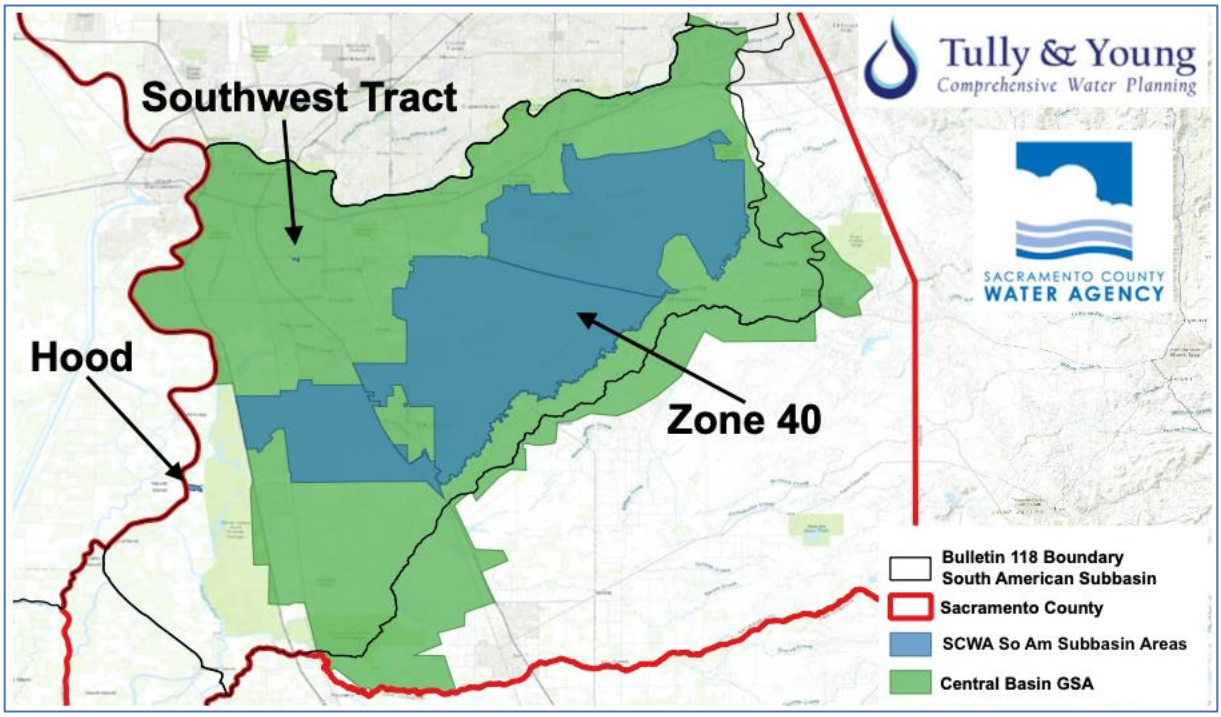
The South American Subbasin was locally referred to under the 2000 Water Forum Agreement as the "Central Basin" and its total area is a close approximation of the area comprising the South American Subbasin. Figure 3-11 below shows the North Basin, Central Basin, and South Basin as characterized in local basin management as defined by the 2000 Water Forum Agreement and will most likely be updated to the current subbasin name(s) in any future updates to the Water Forum Agreement.

Figure 3-11: Groundwater Basin Descriptions in Sacramento County



SCWA has two service areas that overlie the Central Basin – the Southwest Water Maintenance District and Zone 40. Figure 3-12 shows the location of these service areas in Sacramento County.

Figure 3-12: Location of SCWA Service Areas in South American Subbasin



All of these service areas have extracted and delivered groundwater over the course of the last 10 years. Table 3-28 shows SCWA's annual groundwater extractions in the Central Basin in each service area.

Table 3-28: 2015-2020 Annual South American Subbasin Groundwater Use (acre-feet per year)

Retail Area	Zone 40 NSA	Zone 40 CSA/SSA	Hood
2016	3,946	14,909	35
2017	1,991	15,165	44
2018	1,988	14,760	86
2019	1,553	13,101	76
2020	2,095	20,281	99

3.2.2 Groundwater Management in North American and South American Subbasins

The increased use of water in the North Basin and the Central Basin led to the development of governance structures and management plans aimed at stabilizing groundwater extractions and planning for future uses. These governance structures and management plans are further developing under the 2014 Sustainable Groundwater Management Act. This section will describe the groundwater management in both basins.

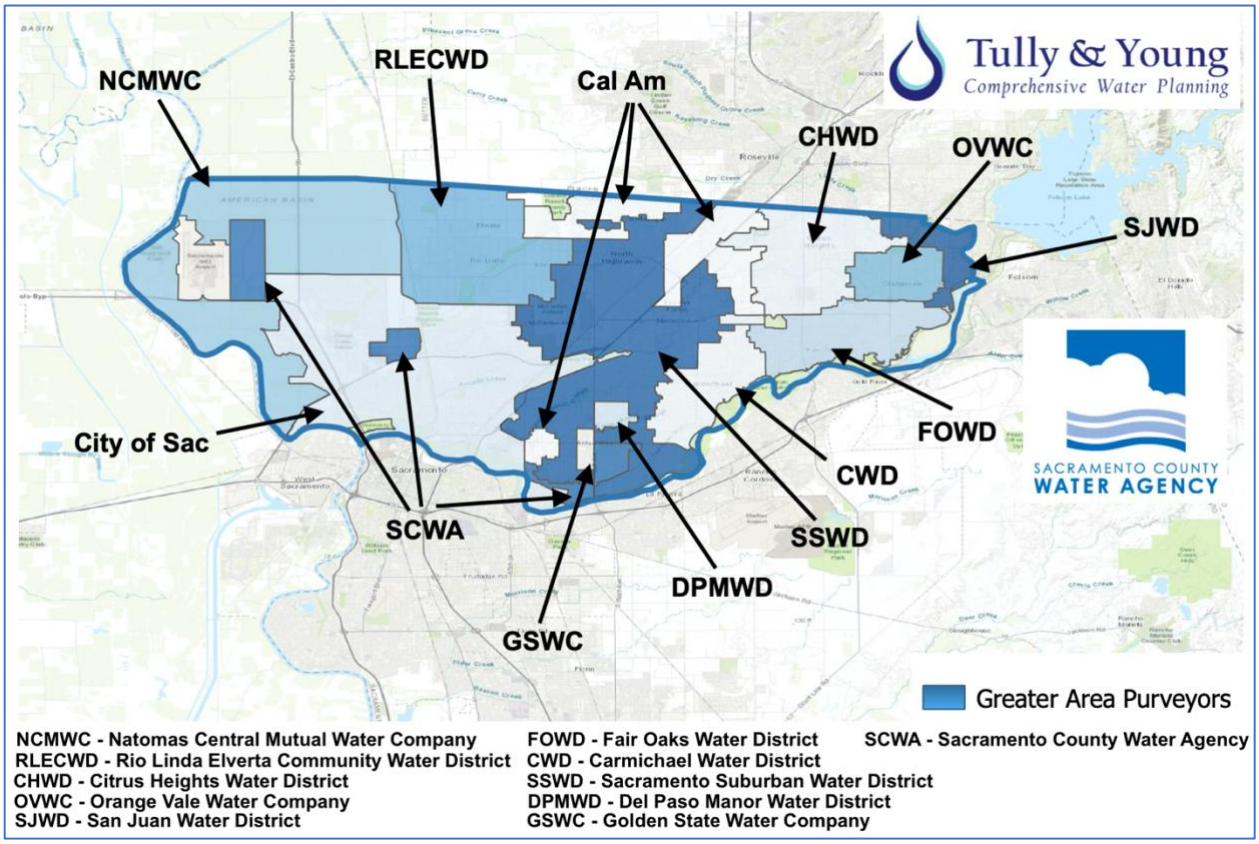
North American Subbasin Groundwater Management

The Sacramento Groundwater Authority (SGA) was formed as a Joint Powers Authority in 1998 to manage groundwater in the Sacramento County portion of the North American Subbasin. SGA incorporates the service areas of multiple water purveyors, including SCWA. Figure 3-13 shows the SGA agencies.

In 2014, SGA developed a Groundwater Management Plan (GMP) under Assembly Bill 3030 (called an AB 3030 GMP). The 2014 GMP established parameters to maintain the long-term sustainable yield target of 131,000 acre-feet, detailed activities SGA will take to sustainably manage the North American Subbasin, and evaluated groundwater management activities and their effectiveness.

The Sustainable Groundwater Management Act (SGMA) was signed into law in September 2014. SGMA requires the formation of Groundwater Sustainability Agencies (GSA) and Groundwater Sustainability Plans (GSP) to achieve sustainability in the state's groundwater basins. In 2016, SGA became the exclusive GSA for the Sacramento County portion of the American Subbasin and by 2017 the entire Sacramento Valley – North American Subbasin had additional GSAs formed covering the entire North American Subbasin area. By January 2022, SGA and the other GSAs must prepare a comprehensive plan to sustainably manage the North American Subbasin. The primary planning document guiding sustainability in the North Basin subcomponent of the North American Subbasin is SGA's 2014 GMP. As such, the guiding principles in that document govern SCWA's groundwater planning in the Sacramento County portion of the North American Subbasin.

Figure 3-13: SGA Agencies



South American Subbasin Groundwater Management (Formerly Central Basin)

The Sacramento Central Groundwater Authority (SCGA) was formed as a Joint Powers Authority in 2006 to manage groundwater in the majority of the South American Subbasin. . SCGA incorporates a number of water service providers, including SCWA. Figure 3-14 shows the SCGA participating agencies.

In 2006, SCGA developed a Groundwater Management Plan (GMP) under Assembly Bill 3030 (called an AB 3030 GMP). The 2006 GMP established parameters to maintain the long-term sustainable yield target of 273,000 acre-feet, detailed activities SCGA will take to sustainably manage the Central Basin, and evaluated groundwater management activities and their effectiveness.

The Sustainable Groundwater Management Act (SGMA) was signed into law in September 2014. The Sacramento Valley – South American Subbasin has six Groundwater Sustainability Agencies created to cover the entire subbasin area. Figure 3-15 shows the GSA's jurisdictional areas. By January 2022, the GSAs must prepare a comprehensive Groundwater Sustainability Plan to sustainably manage the South American Subbasin. The primary planning document guiding sustainability in the South American Subbasin is SCGA's 2006 GMP until the South American Subbasin GSP is submitted in January 2022. As such, the guiding in the 2006 GMP governs SCWA's groundwater planning in the South American Subbasin until the GSP is approved by DWR before January 2024.

Figure 3-14: SCGA Participating Agencies

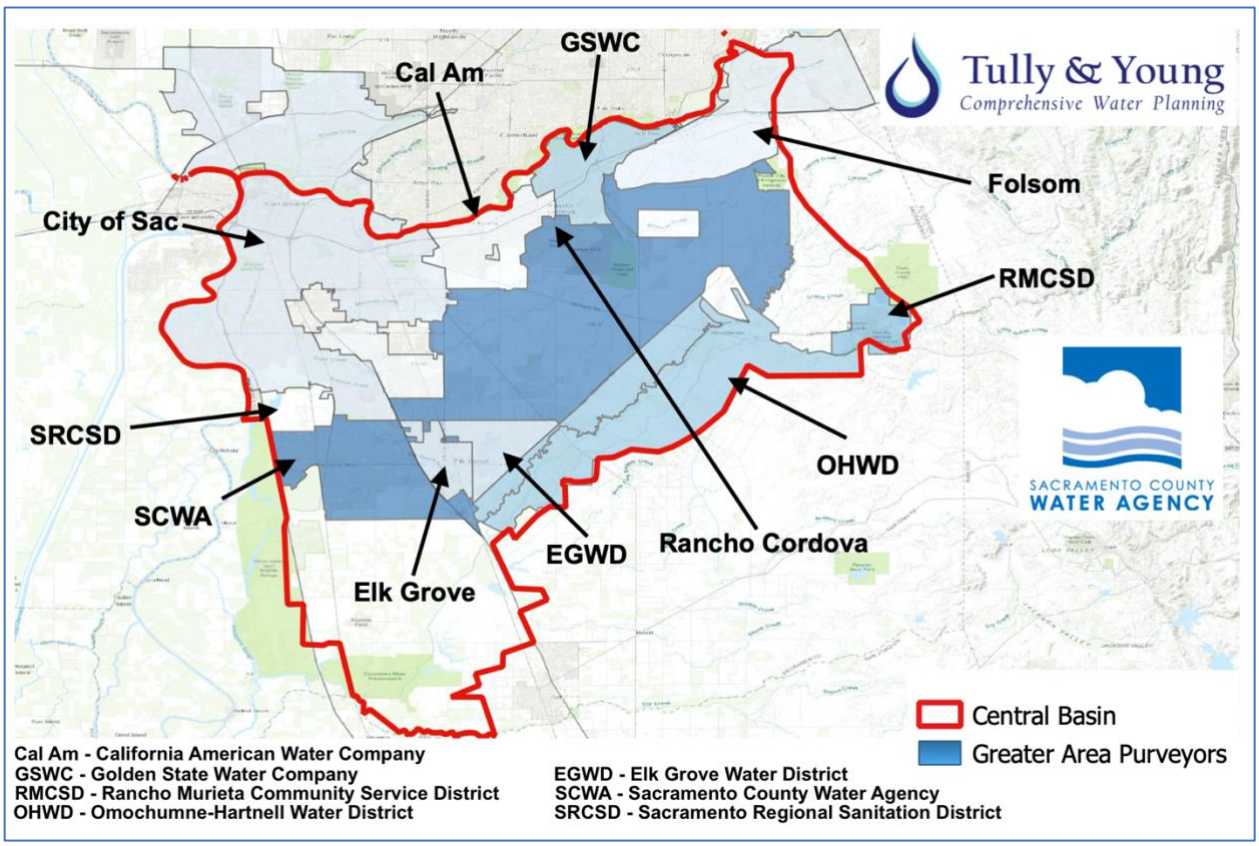
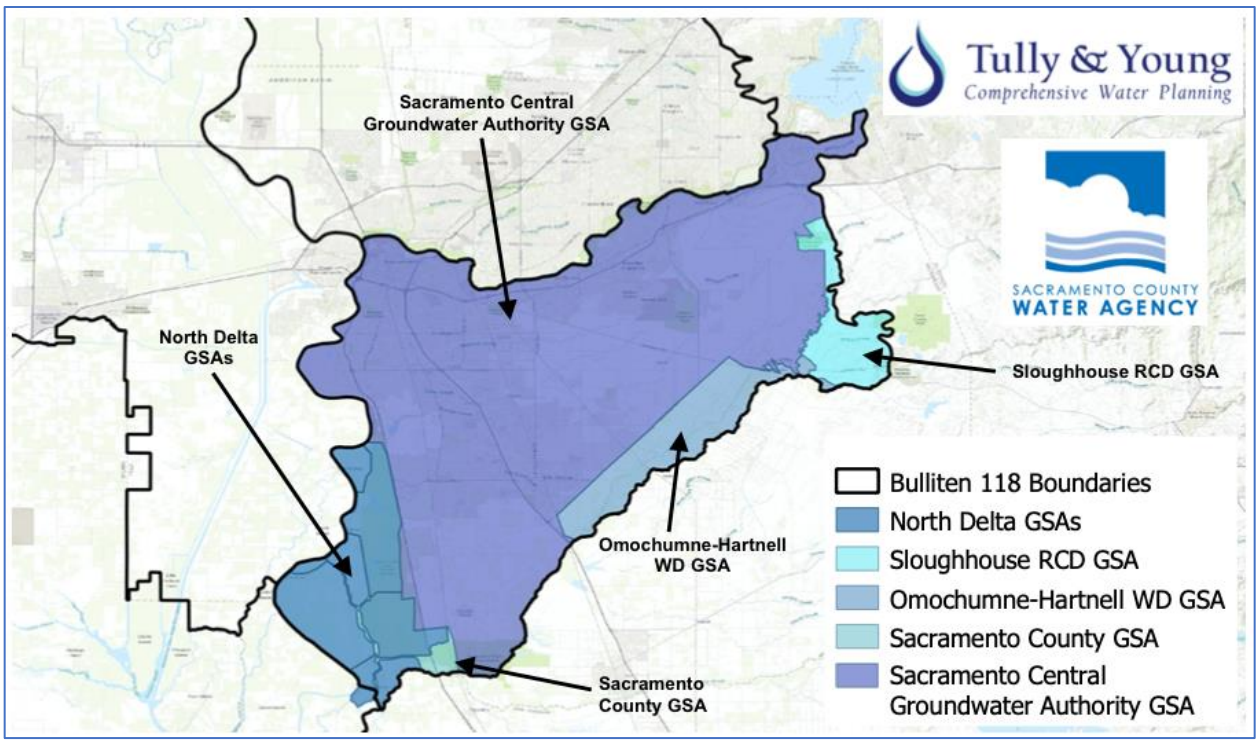


Figure 3-15: South American Subbasin Groundwater Sustainability Agencies



3.2.2 Zone 40 Groundwater

Zone 40 groundwater supplies consist of a total existing capacity of 68.17 million gallons per day (MGD) with an anticipated expansion of 63.83 MGD. Zone 40 has a total of 41 wells. Zone 40 groundwater is characterized in three sections, North Service Area (NSA), Central Service Area (CSA), and South Service Area (SSA). The Mather-Sunrise portion of the system constitutes the NSA while the CSA and SSA constitute the Laguna-Vineyard water system. The NSA system is largely independent from the intersection of the CSA and SSA systems. As such, this UWMP characterizes groundwater development and use in the Zone 40 area in two areas – the Mather-Sunrise Area (NSA) and the Laguna-Vineyard Area (CSA and SSA).

There are 41 wells in the Zone 40 system with a reasonable design capacity of 62.6 MGD. SCWA anticipates an average use of approximately 41,000 acre-feet per year with a maximum use approaching 69,900 acre-feet per year from this subbasin.[45] Table 3-28 depicts the last 10 years of water deliveries from the Mather-Sunrise groundwater system.

Table 3-29: Zone 40 Historical Groundwater Production (acre-feet per year)

Year	Zone 40 Production
2016	18,856
2017	17,157
2018	16,748
2019	14,654
2020	22,475

The groundwater system makes the supplies available in this area 100% reliable in all year types. As such, Zone 40 anticipates the following groundwater production for normal, single dry, and five consecutive dry years through 2025 in Table 3-30 and through 2045 as shown in Table 3-31.

Table 3-30: Zone 40 Groundwater Supply for SCWA through 2025 (acre-feet per year)

Year		Zone 40 Groundwater
Normal		41,000
Single Dry		41,000
Multi-Year Drought	2021 (1st year)	41,000
	2022 (2nd year)	41,000
	2023 (3rd year)	41,000
	2024 (4th year)	41,000
	2025 (5th year)	41,000

[45] WSIP at Table 5-1.

Table 3-31: Zone 40 Projected Groundwater Production through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		41,000	46,000	56,000	56,000	56,000
Single Dry Year		41,000	46,000	56,000	56,000	56,000
Multi-Year Drought	Year 1	41,000	46,000	56,000	56,000	56,000
	Year 2	41,000	46,000	56,000	56,000	56,000
	Year 3	41,000	46,000	56,000	56,000	56,000
	Year 4	41,000	46,000	56,000	56,000	56,000
	Year 5	41,000	46,000	56,000	56,000	56,000

3.2.3 Arden Park Vista Groundwater

Arden Park Vista is an independent system that is currently served wholly through groundwater deliveries. There are 10 wells in the Arden Park Vista system with a reasonable design capacity of 11.34 MGD. Table 3-32 depicts the last 5 years of water deliveries from the Arden Park Vista groundwater system.

Table 3-32: Arden Park Vista Historical Groundwater Production (acre-feet per year)

Year	Arden Park Vista
2015	2,803
2016	3,096
2017	3,474
2018	3,430
2019	3,382
2020	3,726

The groundwater system makes the supplies available in this area 100% reliable in all year types. As such, Arden Park Vista anticipates the following groundwater production for normal, single dry, and five consecutive dry years through 2025 in Table 3-33 and through 2045 as shown in Table 3-34.

Table 3-33: Arden Park Vista Groundwater Supply for SCWA through 2025 (acre-feet per year)

Year		Arden Park Vista
Normal		3,500
Single Dry		3,500
Multi-Year Drought	2021 (1st year)	3,500
	2022 (2nd year)	3,500
	2023 (3rd year)	3,500
	2024 (4th year)	3,500
	2025 (5th year)	3,500

Table 3-34: Arden Park Vista Projected Groundwater Production through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		3,500	3,500	3,500	3,500	3,500
Single Dry Year		3,500	3,500	3,500	3,500	3,500
Multi-Year Drought	Year 1	3,500	3,500	3,500	3,500	3,500
	Year 2	3,500	3,500	3,500	3,500	3,500
	Year 3	3,500	3,500	3,500	3,500	3,500
	Year 4	3,500	3,500	3,500	3,500	3,500
	Year 5	3,500	3,500	3,500	3,500	3,500

3.2.4 Northgate 880 Groundwater

Northgate 880 is an independent system that is currently served wholly through groundwater deliveries. There are 6 wells in the Northgate 880 system with a reasonable design capacity of 7.82 MGD. Table 3-35 depicts the last 5 years of water deliveries from the Northgate 880 groundwater system.

Table 3-35: Northgate 880 Historical Groundwater Production (acre-feet per year)

Year	Northgate 880
2016	968
2017	1,281
2018	1,387
2019	1,200
2020	1,365

The groundwater system makes the supplies available in this area 100% reliable in all year types. As such, Northgate 880 anticipates the following groundwater production for normal, single dry, and five consecutive dry years through 2025 in Table 3-36 and production through 2045 as shown in Table 3-37.

Table 3-36: Northgate 880 Groundwater Supply for SCWA through 2025 (acre-feet per year)

Year		Northgate 880
Normal		1,400
Single Dry		1,400
Multi-Year Drought	2021 (1st year)	1,400
	2022 (2nd year)	1,400
	2023 (3rd year)	1,400
	2024 (4th year)	1,400
	2025 (5th year)	1,400

Table 3-37: Northgate 880 Projected Groundwater Production through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		1,400	1,400	1,400	1,400	1,400
Single Dry Year		1,400	1,400	1,400	1,400	1,400
Multi-Year Drought	Year 1	1,400	1,400	1,400	1,400	1,400
	Year 2	1,400	1,400	1,400	1,400	1,400
	Year 3	1,400	1,400	1,400	1,400	1,400
	Year 4	1,400	1,400	1,400	1,400	1,400
	Year 5	1,400	1,400	1,400	1,400	1,400

3.2.5 Hood Water Maintenance District (Hood) Groundwater

Hood is an independent system that is currently served wholly through groundwater deliveries. There are 2 wells in the Hood system with a reasonable design capacity of 0.84 MGD. Table 3-38 depicts the last 5 years of water deliveries from the Hood groundwater system.

Table 3-38: Hood Historical Groundwater Production (acre-feet per year)

Year	Hood
2016	35
2017	44
2018	86
2019	76
2020	99

The groundwater system makes the supplies available in this area 100% reliable in all year types. As such, Hood anticipates the following groundwater production for normal, single dry, and five consecutive dry years through 2025 in Table 3-39 and production through 2045 as shown in Table 3-40.

Table 3-39: Hood Groundwater Supply for SCWA through 2025 (acre-feet per year)

Year		Hood
Normal		90
Single Dry		90
Multi-Year Drought	2021 (1st year)	90
	2022 (2nd year)	90
	2023 (3rd year)	90
	2024 (4th year)	90
	2025 (5th year)	90

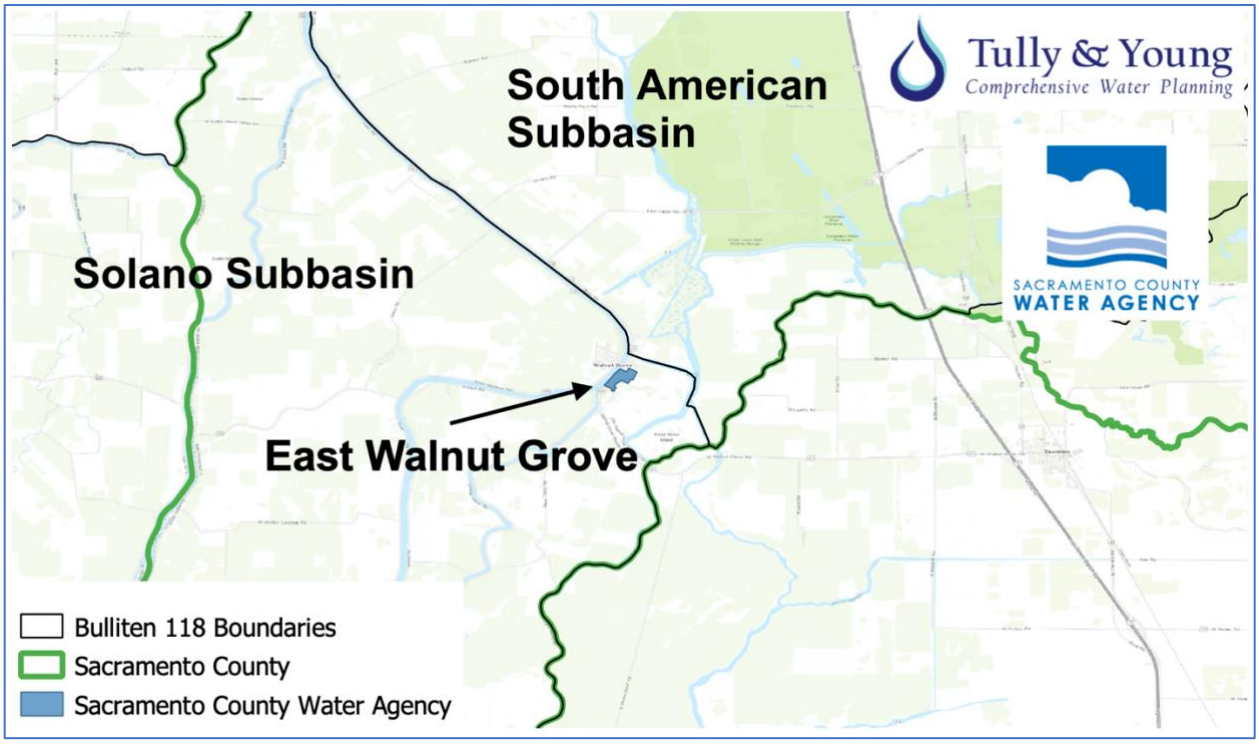
Table 3-40: Hood Projected Groundwater Production through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		90	90	90	90	90
Single Dry Year		90	90	90	90	90
Multi-Year Drought	Year 1	90	90	90	90	90
	Year 2	90	90	90	90	90
	Year 3	90	90	90	90	90
	Year 4	90	90	90	90	90
	Year 5	90	90	90	90	90

3.2.6 East Walnut Grove Groundwater

East Walnut Grove is an independent system that is currently served wholly through groundwater deliveries. There is 1 well in the Walnut Grove system with a reasonable design capacity of 0.43 MGD. East Walnut Grove is located in the Solano Subbasin (DWR Bulletin 118 Basin 5-021.66). Figure 3-16 shows the relevant portion of the Walnut Grove service area in the Solano Subbasin.

Figure 3-16: East Walnut Grove Geographic Location in Solano Subbasin



The Solano Subbasin is subject to the Solano Subbasin GSA Collaborative that is composed of five Groundwater Sustainability Agencies (GSA): City of Vacaville GSA, Northern Delta GSA, Sacramento County GSA, Solano GSA, and Solano Irrigation District GSA. All of these entities are collectively developing the Solano Groundwater Sustainability Plan (GSP). The Solano GSP is set for release in 2022. Nothing in the proposed Solano GSP will limit the water supplies available to SCWA's East Walnut Grove Service Area.

Table 3-41 depicts the last 5 years of water deliveries from the East Walnut Grove service area.

Table 3-41: East Walnut Grove Historical Groundwater Production (acre-feet per year)

Year	Walnut Grove
2016	68
2017	74
2018	64
2019	59
2020	56

The groundwater system makes the supplies available in this area 100% reliable in all year types. As such, East Walnut Grove anticipates the following groundwater production for normal, single dry, and five consecutive dry years through 2025 in Table 3-42 and production through 2045 as shown in Table 3-43.

Table 3-42: Walnut Grove Groundwater Supply for SCWA through 2025 (acre-feet per year)

Year		Walnut Grove
Normal		80
Single Dry		80
Multi-Year Drought	2021 (1st year)	80
	2022 (2nd year)	80
	2023 (3rd year)	80
	2024 (4th year)	80
	2025 (5th year)	80

Table 3-43: Walnut Grove Projected Groundwater Production through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal		80	80	80	80	80
Single Dry Year		80	80	80	80	80
Multi-Year Drought	Year 1	80	80	80	80	80
	Year 2	80	80	80	80	80
	Year 3	80	80	80	80	80
	Year 4	80	80	80	80	80
	Year 5	80	80	80	80	80

3.3 Water Quality

SCWA carefully tracks all water quality standards associated with its water assets. These water quality standards are best addressed at the individual service area levels where water extraction, treatment, and delivery are consistent with the parameters in those locations. In general, SCWA's water quality as delivered to its end users meets and exceeds federal and state standards for drinking water. As shown in the tables below, SCWA has extensive water quality testing protocols and annually provides detailed water quality statements for public review and consideration. The SCWA consumer confidence reports website is as follows: https://waterresources.saccounty.net/ccr/Pages/default.aspx. The information incorporated into the 2020 UWMP is derived from the 2019 reports since the 2020 data has not been assembled into the final reporting format.

3.3.1 Zone 40 – Laguna-Vineyard (Central and South Areas)

Zone 40 water quality monitoring is disaggregated into two discrete areas – the "Central and South Areas" and the "North Area." This section addresses water quality issues in the Central and South Areas. Table 3-44 shows the Zone 40 CSA and SSA water quality report for 2019.

As shown in the table, SCWA meets and exceeds all water quality conditions for its 2019 data collection and assessments.

Table 3-44: CSA and SSA Water Quality

Water Quality Standards	Goal Level	Max Level	Surface Water Measured	Groundwater Measured
Primary Standards				
Arsenic	0.004	10	ND	ND
Barium	2	1	ND	ND
Chromium (Total Cr)	100	50	ND	ND
Hexavalent Chromium	0.02	n/a	ND	2.3
Fluoride (natural)	1	2	ND	ND
Nitrate (as N)	10	10	ND	0.72
TTHMs (disinfection)	n/a	80	ND	ND
Control of DBP Precursors	n/a	TT	1.16	NA
Gross Alpha Activity	0	15	ND	ND
Uranium	0.43	20	ND	ND
Chlorine Residuals	4	4	ND-2.24	1.28
TTHMs (distribution system)	n/a	80	7-60	41.3
HAA5	n/a	60	4.4-39	24.8
Fluoride (distribution system)	1	2	0.55-0.78	0.66
Total Coliform Bacteria	0	1 NTU	.099 NTU	
Turbidity	n/a	95%<=0.3 NTU	100%	
Secondary Standards				
Color	n/a	15	ND	1.9
Iron	n/a	300	ND	ND
Manganese	n/a	50	ND	ND
Odor	n/a	3	1.9	1.2
Turbidity	n/a	5	ND	0.15
TDS	n/a	1000	81.5	214
E.C.	n/a	1600	125	295.6
Chloride	n/a	500	4.7	13.8
Sulfate	n/a	500	3.3	2.9
pH	n/a	MO	7.9	8
Total Hardness (as CaCO3)	n/a	MO	48	94
Total Alkalinity (as CaCO3)	n/a	MO	60	130
Bicarbonate (as HCO3)	n/a	MO	73	159
Sodium	n/a	MO	6.9	27
Calcium	n/a	MO	11	19
Magnesium	n/a	MO	5	12
Lead & Copper				
Lead	0.2	15	ND	
Copper	0.3	1.3	0.07	
Federal Unregulated Contaminates				
Manganese	n/a	0.4	ND	6.25
Germanium	n/a	0.3	ND	0.84
Bromide	n/a	n/a	5	NA
TOC	n/a	n/a	1.96	NA
HAA5	n/a	n/a	11.6	
HAA6Br	n/a	n/a	2.73	
HAA9	n/a	n/a	14.06	

3.3.2 Zone 40 – Mather-Sunrise (North Area)

This section addresses water quality issues in the North Area of Zone 40. Table 3-45 shows the Zone 40 NSA water quality report for 2019.

Table 3-45: NSA Water Quality

Water Quality Standards	Goal Level	Max Level	Surface Water Measured	Groundwater Measured
Primary Standards				
Hexavalent Chromium	0.02	n/a	ND	ND
Nitrate (as N)	10	10	ND	ND
Control of DBP Precursors	n/a	TT	1.16	NA
Chlorine Residuals	4	4	.15-2.3	1.36
Total Trihalomethanes	n/a	80	73	68.8
Haloacetic Acids	n/a	60	67	47.8
Fluoride (distribution system)	1	2	0.77	0.65
Total Coliform Bacteria	0	1 NTU	.099 NTU	
Turbidity	n/a	95%<=0.3 NTU	100%	
Secondary Standards				
Color	n/a	15	ND	0.83
Iron	n/a	300	ND	ND
Odor	n/a	3	1.9	1.8
Turbidity	n/a	5	ND	0.4
TDS	n/a	1000	81.5	127
E.C.	n/a	1600	125	164
Chloride	n/a	500	4.7	5.3
Sulfate	n/a	500	3.3	0.5
pH	n/a	MO	7.9	8
Total Hardness (as CaCO3)	n/a	MO	48	52.3
Total Alkalinity (as CaCO3)	n/a	MO	60	66.8
Bicarbonate (as HCO3)	n/a	MO	73	82
Sodium	n/a	MO	6.9	14
Calcium	n/a	MO	11	11
Magnesium	n/a	MO	5	5.8
Lead & Copper				
Lead	0.2	15	ND	
Copper	0.3	1.3	0.11	
Federal Unregulated Contaminates				
Manganese	n/a	0.4	ND	6.25
TOC	n/a	n/a	1.96	NA
HAA5	n/a	n/a	11.6	
HAA6Br	n/a	n/a	2.73	
HAA9	n/a	n/a	14.06	

As shown in the table, SCWA meets and exceeds all water quality conditions for its 2019 data collection and assessments.

3.3.3 Arden Park Vista, Northgate 880, and Southwest Tract

This section addresses water quality issues in the Arden Park Vista, Northgate, and Southwest Tract areas. Table 3-46 shows the water quality report for these areas.

As shown in the table, SCWA meets and exceeds all water quality conditions for its 2019 data collection and assessments.

Table 3-46: Arden Park, Northgate 880, and Southwest Tract Water Quality

Water Quality Standards	Goal Level	Max Level	Arden Park	Northgate	SW Tract
Primary Standards					
Arsenic	0.004	10	ND	4.1	3.6
Barium	2	1	ND	0.14	0.1
Chromium (Total Cr)	100	50	ND	ND	ND
Fluoride (natural)	1	2	ND	0.13	ND
Nitrate (as N)	10	10	1.8	1	5.6
Tetrachloroethylene (PCE)	0.06	5	ND	ND	ND
Trichloroethylene (TCE)	1.7	5	ND	ND	NA
Gross Alpha Activity	0	15	ND	ND	3.4
Uranium	0.43	20	ND	ND	4.2
Chlorine Residuals	4	4	0.91	1.17	0.77
TTHMs (distribution system)	n/a	80	0.2	0.5	0.5
HAA5	n/a	60	ND	ND	ND
Fluoride (distribution system)	1	2	0.71	NA	NA
Total Coliform Bacteria	0	1 NTU	0	0	0
Secondary Standards					
Iron	n/a	300	ND	ND	ND
Manganese	n/a	50	ND	ND	ND
Turbidity	n/a	5	ND	0.19	0.1
TDS	n/a	1000	226	297	321
E.C.	n/a	1600	292	516	533
Chloride	n/a	500	12.6	28	32
Sulfate	n/a	500	13.1	16.3	23
pH	n/a	MO	7.8	8	7.8
Total Hardness (as CaCO3)	n/a	MO	138.8	156	226
Total Alkalinity (as CaCO3)	n/a	MO	129.6	146	NR
Bicarbonate (as HCO3)	n/a	MO	156.3	175	230
Sodium	n/a	MO	11.7	28	19
Calcium	n/a	MO	29	31	51
Magnesium	n/a	MO	16.3	18.8	24
Lead & Copper					
Lead	0.2	15	ND	ND	ND
Copper	0.3	1.3	0.19	0.3	0.081
Federal Unregulated Contaminates					
Vanadium	n/a	50	NR	NR	15
Molybdenum	n/a	n/a	NR	NR	0.2
Strontium	n/a	n/a	NR	NR	493
Chromium (Total Cr)	n/a	50	ND	ND	ND
Hexavalent Cr	n/a	n/a	2.1	8.8	ND
Chlorate	n/a	800	NR	NR	236
Chloroform	n/a	n/a	ND	ND	ND
Dichlorodifluoromethane	n/a	1	NR	NR	ND
Per & Polyfluoralkyl Substances					
Perfluorooctanoic Acid	5.1	10	ND	NR	NA
Perfluorooctanesulfonic Acid	6.5	40	ND	NR	NA
Perfluorohexane sulfonic acid	n/a	n/a	ND	NR	NA

3.3.4 Hood Water Maintenance District and East Walnut Grove

This section addresses water quality issues in the Hood Water Maintenance District (Hood) and East Walnut Grove areas. Table 3-47 shows the water quality report for Hood and East Walnut Grove service areas.

Table 3-47: Hood and East Walnut Grove Water Quality

Water Quality Standards	Goal Level	Max Level	Hood	East Walnut Grove
Primary Standards				
Arsenic	0.004	10	ND	6.2
Fluoride (natural)	1	2	ND	0.14
Chlorine Residuals	4	4	1.17	0.94
TTHMs (distribution system)	n/a	80	72.5	35.5
HAA5	n/a	60	13.3	9.1
Fluoride (distribution system)	1	2	0.86	0.74
Total Coliform Bacteria	0	1 NTU	0	0
Secondary Standards				
Color	n/a	15	3	3
Manganese	n/a	50	218	39
Odor	n/a	3	2.25	1.8
Turbidity	n/a	5	0.11	ND
Zinc	n/a	5	ND	ND
TDS	n/a	1000	605	440
E.C.	n/a	1600	1050	755
Chloride	n/a	500	215	125
Sulfate	n/a	500	8.05	8.4
pH	n/a	MO	265	47
Total Hardness (as CaCO3)	n/a	MO	205	200
Total Alkalinity (as CaCO3)	n/a	MO	245	240
Bicarbonate (as HCO3)	n/a	MO	ND	3.8
Sodium	n/a	MO	105	150
Calcium	n/a	MO	73	11
Magnesium	n/a	MO	21	4.7
Lead & Copper				
Lead	0.2	15	ND	8.7
Copper	0.3	1.3	0.093	0.73

As shown in the table, SCWA meets and exceeds all water quality conditions for its 2019 data collection and assessments.

3.4 Climate Change

While the California Water Code does not prescribe specific climate change planning and management measures for water suppliers, it does emphasize that climate change is appropriate to consider when assessing drought risk assessment, water conservation and use efficiency, and demand management and supply – both in an historical and future-projection context. SCWA's 2020 UWMP has incorporated climate change considerations into its water supply analysis, water demand analysis, water supply reliability assessment and water shortage contingency plan. The characterizations are imbedded into the characterizations of supply availability in normal, single dry, and five-consecutive dry year periods as well as the changes in demands that may result from climatological changes in those same periods. Moreover, the climate change characterizations are incorporated into future projected conditions through the 2045 planning horizon.

The Regional Water Authority (RWA) partnered with other local water purveyors and the U.S. Department of the Interior, Bureau of Reclamation on a climate change study called the American River Basin Study (ARBS) with the purpose of developing climate change adaptation strategies specific to the Basin.[46] Climate change is generally forecast to bring higher temperatures, more variability in precipitation and more frequent and prolonged droughts. Although there is a lack of a clear trend in projected annual precipitation, by the end of the 21st century the average fall and spring precipitation is expected to decrease, with winter and summer precipitation increasing. Increasing variability is also projected in winter and fall precipitation. These climate change considerations have been incorporated into the water supply forecasts for SCWA contained in this Chapter.

3.5 Water Transfers and Exchanges

SCWA is an active participant in regional water transfers and exchanges. SCWA has been active in developing its water supply portfolio through strategic acquisitions – like its CVP Contracts – as well as converting agricultural water rights for municipal and industrial uses – like Licenses 1060 and 4060. SCWA has also engaged in extensive water conservation actions and protected its water assets under Water Code section 1011. Moreover, SCWA has a sophisticated conjunctive use program to optimize surface and groundwater assets in order to protect those assets for the future under Water Code section 1011.5. In these ways, SCWA has anticipated future water transfers and exchanges with its available water assets.

In 2020, SCWA participated in its first groundwater substitution transfer as part of the American River Watershed Region's water transfer program. This transfer program engaged the City of Sacramento, SCWA, Sacramento Suburban Water District, Carmichael Water District, Fair Oaks Water District, and Golden State Water Company to pool water assets for a through-Delta transfer to water-short entities in central and southern California. SCWA participated by helping the region deliver surface water by providing 1,500 acre-feet of groundwater supplies to the City of Sacramento. Importantly, the region spent significant time and resources to ensure that the groundwater substitution transfer would not cause injury to any other groundwater purveyor in the region. The Regional Water Authority (RWA), the

[46] Full findings and approved ARBS study can be found at www.pcwa.net/planning/arbs

Sacramento Groundwater Authority (SGA), and the Sacramento Central Groundwater Authority (SCGA) were all notified of the transfer. The regional agencies engaged in extensive well-monitoring efforts, discounted transferable supplies to ensure groundwater recovery, and are conducting a follow-up assessment of basin recovery. In short, the regional groundwater substitution transfer was predicated on comprehensive safeguards for the region's groundwater supplies and protecting surface water assets for current and future beneficial uses.

SCWA anticipates participating in other water transfers and exchanges in the future – both to diversify the utility of the regional water asset portfolio as well as generate revenue to support its long-term water management objectives. These coordinated water transfer and exchange activities may involve delivering portions of SCWA surface supplies to other areas within the SCWA service areas, exchanging water assets with other retail providers, and developing more robust conjunctive use actions to support groundwater substitution transfers. These future water transfers will conform with all guidelines recommended in the relevant Groundwater Sustainability Plans. Moreover, SCWA will continue to fund and work with RWA in developing transfers and exchanges in the context of the proposed regional groundwater bank. Nevertheless, in each proposed water transfer and exchange, SCWA will take necessary steps to protect regional water assets and the environment.

3.6 Planned Water Supply Projects

At this time, SCWA is not planning to develop any additional water supply sources in its service area. SCWA's planned potable projects include improvements to its treatment and delivery systems in order to create system redundancy and protect the supply reliability for its customers. Specifically, the Vineyard Water Treatment Plant Phase 2 will provide an additional 50 MGD of capacity to the SCWA system to deliver water throughout the Zone 40 area. Phase 2 was anticipated at the time the project was conceived and is pending development based upon SCWA water demand and regional need. In addition, SCWA has a planned groundwater well program that will augment its groundwater supplies in accordance with its reasonable growth projections.

Desalinated Water

Desalination involves removing salts and impurities from seawater or non-potable surface water or groundwater using treatment technologies such as reverse osmosis membranes or distillation methods. Desalination facilities are costly to construct and operate relative to SCWA's current supply sources. There are also significant environmental and permitting issues associated with the water intake and with disposal of brine from the treatment process. As such, SCWA does not have any plans for developing desalinated water supplies.

3.7 Master Supply Spreadsheets

The purpose of this section is to combine all the water supplies available to SCWA's Zone 40 into one location and show the water supplies availability in the future. Table 3-48 shows the combined monthly availability of all sources of SCWA's Zone 40 supplies in a normal, single dry, and five consecutive dry

years through 2025. The sources of supplies for the other SCWA service areas are shown elsewhere in this chapter.

Table 3-48: Monthly Availability of Water Supply Sources in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year		14,169	14,181	14,577	14,673	15,674	8,748	9,422	9,659	9,495	16,489	15,946	14,706	157,740
Single Dry Year		9,678	9,689	10,086	3,934	4,934	5,863	6,537	6,775	6,610	5,749	5,206	10,214	85,274
Multi-Year Drought	2021	9,678	9,689	10,086	10,182	6,562	7,491	8,166	8,403	8,239	7,377	11,455	10,214	107,542
	2022	9,678	9,689	10,086	10,182	5,664	6,593	7,267	7,505	7,340	6,479	5,936	10,214	96,633
	2023	9,678	9,689	10,086	3,934	4,934	5,863	6,537	6,775	6,610	5,749	5,206	10,214	85,274
	2024	9,678	9,689	10,086	10,182	5,163	6,092	6,767	7,004	6,840	5,979	5,436	10,214	93,129
	2025	9,678	9,689	10,086	10,182	6,053	6,982	7,657	7,894	7,730	6,868	11,455	10,214	104,488

Table 3-49(a) through (f) shows the individual monthly volume of each source of SCWA Zone 40 supplies that are available through 2025.

Table 3-49(a): Monthly Availability of Permit 21209 in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year		7,855	7,855	7,855	7,855	7,855					7,855	7,855	7,855	62,840
Single Dry Year		7,855	7,855	7,855									7,855	31,420
Multi-Year Drought	2021	7,855	7,855	7,855	7,855							7,855	7,855	47,130
	2022	7,855	7,855	7,855	7,855								7,855	39,275
	2023	7,855	7,855	7,855									7,855	31,420
	2024	7,855	7,855	7,855	7,855								7,855	39,275
	2025	7,855	7,855	7,855	7,855							7,855	7,855	47,130

Table 3-49(b): Monthly Availability of SMUD CVP Contract in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year		2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	30,000
Single Dry Year					253	253	253	253	253	253	253	253		2,023
Multi-Year Drought	2021					1,011	1,011	1,011	1,011	1,011	1,011			6,068
	2022					578	578	578	578	578	578	578		4,045
	2023				253	253	253	253	253	253	253	253		2,023
	2024					289	289	289	289	289	289	289		2,023
	2025					674	674	674	674	674	674			4,045

Table 3-49(c): Monthly Availability of Fazio CVP Contract in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year		1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	15,000
Single Dry Year					185	185	185	185	185	185	185	185		1,481
Multi-Year Drought	2021					741	741	741	741	741	741			4,444
	2022					423	423	423	423	423	423	423		2,963
	2023				185	185	185	185	185	185	185	185		1,481
	2024					212	212	212	212	212	212	212		1,481
	2025					494	494	494	494	494	494			2,963

Table 3-49(d): Monthly Availability of Aerojet GET Supply in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year		742	742	742	742	742	742	742	742	742	742	742	742	8,900
Single Dry Year					1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113		8,900
Multi-Year Drought	2021					1,483	1,483	1,483	1,483	1,483	1,483			8,900
	2022					1,271	1,271	1,271	1,271	1,271	1,271	1,271		8,900
	2023				1,113	1,113	1,113	1,113	1,113	1,113	1,113	1,113		8,900
	2024					1,271	1,271	1,271	1,271	1,271	1,271	1,271		8,900
	2025					1,483	1,483	1,483	1,483	1,483	1,483			8,900

Table 3-49(e): Monthly Availability of NDWA Supply in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year														0
Single Dry Year					56	56	56	56	56	56	56	56		450
Multi-Year Drought	2021													0
	2022					64	64	64	64	64	64	64		450
	2023				56	56	56	56	56	56	56	56		450
	2024					64	64	64	64	64	64	64		450
	2025					75	75	75	75	75	75			450

Table 3-49(f): Monthly Availability of Groundwater in Zone 40 through 2025 (acre-feet per year)

Total Supply		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Normal Year		1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000
Single Dry Year		1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000
Multi-Year Drought	2021	1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000
	2022	1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000
	2023	1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000
	2024	1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000
	2025	1,823	1,834	2,231	2,327	3,327	4,256	4,931	5,168	5,003	4,142	3,600	2,359	41,000

Table 3-50 shows the existing and planned water supplies in Zone 40 through 2045.

Table 3-50: Zone 40 Supply Availability through 2045 (acre-feet per year)

Total Supply		2025	2030	2035	2040	2045
Normal Year		159,096	164,096	174,096	174,096	174,096
Single Dry Year		87,199	92,676	103,926	105,176	107,676
Multi-Year Drought	Year 1	111,954	118,386	132,136	135,886	143,386
	Year 2	99,576	105,531	118,031	120,531	125,531
	Year 3	87,199	92,676	103,926	105,176	107,676
	Year 4	95,054	100,531	111,781	113,031	115,531
	Year 5	107,431	113,386	125,886	128,386	133,386

Chapter 4
Water Use

Understanding water use characteristics is essential to enable SCWA to reliably and cost-effectively manage its water supplies to continue to meet customer needs. This section characterizes SCWA's retail and wholesale customer demands – current and forecast over the next few decades. Characteristics such as how demands vary among different land use classifications, throughout the year, and under differing hydrologic conditions, all help with that understanding.

A thorough characterization and analysis provides a realistic prediction of future water use based upon SCWA's past and current water use, in addition to considerations of anticipated growth, new regulations, changing climate conditions and trends in customer water use behaviors. A thorough analysis examines each water use sector for a variety of factors, then aggregates the information into a comprehensive projection of customer water use that becomes the foundation for integration with SCWA's water supplies (see Chapter 3) to assess long-term water system reliability (see Chapter 5).

Several legislative changes were enacted since SCWA completed its 2015 UWMP. The new requirements must be addressed in the 2020 UWMP in addition to completing requirements from the prior statutory language. While there have been many changes, the critically important items that must be addressed are highlighted below:

- Provide quantified distribution system losses for each of the 5 preceding years and whether the State standard was met. [CWC 10631(d)(3)(A) and (C)]
- Include a drought risk assessment (DRA) for a drought period that lasts five consecutive water years, starting from the year following the assessment, which would be 2021 for this round of UWMPs. The DRA requires a comparison of water supplies with total projected water use. Therefore, the SCWA must produce a projected water use for the years 2021 through 2025 as part of the water use projections up to 2045. [CWC 10635(b)]
- Conduct an annual water supply and demand assessment on or before July 1 of each year (following adoption of its 2020 UWMP) where the annual assessment includes current year unconstrained demand. The SCWA will consider "unconstrained demand" as the expected water use in the upcoming year, based on recent water use, before any projected response actions it may trigger under its Water Shortage Contingency Plan (see Chapter 6). [CWC 10632.1]

This section is organized as follows:

- Current Customer Water Use – This subsection presents data reflecting the SCWA's residential and non-residential customers for 2016 through 2019 as well as the actual 2020 water use and presents the SCWA's distribution system losses for this same period.
- Compliance with 2020 Urban Water Use Target – This subsection documents the derivation of the 2020 GPCD value and comparison to the 2020 GPCD target.
- Demand Management Measures – This subsection provides a narrative description of each water demand management measure implemented by the SCWA over the past five years and describes the planned measures for the foreseeable future.
- Forecasting Customer Use – This subsection presents the derivation and results of future water use forecasts for potable water within the SCWA's service area, including land-use classifications, unit demand factors, and estimation of distribution system losses. This subsection also estimates the variations in customer water use the SCWA should expect during years with low rainfall as well as discusses longer-term climate change considerations.
- Forecasting Water Use for DRA and Annual Assessment – This subsection focuses on the subset of the customer water use forecast that is necessary for completing the 5-year Drought Risk Assessment (DRA) and defining the "unconstrained demand" for purposes of the annual water supply and demand assessment.
- Projecting Disadvantaged Community Water Use – This subsection presents the estimated water use necessary to meet lower income households, pursuant to California Water Code 10631.1.

4.1 Current Customer Water Use

As described in Chapter 2, SCWA has been serving potable water to over 59,000 customer connections for the past several years as well as wholesaling water to Elk Grove Water District (EGWD). Under normal operations, water supplied by SCWA to its customers is drawn from several sources, depending on the service area, and either directly delivered (when groundwater) or treated at the Vineyard water treatment plant (when surface water). The current customers, their recent and expected water use trends, and SCWA's on-going demand management efforts targeting these customers provide a foundational basis for this UWMP's water use forecast to 2045.

Furthermore, the actual water use in 2020 is the basis for determining SCWA's compliance with its 2020 gallons per capita per day (GPCD) target established in its 2015 UWMP. This subsection presents this relevant information.

4.1.1 Retail Customer Water Use: 2016 to 2019

Recent retail customer water use can help SCWA understand water use trends, effects of temporary use restrictions imposed during the most recent prolonged drought and recovery from such temporary restrictions, effects of long-term demand management measures, and other pertinent water use factors relevant to its forecast of future water use. Water Code Section 10631(d)(1) also requires SCWA to quantify past customer water use.[47]

[47] California Water Code Section 10631(d)(1)

As described in Chapter 2, the SCWA provides retail potable water service to several unique service areas, as well as serving non-potable supplies to the South Service Area and wholesale potable water to EGWD. Tables 4-1(a) through 4-1(g) presents the SCWA's past retail customer water use by customer classification for 2016 through 2019 for each of its service areas. The SCWA records water use within six primary categories, though all six are not present in all service areas:

- Single-family residential
- Multi-family residential
- Commercial
- Government and Institutional
- Industrial
- Landscape Irrigation

The SCWA also records delivered water for non-potable (recycled) use as well as deliveries to EGWD and to the City of Sacramento. These demands are discussed in a subsequent section. Deliveries to the City of Sacramento are not reflected in this UWMP as they are intermittent and part of an interagency water supply sharing agreement that periodically has water moving between the City and the SCWA to facilitate a variety of activities, including facilitating recent groundwater substitution transfers.[48]

This historic data also provides insight into the relative ratio of differing retail customer classifications to each other as well as seasonal variations. For instance, the Zone 40 customer demands in most classifications have been slowly increasing from 2016 to 2019. This is likely a result of recovery in use following the recent 2013 through 2015 drought that forced the SCWA to mandate conservation measures imposed by the Governor's office as well as continued growth. And the monthly data illustrates the higher demand during summer months in most classifications, likely driven by landscape irrigation needs.

The annual historic data for the other service areas also offer useful information on trending and use. For instance, use in Arden Park Vista likely has peaked and is potentially starting to decrease as the SCWA continues its meter installation program. Metro Air Park, in contrast, is seeing increased demand, albeit much smaller total quantities, consistent with the growth in the small service area.

The Zone 40 single-family residential classification illustrates two important characteristics of the SCWA's water service: (1) it represents over 70% of the Zone 40 annual demand, and (2) it has summer demands that are two times the monthly volume needed in winter months. These seasonal variations and dominance as the highest retail water using classification, both in Zone 40 and when all service areas are considered, provide the SCWA with additional insight necessary for assessing the seasonal reliability of its water supplies and developing and quantifying successful water shortage contingency response actions, especially for the Zone 40 service area.

[48] For instance, in 2020, the SCWA pumped about 1,700 acre-feet of groundwater and served it into the City through the Franklin Intertie to facilitate the City's temporary transfer of its surface water rights to other water suppliers in the need of water. In subsequent periods, the City will push surface water to SCWA through this same intertie to offset the SCWA pumping.

Table 4-1(a): Zone 40 Retail Customer Use 2016 to 2019 (values in acre-feet)

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single-Family Residential	2016	812	769	762	983	1,304	1,875	2,083	2,239	2,102	1,662	1,087	877	16,556
	2017	877	823	724	949	1,371	2,156	2,294	2,486	2,303	1,930	1,494	992	18,399
	2018	988	961	880	966	1,487	1,998	2,250	2,317	2,271	1,871	1,710	1,070	18,770
	2019	950	843	773	929	1,537	1,874	2,295	2,440	2,327	2,017	1,732	1,242	18,961
Multi-Family Residential	2016	50	50	48	55	66	74	75	88	86	71	63	53	779
	2017	57	56	47	57	63	82	81	93	89	78	72	53	828
	2018	54	57	50	57	67	85	83	86	92	79	76	64	849
	2019	59	57	52	55	63	82	87	97	98	85	79	68	882
Commercial	2016	78	79	83	96	112	126	139	153	161	158	113	83	1,381
	2017	88	88	73	93	106	149	151	172	164	145	137	92	1,458
	2018	94	97	88	97	113	151	156	152	161	138	137	111	1,495
	2019	92	84	80	87	112	147	158	177	180	160	150	134	1,561
Institutional	2016	15	18	20	32	49	68	82	87	83	60	27	19	559
	2017	17	21	18	23	38	83	88	98	87	64	50	23	610
	2018	23	26	24	25	44	69	78	95	89	68	55	37	632
	2019	19	20	21	26	47	68	81	94	88	74	62	36	638
Industrial	2016	33	31	23	37	44	53	59	63	53	39	27	23	486
	2017	25	22	16	29	31	51	55	67	57	41	35	21	450
	2018	21	24	18	12	27	46	51	53	54	39	36	29	411
	2019	15	19	14	18	32	44	54	58	59	42	41	35	433
Irrigation	2016	21	21	23	96	257	422	556	630	557	365	93	30	3,072
	2017	20	18	19	95	251	541	604	670	600	464	245	44	3,571
	2018	43	44	42	70	294	532	652	656	610	452	357	100	3,852
	2019	30	26	21	42	335	457	633	714	640	496	378	157	3,929
Total Metered Deliveries	2016	1,008	967	959	1,300	1,833	2,618	2,994	3,259	3,044	2,355	1,410	1,086	22,833
	2017	1,084	1,028	897	1,246	1,860	3,062	3,273	3,586	3,300	2,722	2,033	1,225	25,316
	2018	1,223	1,209	1,101	1,227	2,033	2,882	3,269	3,358	3,277	2,648	2,369	1,411	26,009
	2019	1,165	1,050	961	1,158	2,127	2,672	3,308	3,580	3,391	2,875	2,441	1,674	26,403

Table 4-1(b): Arden Park Vista Customer Use 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Single Family Residential	9	15	17	153
Multi-Family Residential	n/a	n/a	n/a	11
Commercial/Institutional	72	83	89	115
Landscape Irrigation	36	63	37	45
Estimated Unmetered Use [mostly residential customers]	2,607	2,896	2,875	2,652
Total	2,724	3,057	3,018	2,976

Table 4-1(c): Northgate 880 Customer Use 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Commercial/Institutional	407	550	645	649
Industrial	237	301	326	272
Landscape Irrigation	80	103	132	110
Total	724	954	1,103	1,031

Table 4-1(d): Metro Air Park Customer Use 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Commercial/Institutional	3	15	14	15
Landscape Irrigation	4	29	28	29
Total	7	44	42	44

Table 4-1(e): Hood Water Maintenance District Customer Use 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Single Family Residential	18	17	20	19
Commercial/Institutional	5	7	4	4
Total	23	24	24	23

Table 4-1(f): East Walnut Grove Customer Use 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Single Family Residential	35	33	32	29
Multi-Family Residential	4	5	6	6
Commercial/Institutional	8	10	13	9
Landscape Irrigation	1	1	1	2
Total	48	49	52	46

Table 4-1(g): Southwest Tract Customer Use 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Single Family Residential	6	6	6	6
Multi-Family Residential	18	15	14	14
Commercial/Institutional	1	1	1	1
Total	25	22	21	21

4.1.2 Retail Customer Use in 2020

Retail customers served by the SCWA are metered at their connection to the distribution system, with the exception of many of the single-family residential customers in Arden Park Vista. These metered values are collected periodically for each customer account and summarized into the SCWA's annual reporting to the SWRCB Division of Drinking Water and to DWR.[49]

The 2020 actual retail customer use presented in Table 4-2(a) and Table 4-2(b) represents the summarized delivery to the retail customers in each SCWA service area. The tables do not, however, include the distribution system losses inherent in a pressurized water delivery system that occur during the efforts to treat, store and route water throughout an extensive distribution system to each customer's connection. The values also do not include wholesale deliveries to the Elk Grove Water District or within the non-potable system serving demands in the SSA.

Table 4-2(a): Zone 40 Retail Customer Water Use 2020 Actual (values in acre-feet)

Use Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single-family Residential	1,007	1,029	1,264	1,359	1,952	2,420	2,767	2,852	2,812	2,313	2,010	1,334	23,120
Multi-family Residential	63	59	65	72	79	96	106	104	103	92	92	72	1,002
Commercial	103	102	108	89	89	122	139	152	159	151	143	106	1,462
Institutional	19	23	32	28	37	63	81	96	84	62	55	27	607
Industrial	23	34	29	26	33	49	58	62	62	57	50	33	515
Landscape Irrigation	33	35	166	123	347	574	704	773	679	476	358	127	4,395
Subtotal	1,247	1,283	1,664	1,697	2,537	3,324	3,855	4,040	3,897	3,151	2,707	1,700	31,102

Comparing to the values in Table 4-1(a) the total 2020 Zone 40 annual retail customer use is nearly 5,000 acre-feet greater than 2019. Comparing the specific customer classifications, the 2020 data displays two unique circumstances: (1) single-family residential use is 27% higher than the average over the last 4 years – or about 4,000 acre-feet higher, and (2) the industrial and landscape use is also about 20% higher. The other classifications are within the variations for each over the past several years.

The significantly higher single-family residential use in 2020 when compared to 2017 through 2019, which had been reasonably stable after recovering from drought conditions, results in the majority of the higher 2020 Zone 40 value. While a portion of this increase is from new housing starts, most is likely due to the pandemic that dominated 2020 and the multiple advisories and even government-imposed restrictions that resulted in many people working from, learning from, or simply staying at home.

The SCWA's other service areas saw a mix of similar use to 2018 and 2019 conditions to vastly increased use. The most notable increase was within Metro Air Park, where significant construction and increased commercial activity are on-going. But this increase is nominal when viewed within the entire SCWA customer use in 2020. Arden Park Vista, the second highest service area to Zone 40, stayed consistent with 2018 and 2019 values. As a primary residential suburb, this area would be assumed to have seen

[49] The annual SWRCB report is referred to as the 'electronic Annual Report' or eAR, and the annual DWR report is known as the Public Water System Statistics report.

an increase in single-family use, but the area is still undergoing meter installation so comparison within a customer classification is not viable as the data does not exist in the appropriate form. Table 4-2(b) provides the annual 2020 recorded values for each of these other service areas.[50]

Table 4-2(b): Other Service Area Customer Water Use 2020 Actual (values in acre-feet)

Classification	Arden Park Vista	Northgate 880	Metro Air Park	Hood	East Walnut Grove	Southwest Tract
Single-family Residential	2,446	--	--	22	36	6
Multi-family Residential	213	--	--	--	5	15
Commercial	457	660	52	5	8	--
Institutional	33	318	--	--	1	1
Industrial	--	35	--	--	--	--
Landscape Irrigation	41	139	55	--	1	--
Total	3,191	1,151	107	27	51	23

4.1.3 Zone 40 Wholesale Customer Use

In addition to the significant retail customer water services in Zone 40, SCWA also provides wholesale water supply to a portion of the service area of Elk Grove Water District (EGWD), which operates a retail water system serving customers within a portion of the City of Elk Grove. Table 4-3 details the history of deliveries to EGWD as reported by SCWA. While this wholesale service area has access to both the SCWA's groundwater and surface water resources, as a matter of practice, water served is almost entirely derived from the SCWA's production wells located within the EGWD's service area.

Table 4-3: Zone 40 Wholesale Deliveries 2016 to 2020 (values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2016	162	81	84	105	157	232	295	289	267	232	114	89	2,107
2017	83	87	88	105	149	267	305	322	304	258	190	105	2,262
2018	98	97	104	101	162	263	310	321	299	238	203	132	2,327
2019	92	93	89	96	190	223	296	313	306	254	214	139	2,304
2020	98	99	137	122	206	269	329	372	315	267	218	140	2,572

Similar to circumstances seen with the residential-heavy retail customer service areas, water deliveries in 2020 to this part of EGWD were about 10% higher than the same service in 2018 and 2019, which had been reasonably stable after recovering from drought conditions. While some of this increase may be attributable to growth in the EGWD service area, likely the increase relates to increased residential use

[50] Most of the Arden Park Vista water use by customer classification is estimated since most residential customers are not metered. The estimate was made by comparing the small amount of metered use to the total water quantity supplied to the service area, accounting for distribution losses, then distributing the remainder among the non-metered service connections.

due to the pandemic that dominated 2020 and the multiple advisories and even government-imposed restrictions that resulted in many people working from, learning from, or simply staying at home.

4.1.4 Zone 40 Non-Potable Water Needs[51]

In 2017, SCWA completed the Recycled Water Feasibility Study. This study assessed SCWA's opportunities to obtain recycled water supplies from Sacramento Regional County Sanitation District (SRCSD) to meet customer demands in SCWA's service area. Beginning in 2003, SCWA obtained tertiary treated wastewater from SRCSD to meet the Phase 1 recycled water demands in the Laguna Vineyard system. The Phase 1 program has 54 user sites, including parks, schoolyards, commercial landscaping, and roadway medians. All operations are conducted in accordance with SRCSD's Master Reclamation Permit Waste Discharge Requirement No. 97-146. Phase 2 has conveyance facilities in the East Franklin Specific Plan planning subarea. Currently, the recycled water supplies have been used only in the Phase 1 area. Table 4-4 shows the historical water deliveries from 2016 through 2020.

Table 4-4: Zone 40 Non-Potable Deliveries 2016 to 2020 (values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2016	7	6	8	50	85	129	144	136	94	44	9	7	720
2017	8	8	15	33	107	133	157	145	119	90	14	15	845
2018	14	14	13	36	106	143	156	143	110	82	31	14	861
2019	9	4	4	44	88	142	150	163	132	97	62	6	901
2020	2	18	24	53	101	168	180	167	113	84	38	14	962

4.1.5 Existing Distribution System Losses

Distribution system water losses (also known as "real losses") are the physical water losses from the SCWA's water distribution system up to the point of delivery to the customer's system (e.g. up to the residential water meter or wholesale delivery point).

Since 2016, the SCWA has been required to quantify its distribution system losses using the American Water Works Association Method (Title 23 California Code of Regulations Section 638.1 et seq.). An electronic copy of an audit in Excel format is to be submitted to the DWR by October 1 of each year for the prior year's estimated system losses, using DWR's online submittal tool pursuant to Code of Regulations Section 638.5. As represented in Table 4-5, the SCWA has estimated its losses across its systems in different ways over time. Initial reporting were for the entire Zone 41 service, then Zone 40 was separated from "non-Zone 40" areas, with more service area specific worksheets being prepared as of 2019. Copies of the SCWA's submittals for the last 5 years are available through DWR,[52] with the pertinent results shown in Table 4-5. The 2020 estimates for each service area have not been officially submitted to DWR as of the drafting of this UWMP. But Zone 40, the largest service area, is estimated to be approximately 5,300 acre-feet over the year, or about 14.6% of the water entering that

[51] Recycled Water Feasibility Report, July 2017. Information from this report was used to prepare the non-potable water needs description in this section.

[52] https://wuedata.water.ca.gov/awwa_plans

distribution system. Deliveries into the EGWD service area are assumed to be only 3%, since the accounting reflects minimal distribution systems from the SCWA owned wells to the EGWD owned distribution system.

Table 4-5: Distribution System Loss: 2016 through 2020[53]

Service Area	2016	2017	2018	2019	2020	Average
Zone 41 (all)	14.1%	[Reported separately for Zone 40 and Non-Zone 40]				14.1%
Zone 40		12.3%	10.0%	19.3%	14.6%	14.1%
Non-Zone 40		16.0%	12.8%	10.5%	14.1%	14.4%
Wholesale Delivery to Elk Grove Water District						3%

As can be anticipated given the dynamic functions of a pressurized potable water distribution system, the estimated annual distribution system loss as a percentage of water entering the system will vary year-to-year and month to month. On average, however, the distribution system loss represents about 14% of the water entering the distribution system.

4.2 Compliance with 2020 Urban Water Use Target

Pursuant to California Water Code Section 10608.24(b)[54], the SCWA must demonstrate its 2020 water use met the GPCD target adopted in its 2015 UWMP. As set forth in the 2015 UWMP, the SCWA's 2020 GPCD target was established as 236 GPCD, derived as the "gross water use" divided by the population during a defined baseline period, and reduced pursuant to one of four methods defined under California Water Code Section 10608.20(b). The 2020 actual GPCD must use the same methodology to derive "gross water use" for 2020, then divide by the estimated 2020 population presented in Chapter 2.

As presented in the SCWA's 2015 UWMP, gross water was determined to be the total water supplied, minus water delivered to EGWD. For 2020, one added adjustment is made to account for additional water pumped and supplied to the City of Sacramento as part of the 2020 regional groundwater substitution transfer. This quantity, in addition to the quantity delivered to EGWD are both subtracted from the total as they are not used to meet the SCWA's serviceable population. The calculation, therefore, begins with the total "Potable Water" for 2020 as recorded by the SCWA, which was 50,868 acre-feet that entered the SCWA's distribution system. From this is subtracted 2,572 acre-feet wholesaled to EGWD, and 1,741 acre-feet sent to the City of Sacramento to aid with the transfer. The resulting "gross water use" for 2020 is 46,555 acre-feet. This value represents both the customer deliveries shown in Table 4-2(a) and Table 4-2(b) and the distribution system losses recorded in Table 4-5. As shown in Table 2-2, the SCWA's population in its service areas in 2020 was estimated to be 181,400 (not including the estimated population in the EGWD service area). This results in a calculated 2020 compliance value of 229 GPCD, which is less than the SCWA's established target. Thus, the SCWA is in compliance with CWC Section 10608.24(b). Table 4-6 provides a summary of this calculation.

[53] For 2016, SCWA prepared and submitted one table for all service areas. Beginning in 2017, analysis was submitted separately for Zone 40 from other service areas.

[54] 10608.24. (b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

Table 4-6: Demonstration of Compliance with 2020 GPCD Target

2020 Volume into Distribution System =	50,868 acre-feet
Water Delivered to Others =	4,313 acre-feet
2020 Gross Water Use =	46,555 acre-feet
2020 Population =	181,400 people
2020 Actual GPCD =	229
2020 Target GPCD =	236
Compliance Achieved?	Yes

4.3 Demand Management Measures

Pursuant to California Water Code Section 10631(e), SCWA needs to provide a narrative discussion of the water demand management measures it has implemented, is currently implementing, and plans to implement. The historic and on-going measures can help SCWA understand the effectiveness of managing existing customer uses so as to help guide refinements, emphasis, or augmentation that will help position the Agency to best meet its to-be-established water use objective.[55] It should be noted that since SCWA is a retail and wholesale supplier it implements demand management measures with both its retail and wholesale customers.

The Agency's demand management measures are highlighted in this subsection.

4.3.1 Foundational Demand Management Measures

This section describes the foundational demand management measures (DMMs) that underpin the SCWA operations and customer deliveries. These particular DMMs represent adopted ordinances, policies, and long-standing budgeted conservation programs.

Water Waste Prevention Ordinances

SCWA's water code prohibits water waste by ordinance in SCWA Code Title 3 Section 3.40.120. Water use in a negligent or wasteful manner or in violation of the Water Shortage Contingency Plan of the Sacramento County Code, or state law or regulations is prohibited. Water waste can be reported by making a service request through the SCWA website or making a service call. Additionally, SCWA ordinance 3.40.130 prohibits unauthorized use of agency water by making unauthorized connection to the SCWA's water system. Full text of the ordinances can be found on SCWA's website.[56]

[55] Beginning in 2023, all urban water suppliers will be required to begin reporting their use compared to a "Water Use Objective" that is being established pursuant to the recently enacted California Water Code Section 10609.20.
[56] https://countycounsel.saccounty.net/Documents/Title3.pdf

Metering

About 90% of SCWA's retail customers are metered. The SCWA is currently in their last phase of meter installation in the Arden Park Vista service area with completion scheduled for the end of 2025. Part of the retail service area has AMI installed which allows real-time consumption and diagnostic data analysis that can help identify water waste and system loss. Wholesale interconnections that supply Elk Grove Water District are not currently metered due to the large number of interconnections and high cost of metering all of the interconnections. SCWA is investigating how to most efficiently meter all interconnections.

Conservation Pricing

SCWA has offered conservation pricing in accordance with California Urban Water Conservation Council's (CUWCC) 1991 MOU. The Agency continues to reward conservation by providing a conservation discount for metered residential customers in Zone 41. SCWA is also a member of the CUWCC successor organization, California Water Efficiency Partnership (CalWEP).

Public Education and Outreach

SCWA engages its customer base with a number of conservation and demand management outreach programs. Promoting water wise activities, watering schedules, and educational programs such as protecting water supply, are part of the Agency's regular outreach efforts.

In addition to local public education and outreach programs, SCWA also participates in a regional public education and outreach program through the Regional Water Authority. The Regional Water Authority (RWA) is a joint powers authority formed in 2001 to promote collaboration on water management and water supply reliability programs in the greater Sacramento, Placer, El Dorado, Yolo and Sutter counties. In collaboration with 19 water provider members and other wastewater, stormwater and energy partners, RWA formed the Water Efficiency Program (WEP) in 2001 to bring cost effectiveness through economies of scale to public education and outreach activities. The main function of the WEP is to develop and distribute public outreach messages to customers in the region by collaborating with its water provider members. Additionally, the RWA Be Water Smart website[57] offers a comprehensive set of resources for individuals, educators and organizations. The 2020 Be Water Smart End-Year Recap report and detailed information about the regional WEP program, including a table of Regional Rebates and Installations from 2016-2020 is available on the RWA website.[58]

[57] https://bewatersmart.info/

[58] https://rwah2o.org/2019-water-efficiency-program-annual-report-available/

Programs to Assess and Manage Distribution System Real Loss

The SCWA's water loss assessment and management program includes annual water audits and an ongoing leak detection and repair. This includes an ongoing meter calibration and replacement program for all production and distribution meters. The SCWA's activities include:

- Annual water audit and water balance
- Well production meter data collection and validation
- Proactive leak identification and repair in SCWA distribution system
- Customer leak identification and repair assistance: A consulting water auditor assists customers in locating leaks both inside and outside the home or business. Free leak detection kits for residential customers are also offered through the RWEP Be Water Smart program.

Water Conservation Program Coordination and Staffing Support

Implementing and monitoring SCWA's water conservation activities is managed collectively across many staff positions. Ultimately, SCWA's Engineer enforces this water conservation program pursuant to the Sacramento County Code, Title 3, Section 3.40.120, however, SCWA does not have a dedicated Conservation Coordinator. In times of state declared drought, SCWA assigns the following staff to focus on necessary implementation activities:

- Public Information Officer (media/customer inquiry/website updates)
- Senior Civil Engineer (content development/enforcement)
- Associate Civil Engineer (2) (enforcement review/field inspection coordination)
- Assistant Civil Engineer (1) (enforcement processing/tracking/inspection)
- Senior Engineering Technician (3) (enforcement notification/tracking and inspection)
- Engineering Technician Level II (1) (inspection)

4.3.2 Recent DMM Activities

The SCWA implements other demand management measures, both within the SCWA and as a part of the RWA WEP. Table 4-7 describes DMM activities from 2016 through 2020. Program participation, costs and details can be found on SCWA's water conservation website.[59]

4.3.3 Planned DMM Activities

In its commitment to ongoing water conservation and proactive demand management activity, SCWA is developing a new set of programs and actions which will be used to achieve water use objectives in compliance with California Water Code Section 10609.20. Resources will be dedicated in SCWA budget for demand management activities which will help comply with these future water use objectives. Special consideration will be taken regarding changing urban water use patterns in the service area.

[59] https://waterresources.saccounty.net/scwa/Pages/WaterConservation.aspx

Table 4-7: Recent Demand Management Measures

Demand Management Measure	Description
Cash for Grass	Rebate for residential and commercial customers to convert existing grass/turf to native and drought tolerant landscaping
High Efficiency Clothes Washer	Rebate for purchase of a new high efficiency clothes washer
High Efficiency Toilet Rebates	Rebate for purchase of new high efficiency toilet
Home Water Audits	Leak detection and water use reduction
Mandatory Irrigation Guidelines	Weekly watering schedules for residential customers
Enforcement of State Water Board Prohibited Activities	Permanent potable water use restrictions

4.3.4 Wholesale Distribution System Asset Management

The SCWA's water system assets consist of pipelines, groundwater wells, pump stations, storage facilities, the surface water treatment plant, and groundwater treatment plants. The SCWA places a high priority on properly maintaining the water system assets to keep it as reliable as possible. The SCWA has a comprehensive inventory of all its infrastructure assets that is maintained on a database that can be accessed using GIS mapping tools. The SCWA actively assesses the condition of the water system and uses a computerized maintenance management system to help manage the ongoing maintenance of the water system. Asset needs are identified and included in the capital improvement plan that is updated annually.

4.3.5 Wholesale Supplier Assistance Programs

The SCWA and its retail agencies are members of the RWA and Sacramento Groundwater Authority. (SGA). These joint powers authorities provide mutually beneficial programs for member organizations. The SCWA's participation and financial contributions to these programs benefit the agencies to which the SCWA provides wholesale water. The SCWA collaborates on demand management measure implementation, best practices and results with its retail agencies.

4.4 Forecasting Customer Use

Forecasting future water demands begins with understanding existing customer demands and trends, recognizing the additional customers expected through growth, and considering the factors that will influence the water use of both existing and new customer well into the future – especially factors that directly affect the efficiency of water use.

Pursuant to California Water Code 10610.4(c), an urban water supplier "*shall be required to develop water management plans to actively pursue the efficient use of available supplies*." One challenge from this directive is reflecting how the pursuit of efficient use is best represented in the forecast water uses that are the cornerstone of good planning. As required by the Act, the future water uses of both existing customers and those added over the 25-year planning horizon should reflect the "efficient use" of water.

4.4.1 Representing Current Customer Water Use

Tables 4-1(a) through Table 4-1(g) and Tables 4-2(a) and Table 4-2(b) provided the actual monthly customer water use for 2016 through 2020. From this information, an estimate of the representative "current" water use by existing customers has been developed for each service area. Knowing that actual use by existing customers varies slightly year-to-year based on a variety of factors (e.g. total rainfall and the timing of spring rain events impacting when landscape irrigation may begin), the recent data provides a basis for estimating current water use. Applying a slight adjustment to the 2020 single-family customer use data, the remaining 2020 customer use data is used as a proxy for "current" water use for each customer classification, which allows a baseline from which to estimate the future use of these existing customers. Importantly, the 2020 single-family actual use was adjusted in estimating representative "current" water use, since it appears to have been skewed by pandemic conditions during 2020 (see subsection 4.1.2). For purposes of the proxy estimate, the 2020 single-family actual use was decreased by 5% for Zone 40 and for Arden Park Vista service areas.

Table 4-8(a) provides the representative monthly and annual current water use, including distribution system losses for the SCWA's Zone 40 service area. The monthly 2020 values were also rounded for each customer classification and the Zone 40 2020 distribution loss of 14.6% was applied to generate the proxy of total current gross water use.

Table 4-8(b) provides the estimated annual current water use for the remaining service areas. Values in this table were also rounded to reflect proxy values for use in customer forecasting.

Table 4-8(a): Zone 40 Representative Current Retail Water Use (acre-feet)

Use Category		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Current	Single-family Residential	960	980	1,200	1,290	1,850	2,300	2,630	2,710	2,670	2,200	1,910	1,270	21,970
	Multi-family Residential	60	60	60	70	80	100	110	100	100	90	90	70	990
	Commercial	100	100	110	90	90	120	140	150	160	150	140	110	1,460
	Institutional	20	20	30	30	40	60	80	100	80	60	50	30	600
	Industrial	20	30	30	30	30	50	60	60	60	60	50	30	510
	Landscape Irrigation	30	40	170	120	350	570	700	770	680	480	360	130	4,400
	Subtotal	1,190	1,230	1,600	1,630	2,440	3,200	3,720	3,890	3,750	3,040	2,600	1,640	29,930
	Distribution System Loss	203	210	274	279	417	547	636	665	641	520	445	280	5,118
	Total Gross Water Use	1,393	1,440	1,874	1,909	2,857	3,747	4,356	4,555	4,391	3,560	3,045	1,920	35,048

Table 4-8(b): Other Service Area Representative Current Retail Water Use (acre-feet)

Classification	Arden Park Vista	Northgate 880	Metro Air Park	Hood	East Walnut Grove	Southwest Tract
Single-family Residential	2,320	--	--	20	35	6
Multi-family Residential	210	--	--	--	5	15
Commercial	460	660	50	5	10	--
Institutional	30	320	--	--	1	1
Industrial	--	35	--	--	--	--
Landscape Irrigation	40	140	55	--	1	--
Customer Total	3,060	1,155	105	25	52	23
Distribution Loss	500	190	20	4	10	4
System Total	3,560	1,345	125	30	60	30

4.4.2 Factors Affecting Future Customer Use

There are several factors that affect the forecast of future customer use, ranging from State and local landscape regulations, building code requirements, and other water-use mandates, to changes in the types of housing products being offered. These factors are incorporated into determining appropriate per-dwelling unit or per customer connection water demand values for use in forecasting future water needs. Relevant characteristics of the factors are described here.

Water Conservation Objectives

In 2009, Governor Arnold Schwarzenegger signed Senate Bill No. 7 (SBX7-7), which established a statewide goal of achieving a 20 percent reduction in urban per capita water use by 2020 for urban retail water suppliers.[60] As presented previously, the SCWA has met this mandated target.

Furthermore, the efforts undertaken by the SCWA and its customers to meet these targets, as well as efforts throughout the State by other urban retail suppliers, have changed the availability and use of appliances, fixtures, landscapes and other water using features, through changes or additions to ordinances and/or through a continuing "conservation ethic."

In response to the 2013 to 2015 multi-year drought conditions, Governor Brown issued Executive Order B-37-16 in May 2016 entitled "*Making Water Conservation a California Way of Life*." In May 2018, Governor Brown signed into law SB 606 and AB 1668, which imposed additional statutory requirements above and beyond the 20 percent by 2020 target reflected in the 2009 legislation. This is expected to result in continued efforts to increase water use efficiency and ultimately to reduce water demands of existing water users and continue to influence the expected demands of future water users.

[60] California Water Code § 10608.20.

Requirements in California Code

Beginning in January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (hereafter the "CAL Green Code") requiring the installation of water-efficient indoor and outdoor infrastructure for all new projects after January 1, 2011. The CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations and was revised in 2013 and in 2016 to address changes to the State's Model Water Efficient Landscape Ordinance ("MWELO") adopted during the drought.[61] Revisions to the CAL Green Code in 2019 modified sections to direct users to MWELO regulations contained in other regulatory sections.[62]

The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed or remodeled building or structure. All new residential and non-residential customers must meet the water use requirements of the CAL Green Code as well as the outdoor requirements described by MWELO. The CAL Green Code's requirements generally manifest through: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline."[63] Future customers are expected to satisfy one of these two requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, or other fixtures as well as Energy Star and California Energy Commission-approved appliances.

California Model Water Efficient Landscape Ordinance and County Ordinance

The Water Conservation in Landscaping Act was enacted in 2006, and has since been revised and expanded multiple times by DWR resulting in today's MWELO.[64] In response to Governor Brown's executive order dated April 1, 2015, (EO B-29-15), DWR updated the MWELO and the California Water Commission approved the adoption and incorporation of the updated State standards for MWELO on July 15, 2015. MWELO requires a retail water supplier or a county to adopt the provisions of the MWELO or to enact its own provisions equal to or more restrictive than the MWELO provisions. The changes included a reduction to 55 percent of reference evapotranspiration rates for the maximum amount of water that may be applied to residential landscapes, and non-residential projects to 45

[61] The 2016 Triennial Code Adoption Cycle consisted primarily of the MWELO updates adopted in response to the drought. Indoor infrastructure changes were limited to some minor non-residential fixture changes and changes to the voluntary Tier 1 and Tier 2 requirements. Additionally, the Code was updated to match the new Title 20 Appliance Efficiency Regulations.

[62] The 2019 updated sections to direct CAL Green code users to Title 23 of the California Code of Regulations to allow Title 23 to be the sole location of MWELO requirements.

[63] See CAL Green Code. For Residential construction, Section 4.303.1 provides the residential water conservation standard and Table 4.303.2 identifies the infrastructure requirements to meet this standard. Table 4.303.1 and Worksheets WS-1 and WS-2 are to be used in calculating the baseline and the reduced water use if Option 2 is selected. For non-residential construction, Section 5.303.2.3 provides the water conservation standard as well as the baseline and reduced flow rate infrastructure standards. Note that Worksheets WS-1 and WS-2 incorporate both residential and non-residential fixtures, yet the water use is still to be analyzed by "building or structure" as specified in Chapter 1, Section 101.3.

[64] Gov. Code §§ 65591-65599

percent, which effectively reduces the landscape area that can be planted with high water use plants, such a turf. For residential projects, the allowable maximum coverage of high-water use plants is reduced to 25% of the landscaped area (down from 33%).

The newly updated MWELO also now applies to new construction with a landscape area greater than 500 square feet (the prior MWELO only applied to landscapes greater than 2,500 square feet).[65] Sacramento County's planning department reviews all new development for conformance with these standards as they are in affect for all new developments. This outdoor landscape calculation does not apply to existing landscapes.

Metering, Volumetric Pricing, and Water Budgets

California Water Code section 525 requires water purveyors to install meters on all new service connections after January 1, 1992. California Water Code Section 527 requires water purveyors to charge for water based upon the actual volume of water delivered if a meter has been installed. This action alone is not expected to substantially reduce water use. However, it is anticipated that the retail billing system will encourage and help maintain reasonable use (e.g., through implementation of a tiered rate structure and/or water budgets), so that individual customer water demands are reasonably not expected to increase over time.

4.4.3 Customer Water Use Forecast

The following subsections detail the assumptions used to forecast customer water use and gross water needs for the SCWA water service areas, separated into the needs of (a) existing customers, (b) new customers, (c) Elk Grove Water District Wholesale service, and (d) non-potable uses.

Existing Customer Future Use - Potable

As described in the prior paragraphs, there are many direct and indirect factors that continue to effect urban water use. For the existing customers served by the SCWA, these factors are anticipated to result in some minor continued conservation savings, generally resulting in lower overall demands in the future than those same customers demand today (especially after considering some return to "normal" use as represented in the determination of the current demand values).

To be conservative however, the SCWA only applies a 5% conservation savings to the single-family residential customer classifications. While actual savings may occur in any classification, this method captures the most likely customer class to achieve additional savings through replacement of fixtures and appliances, continued adoption of a conservation ethic, and modifications of irrigated landscapes, and through continued implementation of the SCWA's DMMs. All other current customer use values are maintained into the future, with two notable exceptions:

[65] CCR Title 23, Div. 2, Ch. 27, Sec. 490.1.

- Arden Park Vista – this service area still includes numerous unmetered customer connections. The SCWA is working to meet regulatory requirements to have all of these customers fully metered by 2025. The SCWA has recognized that per-connection water use generally declines once a customer is fully metered and billed based upon the metered consumption. With over 2,000 unmetered single-family connections reflecting the majority of the current use within this service area, SCWA anticipates there will be significant savings as these customers are metered. For conservative purposes, however, this savings is estimated to result in a 15% additional savings for only the single-family residential customers.
- Metro Air Park – this service area is seeing rapid growth in its warehouse, light industrial and commercial land use. As described in the SCWA's 2005 Zone 50 Master Plan,[66] this service area is forecast to have water use of slightly more than 5,000 acre-feet annually. While current demand is only 200 acre-feet, the SCWA is conservatively maintaining the previous water use forecast.

In addition to the small conservation forecast, two additional assumptions are made within Forecast water needs of existing customers is presented in the summary table at the end of this section.

New Customer Future Use - Potable

As described in Chapter 2, growth is primarily expected to occur within the Zone 40 service area with an associated increased demand placed upon the SCWA's water supplies. Forecasting the needs of these future customers is dependent upon the type and number of customer connections and the unit water demand factors associated with each customer connection.

As detailed in Table 2-6, the SCWA has previously defined an anticipated number of new connections at build-out within the SSA, CSA, and NSA, which will include a range of residential and non-residential uses, depending on the varied development proposals already approved (but not yet built) and to be proposed. Residential customers will include both single-family dwelling units built under a variety of densities and multi-family residential dwelling units. Non-residential uses are expected to include a blend of commercial, institutional, industrial and active landscapes, such as parks, in ratios similar to the current residential-to-non-residential connections in each of the Zone 40 subareas. Table 4-9 provides the assumed ratio of total connections spread among customer classifications for each of the Zone 40 subareas. These ratios mimic the existing ratios within each of the Zone 40 subareas.

Forecast water needs for each customer classification are based on new customer water use factors described in the following subsection.

New Residential Customer Water Use Factors

The SCWA anticipates new residential connections will be built in accordance with all applicable building codes including the Cal Green Code discussed previously, and relevant SCWA ordinances.

Distinct demand factors are provided for the following residential uses:

[66] https://waterresources.saccounty.net/scwa/Documents/Z50_MasterPlanDraft.pdf

- Indoor Residential Use – this category identifies the generally anticipated water use for single-family and multi-family dwelling units.
- Outdoor Residential Use – this category addresses the landscape water demands commonly anticipated for the two primary dwelling unit types.

Table 4-9: Anticipated New Zone 40 Connections by Customer Classification by Subarea

Sub Area Classification		Ratio	2025	2030	2035	2040	2045
NSA	Single-family Residential	80%	2,688	5,375	8,063	10,750	13,438
	Multi-family Residential	10%	336	672	1,008	1,344	1,680
	Commercial	8%	269	538	806	1,075	1,344
	Institutional	2%	67	134	202	269	336
	Total Connections	100%	3,359	6,719	10,078	13,438	16,797
CSA	Single-family Residential	95%	3,813	7,625	11,438	15,250	19,063
	Multi-family Residential	2%	80	161	241	321	401
	Commercial	2%	80	161	241	321	401
	Institutional	1%	40	80	120	161	201
	Total Connections	100%	4,013	8,026	12,040	16,053	20,066
SSA	Single-family Residential	95%	1,637	3,275	4,912	4,912	4,912
	Multi-family Residential	1%	17	34	52	52	52
	Commercial	2%	34	69	103	103	103
	Institutional	2%	34	69	103	103	103
	Total Connections	100%	1,724	3,447	5,171	5,171	5,171

For purposes of this UWMP, residential unit water demand factors are described as "the acre-feet of water use annually per dwelling unit" – or acre-feet/dwelling unit ("af/du").

Residential indoor water demands are estimated using an assumed value of 55 gallons-per person per day, multiplied by the assumed occupancy rates for anticipated residential densities for single-family or multi-family classifications in the SCWA. The assumed per-person rate of 55 gallons per day is derived from California Water Code Section 10609.4(a)(3), which states a value of 55 gallons per capita (i.e., per person) per day ("gpcd") be used for estimating indoor residential use targets.[67] If lower standards are required when the growth occurs, the forecast use would be expected to be lower than estimated in this UWMP.

Based on this per-capita assumption, the following indoor per-dwelling unit value is assumed for each new residential unit:

- Single-family residential indoor use: 0.20 acre-feet per year based upon an assumed occupancy of 3.27 people per unit (see Table 2-7).

[67] Water Code Section 10609.4(a) also establishes the indoor residential water use 'standard' to be 52.5 gpcd beginning in 2025 and as low as 50 gpcd by 2030, though the Water Code also provides provisions for the water use target to revert above 50 gpcd. For purposes of this UWMP, the higher value of 55 gpcd is assumed.

- Multi-family residential indoor use: 0.15 based on an assumed occupancy of 2.5 people per unit.

Outdoor residential water use is primarily a factor of lot size and the type and extent of landscaped area. The SCWA's anticipated growth will likely include a range of residential densities (e.g. houses per acre) and therefore an estimated "typical" lot is assumed for purposes of forecasting.

For purposes of this UWMP, each new single-family residential unit is anticipated to have a total gross area of 7,000 square-feet, with 3,500 square-feet anticipated to be irrigable (after accounting for the home footprint, driveways, other hardscapes, and non-irrigated areas). Multi-family units, which have shared common landscape areas, are assumed to have 400 square-feet of irrigable area per unit.

Outdoor demands for new residential dwelling units are calculated based on regulations defined under the MWELO. The MWELO provides for determining the Maximum Applied Water Allowance (MAWA) where the maximum is calculated as 55 percent of the reference evapotranspiration for the area for every square foot of landscaped area, resulting in the following equation:

> *MAWA = (ETo)(0.62)(0.55 x LA), where ETo is the reference evapotranspiration in inches per year, and LA is the landscape area in square-feet. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year."*

A primary factor in this calculation is evapotranspiration ("ET"). The methodology directs the use of ET from a reference crop, such as maintained grass – a value referred to as ETo. For this UWMP, the ETo is 52.6 inches per year (4.4 feet per year).[68]

Using the MAWA equation, outdoor demand factors for each residential lot category are calculated:

- Single-Family Residential – Anticipated single-family dwellings are conservatively assumed to be constructed on lots averaging 7,000 sf, with an average landscape area of 3,500 sf. The resulting outdoor demand factor is forecast to be 0.20 acre-feet per dwelling unit per year.

- Multi-Family Residential – Anticipated multi-family dwellings will have larger common areas, assumed to equate to 400 sf of landscape area per unit. The resulting outdoor demand factor is forecast to be 0.02 acre-feet per dwelling unit per year.

Combining the assumed indoor and outdoor residential demand factors results in the following estimated use for each new connection:

- Single-Family Residential – 0.20 af/du for indoor plus 0.20 af/du for outdoor combines for an annual demand factor of 0.40 af/du.
- Multi-Family Residential – 0.15 af/du for indoor plus 0.02 af/dur for outdoor combines for an annual demand factor of 0.17 af/du. However, as represented in the WSIP, each multi-family connection represents 10 to 15 dwelling units. For purposes of forecasting water use, the per-

[68] ETo is from the CIMIS Station 235 (Verona) available at: https://cimis.water.ca.gov/Default.aspx

unit value of 0.17 af/du is multiplied by 10 to reflect an annual demand factor of 1.70 af/connection.

New Non-Residential Customer Water Use Factors

Non-residential per-connection demand factors were also estimated for purposes of forecasting the water needs of anticipated commercial, institutional, industrial and irrigated landscape customers.

For purposes of this 2020 UWMP, demand factors were developed for two categories of non-residential use: Commercial, institutional, and industrial (CII), and Irrigated Landscape.

- CII Connections – this customer classification includes a wide array of different uses from neighborhood retail centers, to large retail centers, to office and government buildings, to light and even heavy industrial uses. To reflect this variety, each CII connection is assumed to occupy 2 gross acres, including hardscapes (e.g. parking), buildings, and ornamental landscaping. An estimated use of 1 acre-foot per gross acre is assumed, resulting in a per-connection factor of 2 acre-feet/connection.
- Irrigated Landscape – this classification includes passive and active parks, streetscapes, and other dedicated landscape areas. Each landscape connection is assumed to reflect 4 gross acres, with an average annual water need of 3.5 acre-feet per acre. This results in an estimated annual demand factor of 15 acre-feet per connection.

Elk Grove Water District Wholesale Service

The SCWA provides potable water supplies to Elk Grove Water District (EGWD) for its use in its Service Area 2. As indicated in Table 4-3, the SCWA delivers around 2,500 acre-feet for use by EGWD to directly meet customer needs. The forecast wholesale deliveries are provided in Table 4-10(a) and are based on coordination with Elk Grove Water District.

Non-Potable Uses

SCWA is currently serving its Phase 1 non-potable demands but plans to serve the non-potable demands included in its Phase 2 recycled water development plan. Although the exact progression of these demands manifesting is not precisely known, SCWA anticipates having 3,300 acre-feet of non-potable demand in its Phase 1 and Phase 2 areas served by recycled water supplies by 2045. For purposes of this UWMP, this growth is equally distributed over the planning horizon.

4.4.4 Summary of Forecast Water Use

Based upon the estimated water use of the existing and new customers, SCWA anticipates a doubling of use in Zone 40. With the exception of Metro Air Park, which is anticipated to see water use grow five-fold, SCWA anticipates nominal to no changes throughout the remaining service areas. Table 4-10(a) presents the forecast customer water use in Zone 40, including wholesale deliveries to EGWD. Although the forecast is presented on an annual basis in 5-year increments through 2045, the monthly pattern is

expected to mimic the current monthly pattern detailed in prior tables. This characterization is important when evaluating the SCWA's water service reliability as detailed in Chapter 5.

Table 4-10(a): Zone 40 Forecast Potable Water Use (acre-feet)

Classification	2025	2030	2035	2040	2045
Single-family Residential	22,988	22,957	22,925	22,894	22,862
Multi-family Residential	1,002	1,002	1,002	1,002	1,002
Commercial	1,462	1,462	1,462	1,462	1,462
Industrial	515	515	515	515	515
Institutional and Governmental	607	607	607	607	607
Landscape Irrigation	4,395	4,395	4,395	4,395	4,395
SFR Future	3,255	6,510	9,765	12,365	14,965
MFR Future	737	1,474	2,211	2,918	3,626
CII Future	767	1,534	2,301	2,999	3,697
Landscape Irrigation - Future	2,127	4,254	6,381	7,991	9,600
Elk Grove Annexation Area	692	1,383	1,383	1,383	1,383
Wholesale to EGWD	2,568	2,668	2,768	2,868	3,072
Customer Water Use Subtotal	41,115	48,761	55,715	61,399	67,187
Distribution System Water Loss	5,120	5,733	6,290	6,744	7,201
2020 Total Gross Water Use	46,235	54,494	62,006	68,143	74,388

As previously discussed, growth is not expected in the other service areas except for the Metro Air Park service area. Table 4-10(b) through Table 10(g) represents the anticipated annual forecast water use for 2025 through 2045 by each subarea reflecting the anticipated conditions in each service area.

Table 4-10(b): Arden Park Vista Forecast Potable Water Use (acre-feet)

	2025	2030	2035	2040	2045
Single Family Residential	2,221	2,170	2,102	2,034	2,017
Multi-Family Residential	213	213	213	213	213
Commercial/Institutional	491	491	491	491	491
Landscape Irrigation	43	43	43	43	43
Customer Total	2,967	2,916	2,849	2,781	2,764
Distribution System Water Loss	486	478	467	456	453
Total Gross Water Use	3,454	3,394	3,315	3,237	3,217

Table 4-10(c): Northgate 880 Forecast Potable Water Use (acre-feet)

	2025	2030	2035	2040	2045
Commercial/Institutional	978	978	978	978	978
Industrial	35	35	35	35	35
Landscape Irrigation	139	139	139	139	139
Customer Total	1,151	1,151	1,151	1,151	1,151
Distribution System Water Loss	214	214	214	214	214
Total Gross Water Use	1,365	1,365	1,365	1,365	1,365

Table 4-10(d): Metro Air Park Forecast Potable Water Use (acre-feet)

	2025	2030	2035	2040	2045
Commercial/Industrial	1,029	2,059	3,088	4,118	5,147
Landscape Irrigation	55	55	55	55	48
Customer Total	1,084	2,114	3,143	4,172	5,195
Distribution System Water Loss	108	211	314	417	520
Total Gross Water Use	1,193	2,325	3,457	4,590	5,715

Table 4-10(e): Hood Water Maintenance District Forecast Potable Water Use (acre-feet)

	2025	2030	2035	2040	2045
Single Family Residential	22	22	22	22	22
Commercial/Institutional	5	5	5	5	5
Customer Total	27	27	27	27	27
Distribution System Water Loss	4	4	4	4	4
Total Gross Water Use	31	31	31	31	31

Table 4-10(f): East Walnut Grove Forecast Potable Water Use (acre-feet)

	2025	2030	2035	2040	2045
Single Family Residential	36	36	36	36	36
Multi-Family Residential	5	5	5	5	5
Commercial/Institutional	9	9	9	9	9
Landscape Irrigation	1	1	1	1	1
Customer Total	51	51	51	51	51
Distribution System Water Loss	5	5	5	5	5
Total Gross Water Use	56	56	56	56	56

Table 4-10(g): Southwest Tract Forecast Potable Water Use (acre-feet)

	2025	2030	2035	2040	2045
Single Family Residential	6	6	6	6	6
Multi-Family Residential	14	14	14	14	14
Commercial/Institutional	1	1	1	1	1
Customer Total	21	21	21	21	21
Distribution System Water Loss	3	3	3	3	3
Total Gross Water Use	24	24	24	24	24

Table 4-10(h): Zone 40 Non-Potable Forecast Water Use (acre-feet)

	2025	2030	2035	2040	2045
Recycled Water System	1,420	1,890	2,360	2,830	3,300

Table 4-11 presents a complete summary of the entire customer water forecast on the SCWA water assets. This is the summation of values in Table 4-10(a) through 4-10(h).

Table 4-11: Total SCWA Forecast Water Use (acre-feet)

Service Area	2025	2030	2035	2040	2045
Zone 40	46,235	54,494	62,006	68,143	74,388
Arden Park Vista	3,454	3,394	3,315	3,237	3,217
Northgate 880	1,365	1,365	1,365	1,365	1,365
Metro Air Park	1,193	2,325	3,457	4,590	5,715
Hood	31	31	31	31	31
East Walnut Grove	56	56	56	56	56
Southwest Tract	24	24	24	24	24
Total Potable Water Use	52,358	61,690	70,254	77,446	84,796
Non-Potable Water Use	1,420	1,890	2,360	2,830	3,300
Total Water Use	53,778	63,580	72,614	80,276	88,096

4.4.5 Adjusting Water Use Forecasts for Single-Dry and Multiple Dry Conditions

The demand forecasts presented in the prior subsections represent expected water needs under normal hydrologic conditions. To credibly forecast potential maximum future water use, the forecasted normal-year water uses must be modified to reflect anticipated increases in demand during drier conditions.

Conservative modifications to the forecasted normal year water use to more likely reflect use conditions during drier and dry years are warranted to help adequately address water service reliability in Chapter 5. For purposes of this UWMP, the following adjustment is made:

- Single dry year: Landscape irrigation needs would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this

increase only applies to the outdoor portion of a customer's forecast use, an adjustment factor of 5% is applied to the total normal-year forecasts to conservatively reflect the expected increase in demand for water for landscaping.

- Multiple dry years: During multiple dry years, demands are also expected to increase similar to the single dry year. For multiple dry year conditions, the single dry year increase of 5% is held in each of the subsequent years such that each is 5% greater than the normal year condition. This is representative of an "unconstrained demand" as should be represented when evaluating whether Water Shortage Contingency Plan actions may be warranted.[69]

These values are reflected in tables provided for the Drought Risk Assessment and Annual Reliability Assessment presented in later subsections.

4.4.6 Climate Change Considerations

Including climate change into a water use analysis aids in understanding the potential effects on long-term reliability, which in turn, allows the SCWA to proactively begin planning appropriate responses. For example, hotter and drier weather may lead to an increased demand in landscape irrigation, especially during spring and fall months, increasing the pressure on water supplies that may have availability restrictions during these periods.

This potential is reflected in the consideration of the single dry year increase of 5% that is used for the water service reliability analysis, as discussed previously. Whether the elevated single dry year water forecast becomes more akin to the "normal" demand will become more apparent as SCWA continues to assess monthly water use trends throughout all of its service areas.

4.5 Forecasting Water Use for the DRA and Annual Assessment

The California Legislature created two new UWMP requirements to help suppliers assess and prepare for drought conditions: the Drought Risk Assessment,[70] and the Annual Water Supply and Demand Assessment.[71] These new planning requirements were established in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change.

The Drought Risk Assessment (DRA) requires assessing water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years.

As a slight variant, the Annual Water Supply and Demand Assessment (Annual Assessment) undertakes a similar analytical exercise as the DRA but is to focus on actual, and not hypothetical, conditions

[69] California Water Code Section 10632(a)(2) states water suppliers should use "unconstrained demand" when performing their annual water supply and demand assessment.
[70] California Water Code Section 10635(b)
[71] California Water Code Section 10632.1

anticipated for the upcoming water year. The previously presented water use forecasts facilitate both of these planning exercises as described in the following subsections.

4.5.1 Projecting Water Use for 5-year Drought Risk Assessment

A critical component of new statutory language for the 2020 UWMP cycle is the requirement to prepare a five-year DRA using a supplier-defined hypothetical drought conditions expected to occur from 2021 through 2025. This drought condition is meant to allow suppliers to test the resiliency of their water supply portfolio and their Water Shortage Contingency Plan actions to meet severe conditions.

DWR recommends that suppliers first estimate expected water use for the next five years without drought conditions (also known as unconstrained demand). In other words, unconstrained demand is water demand absent any water supply restrictions and prior to implementing any short-term WSCP demand reduction actions. These estimates would then be adjusted to estimate the five-years' cumulative drought effects. If normal water use includes water conservation programs, either currently implemented or planned for implementation, estimated water use values would incorporate the effect of those conservation programs when reporting projected water use.

Total water use for 2021, for example, is developed by modifying the water use representation for "current" conditions (see Table 4-8(a) and Table 4-8(b)) taking into consideration the anticipated factors affecting water use, with each subsequent year further adjusted, as appropriate. Year-to-year adjustments reflect several factors SCWA anticipates may occur, including increases from growth and decreases from long-term conservation savings. To make these adjustments, the difference in annual water use between the "current" condition and the forecast use in 2025 is prorated equally across each of the years 2021 through 2025, so that the same 2025 forecast water use is matched.

With an initial annual estimate, each year is further adjusted to reflect anticipated increases in the "unconstrained demand" during a single dry year. As noted previously, this is reflected by applying a 5% increase to the total estimated demand.

Table 4-12(a): Zone 40 Forecast DRA Water Use for 2021 through 2025 (acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2021	1,696	1,744	2,271	2,296	3,458	4,530	5,273	5,556	5,311	4,309	3,689	2,319	42,452
2022	1,757	1,806	2,352	2,378	3,582	4,693	5,462	5,755	5,502	4,463	3,822	2,403	43,976
2023	1,818	1,869	2,434	2,460	3,706	4,856	5,652	5,955	5,692	4,618	3,954	2,486	45,499
2024	1,879	1,931	2,516	2,543	3,831	5,018	5,841	6,154	5,883	4,772	4,086	2,569	47,023
2025	1,939	1,994	2,597	2,625	3,955	5,181	6,030	6,354	6,074	4,927	4,219	2,652	48,547

Table 4-12(b): Other Service Areas Forecast DRA Water Use for 2021 through 2025 (acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2021	216	273	319	348	521	643	744	739	655	590	414	275	5,738
2022	218	273	319	351	523	648	753	752	677	623	449	291	5,877
2023	220	273	320	354	524	654	762	764	699	655	484	307	6,016
2024	222	273	320	357	526	659	771	776	720	688	518	324	6,155
2025	224	273	321	360	528	664	780	789	742	720	553	340	6,293

4.5.2 Projecting Water Use for Annual Reliability Assessments

SCWA will need to perform an Annual Assessment and submit the findings to DWR beginning in 2022. To evaluate the plausible water service reliability conditions for 2021 or 2022, described in Chapter 5, requires two separate representative "current" water use conditions to be developed. The first condition uses the "current" water use characterization included in Table 4-8(a) and 4-8(b). These demands represent the water use under a normal condition. Alternatively, a "single-dry year current" forecast is also calculated to provide SCWA with representative current unconstrained demands. This second characterization of current water use applies the same single-dry year adjustment described previously, represented by a 5% increase in the current water use values. Table 13(a) provides the Normal Year and Single Dry Year current water use for the Zone 40 water service area. Table 13(b) provides these same values for the other six water service areas. These values are used in Chapter 5.

Table 4-13(a): Zone 40 Normal and Single Dry Year "Current" Water Use (acre-feet)

Year Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	1,557	1,601	2,085	2,108	3,175	4,160	4,842	5,101	4,876	3,956	3,387	2,130	38,979
Single Dry	1,635	1,681	2,189	2,213	3,334	4,368	5,084	5,357	5,120	4,154	3,557	2,236	40,928

Table 4-13(b): Other Service Areas Normal and Single Dry Year "Current" Water Use (acre-feet)

Year Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Normal	208	265	309	334	500	614	708	701	612	539	368	251	5,408
Single Dry	218	278	324	351	525	645	743	736	642	566	386	264	5,678

4.6 Projecting Disadvantaged Community Water Use

Pursuant to CWC Section 10631.1, retail suppliers are required to include the projected water use for lower income households in 2020 UWMPs. Per California Health and Safety Code Section 50079.5, a lower income household has an income below 80 percent of area median income, adjusted for family size. For purposes of this UWMP, annual median income was derived from 2019 U.S. Census Bureau and determined to be $72,017 for Sacramento County for approximately 560,000 county earners.[72]

[72] This data is from the Household Income in the Past 12 Months (In 2019 Inflation-adjusted Dollars) American Community Survey 1-year estimates. https://censusreporter.org/profiles/05000US06067-sacramento-county-ca/#income

Therefore, 80% of this is estimated to be about $57,600 per year. Based upon the median income dataset, approximately 40% of the earning population is at or below this earning level.

Absent more specific data correlating to SCWA's water service areas, this low-income percentage is applied to the total number of households within SCWA, resulting in an estimated number of existing and future new connections attributed to low-income households. As detailed previously, SCWA anticipates a total number of new residential connections over the planning horizon – representing both single-family and multiple family. The vast majority of new residential connections are expected within the Zone 40 service area. Therefore, for purposes of estimating the number of new low-income households, this County's overall low-income household percentage is applied to the expected new Zone 40 residential connections shown in Table 4-9 – resulting in an estimate of low-income households for each 5-year period to 2045. Using the demand factors presented in subsection 4.4.3, a demand for the new single-family to multiple family low-income households can be estimated. The resulting estimate is presented in Table 4-14.

Table 4-14: Estimated Low-Income Water Use Forecast (acre-feet)

	2025	2030	2035	2040	2045
Low-income Water Use Forecast	10,119	11,451	12,782	13,857	14,931
% of Zone 40 Water Use Forecast	25%	23%	23%	23%	22%

Chapter 5
Water System Reliability

This chapter provides the Sacramento County Water Agency's (SCWA) water system reliability findings as required under Water Code Section 10635 and provides reliability information the SCWA could use in completing an annual supply and demand assessment pursuant to Water Code Section 10632.1.

Assessing water service reliability is the fundamental purpose for SCWA in preparing its 2020 UWMP. Water service reliability reflects SCWA's ability to meet the water needs of its customers, including end-use customers and retail urban suppliers, with water supplies under varying conditions. SCWA's UWMP considers the reliability of meeting customer water use by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that impact SCWA's water supply and its customers' water uses. The reliability assessment looks beyond SCWA's past experience and considers what could be reasonably foreseen in the future. This chapter synthesizes the details imbedded in the Chapters 3 and 4 and provides a rational basis for future decision-making related to supply management, demand management, and project development. This chapter presents three system reliability findings:

- Five Year Drought Risk Assessment: The 2021 through 2025 Drought Risk Assessment (DRA) for all of SCWA's service areas
- Long-Term Service Reliability: The reliability findings for a Normal Year, Single Dry Year, and Five Consecutive Drought Years in five-year increments through 2045
- Annual Reliability Assessment: The reliability findings for an existing condition for both a Normal Year and Single Dry Year that can inform an annual supply and demand assessment for 2021 or 2022.

In short, SCWA has reliable water supplies available in all of its service areas.

5.1 Five Year Drought Risk Assessment

The Drought Risk Assessment is a new requirement for the 2020 UWMP cycle. The DRA requires a methodical assessment of water supplies and water uses under an assumed drought period that lasts five consecutive years. SCWA has prepared an independent monthly assessment of the water supplies and demands for its Zone 40 system because of the monthly variability associated with the surface water supplies that are used to serve that system. Moreover, SCWA has incorporated other constraints in its Zone 40 system, like infrastructure constraints at its pumping and treatment facilities, which may also influence the near-term management of Zone 40's water asset portfolio.

In SCWA's other service areas, the sources of water are less susceptible to hydrological and regulatory conditions. As such, the SCWA service areas beyond Zone 40 analyze their drought risks on a yearly basis. The following details the Zone 40 DRA as well as a combined DRA for SCWA's other service areas.

5.1.1 Zone 40 Drought Risk Assessment

Zone 40 has a unique water supply portfolio and system operations. Zone 40 currently has access to six sources of supply and anticipates access to two additional sources of supply by 2025. This diverse water supply portfolio creates a water management structure that requires careful consideration of hydrological, regulatory, and institutional variability. Specifically, some water assets are particularly susceptible to drought while other water assets have varying degrees of reliability based upon regulatory constraints and historical water use. Nevertheless, SCWA has organized and coordinated its Zone 40 water portfolio management to ensure water supply reliability in the event of a severe drought. The Zone 40 DRA represents a consolidation of its surface and groundwater water supplies into an organized monthly management action.

Table 5-1 below shows SCWA's Zone 40 DRA that integrates all of its supplies for 2021 through 2025 as described in Chapter 3 and reflects the dry year unconstrained water uses described in Chapter 4. As the table shows, SCWA has surplus water assets available in all months under its prescribed water management protocol.

Table 5-1: Zone 40 Five Year Drought Risk Assessment

Five Year Drought		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2021	Supply	9,678	9,689	10,086	10,182	6,562	7,491	8,166	8,403	8,239	7,377	11,455	10,214	107,542
	Demand	1,696	1,744	2,271	2,296	3,458	4,530	5,273	5,556	5,311	4,309	3,689	2,319	42,452
	Difference	7,982	7,946	7,815	7,886	3,104	2,961	2,893	2,847	2,928	3,069	7,765	7,895	65,090
2022	Supply	9,678	9,689	10,086	10,182	5,664	6,593	7,267	7,505	7,340	6,479	5,936	10,214	96,633
	Demand	1,757	1,806	2,352	2,378	3,582	4,693	5,462	5,755	5,502	4,463	3,822	2,403	43,976
	Difference	7,921	7,883	7,733	7,804	2,081	1,900	1,805	1,749	1,838	2,016	2,115	7,812	52,657
2023	Supply	9,678	9,689	10,086	3,934	4,934	5,863	6,537	6,775	6,610	5,749	5,206	10,214	85,274
	Demand	1,818	1,869	2,434	2,460	3,706	4,856	5,652	5,955	5,692	4,618	3,954	2,486	45,499
	Difference	7,860	7,820	7,652	1,473	1,227	1,007	886	820	918	1,131	1,252	7,728	39,775
2024	Supply	9,678	9,689	10,086	10,182	5,163	6,092	6,767	7,004	6,840	5,979	5,436	10,214	93,129
	Demand	1,879	1,931	2,516	2,543	3,831	5,018	5,841	6,154	5,883	4,772	4,086	2,569	47,023
	Difference	7,799	7,758	7,570	7,639	1,333	1,074	926	850	957	1,206	1,350	7,645	46,106
2025	Supply	9,678	9,689	10,086	10,182	6,053	6,982	7,657	7,894	7,730	6,868	11,455	10,214	104,488
	Demand	1,939	1,994	2,597	2,625	3,955	5,181	6,030	6,354	6,074	4,927	4,219	2,652	48,547
	Difference	7,738	7,695	7,489	7,557	2,098	1,801	1,627	1,540	1,656	1,941	7,236	7,562	55,940

5.1.2 Drought Risk Assessment for Other Service Areas

SCWA operates water systems in the other six service areas that are wholly independent from the surface and groundwater supplies that are used to serve Zone 40. As described in detail in other chapters of this 2020 UWMP, these service areas are: Arden Park Vista, Northgate 880, Metro Air Park, Southwest Tract, Hood Water Maintenance District (Hood), and East Walnut Grove. These six systems have independent water supplies. The supplies in these systems are mostly generated from groundwater assets. These groundwater assets are generally surplus to the needs of the individual water systems as discussed in Chapter 3. The Metro Air Park area is served through a contract with the City of Sacramento and has sufficient reliability to meet its long-term demands. Water use for the DRA condition reflects the dry year unconstrained demands anticipated necessary to meet the forecast water needs of customers in each of these service areas, as described in Chapter 4.

Table 5-2 below shows SCWA's DRA for 2021 through 2025 for the six service areas that are outside of Zone 40. The table combines the water supplies and demands from all six of these service areas because none of them demonstrate a monthly water deficiency. As such, combining the supplies and demands provides a more succinct assessment of each system's drought risk. Importantly, however, each system's supplies and demands are independently characterized in separate sections of this chapter as well as Chapters 3 and 4.

Table 5-2: Six Service Areas Five Year Drought Risk Assessment

Five Year Drought		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2021	Supply	216	273	319	348	521	643	744	739	655	590	414	275	5,738
	Demand	216	273	319	348	521	643	744	739	655	590	414	275	5,738
	Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
2022	Supply	218	273	319	351	523	648	753	752	677	623	449	291	5,877
	Demand	218	273	319	351	523	648	753	752	677	623	449	291	5,877
	Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
2023	Supply	220	273	320	354	524	654	762	764	699	655	484	307	6,016
	Demand	220	273	320	354	524	654	762	764	699	655	484	307	6,016
	Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
2024	Supply	222	273	320	357	526	659	771	776	720	688	518	324	6,155
	Demand	222	273	320	357	526	659	771	776	720	688	518	324	6,155
	Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
2025	Supply	224	273	321	360	528	664	780	789	742	720	553	340	6,293
	Demand	224	273	321	360	528	664	780	789	742	720	553	340	6,293
	Difference	0	0	0	0	0	0	0	0	0	0	0	0	0

5.2 Long Term Service Reliability

The Urban Water Management Planning Act directs urban water purveyors to analyze water supply reliability in a normal, single dry, and five consecutive dry years over a 20-year planning horizon. The 2020 UWMP Guidebook recommends extending that period to 25 years to provide a guiding document for future land use and water supply planning through the next UWMP cycle. The following subsections describe the long-term water service reliability for Zone 40 and for the SCWA's other service areas through a 25 year planning horizon.

5.2.1 Zone 40 Long Term Potable Service Reliability

SCWA's long term service reliability for Zone 40 reflects the recommended 25-year planning horizon anticipating a normal, single dry, and five consecutive dry years from 2020 through 2045.

Zone 40 Normal and Single Dry Conditions 2025-2045

Zone 40 future water supplies in normal and single dry conditions reflect the same hydrological, regulatory, and institutional criteria described in previous sections. In normal years, supplies are generally constrained only by their express limiting features. In dry years, additional hydrological, regulatory, and institutional issues will constrain the availability of water. However, future water supplies tend to grow in annualized volumes as annualized demands grow in parallel. All of this information is described in detail in Chapter 3 and is reflected in the tables below.

Zone 40 future water demands in normal and single dry conditions through 2045 reflect the same considerations described in previous sections of this chapter. In normal conditions, demands tend to reflect anticipated uses based upon normal hydrological conditions. But in dry conditions, demands increase to reflect dry conditions and additional application of water for outdoor irrigation. Future water demands are generally predicted to increase as land uses and populations within SCWA's Zone 40 area grow. All of this information is detailed in Chapter 4 and reflected in the numbers shown in the tables below.

Table 5-3 shows the normal year supplies and demands on an annual timestep from 2025 through 2045.

Table 5-3: Normal and Single Dry Year Water Supply and Demand in SCWA's Zone 40 through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	159,096	164,096	174,096	174,096	174,096
Demand	46,235	54,494	62,006	68,143	74,388
Difference	112,861	109,602	112,090	105,953	99,708

Single Dry Year	2025	2030	2035	2040	2045
Supply	87,199	92,676	103,926	105,176	107,676
Demand	48,547	57,219	65,106	71,551	78,107
Difference	38,652	35,457	38,820	33,625	29,569

Zone 40 Multiple Dry Years Reliability 2025 – 2045

SCWA defines drought condition lasting five consecutive years as one that constrains SCWA from obtaining some of its water supplies in its Zone 40 water supply portfolio due to hydrological, regulatory, and institutional constraints. These conditions include more restrictive regulatory constraints on its water rights, constrained conditions for its water supply contracts, yet no limitations on its ability to access groundwater resources. The restrictive conditions manifest in changes to the availability of SCWA's water assets on a monthly timestep. Moreover, these restrictive conditions also impact the increased uses of available supplies in the future that are associated with land use and population growth. These conditions are described in significant detail in Chapter 3 and reflected in the monthly tables below.

Five consecutive dry year demands include the anticipated demands based upon historical trends in water usage in drought conditions by SCWA's customers. Demands in extended dry conditions may increase as hydrological conditions generate additional customer uses for outdoor irrigation. As droughts persist, however, demands may decline as the realistic constraints on supply availability are realized at the customer level. Out of an abundance of caution to ensure supplies are available to meet projected demands, the fluctuating demand pattern is not reflected in this future reliability assessment. The gradual increase in demands also account for reasonable water conservation measures derived from improved efficiencies in indoor fixtures, improved management of outdoor landscape irrigation, and a general awareness of the value of long-term water conservation at the consumer level. In addition, the future dry conditions reflect increased land use and populations that would rely upon available supplies. These variable monthly conditions are described in significant detail in Chapter 4 and reflected in the tables below.

Table 5-4 below shows the water supply and demand conditions for SCWA's Zone 40 service area in five consecutive dry years from 2025 through 2045.

Table 5-4: Zone 40 Multiple Dry Year Reliability through 2045

Five Year Drought		2025	2030	2035	2040	2045
Year 1	Supply	111,954	118,386	132,136	135,886	143,386
	Demand	48,547	57,219	65,106	71,551	78,107
	Difference	63,407	61,167	67,030	64,335	65,279
Year 2	Supply	99,576	105,531	118,031	120,531	125,531
	Demand	48,547	57,219	65,106	71,551	78,107
	Difference	51,029	48,312	52,925	48,980	47,424
Year 3	Supply	87,199	92,676	103,926	105,176	107,676
	Demand	48,547	57,219	65,106	71,551	78,107
	Difference	38,652	35,457	38,820	33,625	29,569
Year 4	Supply	95,054	100,531	111,781	113,031	115,531
	Demand	48,547	57,219	65,106	71,551	78,107
	Difference	46,507	43,312	46,675	41,480	37,424
Year 5	Supply	107,431	113,386	125,886	128,386	133,386
	Demand	48,547	57,219	65,106	71,551	78,107
	Difference	58,884	56,167	60,780	56,835	55,279

5.2.2 Long Term Non-Potable Water Service in Zone 40

As described in Chapter 3, SCWA has a contract to obtain non-potable water supplies from Sacramento Regional County Sanitation District (SRCSD) to meet demands in a portion of SCWA's Zone 40 service area. These water supplies are wholly derived from indoor water uses throughout SRCSD's service area. This area includes significant areas that are beyond SCWA's Zone 40. As such, these non-potable water supplies are 100% reliable in normal, single dry, and five consecutive dry years from the 2020 through the 2045 planning horizon. Tables 5-5, 5-6, 5-7, and 5-8 shows the water supply reliability of SCWA's Zone 40 non-potable supply through 2045.

Table 5-5: Normal and Single Dry Non-Potable Water Supply and Demand in SCWA's Zone 40

Normal Year	Current
Supply	3,921
Demand	962
Difference	2,959

Single Dry Year	Current
Supply	3,921
Demand	1,010
Difference	2,911

Table 5-6: Five Consecutive Dry Non-Potable Water Supply and Demand in SCWA's Zone 40 through 2025

Five Year Drought	2021	2022	2023	2024	2025
Supply	3,921	3,921	3,921	3,921	3,921
Demand	1,010	1,010	1,010	1,010	1,010
Difference	2,911	2,911	2,911	2,911	2,911

Table 5-7: Normal and Single Dry Year Non-Potable Water Supply and Demand in SCWA's Zone 40 through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	3,921	3,921	3,921	3,921	3,921
Demand	1,420	1,890	2,360	2,830	3,300
Difference	2,501	2,031	1,561	1,091	621

Single Dry Year	2025	2030	2035	2040	2045
Supply	3,921	3,921	3,921	3,921	3,921
Demand	1,420	1,890	2,360	2,830	3,300
Difference	2,501	2,031	1,561	1,091	621

Table 5-8: Five Consecutive Dry Years Non-Potable Water Supply and Demand in SCWA's Zone 40 through 2045

Five Year Drought		2025	2030	2035	2040	2045
Year 1	Supply	3,921	3,921	3,921	3,921	3,921
	Demand	1,420	1,890	2,360	2,830	3,300
	Difference	2,501	2,031	1,561	1,091	621
Year 2	Supply	3,921	3,921	3,921	3,921	3,921
	Demand	1,420	1,890	2,360	2,830	3,300
	Difference	2,501	2,031	1,561	1,091	621
Year 3	Supply	3,921	3,921	3,921	3,921	3,921
	Demand	1,420	1,890	2,360	2,830	3,300
	Difference	2,501	2,031	1,561	1,091	621
Year 4	Supply	3,921	3,921	3,921	3,921	3,921
	Demand	1,420	1,890	2,360	2,830	3,300
	Difference	2,501	2,031	1,561	1,091	621
Year 5	Supply	3,921	3,921	3,921	3,921	3,921
	Demand	1,420	1,890	2,360	2,830	3,300
	Difference	2,501	2,031	1,561	1,091	621

5.2.3 Long Term Water Supply Reliability in Remaining Service Areas

SCWA operates water systems in other six service areas that are wholly independent from the surface and groundwater supplies that are used to serve Zone 40 described in the previous section. These service areas are: Arden Park Vista, Northgate 880, Metro Air Park, Southwest Tract, Hood, and East Walnut Grove. These six systems have independent water supplies. The supplies in these systems are mostly generated from groundwater assets. These groundwater assets are generally surplus to the needs of the individual water systems. The Metro Air Park area is served through a contract with the City of Sacramento and has sufficient reliability to meet its long-term demands. The following is a summary of the six service areas water supply reliability for a normal, single dry year, and for five consecutive dry years from 2025 through 2045.

Metro Air Park

The Metro Air Park area is wholly served by the City of Sacramento through the 2004 water supply contract as described in Chapter 3. This contract could provide up to 11.7 mgd of supply to the Metro Air Park under varying conditions to meet demands. The water supplies under this contract are available to meet the Metro Air Park demands under all conditions through 2045. Tables 5-9 and 5-10 show the long-term supply reliability for the Metro Air Park.

Table 5-9: Normal and Single Dry Year Water Supply and Demand in SCWA's Metro Air Park through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	1,193	2,325	3,457	4,590	5,715
Demand	1,193	2,325	3,457	4,590	5,715
Difference	0	0	0	0	0

Single Dry Year	2025	2030	2035	2040	2045
Supply	1,252	2,441	3,630	4,819	6,000
Demand	1,252	2,441	3,630	4,819	6,000
Difference	0	0	0	0	0

Table 5-10: Five Consecutive Dry Years Water Supply and Demand in SCWA's Metro Air Park through 2045

5-Yr Drought		2025	2030	2035	2040	2045
Year 1	Supply	1,252	2,441	3,630	4,819	6,000
	Demand	1,252	2,441	3,630	4,819	6,000
	Difference	0	0	0	0	0
Year 2	Supply	1,252	2,441	3,630	4,819	6,000
	Demand	1,252	2,441	3,630	4,819	6,000
	Difference	0	0	0	0	0
Year 3	Supply	1,252	2,441	3,630	4,819	6,000
	Demand	1,252	2,441	3,630	4,819	6,000
	Difference	0	0	0	0	0
Year 4	Supply	1,252	2,441	3,630	4,819	6,000
	Demand	1,252	2,441	3,630	4,819	6,000
	Difference	0	0	0	0	0
Year 5	Supply	1,252	2,441	3,630	4,819	6,000
	Demand	1,252	2,441	3,630	4,819	6,000
	Difference	0	0	0	0	0

Southwest Tract

The Southwest Tract service area is wholly served by groundwater derived from a contract signed in 1970 with Fruitridge Vista Water Company. The contract has no constraints on reliability for the Southwest Tract and there have never been curtailments in supply reliability to the Southwest Tract. Accordingly, the groundwater supplies that are delivered under this agreement are available to meet the Southwest Tract demands under all conditions through 2045. Tables 5-11 and 5-12 show the long-term supply reliability for the Southwest Tract.

Table 5-11: Normal and Single Dry Year Water Supply and Demand in SCWA's Southwest Tract through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	23	23	23	23	23
Demand	23	23	23	23	23
Difference	0	0	0	0	0

Single Dry Year	2025	2030	2035	2040	2045
Supply	24	24	24	24	24
Demand	24	24	24	24	24
Difference	0	0	0	0	0

Table 5-12: 5 Consecutive Dry Year Water Supply and Demand in SCWA's Southwest Tract through 2045

5-Yr Drought		2025	2030	2035	2040	2045
Year 1	Supply	24	24	24	24	24
	Demand	24	24	24	24	24
	Difference	0	0	0	0	0
Year 2	Supply	24	24	24	24	24
	Demand	24	24	24	24	24
	Difference	0	0	0	0	0
Year 3	Supply	24	24	24	24	24
	Demand	24	24	24	24	24
	Difference	0	0	0	0	0
Year 4	Supply	24	24	24	24	24
	Demand	24	24	24	24	24
	Difference	0	0	0	0	0
Year 5	Supply	24	24	24	24	24
	Demand	24	24	24	24	24
	Difference	0	0	0	0	0

Arden Park Vista

The Arden Park Vista service area is wholly served by groundwater derived from numerous wells in the service area boundary. The groundwater supplies are not constrained and there have never been supply curtailments affecting the Arden Park Vista service area. Accordingly, the groundwater supplies are available to meet the Arden Park Vista demands under all conditions through 2045. Tables 5-13 and 5-14 show the long-term supply reliability for Arden Park Vista service area.

Table 5-13: Normal and Single Dry Year Water Supply and Demand in SCWA's Arden Park Vista through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	3,454	3,395	3,316	3,237	3,217
Demand	3,454	3,395	3,316	3,237	3,217
Difference	0	0	0	0	0

Single Dry Year	2025	2030	2035	2040	2045
Supply	3,627	3,564	3,482	3,399	3,378
Demand	3,627	3,564	3,482	3,399	3,378
Difference	0	0	0	0	0

Table 5-14: Five Consecutive Dry Year Water Supply and Demands in SCWA's Arden Park Vista through 2045

5-Yr Drought		2025	2030	2035	2040	2045
Year 1	Supply	3,627	3,564	3,482	3,399	3,378
	Demand	3,627	3,564	3,482	3,399	3,378
	Difference	0	0	0	0	0
Year 2	Supply	3,627	3,564	3,482	3,399	3,378
	Demand	3,627	3,564	3,482	3,399	3,378
	Difference	0	0	0	0	0
Year 3	Supply	3,627	3,564	3,482	3,399	3,378
	Demand	3,627	3,564	3,482	3,399	3,378
	Difference	0	0	0	0	0
Year 4	Supply	3,627	3,564	3,482	3,399	3,378
	Demand	3,627	3,564	3,482	3,399	3,378
	Difference	0	0	0	0	0
Year 5	Supply	3,627	3,564	3,482	3,399	3,378
	Demand	3,627	3,564	3,482	3,399	3,378
	Difference	0	0	0	0	0

Northgate 880

The Northgate 880 service area is wholly served by groundwater derived from numerous wells in the service area boundary. The groundwater supplies are not constrained and there have never been supply curtailments affecting the Northgate 880 service area. Accordingly, the groundwater supplies are available to meet the Northgate 880 demands under all conditions through 2045. Tables 5-15 and 5-16 show the long-term supply reliability for Northgate 880 service area.

Table 5-15: Normal and Single Dry Year Water Supply and Demand in SCWA's Northgate 880 through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	1,365	1,365	1,365	1,365	1,365
Demand	1,365	1,365	1,365	1,365	1,365
Difference	0	0	0	0	0

Single Dry Year	2025	2030	2035	2040	2045
Supply	1,434	1,434	1,434	1,434	1,434
Demand	1,434	1,434	1,434	1,434	1,434
Difference	0	0	0	0	0

Table 5-16: Five Consecutive Dry Year Water Supply and Demands in SCWA's Northgate 880 through 2045

5-Yr Drought		2025	2030	2035	2040	2045
Year 1	Supply	1,434	1,434	1,434	1,434	1,434
	Demand	1,434	1,434	1,434	1,434	1,434
	Difference	0	0	0	0	0
Year 2	Supply	1,434	1,434	1,434	1,434	1,434
	Demand	1,434	1,434	1,434	1,434	1,434
	Difference	0	0	0	0	0
Year 3	Supply	1,434	1,434	1,434	1,434	1,434
	Demand	1,434	1,434	1,434	1,434	1,434
	Difference	0	0	0	0	0
Year 4	Supply	1,434	1,434	1,434	1,434	1,434
	Demand	1,434	1,434	1,434	1,434	1,434
	Difference	0	0	0	0	0
Year 5	Supply	1,434	1,434	1,434	1,434	1,434
	Demand	1,434	1,434	1,434	1,434	1,434
	Difference	0	0	0	0	0

Hood Water Maintenance District (Hood)

The Hood service area is wholly served by groundwater derived from numerous wells in the service area boundary. The groundwater supplies are not constrained and there have never been supply curtailments affecting the Hood service area. Accordingly, the groundwater supplies are available to meet the Hood demands under all conditions through 2045. Tables 5-17 and 5-18 show the long-term supply reliability for Hood service area.

Table 5-17: Normal and Single Dry Year Water Supply and Demand in SCWA's Hood through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	31	31	31	31	31
Demand	31	31	31	31	31
Difference	0	0	0	0	0

Single Dry Year	2025	2030	2035	2040	2045
Supply	33	33	33	33	33
Demand	33	33	33	33	33
Difference	0	0	0	0	0

Table 5-18: Five Consecutive Dry Year Water Supply and Demand in SCWA's Hood through 2045

5-Yr Drought		2025	2030	2035	2040	2045
Year 1	Supply	33	33	33	33	33
	Demand	33	33	33	33	33
	Difference	0	0	0	0	0
Year 2	Supply	33	33	33	33	33
	Demand	33	33	33	33	33
	Difference	0	0	0	0	0
Year 3	Supply	33	33	33	33	33
	Demand	33	33	33	33	33
	Difference	0	0	0	0	0
Year 4	Supply	33	33	33	33	33
	Demand	33	33	33	33	33
	Difference	0	0	0	0	0
Year 5	Supply	33	33	33	33	33
	Demand	33	33	33	33	33
	Difference	0	0	0	0	0

East Walnut Grove

The East Walnut Grove service area is wholly served by groundwater derived from numerous wells in the service area boundary. The groundwater supplies are not constrained and there have never been supply curtailments affecting the East Walnut Grove service area. Accordingly, the groundwater supplies are available to meet the East Walnut Grove demands under all conditions through 2045. Tables 5-19 and 5-20 show the long-term supply reliability for East Walnut Grove service area.

Table 5-19: Normal and Single Dry Year Water Supply and Demand in SCWA's East Walnut Grove through 2045

Normal Year	2025	2030	2035	2040	2045
Supply	53	53	53	53	53
Demand	53	53	53	53	53
Difference	0	0	0	0	0

Single Dry Year	2025	2030	2035	2040	2045
Supply	56	56	56	56	56
Demand	56	56	56	56	56
Difference	0	0	0	0	0

Table 5-20: Five Consecutive Dry Year Water Supply and Demands in SCWA's East Walnut Grove through 2045

5-Yr Drought		2025	2030	2035	2040	2045
Year 1	Supply	56	56	56	56	56
	Demand	56	56	56	56	56
	Difference	0	0	0	0	0
Year 2	Supply	56	56	56	56	56
	Demand	56	56	56	56	56
	Difference	0	0	0	0	0
Year 3	Supply	56	56	56	56	56
	Demand	56	56	56	56	56
	Difference	0	0	0	0	0
Year 4	Supply	56	56	56	56	56
	Demand	56	56	56	56	56
	Difference	0	0	0	0	0
Year 5	Supply	56	56	56	56	56
	Demand	56	56	56	56	56
	Difference	0	0	0	0	0

5.3 Annual Reliability Assessment

The SCWA may consider current supply and demand conditions and perform an annual water supply and demand assessment (Annual Assessment) pursuant to Water Code Section 10632.1 to evaluate real-time or near-term circumstances that are different than the DRA scenario. This assessment would evaluate actual current water supply and use conditions. For purposes of this UWMP, the "current" water use conditions as described in Chapter 4 are compared to the availability of SCWA's existing water supplies as described in Chapter 3. Two scenarios are illustrated for both the Zone 40 service area and the other services areas (combined):

- Normal Year condition: reflecting the availability of supplies under normal conditions and the "current" water uses
- Single-Dry Year condition: reflecting the availability of supplies under a severe, single-dry year and elevated "current" water uses reflecting increased demands expected in a single dry year.

5.3.1 Zone 40 Normal Year Supply and Current Water Use

SCWA defines a normal year condition as one that allows the agency to obtain water supplies from all sources under its Zone 40 water supply portfolio under normalized conditions. These conditions include normally anticipated regulatory constraints on its water rights, unconstrained conditions for its water supply contracts, and no limitations on its ability to access groundwater resources. These conditions are described in significant detail in Chapter 3 and reflected in the monthly supply determinations shown below.

Normal year demands include the anticipated demands based upon historical trends in water usage in non-drought conditions by SCWA's customers. Demands in normal conditions generally are lower in the wetter months and higher in the drier months. These demands may fluctuate over time as land uses and populations change within the Zone 40 service area. The monthly demands also account for reasonable water conservation measures derived from improved efficiencies in indoor fixtures, improved management of outdoor landscape irrigation, and a general awareness of the value of long-term water conservation at the consumer level. These demand conditions are described in significant detail in Chapter 4 and reflected in the monthly demand assessments shown below.

Table 5-21 below shows the normal year water supply and demand conditions for SCWA's Zone 40 service area on a monthly timestep.

Table 5-21: Normal Year Water Supply and Demand in SCWA's Zone 40

Normal Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Supply	14,169	14,181	14,577	14,673	15,674	8,748	9,422	9,659	9,495	16,489	15,946	14,706	157,740
Demand	1,557	1,601	2,085	2,108	3,175	4,160	4,842	5,101	4,876	3,956	3,387	2,130	38,979
Difference	12,612	12,580	12,492	12,566	12,498	4,588	4,580	4,558	4,618	12,533	12,559	12,577	118,761

5.3.2 Zone 40 Single Dry Year Supply and Dry-Year Current Demand

SCWA defines a single dry year condition as one that constrains SCWA from obtaining some of its water supplies in its Zone 40 water supply portfolio due to hydrological, regulatory, and institutional constraints. These conditions include more restrictive regulatory constraints on its water rights, constrained conditions for its water supply contracts, yet no limitations on its ability to access groundwater resources. The restrictive conditions manifest in changed availability of some Zone 40 water assets in various months depicted in the tables below. These changed monthly water supply conditions are described in significant detail in Chapter 3.

Single dry year demands include the anticipated demands based upon historical trends in water usage in drought conditions by SCWA's customers. Demands in dry conditions may increase in the normally wetter months as denuded hydrological conditions generate additional customer uses for outdoor irrigation. These conditions are described in significant detail in Chapter 4 and reflected in the monthly demand tables below. The analysis uses the "current" water use, adjusted as described in Chapter 4.

Table 5-22 below shows the single dry year water supply and demand conditions for SCWA's Zone 40 service area.

Table 5-22: Single Dry Year Water Supply and Demand in SCWA's Zone 40

Single Dry Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Supply	9,678	9,689	10,086	3,934	4,934	5,863	6,537	6,775	6,610	5,749	5,206	10,214	85,274
Demand	1,635	1,681	2,189	2,213	3,334	4,368	5,084	5,357	5,120	4,154	3,557	2,236	40,928
Difference	8,043	8,008	7,896	1,720	1,600	1,495	1,453	1,418	1,490	1,595	1,650	7,978	44,346

5.3.3 Other Service Areas Normal Year Supply and Current Demand

Similar to the Zone 40 predicted condition for current reliability, an analysis was completed for the six other water service areas considering this year or next reflect normal supply and water use conditions. This analysis uses the normal supply conditions described in Chapter 3 for these areas, as well as the "current" water use presented in Chapter 4.

Table 5-23: Normal Year Water Supply and Demand in SCWA's Non-Zone 40

Normal Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Supply	208	265	309	334	500	614	708	701	612	539	368	251	5,408
Demand	208	265	309	334	500	614	708	701	612	539	368	251	5,408
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3.4 Other Service Areas Single Dry Year Supply and Dry-Year Current Demand

If conditions in 2021 or 2022 are considered to match a single dry year condition, the following assessment is provided. Supplies available to these other service areas are not expected to be constrained, as described in Chapter 3. The water use in the table reflects an increased "current" water use as described in Chapter 4.

Table 5-24: Single Dry Year Water Supply and Demand in SCWA's Non-Zone 40

Single Dry Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Supply	218	278	324	351	525	645	743	736	642	566	386	264	5,678
Demand	218	278	324	351	525	645	743	736	642	566	386	264	5,678
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0

5.4 Water Supply Reliability Summary

Sacramento County Water Agency has a diverse and robust water supply portfolio capable of meeting the water demands in all of its service areas in normal, single dry, and five consecutive dry years from 2020 through 2045. Zone 40's diverse water supply portfolio coupled with the system's flexible operations render the supply reliable in all year types including reasonable planned growth through 2045. The six other independent service areas have minimal constraints on system operations and have planned supply conditions to handle reasonably expected urban and population growth through this 2020 UWMPs planning horizon.

Chapter 6
Water Shortage Contingency Plan

The Sacramento County Water Agency (SCWA) is reconstituting its Water Shortage Contingency Plan (WSCP) in a separate but parallel process. SCWA's 2020 WSCP will be adopted before or contemporaneously with SCWA's 2020 Urban Water Management Plan. SCWA's new WSCP will address all mandated requirements in of the Urban Water Management Planning Act and will identify specific water shortage actions in all seven of its service areas to meet staged water use reduction targets of up to 10%, 10-20%, 20-30%, 30-40%, 40-50% and greater than 50%. Accordingly, the revised WSCP is incorporated in its entirety as Appendix A to SCWA's 2020 UWMP.

Appendix A
Water Shortage Contingency Plan

This Sacramento County Water Agency's Water Shortage Contingency Plan is provided on the following pages.

Appendix B - Alternative Water Source Memorandum, Wood Rodgers

Technical Memorandum

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

To:	Emma Patten, Sacramento County Planning an Environmental Review		
From:	Mike Motroni, PE MPH	**CC:**	Nick Avdis, Avdis & Cucchi Dan Cucchi, Avdis & Cucchi
Date:	October 15, 2025		
Subject:	Upper Westside Specific Plan – Alternative Water Source		

1.0 Introduction

1.1 Background

The purpose of this technical memorandum is to identify an alternative water source should the City of Sacramento (City) choose not to supply wholesale water to the Upper Westside (UWS) project. The alternative water source will allow the project to move forward with an alternative plan for water, if needed or desired. This will include Natomas Central Mutual Water Company (NMW) providing wholesale raw surface water to a new onsite surface water treatment plant capable of supplying UWS with potable water. Refer to attached **Figure 1** for a schematic of the proposed water infrastructure.

1.2 Natomas Central Mutual Water Company Alternative

Water Rights

NMW would be a wholesaler of raw water to the Sacramento County Water Agency (SCWA). NMW holds substantial water rights to serve agricultural needs within the Natomas Basin. These rights are a combination of various state permits and a United States Bureau of Reclamation (USBR) contract. NMW currently serves 43 growers across 284 fields. The state permits and USBR contract currently only allow for agricultural use. Amendments to both the state permits and USBR contract will be required to supply Municipal and Industrial (M&I) water to UWS.

New Surface Water Treatment Plant

The need for a new surface water treatment plant arises from the Upper Westside Specific Plan's requirement for an alternative water source if the City decides not to supply wholesale treated water to the project. NMW will provide wholesale raw surface water to a new onsite surface water treatment plant capable of supplying UWS. The surface

water treatment plant is essential to ensure a reliable and safe water supply for the development, as it will treat Sacramento River water for potable use. It is anticipated that the proposed surface water treatment plant will include processes such as grit removal, coagulation, flocculation, sedimentation, filtration, and disinfection to meet water quality standards. Included in this memorandum as **Figure 2** is a schematic design of the surface water treatment plant.

2.0 Water Sources

2.1 Existing Water Contracts / Permits

NMW maintains robust water rights for serving agricultural uses within the Natomas Basin. NMW does maintain select M&I rights for serving the Sacramento Airport and Metro Airpark. NMW currently serves 43 growers and 284 fields throughout the basin consisting of 30,000 acres[1]. Water rights are a combination of a United States Bureau of Reclamation contract and State permits. These rights are shown below in **Table 2.1**. Note that most of the permits, including USBR contract, are not available during the winter months between November and March. There is a May 1978 winter water permit that can provide surface water from the Sacramento River during those months. Historical NMW water use during the winter months varies from none to 9,950 acre-feet/year (AFY). The May 1978 permit allows up to 10,000 AFY between the months of November and March, it does not specify usage by month.

Water contract and rights currently only allow for agriculture use and limited M&I use. The USBR contract allows for an amendment to convert to M&I use while the state permits would need to be amended by the State Water Resources Control Board.[2] Additionally, the USBR contract will require amendment to allow for winter surface water deliveries.

[1] Email correspondence from Brett Gray at Natomas Central Mutual Water Company dated August 13, 2025.

[2] Email correspondence from Brett Gray at Natomas Central Mutual Water Company dated August 13, 2025.

Table 2.1: Natomas Central Mutual Water Company Water Rights
Source: Natomas Central Mutual Water Company dated August 13, 2025.

	USBR	Permit - State						
	Contract	**A000534**	**A001056**	**A001203**	**A001413**	**A015572**	**A022309**	**A025727**
Priority		Mar-1905	Aug-1918	Mar-1919	Aug-1919	Oct-1953	Oct-1965	May-1978
Source		River	River	River	River	River	Drain	Winter R&D
Permit Total (AF)	**120,200**	**15,394.2**	**16,205.2**	**58,394.2**	**36,655.1**	**11,846.0**	**2,627.0**	**10,000.0**
POU (Acres)		5,903.54	3,543.64	11,298.00	11,298.00	29,000.00	30,480.00	10,000.00
CFS		41.28	38	160	120	131	14	
October	2,000	N/A			N/A	N/A		
November	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
December	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
January	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
February	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
March	N/A	N/A		N/A	N/A	N/A		
April	14,000			N/A	N/A			N/A
May	27,700							N/A
June	23,000							N/A
July	18,700					N/A	N/A	N/A
August	18,700					N/A	N/A	N/A
September	16,100					N/A		N/A
Total	120,200							
N/A: Not available or not in contract / water right window.								

2.2 USBR Contract Curtailments

The USBR Contract is based on inflow to Shasta Lake. Historically there is a 25% curtailment in three out of every ten years. For years of critical droughts, considered 7 out of every 100 years, an additional 25% curtailment can be imposed under the Central Valley Project's Drought Protection Program. Refer to **Table 2.2** below showing the USBR Contract water under various curtailment scenarios.

Table 2.2: USBR Contract Water & Curtailments

USBR Contract Amount	25% Curtailment	50% Curtailment Drought Protection Program
120,200 AFY	90,150 AFY	60,100 AFY

3.0 Water Demands

3.1 Existing NMW Water Demand

As shown in Table 3.1 below, NMW's historical usage from years 2013 to 2024 ranges between 29,012 AFY to 81,580 AFY with an average during this time period of 68,099 AFY. NMW's USBR contract alone is 120,200 AFY which is more than the 2016 maximum diversion. Excluding drought years of 2014, 2015, 2021, and 2022 the average surface water use is 71,595 AFY.

Table 3.1: NMW Historical Annual Surface Water Use
Source: Email correspondence from Brett Gray, Natomas Central Mutual Water Company, dated August 15, 2025.

Year	Annual Surface Water (AFY)
2024	60,799
2023	72,593
2022	29,012
2021	74,450
2020	75,053
2019	63,188
2018	74,879
2017	63,763
2016	81,580
2015	67,618
2014	73,348
2013	80,903
Average	**68,099**
Non-Drought Average[3]	**71,595**

3.2 Existing NMW Water Demand Drought Years

For the drought years of 2014, 2015, 2021, and 2022 surface water use ranges from 29,012 AFY to 74,450 AFY with an average of 61,107 AFY. With a 25% curtailment of deliveries to NMW this equates to reduced maximum diversion of 90,150 AFY. This 25% curtailment is higher than the maximum diversion year based on 2013-2024 historical pumping by NMW.

[3] Average excluding drought years of 2014, 2015, 2021, and 2022.

3.3 Existing UWS Agriculture Water Demand

Within the Upper Westside urban area, NMW reports historical surface water use ranging from 1,307 AFY to 4,860 AFY with an average of 2,703 AFY. These ranges are reported from 2013 to 2024 as shown in **Table 3.2** below. The existing uses would cease to exist in the proposed development scenario and would be available for municipal uses upon USBR contract and state permit amendments. It is important to note that in the 2014, 2015, 2021 and 2022 drought years the existing use ranged from 1,307 AFY to 4,014 AFY with an average of 2,956 AFY. The average water use was higher in the drought years verses the overall 2013-2014 historical use.

Table 3.2: Summary of Riverside Use within UWS Area (acre-feet)
Source: Email correspondence from Brett Gray, Natomas Central Mutual Water Company, dated August 15, 2025.

Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2024					216	542	599	584	58	364	1	0	2,365
2023				0	38	712	616	353	91	75	3	2	1,892
2022			307	389	133	165	335	220	59	7			1,307
2021			145	1,085	155	312	654	730	221	127			3,284
2020				63	325	341	204	229	160				1,321
2019						227	415	458	238	10			1,353
2018					247	739	944	699	367	6			3,002
2017					217	441	555	586	245				2,045
2016				90	539	935	951	758	430	80			3,782
2015				483	653	786	760	417	94	24			3,218
2014				174	843	1,104	969	733	162	28			4,014
2013				373	1,265	1,041	865	807	237	14		256	4,860
Minimum					4	165	204	220	58				**1,307**
Average			38	221	386	612	656	548	197	61	0	22	**2,703**
Maximum			307	1,085	1,265	1,104	969	807	430	364	3	256	**4,860**

3.4 Anticipated UWS NMW Water Demands

The proposed UWS project is anticipated to utilize 3,139 AFY of surface water for domestic uses[4]. Based on typical urban monthly water uses as shown in the SCWA's 2020 Urban Water Management Plan[5], the overall water use can be reduced to an anticipated monthly demand. **Table 3.3** below shows the anticipated monthly demand for the

[4] Table 8 per Upper Westside Specific Plan, Water Master Plan, dated September 26, 2023. Note that the Water Master Plan also provided a total project demand of 4,250 AFY utilizing the City's demand factors. Since this alternative assumes that SCWA would be the purveyor it utilizes the approved SCWA demand factors, not the City demand factors.

[5] Table 4-1(a) Total Metered Deliveries represents monthly water use for the years 2016-2019.

project. **Table 3.3** also shows the historical monthly average pumping from the Riverside Pump Station to within UWS. For the existing surface water usage during March, November, and December are all assumed to average zero since they only represent two or three historical years and are not representative of typical operations.

Table 3.3: Anticipated Water Demand by Month

Month	Proposed Surface Water Demand (acre-feet)	Average Existing Surface Water Usage[6] (acre-feet)	Additional Water Use Beyond Existing (acre-feet)
January	140	0	140
February	133	0	133
March	122	0	122
April	154	221	0
May	245	386	0
June	351	612	0
July	401	656	0
August	430	548	0
September	406	197	209
October	331	61	270
November	258	0	258
December	168	0	168
Yearly Total	**3,139**		**1,300**

When comparing existing water use within UWS to proposed water use, the proposed project will utilize more surface water during the cooler months between September and March. This is due to little to no water usage currently experienced during those months. As a result, there will be increased pumping of the Sacramento River during the months of September to October in the range of approximately 122 to 270 acre-feet per month with a total additional use of 1,300 AFY during those months. On an annualized basis the increase in surface water supply for UWS is 436 AFY.

3.5 Cumulative Water Demands

There are three other major projects that propose to utilize NMW surface water. These are the Sutter Pointe Specific Plan, GrandPark Southwest Specific Plan, and Grandpark Trails Specific Plan. Of the three projects, only Sutter Pointe is an approved project. According to Sutter Pointe's approved water supply assessment[7], at buildout Sutter

[6] Refer to **Table 3.2** for average existing surface water use between April and October.

[7] Refer to Section 5 – Conclusions of the Sutter Pointe Specific Plan SB 610 Water Supply Assessment by Tulley & Young, dated December 2008.

Pointe will utilize 12,128 AFY and 9,099 AFY in normal and dry years, respectively. This compares to a pre-project existing surface water use of 19,030 AFY and 14,270 AFY in normal and dry years, respectively. The reduction in surface water use is primarily since the pre-project land area consists of rice farming, a water intensive crop.

The GrandPark Southwest Specific Plan and Grandpark Trails Specific Plan projects are currently unapproved and are undergoing technical studies. According to NMW the two projects currently utilize an average of 15,821 AFY during non-drought years. Refer to **Table 3.4: Grandpark Existing NMW Surface** Water Usage below.

Table 3.4: Grandpark Existing NMW Surface Water Usage
Source: Email correspondence from Brett Gray, Natomas Central Mutual Water Company, dated October 14, 2025.

Year	GrandPark Southwest Total (AFY)	Grandpark Trails Total (AFY)
2024	5,902	10,093
2023	7,326	8,158
2022	2,812	10,126
2021	6,416	3,887
2020	6,810	8,869
2019	5,890	9,413
2018	7,062	8,142
2017	8,361	9,761
2016	7,626	11,557
2015	6,118	10,542
2014	6,049	8,457
2013	7,221	8,361
Average	**6,473**	**8,947**
Non-Drought Year Average[8]	**6,641**	**9,180**

Based on the currently available land use information for both Grandpark projects, the annual water demand was calculated utilizing SCWA demand factors. The calculations are shown in **Table A-1** and **Table A-2** as an attachment. For the GrandPark Southwest Specific Plan the proposed annual demand is 3,890 AFY. For the Grandpark Trails Specific Plan the proposed annual demand is 5,735 AFY. The two Grandpark projects will utilize a total of 9,625 AFY. Assuming both projects will fully utilize surface water to meet their proposed demand, there

[8] Average excluding drought years of 2014, 2015, 2021, and 2022.

will be a net decline of 6,196 AFY surface water usage for the Grandpark projects. Similar to Sutter Pointe, this is due to the existing land use consisting of rice farming.

Table 3.5 below provides a summary of NMW surface water use for the four major specific plan projects in both the existing / pre-project condition and the proposed developed conditions. Based on the currently available land use plans, it is estimated that the cumulative scenario will utilize 12,662 AFY less NMW surface water in the developed condition.

Table 3.5: Cumulative Annual Surface Water Use Summary verse Existing / Pre-Project Use

Specific Plan Project	Existing / Pre-Project (AFY)	Developed Conditions (AFY)	Change (AFY)
Sutter Pointe	19,030	12,128	(6,902)
GrandPark Southwest	6,641	3,890	(2,751)
Grandpark Trails	9,180	5,735	(3,445)
Upper Westside	2,703	3,139	436
Other Users	34,041	34,041	0
Total	**71,595**	**58,933**	**(12,662)**

3.6 Supply Delivery

Existing Plus Project

On an annual basis UWS will utilize 436 AFY more surface water than in the existing condition. **Table 3.6** below shows the existing plus project scenario and available surface water or deficient under normal years and curtailment years. During a 25% curtailment there is adequate water to meet all existing users with UWS. During a 50% curtailment NMW would be short 11,931 AFY in meeting existing plus project water demands. To mitigate this shortage NMW indicates that it would prioritize the project should curtailments occur[9].

Table 3.6: Annual Water Availability Existing plus Project Scenario

Supply	Normal Years (AFY)	25% Curtailment Years (AFY)	50% Curtailment Years (AFY)
Available Supply	120,200	90,150	60,100
Upper Westside Use	3,139	3,139	3,139
Existing Uses	68,892	68,892	68,892
Surplus (Deficit)	48,169	18,119	(11,931)

[9] Letter from NMW dated September 24, 2025 to Sacramento County. See attached.

Cumulative Scenario

Table 3.7 below is a summary of the cumulative water demands compared to the available sources during normal and curtailment years. While there is a reduction in supply during curtailment years, the maximum curtailment of 50% is 1,167 AFY greater than the cumulative surface water use once all projects are developed.

Table 3.7: Annual Water Availability Cumulative Scenario

Specific Plan Project	Normal Years (AFY)	25% Curtailment Years (AFY)	50% Curtailment Years (AFY)
Available Supply	120,200	90,150	60,100
Projected Cumulative Use	58,933	58,933	58,993
Surplus (Deficit)	61,267	31,217	1,167

4.0 Infrastructure

4.1 Existing Infrastructure

NMW maintains four river pumping plants and five wells for extracting and delivery of water to NMW customers. The closest pump station to UWS is the Riverside Pumping Plant located east of the Garden Highway and Radio Road intersection. From there Sacramento River water is pumped into the NMW distribution system. While the NMW irrigation system is integrated throughout the Natomas Basin, there is a newly constructed raw water pipeline that conveys water south adjacent to the proposed UWS project.

Riverside Pumping Plant

The Riverside Pumping Plant's proximity to UWS provides a unique opportunity to utilize NMW surface water from the Sacramento River. The Riverside Pumping Plant was recently reconstructed to accommodate the levee improvements of the Sacramento River as part of the American River Common Features, Natomas Basin Reach A project. Per the pump stations Basis of Design Report (BODR) the facility was designed with a new pump, electrical system, structure, and to meet current design standards. The facility also constructed a new cylindrical fish screen to prevent fish entrainment in conformance with state and federal fish screen requirements.[10]

According to the BODR report the minimum and maximum preferred operating range for the pump is approximately 33 and 47 cubic feet per second, respectively. This equates to a capacity of 14,800 to 21,100 gallons per minute.

[10] Riverside Pumping Plant Replacement, Basis of Design Report, by Jacobs, dated March 2022.

The pumping plant discharges into a concrete portion of the Riverside Canal that was also recently improved as part of the Natomas Basin Reach A levee improvement project.

Riverside Canal / Pipeline Lift Station

Approximately 125-feet south of the Riverside Pumping Plant discharge point is the Riverside Canal / Pipeline Lift Station. The newly constructed facility consists of valving, a 50-horsepower and 60-horesepower pump discharge into a new 48-inch HDPE pipeline. The 48-inch pipeline travels south transitioning to a 36-inch at existing Farm Road and then a 32-inch pipe at existing Parker Road. The pipeline ultimately discharges into an open canal that runs parallel to Interstate 80. The pipeline is currently utilized to serve agriculture water to existing NMW customers via periodic turnouts and discharges to open canals.[11]

4.2 Proposed Surface Water Infrastructure

The NMW alternative involves the conversion of agriculture water allocation to M&I water usage. UWS will receive NMW water conveyed via existing facilities as previously described. The alternative proposes a new domestic surface water treatment plant to treat Sacramento River water for potable use. Proposed preliminary infrastructure is shown in **Figure 1**.

Riverside Pumping Plant

The project alternative does not propose any changes to the Riverside Pumping Plant. However, operationally it will operate in the winter to provide surface water to the proposed surface water treatment plant. The additional monthly winter pumping ranges from an anticipated 122 to 270 acre-feet per month. The Riverside Pumping Plant will draw water at a rate of 33 to 47 CFS based on the existing pump and hydraulic head required to raise water over the levee. The pump will cycle throughout the day as water is required to serve the project. Averaging over a twenty-four-hour period the rate equates to four to nine cubic feet per second.

Riverside Canal / Pipeline Lift Station

The existing Riverside Canal / Pipeline Lift Station will utilize the existing 50- and 60-horsepower pumps to convey canal water to the existing Riverside Pipeline. The existing Riverside Pipeline will convey water to a new tie-in

[11] American River Common Features, Natomas Basin Reach B Volume 4, Riverside Canal Phase 2 Relocation Project improvement plans by Mead & Hunt, dated May 9, 2019.

location. Per conversation with NMW it is anticipated that the new tie-in would occur at their existing Riverside Pipeline near the west end of San Juan Road.

Surface Water Treatment Plant

The WTP is proposed for the north side of San Juan Road within the urban area of the project as shown in **Figure 1**. The anticipated capacity of the surface water treatment plant is approximately 7 million gallons per day and will be located on approximately 8-acres (subject to subsequent engineering and design). Typical surface water treatment plants consist of grit removal, followed by coagulation, flocculation, sedimentation, filtration and disinfection. In a water treatment facility, grit removal is the first step in the treatment process and reduces the solids loading of processes further downstream. A coagulant is added to the water after the grit basin and it is rapidly mixed, this is referred to as flash mix or rapid mix. This process is to make sure the coagulant is circulated throughout the water and relies on an injection pump for good dispersion. The coagulated water is either filtered directly through a medium filter (such as sand and gravel), a microfiltration or ultrafiltration membrane for higher quality waters, or it can be moved to a settling tank. In a settling tank, or clarifier, the heavy particles settle to the bottom and are removed, and the water moves on to the filtration step of the treatment process.

It is anticipated that a standard surface water treatment plant is sufficient and will include the following major aspects: Raw water conveyance to water treatment plant, grit removal, rapid / flash mix, flocculation, sedimentation, filtration, disinfection, backwash storage and pumps, miscellaneous supporting electrical and site features, and other features deemed necessary to provide treated water to the project. System redundancies would be included where customary. Those redundancies would be identified in subsequent design efforts. **Figure 2** is a schematic layout of how the surface water treatment plant may layout. Future design efforts will further define the site layout.

4.3 Change in Proposed Infrastructure

Onsite Water Storage and Booster Pump Station

The project proposes five million gallons of water storage and a booster pump station based on the factors shown in **Table 4.1** below. The storage is intended to be divided into two tanks of 2.5 million gallons each for redundancy and maintenance purposes. Redundancy of the booster pump station will be determined during subsequent design efforts. In this alternative the facility is located at or adjacent to the surface water treatment plant. Close proximity to the surface water treatment plant allows treated water to be discharged directly into the tank where it can then

be pumped into the project's transmission system. Placing the storage tank in line with the surface water treatment plant promotes turnover of the treated water which maintains water quality.

Table 4.1: Onsite Storage Sizing

Storage Criteria	Factor (gpm)	Storage (MG)
Operational Capacity: 20% of Maximum Day Demand for 24 hours	778	1.12
Fire Flow: 4,500 gpm for 4 hours[12]	4,500	1.08
Emergency: Average Day Demand[13]	1,946	2.80
Total Storage		**5.00**

Transmission System Layout

The transmission and distribution system for the project's preferred alternative will remain largely unchanged. However, there will be two additional 16-inch transmission mains conveying water from the proposed surface water treatment plant to the distribution system. The additional 16-inch transmission mains will convey potable water from the surface water treatment plant to the transmission and distribution mains at the intersection of San Juan Road and Bryte Bend Road. Two 16-inch transmission mains are proposed due to capacity while simultaneously providing for redundancies.

5.0 Regulatory & Permitting

5.1 State Water Resources Control Board

Amending water rights permits involves several steps to ensure compliance with regulatory requirements and to address the needs of the water rights holder. The process typically begins with the submission of a petition to the State Water Resources Control Board (SWRCB). This petition must detail the proposed changes to the water rights, such as modifications to the point of diversion, place of use, or purpose of use. The regulatory authority will then review the petition to ensure it meets all legal and environmental standards. Public notice of the proposed amendment is usually required, allowing for public comments and objections. If there are no significant objections and the proposed changes comply with all regulations, the regulatory authority will issue an amended permit. This

[12] While SCWA fire flow is 3,000 gpm for 3 hours, the plan area is served by the Natomas Fire Protection District which contracts to the City of Sacramento for fire service. Therefore, the City's higher fire flow requirement is utilized.

[13] SCWA criteria is one third of average day demand based on the assumption that groundwater pumping is available. Since the water plan does not propose to utilize groundwater, it utilizes a more conservative demand of full average day demand.

process ensures that water rights amendments are conducted transparently and in accordance with state and federal laws. It is anticipated that the project will need to amend permits to allow for M&I use.

5.2 United States Bureau of Reclamation Contract Amendment

Once water rights permits have been successfully amended, the next step is to amend the USBR water delivery contract to reflect these changes. This process begins with the submission of a formal request to the USBR, detailing the modifications made to the water rights permits and the desired changes to the water delivery contract. USBR will review the request to ensure it aligns with federal regulations and the terms of the existing contract.

It is anticipated that the USBR Contract will be amended to allow for two primary changes. They will require a conversion from agriculture to M&I use and to allow for winter delivers of surface water.

5.3 California Title 22 Permitting

The California Title 22 new water system permitting process involves several steps to ensure that new water systems meet the state's stringent water quality standards. The process begins with the submission of a permit application to the SWRCB. This application must include detailed information about the proposed water system, including its design, construction, and operation plans. The regulatory authority will review the application to ensure it complies with all applicable regulations and standards.

Once the application is deemed complete, the regulatory authority will conduct a thorough review, which may include site inspections and consultations with other agencies. Public notice of the proposed new water system is usually required, allowing for public comments and objections. If there are no significant objections and the proposed system meets all regulatory requirements, the regulatory authority will issue a permit to construct and operate the new water system. This process ensures that new water systems are designed and operated in a manner that protects public health and complies with state and federal laws.

6.0 Conclusion

In conclusion, the Upper Westside Specific Plan has identified a viable alternative water source. The proposed solution involves utilizing NMW to provide wholesale raw surface water to a new onsite surface water treatment plant. This approach leverages NMW's substantial water rights and existing infrastructure, ensuring a reliable and safe water supply for the Upper Westside project.

The implementation of a new surface water treatment plant, capable of treating Sacramento River water to meet potable standards, is a critical component of this alternative. The surface water treatment plant will incorporate advanced treatment processes such as grit removal, coagulation, flocculation, sedimentation, filtration, and disinfection. The anticipated water demand for the Upper Westside project is approximately 3,139 AFY for domestic uses. This demand is 436 AFY more than what is typically applied to UWS in existing conditions. Upon NMW successfully applying for amendment of water rights to allow for M&I use, their USBR contract can be amended to allow for M&I use and winter deliveries.

Attachments

1. Figure 1 – Water Plan Alternative
2. Figure 2 – Schematic Surface Water Treatment Plant Site Plan
3. Table A-1 – GrandPark Southwest Specific Plan Annual Water Demands
4. Table A-2 – Grandpark Trails Specific Plan Annual Water Demands
5. Natomas Central Mutual Water Company letter to Sacramento County, dated September 24, 2025

FIGURE 1
WATER PLAN ALTERNATIVE
COUNTY OF SACRAMENTO, CALIFORNIA
SEPTEMBER 25, 2025

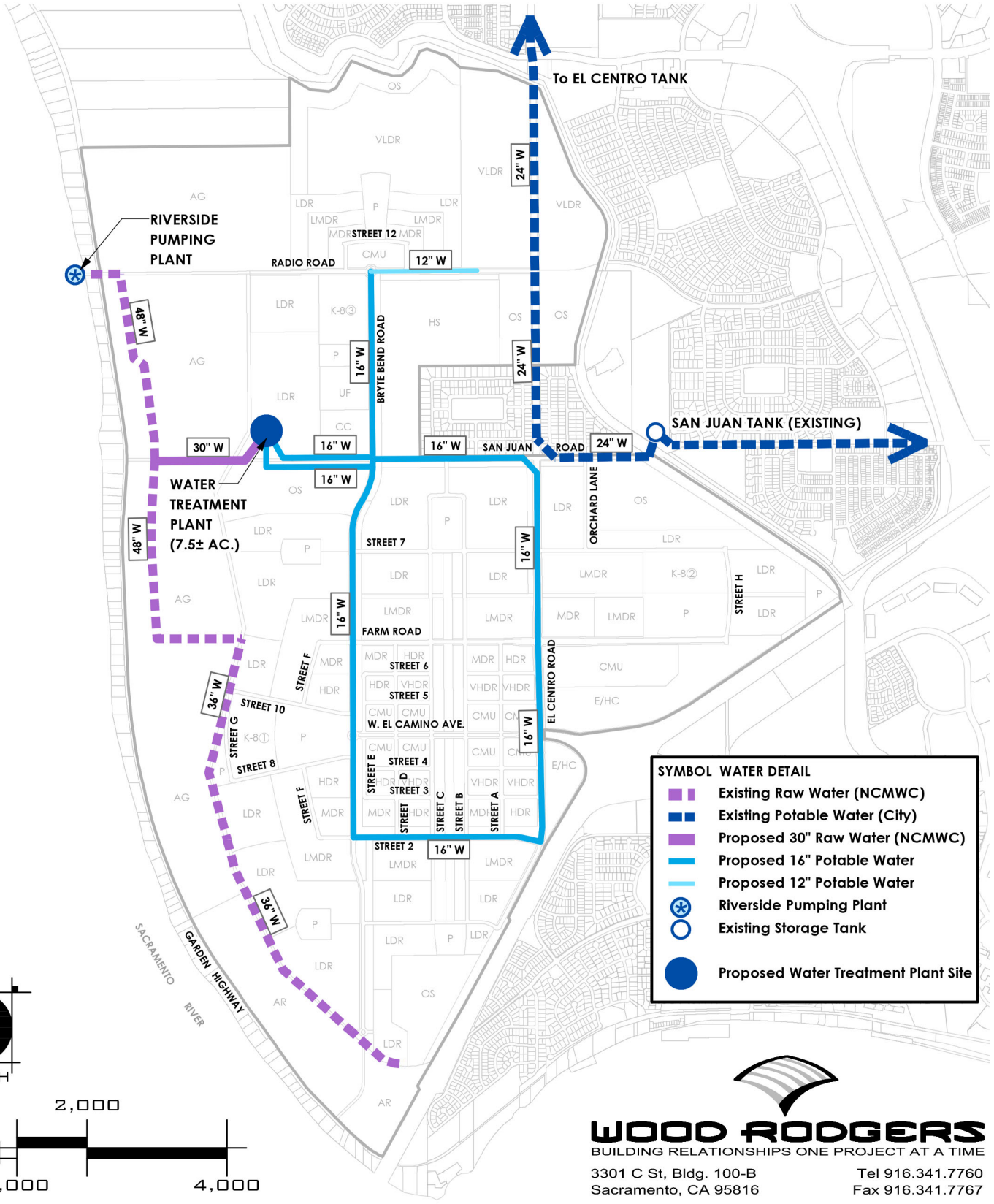


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FIGURE 1: WATER PLAN ALTERNATIVE - UPPER WESTSIDE

FIGURE 2
SCHEMATIC WATER TREATMENT PLANT SITE PLAN
COUNTY OF SACRAMENTO, CALIFORNIA
SEPTEMBER 25, 2025

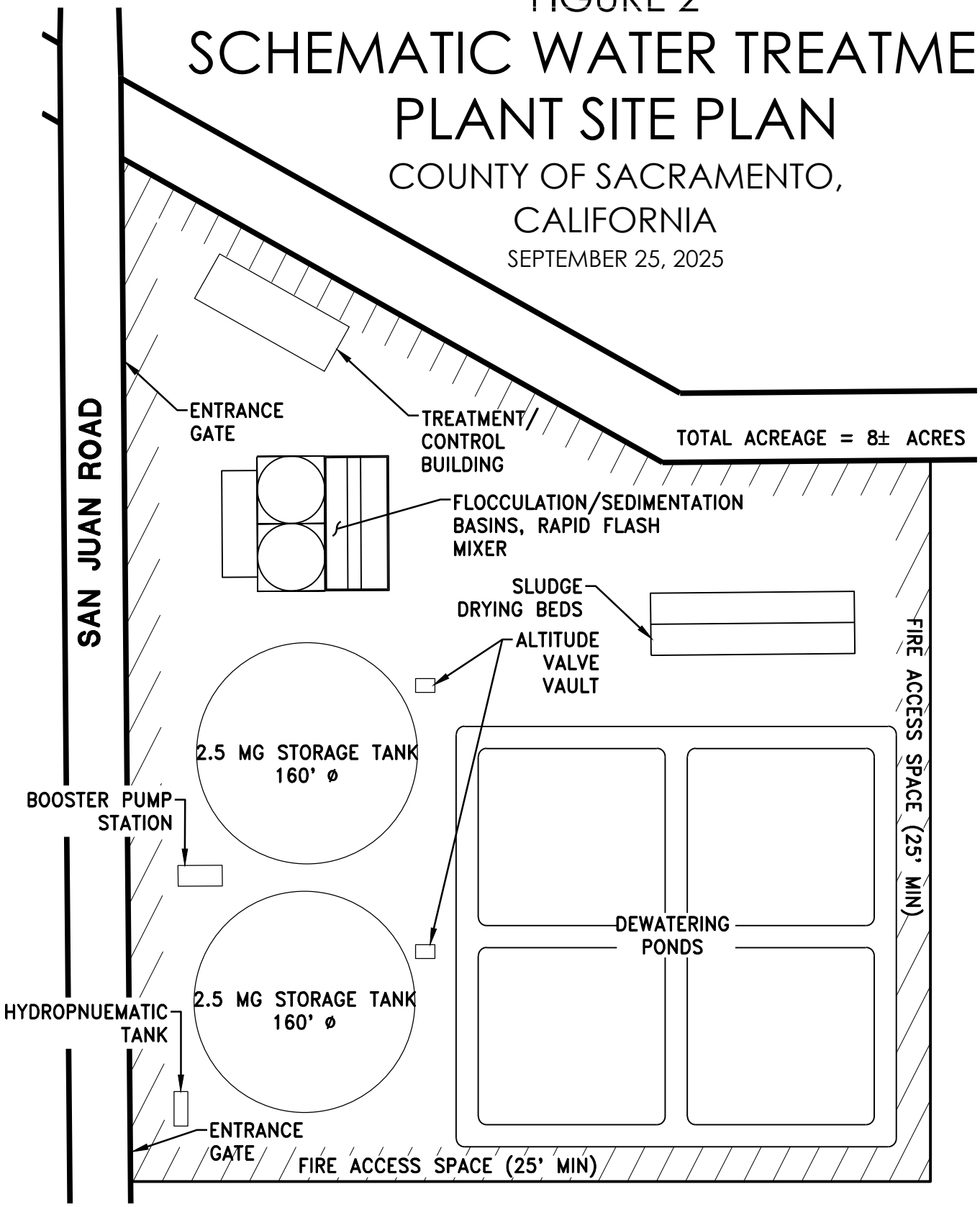

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TABLE A-1: GRANDPARK SOUTHWEST SPECIFIC PLAN - LAND USE SUMMARY

LAND USE	DENSITY RANGE	TARGET DENSITY (DU/AC)	ACRES (±)	ESTIMATED DWELLING UNITS	SCWA EQUIVALENT LAND USE	AVERAGE ANNUAL WATER DEMAND FACTOR (AF/ACRE/YEAR)	AVERAGE ANNUAL WATER DEMAND FACTOR (INCLUDING 7.5% WATER LOSS) (AF/ACRE/YEAR)	AVERAGE ANNUAL WATER DEMAND (INCLUDING 7.5% WATER LOSS) (AF/YEAR)
LOW DENSITY RESIDENTIAL (GSSP-LDR)	4-8 DU/AC	5.5	595.2	2,945	RURAL ESTATE	1.37	1.47	876.6
ACTIVE ADULT (GSSP-AAR)	5-9 DU/AC	6.5	164.9	965	SINGLE FAMILY	2.13	2.29	377.6
MEDIUM DENSITY RESIDENTIAL (GSSP-MDR)	7-13 DU/AC	9	117.1	948	MULTI-FAMILY - LOW DENSITY	2.44	2.62	307.2
MEDIUM HIGH DENSITY RESIDENTIAL (GSSP-MHDR)	10-20 DU/AC	14	52.1	656	MULTI-FAMILY - LOW DENSITY	2.44	2.62	136.7
HIGH DENSITY RESIDENTIAL (GSSP-HDR)	20-40 DU/AC	30	82.4	2,225	MULTI-FAMILY - HIGH DENSITY	3.33	3.58	295.0
RESIDENTIAL SUBTOTAL			**1,011.7**	**7,739**				
HEALTH & HOSPITALITY MIXED USE (GSSP-HHMU)	20-40 DU/AC		133.8	550	MULTI-FAMILY - HIGH DENSITY & COMMERCIAL	5.35	5.75	769.5
OFFICE & ENTERTAINMENT MIXED USE (GSSP-OEMU)	20-40 DU/AC		99.7	150	MULTI-FAMILY - HIGH DENSITY & COMMERCIAL	5.35	5.75	573.4
NEIGHBORHOOD MIXED USE (GSSP-NMU)	20-40 DU/AC		26.0	150	MULTI-FAMILY - HIGH DENSITY & COMMERCIAL	5.35	5.75	149.5
NEIGHBORHOOD COMMERCIAL (GTSP-NC)			22.4	-	COMMERCIAL	2.02	2.17	48.6
MIXED-USE/COMMERCIAL SUBTOTAL			**281.9**	**850**				
SCHOOL (GSSP-TK-8)			25.3	-	PUBLIC	0.81	0.87	22.0
SCHOOL SUBTOTAL			**25.3**					
PARKS AND RECREATION (GSSP-OS-P)			107.6	-	PUBLIC RECREATION	2.70	2.90	312.3
OPEN SPACE (GSSP-OS)			335.6	-	NON-IRRIGATED	-	-	0.0
OPEN SPACE SUBTOTAL			**443.2**					
MAJOR R/W			**109.1**	**-**	RIGHT-OF-WAY	0.18	0.19	21.1
TOTAL			**1,871.2**	**8,589**				**3,889.5**
			AC.	**DU**				**AF/YR**

TABLE A-2: GRANDPARK TRAILS SPECIFIC PLAN - LAND USE SUMMARY

LAND USE	DENSITY RANGE	ACRES	ESTIMATED DWELLING UNITS	SCWA EQUIVALENT LAND USE	AVERAGE ANNUAL WATER DEMAND FACTOR (AF/ACRE/YEAR)	AVERAGE ANNUAL WATER DEMAND FACTOR (INCLUDING 7.5% WATER LOSS) (AF/ACRE/YEAR)	AVERAGE ANNUAL WATER DEMAND (INCLUDING 7.5% WATER LOSS) (AF/YEAR)
ESTATE RESIDENTIAL (GTSP-ER)	0-4 DU/AC	107.3	107	RURAL ESTATE	1.37	1.47	158.0
LOW DENSITY RESIDENTIAL (GTSP-LDR)	4-8 DU/AC	1,019.6	6,118	SINGLE FAMILY	2.13	2.29	2334.6
MEDIUM DENSITY RESIDENTIAL (GTSP-MDR)	7-13 DU/AC	457.7	4,119	MULTI-FAMILY - LOW DENSITY	2.44	2.62	1200.5
MEDIUM HIGH DENSITY RESIDENTIAL (GTSP-MHDR)	10-20 DU/AC	54.5	763	MULTI-FAMILY - LOW DENSITY	2.44	2.62	143.0
HIGH DENSITY RESIDENTIAL (GTSP-HDR)	20-40 DU/AC	148.0	4,439	MULTI-FAMILY - HIGH DENSITY	3.33	3.58	529.8
RESIDENTIAL SUBTOTAL		**1,787.1**	**15,546**				
COMMUNITY MIXED-USE (GTSP-CMU)		81.8	330	MULTI-FAMILY - HIGH DENSITY & COMMERCIAL	5.35	5.75	470.5
NEIGHBORHOOD MIXED USE (GTSP-NMU)		29.7	180	MULTI-FAMILY - HIGH DENSITY & COMMERCIAL	5.35	5.75	170.8
NEIGHBORHOOD COMMERCIAL (GTSP-NC)		4.0		COMMERCIAL	2.02	2.17	8.7
MIXED-USE/COMMERCIAL SUBTOTAL		**115.5**	**510**				
SCHOOL (GTSP-PQP-SCHOOL)		48.1	-	PUBLIC	0.81	0.87	41.9
PUBLIC/QUASI PUBLIC SUBTOTAL		**48.1**					
PARKS AND RECREATION (GTSP-OS-P)		220.2	-	PUBLIC RECREATION	2.70	2.90	639.1
OPEN SPACE (GTSP-OS)		1,149.0	-	NON-IRRIGATED	-	-	0.0
OPEN SPACE SUBTOTAL		**1,369.2**					
MAJOR R/W		**197.0** -		RIGHT-OF-WAY	0.18	0.19	38.1
TOTAL		**3,516.8**	**16,056**				**5,735.0**
		AC.	**DU**				**AF/YR**

Natomas Central Mutual Water Company

2601 W. Elkhorn Blvd.
Rio Linda, CA 95673
916 419 5936

September 24, 2025

County of Sacramento
Planning and Environmental Review
Attn: Ms. Emma Patten
827 7th Street, Room 225
Sacramento, CA 95814

Dear Ms. Patten:

The purpose of this letter is to articulate Natomas Central Mutual Water Company's (NCMWC) interest to provide wholesale raw water to the Sacramento County Water Agency for the purposes of supplying surface water to the Upper Westside (UWS) project. We have been working closely with the Applicant in identifying adequate surface water supplies to serve the project. At the request of the County's comments to the Applicant we are providing additional information as it relates to curtailment of our water rights and the prioritizing of municipal and industrial (M&I) water usage.

We understand that UWS is proposing to utilize 100% surface water. As a result, it is important that we provide M&I water on a year-round basis, including in critical drought years. It is anticipated that our water shortage program will prioritize surface water for M&I use during drought and critical drought years. NCMWC anticipates making available surface water for priority needs at current market prices. Therefore, surface water can be prioritized for this project.

NCMWC will apply to amend our existing United States Bureau of Reclamation (USBR) contract and State Water Quality Control Board permits to allow for M&I water usage. Our USBR contract already contemplates future M&I water usage. Our current USBR contract allows for curtailment of 25% in critical drought years. If further curtailments were to occur NCMWC would prioritize this project. These USBR contract deliveries could also be reallocated to winter months to ensure adequate water delivery to NCMWC during winter months. We expect the process to amend our permits and contract to take approximately two years to complete.

Should you have any further questions we would be happy to discuss further with you our willingness to be a provider of M&I surface water to UWS.

Sincerely,

Brett Gray
General Manager

Cc: Nick Avdis, Avdis & Cucchi
Dan Cucchi, Avdis & Cucchi
Mike Motroni, Wood Rodgers

Appendix C - USBR Settlement Agreement with Natomas Central Mutal Water Company

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:
MP-440
WTR-4.00

MAY 10 2005

Board of Directors
Natomas Central Mutual Water Company
2601 West Elkhorn Boulevard
Rio Linda, California 95673

Subject: Long-Term Renewal Contract No. 14-06-200-885A-R-1 Between the United States and Natomas Central Mutual Water Company (Company), Diverter of Water From Sacramento River Sources, Settling Water Rights Disputes and Providing for Project Water - Sacramento River Division – Central Valley Project, California

Dear Board Members:

Enclosed is an executed original of the subject contract for your records. This contract is effective April 1, 2005, through March 31, 2045. The Bureau of Reclamation appreciates the effort expended by the Company and its representatives relative to this contract.

If there are any questions, please contact Mr. Don Bultema, Supervisory Repayment Specialist, at 530-934-1361 (TDD 530-934-1345).

Sincerely,

Kirk C. Rodgers
Regional Director

Enclosure

cc: Mr. David Aladjem
Downey Brand Associates
555 Capitol Mall 10th Floor
Sacramento, CA 95814
(w/c encls)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

CONTRACT BETWEEN THE UNITED STATES AND NATOMAS CENTRAL MUTUAL WATER COMPANY, DIVERTER OF WATER FROM SACRAMENTO RIVER SOURCES, SETTLING WATER RIGHTS DISPUTES AND PROVIDING FOR PROJECT WATER

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Exhibit A	Schedule of Monthly Diversions of Water
Exhibit B	Map of Contractor's Ownership
Exhibit C	Unit Duty
Exhibit D	Water Rates and Charges

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

CONTRACT BETWEEN THE UNITED STATES AND
NATOMAS CENTRAL MUTUAL WATER COMPANY,
DIVERTER OF WATER FROM SACRAMENTO RIVER SOURCES,
SETTLING WATER RIGHTS DISPUTES AND
PROVIDING FOR PROJECT WATER

THIS CONTRACT, hereinafter referred to as "Settlement Contract," is entered into by THE UNITED STATES OF AMERICA, hereinafter referred to as the United States, made this 10th day of May, 2005, pursuant to the applicable authority granted to it generally in the Act of June 17, 1902 (32 Stat. 388), and acts amendatory or supplementary thereto, including, but not limited to, the Acts of August 26, 1937 (50 Stat. 844), as amended and supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented, including, but not limited to, Sections 9 and 14 thereto, July 2, 1956 (70 Stat. 483), June 21, 1963 (77 Stat. 68), October 12, 1982 (96 Stat. 1263), October 27, 1986 (100 Stat. 3050), as amended, and Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706), all collectively hereinafter referred to as Federal Reclamation law, and NATOMAS CENTRAL MUTUAL WATER COMPANY, hereinafter referred to as the Contractor, a corporation, acting pursuant to Sections 12003 and 12004 of the California Water Code, with its principal place of business in California;

WITNESSETH, that:

EXPLANATORY RECITALS

[1st] WHEREAS, the United States has constructed and is operating the Central Valley Project, California, for multiple purposes pursuant to its statutory authority; and

[2nd] WHEREAS, the Contractor has rights to divert, is diverting, and will continue to divert for reasonable beneficial use, water from the natural flow of the Sacramento River and tributaries thereto, that would have been flowing therein if the Central Valley Project were not in existence;

[3rd] WHEREAS, the construction and operation of the integrated and coordinated Central Valley Project has changed and will further change the regimen of the Sacramento, American, San Joaquin, and Trinity Rivers and the Sacramento-San Joaquin Delta from unregulated flow to regulated flow; and

[4th] WHEREAS, the United States has rights to divert, is diverting, and will continue to divert waters from said Rivers and said Delta in connection with the operation of said Central Valley Project; and

[5th] WHEREAS, the Contractor and the United States had a dispute over the respective rights of the parties to divert and use water from the regulated flow of the Sacramento River which threatened to result in litigation, and as a means to settle that dispute entered into Contract No. 14-06-200-885A, as revised, hereinafter referred to as the Existing Contract, which established terms for the delivery to the Contractor of Central Valley Project Water, and the quantities of Base Supply the United States and the Contractor agreed may be diverted by the Contractor from the Sacramento River pursuant to such contract; and

[6th] WHEREAS, the United States and the Contractor disagree with respect to the authority of the United States to change the quantities of Base Supply and/or Project Water

specified as available for diversion in this Settlement Contract from the quantities specified in the Existing Contract, and other issues related thereto. That dispute was the subject of litigation in a lawsuit entitled *Glenn-Colusa Irrigation District, et al. v. United States, et al.* [Civ. No. S-01-1816 GEB/JFM (E.D. Cal.)], but that litigation was dismissed, without prejudice, pursuant to a stipulation of dismissal filed by the parties thereto on August 29, 2002. Notwithstanding that dismissal, the Contractor and the United States enter into this Settlement Contract to renew the Existing Contract, pursuant to the terms of the Existing Contract, Federal Reclamation law, and the laws of the State of California; and

[7th] WHEREAS, to assure the Contractor of the enjoyment and use of the regulated flow of the said Rivers and the Delta, and to provide for the economical operation of the Central Valley Project by, and the reimbursement to, the United States for expenditures made for said Project.

NOW, THEREFORE, in consideration of the performance of the herein contained provisions, conditions, and covenants, it is agreed as follows:

DEFINITIONS

1. When used herein, unless otherwise expressed or incompatible with the intent hereof, the term:

(a) "Base Supply" shall mean the quantity of Surface Water established in Articles 3 and 5 which may be diverted by the Contractor from the Sacramento River each month during the period April through October of each Year without payment to the United States for such quantities diverted;

(b) "Basin-Wide Water Management Plan" shall mean the mutually agreeable Sacramento River Basinwide Water Management Plan, dated October 11, 2004, developed by

Glenn-Colusa Irrigation District, Maxwell Irrigation District, Natomas Central Mutual Water Company, Pelger Mutual Water Company, Princeton-Codora-Glenn Irrigation District, Provident Irrigation District, Reclamation District 108, Sutter Mutual Water Company, Anderson-Cottonwood Irrigation District, Meridian Farms Water Company, Reclamation District 1004, and the U.S. Bureau of Reclamation;

(c) "Charges" shall mean the payments for Project Water that the Contractor is required to pay to the United States in addition to the "Rates" specified in this Settlement Contract. The Contracting Officer will, on an annual basis, determine the extent of these Charges. The type and amount of each Charge shall be specified in Exhibit D;

(d) "Contract Total" shall mean the sum of the Base Supply and Project Water available for diversion by the Contractor for the period April 1 through October 31;

(e) "Critical Year" shall mean any Year in which either of the following eventualities exists:

(1) The forecasted full natural inflow to Shasta Lake for the current Water Year, as such forecast is made by the United States on or before February 15 and reviewed as frequently thereafter as conditions and information warrant, is equal to or less than 3.2 million acre-feet; or

(2) The total accumulated actual deficiencies below 4 million acre-feet in the immediately prior Water Year or series of successive prior Water Years each of which had inflows of less than 4 million acre-feet, together with the forecasted deficiency for the current Water Year, exceed 800,000 acre-feet.

For the purpose of determining a Critical Year, the computation of inflow to Shasta Lake shall be performed in a manner that considers the extent of upstream development

above Shasta Lake during the year in question, and shall be used as the full natural flow to Shasta Lake. In the event that major construction has occurred or occurs above Shasta Lake after September 1, 1963, and which has materially altered or alters the regimen of the stream systems contributing to Shasta Lake, the computed inflow to Shasta Lake used to define a Critical Year will be adjusted to eliminate the effect of such material alterations. After consultation with the State of California, the National Weather Service, and other recognized forecasting agencies, the Contracting Officer will select the forecast to be used and will make the details of it available to the Contractor. The same forecasts used by the United States for the operation of the Project shall be used to make the forecasts hereunder;

(f) "CVPIA" shall mean the Central Valley Project Improvement Act, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

(g) "Eligible Lands" shall mean all lands to which Project Water may be delivered in accordance with Section 204 of the Reclamation Reform Act of October 12, 1982 (96 Stat. 1263), as amended, hereinafter referred to as RRA;

(h) "Excess Lands" shall mean all lands in excess of the limitations contained in Section 204 of the RRA, other than those lands exempt from acreage limitation under Federal Reclamation law;

(i) "Full Cost Rate" shall mean that water rate described in Sections 205(a)(3) or 202(3) of the RRA, whichever is applicable;

(j) "Ineligible Lands" shall mean all lands to which Project Water may not be delivered in accordance with Section 204 of the RRA;

(k) "Landholder" shall mean a party that directly or indirectly owns or leases nonexempt land, as provided in 43 CFR 426.2;

(l) "Project" shall mean the Central Valley Project owned by the United States and managed by the Department of the Interior, Bureau of Reclamation;

(m) "Project Water" shall mean all Surface Water diverted or scheduled to be diverted each month during the period April through October of each Year by the Contractor from the Sacramento River which is in excess of the Base Supply. The United States recognizes the right of the Contractor to make arrangements for acquisition of water from projects of others than the United States for delivery through the Sacramento River and tributaries subject to written agreement between Contractor and the United States as to identification of such water which water when so identified shall not be deemed Project Water under this Settlement Contract;

(n) "Rates" shall mean the payments for Project Water determined annually by the Contracting Officer in accordance with the then current applicable water ratesetting policies for the Project, as described in subdivision (a) of Article 8 of this Settlement Contract;

(o) "Secretary" or "Contracting Officer" shall mean the Secretary of the Interior, a duly appointed successor, or an authorized representative acting pursuant to any authority of the Secretary and through any agency of the Department of the Interior;

(p) "Surface Water" shall mean only those waters that are considered as surface water under California law;

(q) "Water Year" shall mean the period commencing with October 1 of one year and extending through September 30 of the next; and

(r) "Year" shall mean a calendar year.

TERM OF SETTLEMENT CONTRACT

2. (a) This Settlement Contract shall become effective April 1, 2005, and shall remain in effect until and including March 31, 2045; Provided, that under terms and conditions mutually agreeable to the parties hereto, renewals may be made for successive periods not to exceed 40 years each. The terms and conditions of each renewal shall be agreed upon not later than one year prior to the expiration of the then existing Settlement Contract.

(b) With respect to Project Water and the portions of this Settlement Contract pertaining thereto, upon written request by the Contractor of the Secretary made not later than one year prior to the expiration of this Settlement Contract, whenever, account being taken of the amount then credited to the costs of construction of water supply works, the remaining amount of construction costs of water supply work which is properly assignable for ultimate return by the Contractor as established by the Secretary of the Interior pursuant to (3) of Section 1 of Public Law 643 (70 Stat. 483), probably can be repaid to the United States within the term of a contract under subsection 9(d) of the 1939 Reclamation Project Act (53 Stat. 1187), the relevant portions of this Settlement Contract may be converted to a contract under said subsection 9(d) upon terms and conditions mutually agreeable to the United States and the Contractor. The Secretary shall make a determination ten years after the date of execution of this Settlement Contract, and every five years thereafter, of whether a conversion to a contract under said subsection 9(d) can be accomplished pursuant to Public Law 643. Notwithstanding any provision of this Settlement Contract, the Contractor reserves and shall have all rights and benefits under Public Law 643.

WATER TO BE FURNISHED TO CONTRACTOR

3. (a) Subject to the conditions, limitations, and provisions hereinafter expressed, the Contractor is hereby entitled and authorized to divert from the Sacramento River

at the locations shown in Exhibit A, for beneficial use within the area delineated on Exhibit B, (both Exhibits are attached hereto and made a part hereof), the Contract Total designated in Exhibit A, or any revision thereof, in accordance with the monthly operating schedule required by Article 3(c) of this Settlement Contract. The quantity of any water diverted under this Settlement Contract from the Sacramento River, during the period April through October, for use on any lands delineated on Exhibit B, by the owner of such lands or otherwise shall constitute a part of the Contract Total as shown on Exhibit A and shall be subject to all the provisions of this Settlement Contract relating to such Contract Total as if such diversion were made by the Contractor.

(b) The Contractor may have acquired rights to divert water from the Sacramento River during the period April through October, that were obtained after the date of execution of the Existing Contract, or the Contractor may acquire such rights in the future. All diversions made from the Sacramento River, pursuant to such rights, during the period April through October, shall not be considered a part of the quantity of Base Supply and Project Water specified in Exhibit A; Provided, that the quantities diverted pursuant to the above rights shall be identified on the schedule submitted pursuant to Article 3(c) below, and shall not be substituted for any Base Supply or Project Water; Provided, further, that any such identified quantities of other acquired rights may be diverted by the Contractor before incurring any fee pursuant to Article 3(c)(1), below.

(c) Before April 1 and before the first day of each month thereafter when a revision is needed, the Contractor shall submit a written schedule to the Contracting Officer indicating the Contract Total to be diverted by the Contractor for agricultural and municipal and industrial purposes during each month under this Settlement Contract. The United States shall

furnish water to the Contractor in accordance with the monthly operating schedule or any revisions thereof. However, the United States recognizes the need of the Contractor to change from time to time its monthly diversions of water from the quantities shown in Exhibit A; the Contractor may make such changes, provided:

(1) that for the quantity of Base Supply diverted in excess of the monthly quantity shown in Exhibit A, and as may be reduced in accordance with Article 5(a), during June, July, August, September, or October of any Water Year, the Contractor shall be charged a rescheduling fee equal to 50 percent of the sum of the storage operations and maintenance rate and the storage capital rate components of the Project ratesetting policy.

(2) that in no event shall the total quantity scheduled for diversion by the Contractor from the Sacramento River:

(i) During the period April through October exceed the aggregate of the Contract Total for that period shown in Exhibit A or any revision thereof;

(ii) During the period July through September exceed the aggregate of the Contract Total for that period shown in Exhibit A or any revision thereof.

(d) In the event conditions warrant, the Contracting Officer reserves the right to require the Contractor to submit, at least 72 hours prior to the beginning of each weekly period, its estimate of daily diversion requirements for each such period from the Sacramento River; Provided, however, that changes during any such period may be made upon the giving of 72 hours' notice thereof to the Contracting Officer.

(e) No sale, transfer, exchange, or other disposal of any of the Contract Total designated in Exhibit A or the right to the use thereof for use on land other than that shown on Exhibit B shall be made by the Contractor without first obtaining the written consent of the Contracting Officer. Such consent will not be unreasonably withheld and a decision will be rendered in a timely manner. For short-term actions that will occur within one year or less, the decision will be rendered within 30 days after receipt of a complete written proposal. For long-term actions that will occur in a period longer than one year, the decision will be rendered within 90 days after receipt of a complete written proposal. For a proposal to be deemed complete by the Contracting Officer, it must comply with all provisions required by State and Federal law, including information sufficient to enable the Contracting Officer to comply with the National Environmental Policy Act, the Endangered Species Act, and applicable rules or regulations then in effect; Provided, that such consent does not authorize the use of Federal facilities to facilitate or effectuate the sale, transfer, exchange, or other disposal of Base Supply. Such use of Federal facilities will be the subject of a separate agreement to be entered into between the Contractor and Reclamation.

(f) For the purpose of determining whether Section 3405(a)(1)(M) of the CVPIA applies to the Contractor as a transferor or transferee of Project Water, the Contracting Officer acknowledges that the Contractor is within a county, watershed, or other area of origin, as those terms are utilized under California law.

(g) Nothing herein contained shall prevent the Contractor from diverting water during the months of November through March for beneficial use on the land shown on Exhibit B or elsewhere to the extent authorized under the laws of the State of California.

(h) The United States assumes no responsibility for and neither it nor its officers, agents, or employees shall have any liability for or on account of:

(1) The quality of water to be diverted by the Contractor;

(2) The control, carriage, handling, use, disposal, or distribution of water diverted by the Contractor outside the facilities constructed and then being operated and maintained by or on behalf of the United States;

(3) Claims of damage of any nature whatsoever, including but not limited to, property loss or damage, personal injury, or death arising out of or connected with the control, carriage, handling, use, disposal, or distribution of said water outside of the hereinabove referred to facilities; and

(4) Any damage whether direct or indirect arising out of or in any manner caused by a shortage of water whether such shortage be on account of errors in operation, drought, or unavoidable causes.

(i) In addition to the provisions of subdivision (h) of Article 3 of this Contract, if there is a shortage of Project Water because of actions taken by the Contracting Officer to meet legal obligations then, except as provided in subdivision (a) of Article 30 of this Contract, no liability shall accrue against the United States or any of its officers, agents, or employees for any damage, direct or indirect, arising therefrom.

RETURN FLOW

4. Nothing herein shall be construed as an abandonment or a relinquishment by the United States of any right it may have to the use of waste, seepage, and return flow water derived from water diverted by the Contractor hereunder and which escapes or is discharged beyond the boundaries of the lands shown on Exhibit B; Provided, that this shall not be construed as

claiming for the United States any right to such water which is recovered by the Contractor pursuant to California law from within the boundaries of the lands shown on Exhibit B, and which is being used pursuant to this Settlement Contract for surface irrigation or underground storage for the benefit of the lands shown on Exhibit B by the Contractor.

CONSTRAINTS ON THE AVAILABILITY OF WATER

5. (a) In a Critical Year, the Contractor's Base Supply and Project Water agreed to be diverted during the period April through October of the Year in which the principal portion of the Critical Year occurs and, each monthly quantity of said period shall be reduced by 25 percent.

(b) The amount of any overpayment by the Contractor shall, at its option, be refunded or credited upon amounts to become due to the United States from the Contractor under the provisions hereof in the ensuing Year. To the extent of such deficiency such adjustment of overpayment shall constitute the sole remedy of the Contractor.

INTEGRATED WATER MANAGEMENT AND PARTNERSHIPS

6. The Contractor and United States desire to work together to maximize the reasonable beneficial use of water for their mutual benefit. As a consequence, the United States and the Contractor will work in partnership and with others within the Sacramento Valley, including other contractors, to facilitate the better integration within the Sacramento Valley of all water supplies including, but not limited to, the better management and integration of surface water and groundwater, the development and better utilization of surface water storage, the effective utilization of waste, seepage and return flow water, and other operational and management options that may be identified in the future.

USE OF WATER FURNISHED TO CONTRACTOR

7. (a) The parties anticipate that, during the term of this Settlement Contract, a gradual change in the purpose of use of water will occur within the place of water use shown in Exhibit B from predominantly agricultural purposes to a mixture of municipal and industrial, wildlife habitat and agricultural purposes, and the parties agree to work cooperatively to accommodate and facilitate such change. Project Water furnished to the Contractor pursuant to this Settlement Contract may be delivered or furnished by the Contractor for agricultural or municipal and industrial purposes; Provided, however, that the Contractor shall not deliver or furnish Project Water for municipal and industrial purposes outside those areas delineated on Exhibit B, as approved for such purposes by the Contracting Officer, without the written consent of the Contracting Officer. Such consent will not be unreasonably withheld and a decision will be provided in a timely manner following completion of any environmental review required under applicable law. For purposes of this Settlement Contract, "agricultural purposes" includes, but is not restricted to, the irrigation of crops, the watering of livestock, incidental domestic use including related landscape irrigation, and underground water replenishment; and "municipal and industrial purposes" includes, but is not limited to, the watering of landscaping or pasture for animals (e.g., horses) which are kept for personal enjoyment or water delivered to landholdings operated in units of less than five acres unless the Contractor establishes to the satisfaction of the Contracting Officer that the use of Project Water is for agricultural purposes.

(b) The Contractor shall comply with requirements applicable to the Contractor in biological opinion(s) prepared as a result of a consultation regarding the execution of this Settlement Contract undertaken pursuant to Section 7 of the Endangered Species Act of 1973, as amended, that are within the Contractor's legal authority to implement. The Existing

Contract, which evidences in excess of 40 years of diversions, for agricultural uses, of the quantities of water provided for in Article 3, and the underlying water rights of the Contractor will be considered in developing an appropriate base-line for the Biological Assessment prepared pursuant to the Endangered Species Act, and in any other needed environmental review. Nothing herein shall be construed to prevent the Contractor from challenging or seeking judicial relief in a court of competent jurisdiction with respect to any biological opinion or other environmental documentation referred to in this Article.

RATE AND METHOD OF PAYMENT FOR WATER

8. (a) The Contractor shall make payments to the United States as provided in this Article for all Project Water shown in Exhibit A as follows:

(1) 75 percent of the amount shown as Project Water shall be paid for by the Contractor in each Year; and in addition

(2) the Contractor shall pay for Project Water actually diverted in excess of 75 percent of the amount shown as Project Water.

Such payments shall be at Rates and Charges established in accordance with: (i) the Secretary's then-current ratesetting policies for the Project; and (ii) applicable Reclamation law and associated rules and regulations, or policies; Provided, that if the Contractor desires to use Project Water for other than agricultural purposes the Rates and Charges set forth above will be adjusted by the Contracting Officer to the applicable Rates and Charges for such purposes; Provided, further, that to enable the Contracting Officer to compute the applicable Rates and Charges for Project Water diverted by the Contractor for other than agricultural use, including, but not limited to diversions for municipal and industrial uses and diversions for direct application to wildlife habitat (not including re-use of tailwater for habitat purposes), prior to

initiating any such diversions, the Contractor shall provide the Contracting Officer with an estimate of the annual quantities of Project Water to be diverted or furnished for such purposes through the end of the CVP repayment period as identified in the then-current ratesetting policies. The Rates and Charges applicable to the Contractor upon execution of this Settlement Contract are set forth in Exhibit D, as may be revised annually. The Secretary's ratesetting policies for the Project shall be amended, modified, or superseded only through a public notice and comment procedure. The Contracting Officer shall adjust the amount of Project Water for which payment is required to the extent of any reduction in diversions of Project Water made in accordance with the water conservation provisions of Article 29(e).

(b) The Contracting Officer shall notify the Contractor of the Rates and Charges as follows:

(1) Prior to July 1 of each Year, the Contracting Officer shall provide the Contractor an estimate of the Charges for Project Water that will be applied to the period October 1, of the current Year, through September 30, of the following Year, and the basis for such estimate. The Contractor shall be allowed not less than two months to review and comment on such estimates. On or before September 15 of each Year, the Contracting Officer shall notify the Contractor in writing of the Charges to be in effect during the period October 1 of the current Year, through September 30, of the following Year, and such notification shall revise Exhibit D.

(2) Prior to October 1 of each Year, the Contracting Officer shall make available to the Contractor an estimate of the Rates for Project Water for the following Year and the computations and cost allocations upon which those Rates are based. The Contractor shall be allowed not less than two months to review and comment on such computations and cost allocations. By December 31 of each Year, the Contracting Officer shall provide the Contractor

with the final Rates to be in effect for the upcoming Year, and such notification shall revise Exhibit D.

(c) The Contractor shall pay the United States for Project Water in the following manner:

(1) With respect to Rates, prior to May 1 of each Year, the Contractor shall pay the United States one-half the total amount payable pursuant to subdivision (a) of this Article and the remainder shall be paid prior to July 1 or such later date or dates as may be specified by the United States in a written notice to the Contractor; Provided, however, that if at any time during the Year the amount of Project Water diverted by the Contractor shall equal the amount for which payment has been made, the Contractor shall pay for the remaining amount of such water as shown in Exhibit A in advance of any further diversion of Project Water.

(2) With respect to Charges, the Contractor shall also make a payment to the United States, in addition to the Rate(s) in subdivision (c)(1) of this Article, at the Charges then in effect, before the end of the month following the month of delivery or transfer. The payments shall be consistent with the quantities of Project Water delivered or transferred. Adjustment for overpayment or underpayment of Charges shall be made through the adjustment of payments due to the United States for Charges for the next month. Any amount to be paid for past due payment of Charges shall be computed pursuant to Article 13 of this Settlement Contract.

(d) Payments to be made by the Contractor to the United States under this Settlement Contract may be paid from any revenues available to the Contractor. All revenues received by the United States from the Contractor relating to the delivery of Project Water or the delivery of non-Project Water through Project facilities shall be allocated and applied in

accordance with Federal Reclamation law and the associated rules or regulations, and the then current Project ratesetting policies for irrigation water.

(e) The Contracting Officer shall keep its accounts pertaining to the administration of the financial terms and conditions of its long-term water service and Settlement Contracts, in accordance with applicable Federal standards, so as to reflect the application of Project costs and revenues. The Contracting Officer shall, each Year upon request of the Contractor, provide to the Contractor a detailed accounting of all Project and Contractor expense allocations, the disposition of all Project and Contractor revenues, and a summary of all water delivery information. The Contracting Officer and the Contractor shall enter into good faith negotiations to resolve any discrepancies or disputes relating to accountings, reports, or information.

(f) The parties acknowledge and agree that the efficient administration of this Settlement Contract is their mutual goal. Recognizing that experience has demonstrated that mechanisms, policies, and procedures used for establishing Rates and Charges and/or for making and allocating payments, other than those set forth in this Article may be in the mutual best interest of the parties, it is expressly agreed that the parties may enter into agreements to modify the mechanisms, policies, and procedures for any of those purposes while this Settlement Contract is in effect without amendment of this Settlement Contract.

(g) For the term of this Settlement Contract, Rates under the respective ratesetting policies for the Project will be established to recover only reimbursable operation and maintenance (including any deficits) and capital costs of the Project, as those terms are used in the then current Project ratesetting policies, and interest, where appropriate, except in instances where a minimum Rate is applicable in accordance with the relevant Project ratesetting policy.

Proposed changes of significance in practices which implement the ratesetting policies for the Project will not be implemented until the Contracting Officer has provided the Contractor an opportunity to discuss the nature, need, and impact of the proposed change. The Contractor retains all rights to challenge the validity of Rates and Charges imposed pursuant to this Settlement Contract, including but not limited to operation and maintenance expenses and operation and maintenance deficits, in an appropriate administrative or judicial proceeding.

(h) Except as provided in subsection 3405(a)(1)(B) of the CVPIA, the Rates for Project Water transferred, exchanged, or otherwise disposed of, by the Contractor shall be the Contractor's Rates adjusted upward or downward to reflect the changed costs of delivery (if any) of the transferred, exchanged, or otherwise disposed of Project Water to the transferee's point of delivery in accordance with the then-current ratesetting policies for the Project. Except as provided in subsection 3407(d)(2)(A) of the CVPIA, the Charges for Project Water transferred, exchanged, or otherwise disposed of, by the Contractor shall be the Contractor's Charges specified in Exhibit D. If the Contractor is receiving lower Rates and Charges because of inability to pay and is transferring, exchanging, or otherwise disposing of Project Water to another entity whose Rates and Charges are not adjusted due to inability to pay, the Rates and Charges for transferred, exchanged, or otherwise disposed of Project Water shall be the Contractor's Rates and Charges unadjusted for ability to pay.

(i) Pursuant to the Act of October 27, 1986 (100 Stat. 3050), the Contracting Officer is authorized to adjust determinations of ability to pay every five years.

(j) Each payment to be made pursuant to subdivisions (a) and (c) of this Article shall be made at the office of the Bureau of Reclamation, MP Region: Mid-Pacific,

P.O. Box 894242, Los Angeles, CA 90189-4242, or at such other place as the United States may designate in a written notice to the said Contractor. Payments shall be made by cash transaction, wire, or any other mechanism as may be agreed to in writing by the Contractor and the Contracting Officer. In the event there should be a default in the payment of the amount due, the delinquent payment provisions of Article 13 shall apply. The Contractor shall not be relieved of the whole or any part of its said obligation by, on account of, or notwithstanding, as the case may be:

(1) Its failure, refusal, or neglect to divert 75 percent of the quantity of Project Water shown on Exhibit A;

(2) The default in payment to it by any water user of assessments, tolls, or other charges levied by or owing to said Contractor;

(3) Any judicial determination that any assessment, toll, or other charge referred to in subsection 8(c)(2) of this Settlement Contract is irregular, void, or ineffectual; or

(4) Any injunctive process enjoining or restraining the Contractor from making or collecting any such assessment, toll, or other charge referred to in subsection 8(c)(2) of this Settlement Contract.

AGREEMENT ON WATER QUANTITIES

9. (a) During the term of this Settlement Contract and any renewals thereof:

(1) It shall constitute full agreement as between the United States and the Contractor as to the quantities of water and the allocation thereof between Base Supply and Project Water which may be diverted by the Contractor from the Sacramento River for beneficial use on the land shown on Exhibit B from April 1 through October 31, which said diversion, use,

and allocation shall not be disturbed so long as the Contractor shall fulfill all of its obligations hereunder;

(2) Neither party shall claim any right against the other in conflict with the provisions of Article 9(a)(1) hereof.

(b) Nothing herein contained is intended to or does limit rights of the Contractor against others than the United States or of the United States against any person other than the Contractor; Provided, however, that in the event the Contractor, the United States, or any other person shall become a party to a general adjudication of rights to the use of water of the Sacramento River system, this Settlement Contract shall not jeopardize the rights or position of either party hereto or of any other person and the rights of all such persons in respect to the use of such water shall be determined in such proceedings the same as if this Settlement Contract had not been entered into, and if final judgment in any such general adjudication shall determine that the rights of the parties hereto are different from the rights as assumed herein, the parties shall negotiate an amendment to give effect to such judgment. In the event the parties are unable to agree on an appropriate amendment they shall, within 60 days of determining that there is an impasse, employ the services of a neutral mediator, experienced in resolving water rights disputes, to assist in resolving the impasse. The cost of the mediation will be shared equally. A failure to reach agreement on an amendment within 60 days of the end of mediation will cause the immediate termination of this Settlement Contract.

(c) In the event that the California State Water Resources Control Board or a court of competent jurisdiction issues a final decision or order modifying the terms and conditions of the water rights of either party to this Settlement Contract in order to impose Bay-Delta water quality obligations, the Contractor and the United States shall promptly meet to

455 determine whether or not to modify any of the terms of this Settlement Contract to comply with
456 the final decision or order, including, but not limited to, the applicability of the rescheduling
457 charge in Article 3(c)(1) of this Settlement Contract. If within 60 days of the date of the issuance
458 of the final decision or order the parties are not able to reach agreement regarding either the need
459 to modify this Settlement Contract or the manner in which this Settlement Contract is to be
460 modified, the parties shall promptly retain a neutral mediator, experienced in resolving water
461 right disputes, to assist the parties in resolving their dispute. The cost of the mediator shall be
462 shared equally. In the event that either of the parties to this Settlement Contract determines that
463 the parties will not be able to develop mutually-agreeable modification(s) to this Settlement
464 Contract even with the assistance of a mediator, either of the parties to this Settlement Contract
465 may attempt to resolve the impasse by seeking appropriate judicial relief including, but not
466 limited to, filing a general adjudication of the rights to the use of water in the Sacramento River
467 system. The foregoing provisions of this sub-article shall only apply to the incremental
468 obligations contained within a final decision or order of the State Water Resources Control
469 Board that reflects a modification to the obligations imposed in State Water Resources Control
470 Board Revised Water Rights Decision 1641 dated March 15, 2000, and its associated 1995 Water
471 Quality Control Plan which, taken together, will be considered the baseline for the application of
472 the provisions of this sub-article.

473 (d) In the event this Settlement Contract terminates, the rights of the parties to
474 thereafter divert and use water shall exist as if this Settlement Contract had not been entered into;
475 and the fact that as a compromise settlement of a controversy as to the respective rights of the
476 parties to divert and use water and the yield of such rights during the term hereof, this Settlement
477 Contract places a limit on the Contract Total to be diverted annually by the Contractor during the

Settlement Contract term and segregates it into Base Supply and Project Water shall not jeopardize the rights or position of either party with respect to its water rights or the yield thereof at all times after the Settlement Contract terminates. It is further agreed that the Contractor at all times will first use water to the use of which it is entitled by virtue of its own water rights, and neither the provisions of this Settlement Contract, action taken thereunder, nor payments made thereunder to the United States by the Contractor shall be construed as an admission that any part of the water used by the Contractor during the term of this Settlement Contract was in fact water to which it would not have been entitled under water rights owned by it nor shall receipt of payments thereunder by the United States from the Contractor be construed as an admission that any part of the water used by the Contractor during the term of this Settlement Contract was in fact water to which it would have been entitled under water rights owned by it.

MEASUREMENT OF WATER

10. (a) All water diverted by the Contractor from the Sacramento River will be diverted at the existing point or points of diversion shown on Exhibit A or at such other points as may be mutually agreed upon in writing by the Contracting Officer and the Contractor.

(b) All water diverted from the Sacramento River pursuant to this Settlement Contract will be measured or caused to be measured by the United States at each point of diversion with existing equipment or equipment to be installed, operated, and maintained by the United States, and/or others, under contract with and at the option of the United States. The equipment and methods used to make such measurement shall be in accordance with sound engineering practices. Upon request of the Contractor, the accuracy of such measurements will be investigated by the Contracting Officer and any errors appearing therein will be corrected.

(c) The right of ingress to and egress from all points of diversion is hereby granted to all authorized employees of the United States. The Contractor also hereby grants to the United States the right to install, operate, maintain, and replace such equipment on diversion or carriage facilities at each point of diversion as the Contracting Officer deems necessary.

(d) The Contractor shall not modify, alter, remove, or replace diversion facilities or do any other act which would alter the effectiveness or accuracy of the measuring equipment installed by the United States or its representatives unless and until the Contracting Officer has been notified with due diligence and has been given an opportunity to modify such measuring equipment in such manner as may be necessary or appropriate. In the event of an emergency the Contractor shall notify the United States within a reasonable time thereafter as to the existence of the emergency and the nature and extent of such modification, alteration, removal, or replacement of diversion facilities.

(e) The Contractor shall pay the United States for the costs to repair, relocate, or replace measurement equipment when the Contractor modifies, alters, removes, or replaces diversion or carriage facilities.

(f) Contractor and Contracting Officer shall develop a mutually agreeable surface water delivery water measurement program which shall be implemented by the Contractor, and such measurement program shall be consistent with the conservation and efficiency criteria for evaluating water conservation plans as provided in Article 29(a).

(g) All new surface water delivery systems installed within the lands delineated on Exhibit B after the effective date of this Settlement Contract shall also comply with the measurement provisions described in this Article.

(h) The Contractor shall inform the Contracting Officer on or before the 10th calendar day of each month of the quantity of Contract Total diverted or furnished for agricultural and municipal and industrial purposes during the preceding month.

RULES AND REGULATIONS

11. The parties agree that the delivery of Project Water for irrigation use or use of Federal facilities pursuant to this Settlement Contract is subject to Federal Reclamation law, including but not limited to, the Reclamation Reform Act of 1982 (43 U.S.C. 390aa et seq.), as amended and supplemented, and the rules and regulations promulgated by the Secretary of the Interior under Federal Reclamation law.

GENERAL OBLIGATION--BENEFITS CONDITIONED UPON PAYMENT

12. (a) The obligation of the Contractor to pay the United States as provided in this Settlement Contract is a general obligation of the Contractor notwithstanding the manner in which the obligation may be distributed among the Contractor's water users and notwithstanding the default of individual water users in their obligations to the Contractor.

(b) The payment of Charges becoming due hereunder is a condition precedent to receiving benefits under this Settlement Contract. The United States shall not make water available to the Contractor through Project facilities during any period in which the Contractor may be in arrears in the advance payment of water Rates due the United States. The Contractor shall not furnish water made available pursuant to this Settlement Contract for lands or parties which are in arrears in the advance payment of water rates levied or established by the Contractor.

(c) With respect to subdivision (b) of this Article, the Contractor shall have no obligation to require advance payment for water Rates which it levies.

CHARGES FOR DELINQUENT PAYMENTS

13. (a) The Contractor shall be subject to interest, administrative and penalty charges on delinquent installments or payments. When a payment is not received by the due date, the Contractor shall pay an interest charge for each day the payment is delinquent beyond the due date. When a payment becomes 60 days delinquent, the Contractor shall pay an administrative charge to cover additional costs of billing and processing the delinquent payment. When a payment is delinquent 90 days or more, the Contractor shall pay an additional penalty charge of six percent per year for each day the payment is delinquent beyond the due date.

Further, the Contractor shall pay any fees incurred for debt collection services associated with a delinquent payment.

(b) The interest charge rate shall be the greater of the rate prescribed quarterly in the Federal Register by the Department of the Treasury for application to overdue payments, or the interest rate of one-half of one percent per month prescribed by Section 6 of the Reclamation Project Act of 1939 (Public Law 76-260). The interest charge rate shall be determined as of the due date and remain fixed for the duration of the delinquent period.

(c) When a partial payment on a delinquent account is received, the amount received shall be applied, first to the penalty, second to the administrative charges, third to the accrued interest, and finally to the overdue payment.

QUALITY OF WATER

14. The operation and maintenance of Project facilities shall be performed in such manner as is practicable to maintain the quality of raw water made available through such facilities at the highest level reasonably attainable as determined by the Contracting Officer. The United States does not warrant the quality of water and is under no obligation to construct or furnish water treatment facilities to maintain or better the quality of water.

WATER AND AIR POLLUTION CONTROL

15. The Contractor, in carrying out this Settlement Contract, shall comply with all applicable water and air pollution laws and regulations of the United States and the State of California, and shall obtain all required permits or licenses from the appropriate Federal, State, or local authorities.

EQUAL OPPORTUNITY

16. During the performance of this Settlement Contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of payment or other

COMPLIANCE WITH CIVIL RIGHTS LAWS AND REGULATIONS

17. (a) The Contractor shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d), Section 504 of the Rehabilitation Act of 1975 (P.L. 93-112, as amended), the Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.) and any other applicable civil rights laws, as well as with their respective implementing regulations and guidelines imposed by the U.S. Department of the Interior and/or Bureau of Reclamation.

(b) These statutes require that no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving financial assistance from the Bureau of Reclamation. By executing this Settlement Contract, the Contractor agrees to immediately take any measures necessary to implement this obligation, including permitting officials of the United States to inspect premises, programs, and documents.

(c) The Contractor makes this agreement in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property discounts, or other Federal financial assistance extended after the date hereof to the Contractor by the Bureau of Reclamation, including installment payments after such date on account of arrangements for Federal financial assistance which were approved before such date. The Contractor recognizes and agrees that such Federal assistance will be extended in reliance on the representations and agreements made in this Article, and that the United States reserves the right to seek judicial enforcement thereof.

MINGLING OF CONTRACTOR'S PROJECT AND NON-PROJECT WATER

18. (a) Project Water must of necessity be transported by the Contractor to its water users by means of the same works and channels used for the transport of its non-Project Water including Base Supply. Notwithstanding such mingling of water, the provisions of Article 11 hereof shall be applicable only to Project Water, and such mingling of water shall not in any manner subject to the provisions of Article 11 hereof the Contractor's non-Project Water including Base Supply.

(b) If required in accordance with subdivision (c) of this Article, the Contractor shall install and maintain such measuring equipment and distribution facilities and maintain such records as may be necessary to determine the amounts of water delivered to Excess Lands served by the Contractor. The Contractor shall not within any month deliver to

Ineligible Lands water in excess of the non-Project Water, including Base Supply, for that month. The Contracting Officer or authorized representative shall have the right at all reasonable times to inspect such records and measuring equipment.

(c) The Contractor will not be considered in violation of the requirement that Project Water be delivered only to Eligible Lands during any month of the irrigation season that the water requirement for beneficial use on Eligible Lands for that month is equal to or in excess of the Project Water for that month as shown on Exhibit A or any revision thereof pursuant to subdivision (c) of Article 3. The water requirement for beneficial use on Eligible Lands will be determined by multiplying:

(1) the number of irrigable acres of the particular types of crops grown in that year on the acreage designated as eligible by

(2) the Unit Duties as set forth in Exhibit C attached hereto and made a part hereof, or by such other Unit Duties mutually agreed upon by the Contractor and the Contracting Officer. In order to make the computation of the water requirement for Eligible Lands, on April 1 of each Year and concurrently with its order for water for the irrigation season, the Contractor shall designate the acreage of and type of crops to be grown on its Eligible Lands that irrigation season. During any month the water requirement as above determined for crops growing on Eligible Lands during such month is equal to or in excess of the Project Water for that month as provided herein the Contractor shall not be required to measure the water delivered to Excess Lands. Any month the said water requirement is less than the amount of Project Water as provided herein, the Contractor will be required to measure water delivered to excess land in accordance with subdivision (b) hereof.

BOOKS, RECORDS, AND REPORTS

19. The Contractor shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this Settlement Contract, including: the Contractor's financial transactions, water supply data, and Project land and right-of-way agreements; the water users' land-use (crop census), land ownership, land-leasing and water use data; and other matters that the Contracting Officer may require. Reports thereon shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require. Subject to applicable Federal laws and regulations, each party to this Settlement Contract shall have the right during office hours to examine and make copies of each other's books and official records relating to matters covered by this Settlement Contract.

CHANGE OF PLACE OF USE OR ORGANIZATION

20. (a) Unless the written consent of the United States is first obtained no change shall be made in the place of water use shown on Exhibit B.

(b) While this Settlement Contract is in effect, no change shall be made in the area of the Contractor as shown on its Exhibit B, by inclusion, exclusion, annexation, or detachment of lands, by dissolution, consolidation, or merger or otherwise, except upon the Contracting Officer's written consent thereto. Such consent will not be unreasonably withheld and a decision will be provided in a timely manner.

(c) In the event lands are annexed to or detached from the area of the Contractor, as provided herein, the quantity of Project Water to be diverted may be increased or decreased, as may be appropriate, pursuant to a supplemental agreement to be executed in respect thereto.

CONSOLIDATION OF CONTRACTING ENTITIES

21. Consolidation of Contractors may be approved by the Contracting Officer provided: (i) the Contracting Officer approves the form and organization of the resulting entity and the utilization by it of the Contract Total; and (ii) the obligations of the Contractors are assumed by such entity.

No such consolidation shall be valid unless and until approved by the Contracting Officer.

NOTICES

22. Any notice, demand, or request authorized or required by this Settlement Contract shall be deemed to have been given, on behalf of the Contractor, when mailed, postage prepaid, or delivered to the Area Manager, Northern California Area Office, Bureau of Reclamation, 16349 Shasta Dam Boulevard, Shasta Lake, California 96019, and on behalf of the United States, when mailed, postage prepaid, or delivered to the Board of Directors of the Natomas Central Mutual Water Company, 2601 West Elkhorn Boulevard, Rio Linda, California 95673. The designation of the addressee or the address may be changed by notice given in the same manner as provided in this Article for other notices.

ASSIGNMENT LIMITED--SUCCESSORS AND ASSIGNS OBLIGATED

23. (a) The provisions of this Settlement Contract shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this Settlement Contract or any right or interest therein shall be valid until approved in writing by the Contracting Officer.

(b) The assignment of any right or interest in this Settlement Contract by either party shall not interfere with the rights or obligations of the other party to this Settlement Contract absent the written concurrence of said other party.

(c) The Contracting Officer shall not unreasonably condition or withhold his approval of any proposed assignment.

OFFICIALS NOT TO BENEFIT

24. (a) No Member of or Delegate to Congress, Resident Commissioner, or official of the Contractor shall benefit from this Settlement Contract other than as a water user or landowner in the same manner as other water users or landowners.

(b) No officer or member of the governing board of the Contractor shall receive any benefit that may arise by reason of this Settlement Contract other than as a landowner within the Contractor's Service Area and in the same manner as other landowners within the said service area.

CONTINGENT UPON APPROPRIATION OR ALLOTMENT OF FUNDS

25. The expenditure or advance of any money or the performance of any obligation of the United States under this Settlement Contract shall be contingent upon appropriation or allotment of funds. Absence of appropriation or allotment of funds shall not relieve the Contractor from any obligations under this Settlement Contract. No liability shall accrue to the United States in case funds are not appropriated or allotted.

CONFIRMATION OF SETTLEMENT CONTRACT

26. The Contractor, after the execution of this Settlement Contract, shall promptly seek to secure a decree of a court of competent jurisdiction of the State of California, if appropriate, confirming the execution of this Settlement Contract. The Contractor shall furnish the United States a certified copy of the final decree, the validation proceedings, and all pertinent supporting records of the court approving and confirming this Settlement Contract, and decreeing and adjudging it to be lawful, valid, and binding on the Contractor. This Settlement Contract shall not be binding on the United States until such final decree has been secured.

UNAVOIDABLE GROUNDWATER PERCOLATION

27. To the extent applicable, the Contractor shall not be deemed to have delivered Project Water to Excess Lands or Ineligible Lands if such lands are irrigated with groundwater that reaches the underground strata as an unavoidable result of the delivery of Project Water by the Contractor to Eligible Lands.

PRIVACY ACT COMPLIANCE

28. (a) The Contractor shall comply with the Privacy Act of 1974 (5 U.S.C. 552a) (the Act) and the Department of the Interior rules and regulations under the Act (43 CFR 2.45 et seq.) in maintaining Landholder acreage certification and reporting records, required to be submitted to the Contractor for compliance with Sections 206 and 228 of the Reclamation Reform Act of 1982 (96 Stat. 1266), and pursuant to 43 CFR 426.18.

(b) With respect to the application and administration of the criminal penalty provisions of the Act (5 U.S.C. 552a(i)), the Contractor and the Contractor's employees responsible for maintaining the certification and reporting records referenced in (a) above are considered to be employees of the Department of the Interior. See 5 U.S.C. 552a(m).

(c) The Contracting Officer or a designated representative shall provide the Contractor with current copies of the Interior Department Privacy Act regulations and the Bureau of Reclamation Federal Register Privacy Act System of Records Notice (Acreage Limitation--Interior, Reclamation-31) which govern the maintenance, safeguarding, and disclosure of information contained in the Landholder's certification and reporting records.

(d) The Contracting Officer shall designate a full-time employee of the Bureau of Reclamation to be the System Manager who shall be responsible for making decisions on denials pursuant to 43 CFR 2.61 and 2.64 amendment requests pursuant to 43 CFR 2.72. The Contractor is authorized to grant requests by individuals for access to their own records.

(e) The Contractor shall forward promptly to the System Manager each proposed denial of access under 43 CFR 2.64; and each request for amendment of records filed under 43 CFR 2.71; notify the requester accordingly of such referral; and provide the System Manager with information and records necessary to prepare an appropriate response to the requester. These requirements do not apply to individuals seeking access to their own certification and reporting forms filed with the Contractor pursuant to 43 CFR 426.18, unless the requester elects to cite the Privacy Act as a basis for the request.

WATER CONSERVATION

29. (a) Prior to the diversion of Project Water, the Contractor shall be implementing an effective water conservation and efficiency program based on the Basin-Wide Water Management Plan and/or Contractor's water conservation plan that has been determined by the Contracting Officer to meet the conservation and efficiency criteria for evaluating water conservation plans established under Federal law. The water conservation and efficiency program shall contain definite water conservation objectives, appropriate economically feasible water conservation measures, and time schedules for meeting those objectives. Continued diversion of Project Water pursuant to this Settlement Contract shall be contingent upon the Contractor's continued implementation of such water conservation program. In the event the Contractor's water conservation plan or any revised water conservation plan completed pursuant to subdivision (c) of Article 29 of this Settlement Contract have not yet been determined by the Contracting Officer to meet such criteria, due to circumstances which the Contracting Officer determines are beyond the control of the Contractor, Project Water deliveries shall be made under this Settlement Contract so long as the Contractor diligently works with the Contracting Officer to obtain such determination at the earliest practicable date, and thereafter the Contractor

immediately begins implementing its water conservation and efficiency program in accordance with the time schedules therein.

(b) The Contractor shall submit to the Contracting Officer a report on the status of its implementation of the water conservation plan on the reporting dates specified in the then existing conservation and efficiency criteria established under Federal law.

(c) At five-year intervals, the Contractor shall revise its water conservation plan to reflect the then current conservation and efficiency criteria for evaluating water conservation plans established under Federal law and submit such revised water management plan to the Contracting Officer for review and evaluation. The Contracting Officer will then determine if the water conservation plan meets Reclamation's then current conservation and efficiency criteria for evaluating water conservation plans established under Federal law.

(d) If the Contractor is engaged in direct groundwater recharge, such activity shall be described in the Contractor's water conservation plan.

(e) In order to provide incentives for water conservation, the Contractor may reduce the amount of Project Water for which payment is required under Article 8(a) in accordance with the provisions of this Article 29(e).

(1) On or before February 15 of any Water Year, the Contractor may file with Reclamation an offer to reduce Project Water use, hereinafter referred to as Offer. The Offer shall specify the maximum quantity of Project Water to be diverted by the Contractor for each month that Project Water is available for that Water Year under this Settlement Contract. The Contracting Officer shall provide the Contractor with a decision, in writing, to the Offer on or before March 15 of that Water Year. The dates specified in this Article 29(e)(1) can be changed if mutually agreed to, in writing, by the Contractor and Contracting Officer.

(2) If Reclamation accepts the Offer, the Contractor's payment obligation under Article 8(a)(1) shall be reduced to the maximum quantity of Project Water to be diverted by the Contractor as specified in the Offer. The Contractor shall not divert Project Water in excess of the quantities set forth in the Offer; Provided, however, if the Contractor's diversions of Project Water exceed the quantities set forth in the Offer, the Contractor shall pay to Reclamation the applicable Rates and Charges plus an amount equal to the applicable Rates and Charges, unadjusted for ability to pay, for each acre-foot of Project Water diverted in excess of the quantities set forth in the Offer.

(3) If Reclamation decides not to accept the Offer, the Contractor's payment obligation will remain as specified in Article 8(a)(1).

(4) The provisions of this Article 29(e) shall be in addition to and shall not affect the provisions of Article 3(e) pertaining to the sale, transfer, exchange, or other disposal of the Contract Total designated in Exhibit A.

OPINIONS AND DETERMINATIONS

30. (a) Where the terms of this Settlement Contract provide for actions to be based upon the opinion or determination of either party to this Settlement Contract, said terms shall not be construed as permitting such action to be predicated upon arbitrary, capricious, or unreasonable opinions or determinations. Both parties, notwithstanding any other provisions of this Settlement Contract, expressly reserve the right to seek relief from and appropriate adjustment for any such arbitrary, capricious, or unreasonable opinion or determination. Each opinion or determination by either party shall be provided in a timely manner. Nothing in subdivision (a) of Article 30 of this Settlement Contract is intended to or shall affect or alter the

standard of judicial review applicable under Federal law to any opinion or determination implementing a specific provision of Federal law embodied in statute or regulation.

(b) The Contracting Officer shall have the right to make determinations necessary to administer this Settlement Contract that are consistent with the provisions of this Settlement Contract, the laws of the United States and of the State of California, and the rules and regulations promulgated by the Secretary of the Interior. Such determinations shall be made in consultation with the Contractor to the extent reasonably practicable.

CONTRACTOR TO PAY CERTAIN MISCELLANEOUS COSTS

31. (a) In addition to all other payments to be made by the Contractor pursuant to this Settlement Contract, the Contractor shall pay to the United States, within 60 days after receipt of a bill and detailed statement submitted by the Contracting Officer to the Contractor for such specific items of direct cost incurred by the United States for work requested by the Contractor associated with this Settlement Contract plus indirect costs in accordance with applicable Bureau of Reclamation policies and procedures. All such amounts referred to in this Article shall not exceed the amount agreed to in writing in advance by the Contractor. This Article shall not apply to costs for routine contract administration.

(b) All advances for miscellaneous costs incurred for work requested by the Contractor pursuant to Article 31 of this Settlement Contract shall be adjusted to reflect the actual costs when the work has been completed. If the advances exceed the actual costs incurred, the difference will be refunded to the Contractor. If the actual costs exceed the Contractor's advances, the Contractor will be billed for the additional costs pursuant to Article 31 of this Settlement Contract.

WAIVER OF DEFAULT

32. The waiver by either party to this Settlement Contract as to any default shall not be construed as a waiver of any other default or as authority of the other party to continue such default or to make, do, or perform, or not to make, do, or perform, as the case may be, any act or thing which would constitute a default.

IN WITNESS WHEREOF, the parties hereto have executed this Settlement Contract as of the day and year first hereinabove written.

THE UNITED STATES OF AMERICA

APPROVED AS TO LEGAL FORM AND SUFFICIENCY
OFFICE OF REGIONAL SOLICITOR
DEPARTMENT OF THE INTERIOR

By: _____
Regional Director, Mid-Pacific Region
Bureau of Reclamation

(SEAL)

NATOMAS CENTRAL MUTUAL WATER COMPANY

By: _____
President

ATTEST:

_____
Secretary

(H:\public\Sac River Final LTRC's\2005-01-31 Natomas Central MWC Final Draft Contract with exhibits.doc)

Exhibit A

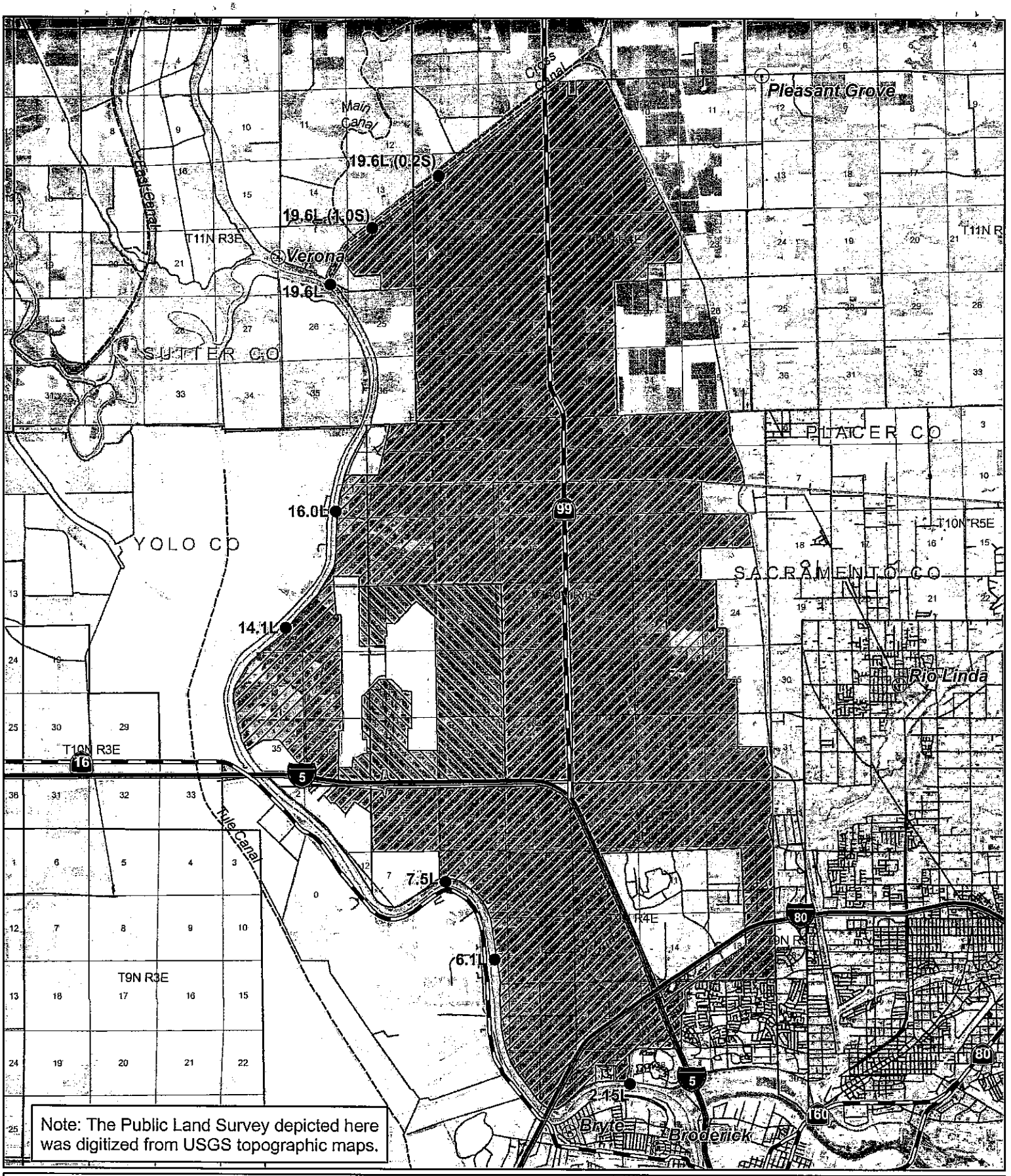
NATOMAS CENTRAL MUTUAL WATER COMPANY
Sacramento River

SCHEDULE OF MONTHLY DIVERSIONS OF WATER

	Base Supply (acre-feet)	Project Water (acre-feet)	Contract Total (acre-feet)
April	14,000	0	14,000
May	27,700	0	27,700
June	23,000	0	23,000
July	11,500	7,200	18,700
August	3,900	14,800	18,700
September	16,100	0	16,100
October	2,000	0	2,000
Total	98,200	22,000	120,200

Points of Diversion: 2.15L, 6.1L, 7.5L, 14.1L, 16.0L, 19.6L (Cross Canal 1.0S & 2.0S)

Dated: 01-31-2005



Contractor's Service Area - Ag Only
Contractor's Service Area - Ag and/or M&I
District Boundary
Point of Diversion

Natomas Central Mutual Water Co.

Contract No. 14-06-200-885A-R-1
Exhibit B

Miles
0 0.5 1 2 3

Date: 3/7/05, Revised 4/11/05
File Name: N:\districts\contracts\natomas_central\natomas_central.mxd

725-202-35

Exhibit C

NATOMAS CENTRAL MUTUAL WATER COMPANY
Sacramento River

UNIT DUTY

(In Acre-Feet Per Acre)

	Rice	Alfalfa and Irrigated Pasture	General Crops
June	1.70	0.80	0.60
July	1.80	1.00	0.70
August	1.70	0.80	0.70
September	0.50	0.60	0.40

Dated: 01-31-2005

Exhibit D

NATOMAS CENTRAL MUTUAL WATER COMPANY
Sacramento River
2005 Water Rates and Charges per Acre-Foot

	Cost of Service		Calculated Payment Capacity 1/
	Irrigation	M&I	Irrigation
COST OF SERVICE RATES:			
Capital Rate			
Storage	$4.57	$9.70	$0.00
O&M Rates:			
Water Marketing	$6.61	$3.89	$6.61
Storage	$5.93	$6.67	$5.93
Deficit Rates:			
Interest Bearing	$0.00	$0.00	$0.00
CFO/PFR Adjustment Rate 2/	$0.00	$0.00	$0.00
TOTAL	$17.11	$20.26	$12.54
RESCHEDULING FEE:	$5.59	$8.19	$5.59
FULL-COST RATES:			
Section 202(3) Rate is applicable to a Qualified Recipient or to a Limited Recipient receiving irrigation water on or before October 1, 1981.	$21.47	N/A	$21.47
Section 205(a)(3) Rate is applicable to a Limited Recipient that did not receive irrigation water on or before October 1, 1981.	$23.82	N/A	$23.82
CHARGES UNDER P.L. 102-575 TO THE RESTORATION FUND 3/			
Restoration Payments (3407(d)(2)(A))	$7.93	$15.87	$0.00

1/ Established pursuant to the Sutter, Natomas and Pelger MWC Payment Capacity Analysis dated October, 2001.

2/ Chief Financial Officer (CFO) adjustment and Provision for Replacement (PFR) expense is being distributed over a 5-year period beginning in FY 2003 for those contractors that requested those costs be deferred.

3/ These surcharges are payments in addition to the water rates and are determined pursuant to Title XXXIV of P.L. 102-575. Restoration Fund surcharges under P.L. 102-575 are on a fiscal year basis (10/1 -9/30). Contractors with ability to pay relief do not pay Restoration Fund charges for agricultural water.

BOARD OF DIRECTORS

NATOMAS CENTRAL MUTUAL WATER COMPANY

RESOLUTION NO. 2005-03-02

RESOLUTION APPROVING LONG-TERM RENEWAL OF CONTRACT BETWEEN THE UNITED STATES AND NATOMAS CENTRAL MUTUAL WATER COMPANY, DIVERTER OF WATER FROM SACRAMENTO RIVER SOURCES, SETTLING WATER RIGHTS DISPUTES AND PROVIDING FOR PROJECT WATER

WHEREAS Natomas Central Mutual Water Company (the "Company") has, since 1964, held a settlement contract with the United States Department of the Interior, Bureau of Reclamation ("Reclamation") bearing Contract No. 14-06-200-885A (the "Original Contract").

WHEREAS the Original Contract would have expired on March 31, 2004.

WHEREAS in advance of that expiration, the Company and Reclamation entered into negotiations for a long-term renewal of the Original Contract.

WHEREAS by Act of Congress, the Original Contract was extended for a period of two years, because the negotiations and related procedures had not been completed by March 31, 2004.

WHEREAS the negotiations and related procedures have now been completed, and Reclamation has presented to the Company the agreed-upon final form of renewal contract bearing Contract No. 14-06-200-885A-R1 (the "Renewal Contract").

WHEREAS the Board of Directors of the Company finds and determines that it is in the best interest of the Company to approve the Renewal Contract and to authorize the General Manager and staff of the Company to carry out any actions necessary to implement the Renewal Contract.

NOW, THEREFORE, BE IT RESOLVED that:

1. The Board of Directors of the Company hereby approves the Renewal Contract between Reclamation and the Company with the correction of Exhibit B to include the 428 acres of airport land into Natomas' contractual service area.

2. The General Manager and staff of the Company are authorized and directed to take any other action necessary to implement the terms of the Renewal Contract.

PASSED AND ADOPTED by unanimous written consent of the Board of Directors on April 21, 2005.

By _____
Dan F. Spangler
President, Board of Directors

By _____
Herb Niederberger, Jr.
Vice President, Board of Directors

By _____
Mark Enes
Secretary, Board of Directors

By _____
Jim Sopwith
Board of Directors

By _____
Doug Ose
Board of Directors

By _____
Michael George
Board of Directors

By _____
Rod Rosa
Board of Directors

Appendix D - USBR Settlement Agreement with Sacramento River Settlement Contractors to establish a Drought Protection Program

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

AGREEMENT BETWEEN THE UNITED STATES BUREAU OF RECLAMATION, THE SACRAMENTO RIVER SETTLEMENT CONTRACTORS, A CALIFORNIA NONPROFIT MUTUAL BENEFIT CORPORATION, AND INDIVIDUAL SACRAMENTO RIVER SETTLEMENT CONTRACTORS FOR THE ESTABLISHMENT OF A DROUGHT PROTECTION PROGRAM

THIS AGREEMENT, made this 10th day of January, 2025, pursuant to the Reclamation Act of 1939 (53 Stat. 1187), the Reclamation Reform Act of 1982 (P.L. 97-293), and the Inflation Reduction Act of 2022 (P.L. 117-169), between the UNITED STATES BUREAU OF RECLAMATION, hereinafter the United States or Reclamation, and represented by the officer executing this Agreement, the SACRAMENTO RIVER SETTLEMENT CONTRACTORS, a California nonprofit mutual benefit corporation, hereinafter referred to as the SRSC Corp., acting for and on behalf of its members and any other non-member Sacramento River settlement contractor that receives funding pursuant to this Agreement, and individual Sacramento River settlement contractors that have executed this Agreement.

EXPLANATORY RECITALS

[1st] WHEREAS, the United States has constructed and is operating the Central Valley Project (Project) for diversion, storage, carriage, and distribution of waters of the Sacramento

River, the American River, the Trinity River, and the San Joaquin River and their tributaries for irrigation and other beneficial uses to serve Project purposes; and

[2nd] WHEREAS, Reclamation has entered into contracts with senior water right holders on the Sacramento River, known as the Sacramento River settlement contractors, for the settlement of claimed water rights; and

[3rd] WHEREAS, Reclamation and the Sacramento River settlement contractors renewed these contracts in or around 2005, which among other things provide for a 25% reduction of water available for diversion in a Critical Year as defined in the contracts; and

[4th] WHEREAS, on September 30, 2021, Reclamation requested reinitiation of consultation with the United States Fish and Wildlife Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service regarding the long-term operations of the Central Valley Project and the State Water Project pursuant to 50 C.F.R. § 402.16 of the federal Endangered Species Act;

[5th] WHEREAS, on November 9, 2023, Reclamation issued a "Biological Assessment for the 2021 Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and the State Water Project";

[6th] WHEREAS, Reclamation issued a Final Environmental Impact Statement (EIS) for the Long-Term Operation of the Central Valley Project and the State Water Project on November 15, 2024;

[7th] WHEREAS, Reclamation issued a Record of Decision on the Long-Term Operation of the Central Valley Project and State Water Project on December 20, 2024;

[8th] WHEREAS, in anticipation of Reclamation's operational commitments in the LTO Biological Assessment, Reclamation and the undersigned Sacramento River settlement contractors agree to a Drought Protection Program under specific hydrologic conditions;

[9th] WHEREAS, the undersigned Sacramento River settlement contractors agree to a Drought Protection Program, to be implemented in two phases, based on the parties' commitment to improve spawning, rearing, and migratory conditions for salmon species in the Upper Sacramento River, hatchery operations, and other spawning locations in tributaries like Battle Creek, and to otherwise support the recovery of salmon species;

[10th] WHEREAS, the undersigned Sacramento River settlement contractors agree to a second phase of a Drought Protection Program based on anticipated investments in drought resiliency projects;

[11th] WHEREAS, the SRSC Corp. will coordinate activities among its members and other Sacramento River settlement contractors and distribute funding to the undersigned Sacramento River settlement contractors as set forth in the articles to follow;

[12th] WHEREAS, the SRSC Corp. will accept funding and coordinate activities in support of the Winter-Run Action Plan and to assist the United States in achieving the milestones to support recovery of salmon species in the Upper Sacramento River; and

[13th] WHEREAS, the U.S. Fish and Wildlife Service issued a biological opinion on the Sacramento River Settlement Contractors Drought Protection Program, on January 7, 2025; and

[14th] WHEREAS, Reclamation completed an Environmental Assessment for the Sacramento River Settlement Contractors Drought Protection Program, and signed a Finding of No Significant Impact, on January 8, 2025,

[15th] WHEREAS, on December 30, 2024, Glenn-Colusa Irrigation District, as lead agency, certified the Final Environmental Impact Report for the Drought Protection Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation, adopted Findings of Fact and a Statement of Overriding Considerations, adopted a Mitigation Monitoring and Reporting Program, and approved the project, and other Sacramento River settlement contractors, as responsible agencies, approved execution of this Agreement in reliance on the Final Environmental Impact Report.

NOW, THEREFORE, in consideration of the mutual and dependent covenants herein contained, the parties agree as follows:

1. DEFINITIONS

When used herein unless otherwise distinctly expressed, or manifestly incompatible with the intent of the parties as expressed in this Agreement, the term:

(a) "Agreements to Support Healthy Rivers and Landscapes" shall mean the suite of plans and voluntary agreements proposed by signatory state agencies, Reclamation, public water agencies, and other water users as an alternative program of implementation for achieving water quality objectives for the Sacramento River, tributaries, and the Delta as part of the California State Water Resources Control Board's update of its Bay-Delta Water Quality Control Plan;

(b) "Base Supply" shall mean the quantity of Surface Water established in Articles 3 and 5 of the Settlement Contracts, and listed in Exhibit A of each Settlement Contract, which may be diverted by the Contractor from the Sacramento River or its Source of Supply without payment to the United States for such quantities diverted;

(c) "Contract Totals" shall mean the sum of the Base Supply and Project Water available for diversion under the Settlement Contracts held by the Settlement Contractors that have executed this Agreement;

(d) "Critical Year" shall have the same meaning as the term "Critical Year" in the Settlement Contracts, which, as stated in the Settlement Contracts, means any Year in which either of the following eventualities exists:

(i) The forecasted full natural inflow to Shasta Lake for the current Water Year, as such forecast is made by the United States on or before February 15 and reviewed as frequently thereafter as conditions and information warrant, is equal to or less than 3.2 MAF; or

(ii) The total accumulated actual deficiencies below 4.0 million acre-feet in the immediately prior Water Year or series of successive prior Water Years each of which had inflows of less than 4.0 million acre-feet, together with the forecasted deficiency for the current Water Year, exceed 800,000 acre-feet.

For the purpose of determining a Critical Year, the computation of inflow to Shasta Lake shall be performed in a manner that considers the extent of upstream development above Shasta Lake during the year in question, and shall be used as the full natural flow to Shasta Lake. In the event that major construction has occurred or occurs above Shasta Lake after September 1, 1963, and which has materially altered or alters the regimen of the stream systems contributing to Shasta Lake, the computed inflow to Shasta Lake used to define a Critical Year will be adjusted to eliminate the effect of such material alterations. After consultation with the State of California, the National Weather Service, and other recognized forecasting agencies, the Contracting Officer will select the

forecast to be used and will make the details of it available to the Settlement Contractors. The same forecasts used by the United States for the operation of the Project shall be used to make the forecasts hereunder;

(e) "Contracting Officer" will mean Reclamation's Regional Director (unless otherwise stated) or his duly authorized representative;

(f) "CVPIA" shall mean the Central Valley Project Improvement Act, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

(g) "Drought Resiliency Projects" shall mean an integrated, broad range of actions intended to strengthen the resilience of the Settlement Contractors' water system and long-term water delivery capabilities, thereby assisting Reclamation and the Settlement Contractors to withstand and recover from climatic variability in order to support healthy rivers and landscapes (including but not limited to terrestrial ecosystems) and create durable water savings while sustaining a more drought-resilient economy that retains its vitality. Drought Resiliency Projects include but are not limited to the following actions: 1) protecting and enhancing natural systems through habitat projects and other environmental stewardship; 2) making investments to conserve water supplies over the long-term; 3) diversifying water supplies; and 4) enhancing water management actions with improved data, forecasting, conveyance, and administration under the Settlement Contracts;

(h) "Effective Date" shall mean January 10, 2025.

(i) "Exhibit A" shall mean the listing of those Settlement Contractors that have executed this Agreement, which Exhibit may be modified by the SRSC Corp. without amendment of this Agreement if and when those entities or persons that hold a Settlement

Contract with Reclamation as originally executed in or about 1964, and as renewed in or about 2005, execute this Agreement after the Effective Date but on or before July 31, 2025.

(j) "Final EIR" shall mean the Final Environmental Impact Report to support a Drought Protection Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation, certified by Glenn-Colusa Irrigation District on December 30, 2024.

(k) "Five Agency Memorandum of Understanding" shall mean the "Memorandum of Agreement for the Purpose of the Recovery of Winter-Run Chinook Salmon Pursuant to the Winter-Run Action Plan by and among United States Fish and Wildlife Service, National Marine Fisheries Service, Bureau of Reclamation, California Department of Water Resources, California Department of Fish and Wildlife, and Sacramento River Settlement Contractors Corporation" dated _____ _____, 2025.

(l) "Inflation Reduction Act" or "Act" shall mean Public Law No. 117-169, 136 Stat. 1818 (2022).

(m) "LTO Biological Assessment" means the "Biological Assessment for the 2021 Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and the State Water Project" issued by Reclamation on November 9, 2023.

(n) "Parties" shall mean the United States or Reclamation, SRSC Corp., and the Settlement Contractors that have executed this Agreement.

(o) "Phase One" shall mean the period that lasts ten years from the date of the execution of this Agreement when the provisions of Article 3 of this Agreement are effective.

(p) "Phase One Program Year" shall mean when all the following conditions are satisfied by April 15 in any Year during Phase One:

(i) Based on Bin 3B Indicators in the LTO Biological Assessment, forecasted end-of-April Shasta Lake storage is less than 3.0 million acre-feet;

(ii) Based on Bin 3B Indicators in the LTO Biological Assessment, forecasted end-of-September Shasta Lake storage is less than 2.0 million acre-feet;

(iii) Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet; and

(iv) Reclamation forecasts a Critical Year under the Settlement Contracts.

Forecasts to determine whether conditions (i)-(iv) are satisfied shall be based on a 90% exceedance.

(q) "Phase Two" shall mean the period following the expiration of Phase One through February 28, 2045, when the provisions of Article 4 of this Agreement are effective.

(r) "Phase Two Program Year" shall mean when all the following conditions are satisfied by April 15 in any Year during Phase Two:

(i) Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet; and

(ii) Reclamation forecasts a Critical Year under the Settlement Contracts.

Forecasts to determine whether conditions (i)-(ii) are satisfied shall be based on a 90% exceedance.

(s) "Program Water" shall mean the total quantity reduced under all Settlement Contracts participating in the Drought Protection Program during a Phase One Program Year, not to exceed a combined 500,000 acre-feet per Phase One Program Year, in order to result in a

forecasted end-of-September storage in Shasta Lake of up to 2.0 million acre-feet; the total reduction shall be in addition to reductions under Article 5 of the Settlement Contracts.

(t) "Project" shall mean the Central Valley Project owned by the United States and managed by the Department of Interior, Bureau of Reclamation;

(u) "Project Water" shall have the same meaning as the term "Project Water" in the Settlement Contracts, which, as stated in the Settlement Contracts, means all Surface Water diverted or scheduled to be diverted each Year by the Contractor from the Sacramento River which is in excess of the Base Supply. The United States recognizes the right of the Contractor to make arrangements for acquisition of water from projects of others than the United States for delivery through the Sacramento River and tributaries subject to written agreement between Contractor and the United States as to identification of such water which water when so identified shall not be deemed Project Water under this Settlement Contract;

(v) "Rates" shall have the same meaning as the term "Rates" in the Settlement Contracts, which, as stated in the Settlement Contracts, means the payments for Project Water determined annually by the Contracting Office in accordance with the then current applicable water ratesetting Policies for the Project, as described in subdivision (a) of Article 8 of the Settlement Contract.

(w) "Reclamation Program Water" shall mean any Program Water made available for use by Reclamation pursuant to this Agreement;

(x) "Record of Decision" shall mean the decision document issued on December 20, 2024, in which Reclamation selected an alternative for the long-term operations of the Central Valley Project and State Water Project based on the analysis of the range of alternatives analyzed

in the EIS titled "Long-Term Operations of the Central Valley Project and State Water Project", posted on November 15, 2024.

(y) "Recoverable SRS Contractor Program Water" shall mean the quantity of SRS Contractor Program Water that is available for use in accordance with Article 3(g)-(i); except that portion determined by Reclamation as Recoverable SRS Contractor Program Water Spill;

(z) "Recoverable SRS Contractor Program Water Spill" shall mean Recoverable SRS Contractor Program Water that, upon determination by Reclamation, is irrecoverably lost from Reclamation's control at Shasta Reservoir;

(aa) "Rescheduling Fee" shall have the same meaning as the term "Rescheduling Fee" in the Settlement Contracts, which, as stated in the Settlement Contracts, means the payments required for each acre-foot of Base Supply rescheduled pursuant to subdivision (c)(l) of Article 3 of the Settlement Contract, as determined annually by the Contracting Officer in accordance with the then-current applicable water rate setting policies for the Project;

(bb) "SRS Contractor Program Water" shall mean any Program Water that is not made available for use by Reclamation as Reclamation Program Water;

(cc) "Secretary" shall mean the Secretary of the Interior, a duly appointed successor, or an authorized representative acting pursuant to any authority of the Secretary and through any agency of the Department of the Interior;

(dd) "Settlement Contractor(s)" shall mean those entities or persons that hold a Settlement Contract with Reclamation as originally executed in or about 1964, and as renewed in or about 2005, and who have agreed to participate in the Drought Protection Program by executing this Agreement.

(ee) "Settlement Contract(s)" shall mean the Sacramento River Settlement Contracts as originally executed in or about 1964, and as renewed in or about 2005.

(ff) "Surface Water" shall have the same meaning as the term "Surface Water" in the Settlement Contracts, which, as stated in the Settlement Contracts, means only those waters that are considered as surface water under California law;

(gg) "Drought Protection Program" shall mean the program implementing reductions to Contract Totals in Phase One pursuant to Article 3 of this Agreement and in Phase Two pursuant to Article 4 of this Agreement.

(hh) "Water Year" shall have the same meaning as the term "Water Year" in the Settlement Contracts, which, as stated in the Settlement Contracts, means the period commencing with October 1 of one year and extending through September 30 of the next;

(ii) "Winter-Run Action Plan" or "WRAP" shall mean the plan that has been developed collaboratively among representatives from Reclamation, National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Water Resources, California Department of Fish and Wildlife, and the SRSC Corp. as an integrated plan to improve the survival and viability of Winter-run Chinook salmon that functions alongside planned operation of Shasta Reservoir, and as the plan is identified and described in Sections 3.13.3.2 and 3.16.1 of the LTO Biological Assessment; and

(jj) "Year" shall have the same meaning as the term "Year" in the Settlement Contracts, which, as stated in the Settlement Contracts means a calendar year.

2. DURATION OF CONTRACTUAL OBLIGATIONS

Except for Reclamation's obligations under Article 7 of this Agreement, the Parties' respective rights, responsibilities and performance obligations during Phase One of the Drought

Protection Program shall remain in effect from February 1, 2025, through February 15, 2035. The Parties' respective rights, responsibilities and performance obligations during Phase Two of the Drought Protection Program shall begin on February 16, 2035, and shall remain in effect through February 28, 2045.

3. PHASE ONE OF THE DROUGHT PROTECTION PROGRAM

(a) Reclamation will establish a Drought Protection Program to reduce water furnished to Settlement Contractors in certain years and under specific hydrologic conditions as defined in this Agreement. The Drought Protection Program will be implemented in two phases, with each phase lasting approximately ten years. This article prescribes the terms of Phase One of the Drought Protection Program.

(b) Reclamation will identify whether any Year is a Phase One Program Year, as defined in Article 1(p), and the amount of Program Water based on the following forecasts and process:

(i) On March 15 of each Year, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors as to whether the conditions for a Phase One Program Year are forecasted to be satisfied, and if so, will identify the initial quantity of Program Water.

(ii) On April 15 of each Year, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors as to whether the conditions for a Phase One Program Year are satisfied, and if so, will identify the final amount of Program Water.

(iii) Reclamation may not increase the amount of Program Water after April 15 under this Agreement. The Settlement Contractors may voluntarily agree to an increase in the quantity of Program Water subject to a separate agreement with Reclamation.

(iv) The forecast provided by Reclamation on April 15 will be the final notice to Settlement Contractors as to whether it is a Phase One Program Year.

(c) In addition to reductions under Article 5 of the Settlement Contracts, in a Phase One Program Year, Reclamation will reduce the Contract Totals for the Settlement Contractors by the final amount of Program Water identified on April 15; the reduction to Contract Totals because of reductions for Program Water shall be distributed among the Settlement Contractors as identified in Exhibit A. The Settlement Contractors may redistribute the reductions to Contract Totals among the Settlement Contractors, provided that the total amount of Program Water identified by Reclamation is met by the combined reduction to Contract Totals of the Settlement Contractors. Any water reductions pursuant to this subdivision shall be deemed equivalent to a reasonable beneficial use of water to the extent of the reduction in supply, do not reflect any change to the underlying water rights of the Settlement Contractors, and will not be considered by Reclamation as a reduction in water use or demand during any renewal of the Settlement Contracts, unless otherwise mutually agreed.

(d) By April 15 of any Phase One Program Year, Reclamation shall have the first right to make Program Water available for use by Reclamation upon a mutually agreed upon amount of funding made available to the Settlement Contractors; such water shall be "Reclamation Program Water." Program Water not funded by Reclamation by April 15 shall be "SRS Contractor Program Water."

(e) Between April 15 and July 15 in a Phase One Program Year, the Settlement Contractors may voluntarily provide an option to Reclamation to provide funding for use of SRS Contractor Program Water by Reclamation at an amount agreed upon in the future by Reclamation and the Settlement Contractors.

(f) In a Phase One Program Year, no later than July 15, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors that identifies the forecasted end-of-September Shasta Lake storage:

(i) If the forecasted end-of-September Shasta Lake storage is greater than 2.0 million acre-feet, then the SRS Contractor Program Water will become "Recoverable SRS Contractor Program Water" and may be used in accordance with subdivisions (g)-(i) of this Article 3. Recoverable SRS Contractor Program Water will be distributed among the Settlement Contractors in accordance with Exhibit A.

(ii) If the forecasted end-of-September Shasta Lake storage is less than 2.0 million acre-feet, then Reclamation and the Settlement Contractors will meet and confer on operations for the remaining period of the Water Year in accordance with Article 6 of this Agreement.

(g) Each Settlement Contractor may use its amount of Recoverable SRS Contractor Program Water for the following purposes and subject to Reclamation's operational constraints:

(i) Diversion and use within a Settlement Contractor Service Area identified in Exhibit B of a Settlement Contract;

(ii) Settlement Contractor flow contributions or other actions under the Agreements to Support Healthy Rivers and Landscapes;

(iii) Subject to Reclamation's right of first refusal to provide funding to make Recoverable SRS Contractor Program Water available for use by Reclamation, request assignment and delivery to Project water service and/or repayment contractors or National Wildlife Refuges, or

(iv) Subject to Reclamation's right of first refusal to provide funding to make Recoverable SRS Contractor Program Water available for use by Reclamation, transfer to non-Project contractors in accordance with Article 3(e) of the Settlement Contracts.

Use of Recoverable SRS Contractor Program Water plus quantities diverted or transferred under the Settlement Contracts in each Year shall not exceed the Contract Totals.

(h) Requested use of Recoverable SRS Contractor Program Water shall not result in a forecasted end-of-September Shasta Lake storage of less than 2.0 million acre-feet during the year of the requested use.

(i) Requests by Settlement Contractors to use Recoverable SRS Contractor Program Water for the purposes in subdivision (g)(i)-(iv) of this Article 3 shall be submitted to Reclamation at least two weeks prior to the date of the requested use. Reclamation and the Settlement Contractors shall cooperate to reach agreement on a schedule for the requested use, subject to Reclamation's operational constraints, within two weeks of submittal of a request.

(j) After October 1 of each Year, SRS Contractor Program Water shall become Recoverable SRS Contractor Program Water. Any Recoverable SRS Contractor Program Water shall be carried over in Shasta Lake subject to the following:

(i) Reclamation shall have the right to provide funding to make any Recoverable SRS Contractor Program Water available for use by Reclamation beginning October 1. Any Recoverable SRS Contractor Program Water that Reclamation does not

fund by April 15 of the following year shall remain Recoverable SRS Contractor Program Water.

(ii) In the event the following year is not a Phase One Program Year, Settlement Contractors may use Recoverable SRS Contractor Program Water for the purposes and subject to the conditions in subdivision (g) of this Article 3. Requested use of Recoverable SRS Contractor Program Water shall not result in a forecasted end-of-September Shasta Lake storage of less than 2.0 million acre-feet during the Year of the requested use.

(iii) Recoverable SRS Contractor Program Water that is carried over may become Recoverable SRS Contractor Program Water Spill. The determination of Recoverable SRS Contractor Program Water Spill will be made by Reclamation.

(iv) Reclamation shall provide an accounting of Recoverable SRS Contractor Program Water Spill with a notification to SRS Contactors within 45 days its determination.

(v) Recoverable SRS Contractor Program Water Spill shall be accounted as meeting the Settlement Contractors' obligations to provide flow contributions under the Agreements to Support Healthy Rivers and Landscapes to the extent possible.

(k) Recoverable SRS Contractor Program Water remaining in Shasta at the end of Phase One, if any, will be carried over in Shasta for future use for the purposes and subject to the conditions in subdivision (g).

4. PHASE TWO OF THE DROUGHT PROTECTION PROGRAM

(a) This article prescribes the terms of Phase Two of the Drought Protection Program. Phase Two shall expire on February 28, 2045, unless otherwise extended by mutual agreement.

(b) Reclamation will identify whether any Year is a Phase Two Program Year, as defined in Article 1(r), based on the following forecasts and process:

(i) On March 15 of each Year during Phase Two, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors as to whether the conditions for a Phase Two Program Year are forecasted to be satisfied; and

(ii) If the conditions for a Phase Two Program Year are forecasted to be satisfied on March 15, then Reclamation and the Settlement Contractors will begin to meet and confer on whether a reduction, in addition to reductions under Article 5 of the Settlement Contracts, is necessary to promote the survival and recovery of federally endangered or threatened species in the Sacramento River below Shasta Dam above I Street Bridge.

(iii) On April 15 of each year during Phase Two, Reclamation will provide a forecast based on a 90% exceedance to Settlement Contractors as to whether the conditions for a Phase Two Program Year are satisfied. The forecast provided by Reclamation on April 15 will be the final notice to Settlement Contractors as whether it is a Phase Two Program Year.

(c) If Reclamation determines that is a Phase Two Program Year on April 15, and, as a result of the meet and confer process described in Article 6, Reclamation and the Settlement Contractors agree that a reduction in addition to reductions under Article 5 of the Settlement Contracts is necessary to achieve temperature control in the Upper Sacramento River, then the Settlement Contractors will voluntarily reduce the Contract Totals under the Settlement Contracts by up to 100,000 acre-feet.

(d) The Settlement Contractors may distribute the reductions to Contract Totals among the Settlement Contractors, provided that the total amount of up to 100,000 acre-feet is met by the combined reduction to Contract Totals by the Settlement Contractors.

(e) Any water reductions pursuant to Article 4(c) shall be deemed equivalent to a reasonable beneficial use of water to the extent of the reduction in supply, do not reflect any change to the underlying water rights of the Settlement Contractors, and will not be considered by Reclamation as a reduction in water use or demand during any renewal of the Settlement Contracts, unless otherwise mutually agreed.

(f) Reclamation will utilize any water savings resulting from the reductions by the Settlement Contractors under Article 4(c) of this Agreement for non-reimbursable purposes necessary to promote the survival and recovery of federally endangered or threatened species in the Sacramento River below Shasta Dam above I Street Bridge and will not make these savings available for water supply allocations to CVP contractors in a Phase Two Program Year.

(g) The Parties agree that during Phase Two any voluntary reductions in water furnished to the Settlement Contractors beyond the reductions provided for in Article 4(c) of this Agreement shall be subject to a separate agreement with Reclamation.

5. SETTLEMENT CONTRACT PERFORMANCE

(a) Reclamation agrees to the following terms during a Phase One Program Year or a Phase Two Program Year:

(i) Reclamation will allow Settlement Contractors to reschedule the amounts of Base Supply not diverted in a month into any other months, including into the critical months defined in the Settlement Contracts, or otherwise as needed to accommodate the demand shift pattern.

(ii) Reclamation shall ensure that water furnished under the Settlement Contracts is available on a pattern that allows the Settlement Contractors to make use of the entire Contract Total, with applicable reductions under the Settlement Contracts and this Agreement.

(iii) Reclamation will waive the requirement of Article 3(c)(2)(ii) of the Settlement Contracts.

(iv) Reclamation will allow the accounting order for diversion schedules for each month to be regular monthly Base Supply, then unused Base Supply rescheduled from another month, and then Project Water.

(v) Reclamation shall waive fees for the rescheduling of Base Supply into other months as set forth in Article 3(c)(1) of the Settlement Contracts.

(vi) Reclamation will waive the take or pay provisions in Article 8(a)(1) of the Settlement Contracts.

(vii) For the purpose of future water transfers related to groundwater substitution or crop idling/shifting, Reclamation will account for baseline conditions only in years that do not involve reductions to Contract Totals beyond those described in Article 5 of the Settlement Contracts.

(viii) Both Base Supply and Project Water shall be available for use in water transfers consistent with sections 3403(f) and 3405(a)(1)(M) of the CVPIA.

(b) In the event of a conflict between the terms in subdivision (a) of Article 5 of this Agreement and the terms of a Settlement Contract, the terms in subdivision (a) of Article 5 of this Agreement shall govern.

(c) To the maximum extent possible, the terms in subdivision (a) of Article 5 of this Agreement will also apply to the use of Recoverable SRS Contractor Program Water if it becomes available for use in a Phase One Program Year in Phase One of the Drought Protection Program.

6. MEET AND CONFER

The Settlement Contractors will meet and confer with Reclamation as appropriate to determine if there is any additional role for the Settlement Contractors in connection with Reclamation's operational decision-making for Shasta Reservoir annual operations in Phase One Program Years and Phase Two Program Years. This determination will include consideration of what actions are feasible, consistent with the terms of this Agreement and the Settlement Contracts. In addition to the reduction during Critical Years as set forth in the Settlement Contracts, and the reductions under Articles 3 and 4 of this Agreement, the types of actions that may be considered include, but are not necessarily limited to: (1) the scheduling of spring diversions by the Settlement Contractors; (2) voluntary, compensated water transfers by the Settlement Contractors subject to Reclamation approval; and (3) smoothed diversions by the Settlement Contractors during the fall months. Any mutually agreeable proposed actions resulting from these meet-and-confer discussions must be consistent with the terms of this Agreement and the Settlement Contracts and subject to other regulatory approvals.

7. FUNDING FOR THE DROUGHT PROTECTION PROGRAM

(a) Reclamation will fund the Drought Protection Program by providing the following payment to SRSC Corp.:

(i) $250 million upon the Effective Date of this Agreement, in a one-time, non-refundable payment to the SRSC Corp., with funds available to Reclamation under the Inflation Reduction Act.

(ii) The Settlement Contractors shall use the majority of the proceeds from Article 7(a)(i) to invest in Drought Resiliency Projects. For purposes of this provision, Drought Resiliency Projects include actions taken by Settlement Contractors and costs of those actions incurred from August 16, 2022, the date of enactment of the Inflation Reduction Act, to December 20, 2024, up to $30 million. The balance of the proceeds (less than the majority of funds from the Inflation Reduction Act) may be used for any lawful Settlement Contractor purposes.

(iii) The proceeds from Article 7(a), once transferred to the Settlement Contractors under Article 11, are eligible to meet any local agency cost share for a matching funds requirement.

(b) In accordance with Article 2 of this Agreement, Reclamation has the right to the first 275,000 acre-feet of Program Water during Phase One. Reclamation shall have the right to take actions to make additional quantities of Program Water or SRS Contractor Program Water available for use by Reclamation as set forth in subdivisions (d), (e), and (g) of Article 3 of this Agreement in exchange for a mutually agreed payment or payments to the Settlement Contractors based upon future negotiations between Reclamation and the Settlement Contractors.

(c) The funds described in subdivision (a) of this Article will be distributed by the SRSC Corp. to the Settlement Contractors in accordance with Exhibit A. The SRSC Corp. will retain 5% of the funds described in subdivision (a) of Article 7 as consideration for its obligations arising under this Agreement and as an administrative fee for managing such

funds. The SRSC Corp. will make the balance of such funds available to Settlement Contractors who are party to this Agreement proportionately based on a Settlement Contractor's share of Contract Totals.

(d) The Settlement Contractors agree to comply with any mitigation requirements contained in the Final EIR associated with the water reductions described in Articles 3 and 4 and Drought Resiliency Projects described in Article 7(a)(ii).

8. SUPPORT OF THE WINTER RUN ACTION PLAN

(a) During Phase One of the Drought Protection Program, and upon Reclamation acquiring a cumulative Program Water quantity of 500,000 acre-feet under Article 3 of this Agreement, any additional Program Water is contingent on completing mutually agreed Winter Run Action Plan (WRAP) deadlines, milestones, and timely deliverables for each WRAP priority action, as set forth in the mutually agreeable schedule to be developed by Reclamation and the Settlement Contractors consistent with section 4.10 of the Five Agency Memorandum of Understanding, or as otherwise agreed upon between Reclamation and the SRSC Corp.

(b) To support the Winter Run Action Plan, Reclamation will use its rate-setting policies and reduce the Rates for Project Water by $10 per acre-foot for all Project Water charged to each Settlement Contractor during Phase One. Reclamation will notify each Settlement Contractor of the $10 per acre-foot reduction in accordance with the procedures in Article 8(b) of the Settlement Contract. Each Settlement Contractor will pay Rates for Project Water, reduced by $10 per acre-foot, in accordance with the schedule set forth in Article 8(c) of the Settlement Contract.

(c) The SRSC Corp. will invoice each Settlement Contractor based on the amount of Project Water that Reclamation charges the Settlement Contractor in Reclamation's final water

account record for the Water Year in acre-feet and multiply that amount by $10. Each Settlement Contractor shall pay the amount invoiced, based on this formula, to the SRSC Corp. annually. The funds collected by the SRSC Corp. will be managed by the SRSC Corp. and provided either through contract, grant, or direct funding for studies and programs that support the Winter-Run Action Plan.

(d) All funds collected under this Article 8 are non-reimbursable.

9. RESERVATION OF RIGHTS

Reclamation and the Settlement Contractors agree to enter into this Agreement in anticipation of Reclamation's operational commitments in the LTO Biological Assessment and Record of Decision. In the event that there are legal actions concerning the Record of Decision in any forum, the Settlement Contractors reserve their rights to participate in such actions to ensure consistency with and the performance of this Agreement or the Settlement Contracts. Nothing in this Agreement shall limit the Settlement Contractors from defending any actions brought against this Agreement or the Settlement Contracts.

In the event a court of competent jurisdiction finds that the Record of Decision, or any portion thereof, is unlawful, this Agreement shall continue to remain in effect in accordance with Article 2 of this Agreement.

During the term of this Agreement, Reclamation will not voluntarily take any actions or seek any relief, over any objection of the Settlement Contractors, that would result in further water reductions under the Settlement Contracts beyond those reductions agreed to in this

Agreement or consistent with the Settlement Contracts, unless required by applicable law or court order.

10. DISCLAIMER OF LIABILITY

Subject to the conditions, limitations, and provisions hereinafter expressed, the Settlement Contractors agree to hold harmless, and the United States and its officers, agents, or employees assume no responsibility for any damage whether direct or indirect arising out of or in any manner caused by reducing Contract Totals in a Phase One Program Year by the amount of Program Water determined in accordance with Article 3 of this Agreement, or a Phase Two Program Year in accordance with Article 4 of this Agreement.

11. METHOD OF PAYMENT

(a) The SRSC Corp. shall register at the U.S Federal District Registration System for Award Management (SAM) website at www.sam.gov prior to receipt of payment. The SRSC Corp. will notify Reclamation when it has successfully established a SAM account and provide Reclamation the necessary routing information for prompt payment.

(b) All payment made by the United States under this Agreement shall be made by electronic funds transfer (EFT) using the EFT information contained in the SAM database. The SRSC Corp. is responsible during the term of this Agreement for the accuracy and completeness of the data within the SAM database, and for any liability resulting from the United States or Reclamation's reliance on inaccurate or incomplete data. To remain registered in the SAM database after initial registration, the SRSC Corp. is required to review and update on an annual basis, from the date of initial registration or subsequent updates, its information in the SAM database to ensure it is current, and complete.

(c) The SRSC Corp. will disburse the funds to the Settlement Contractors in accordance with Exhibit A.

(d) Any funds not distributed in accordance with subsection (c) of this Article 9 shall be retained by the SRSC Corp.

12. NO ARGUMENT, PRECEDENT, OR ADMISSION

Nothing in this Agreement shall be offered for or against a Party (or any of the Settlement Contractors) as argument, admission, admission of wrongdoing, liability, waiver, acquiescence, or precedent regarding any issue of fact or law, including but not limited to issues related to the interpretation or future performance of the Settlement Contracts, in any mediation, arbitration, litigation, or other administrative or legal proceeding, except that this Agreement may be used in any future proceeding to interpret or enforce the terms of this Agreement, consistent with applicable law. No actions under this Agreement shall be evidence of lack of beneficial use of the subject water supplies, or shall in any way prejudice any of the Settlement Contractors' water rights or Reclamation's water rights.

13. AUTHORIZATION

The Parties represent and warrant that the persons executing this Agreement on behalf of each respective Party has full power and authority to enter this Agreement and that the Parties are authorized by law to perform the services and actions set forth herein.

14. NO COUNTERPARTS CLAUSE

This Agreement may be executed in counterparts with the same force and effect as if executed in one complete document by all Parties. Sacramento River settlement contractors may become party to this Agreement by delivering a signed counterpart to SRSC Corp. on or before July 31, 2025, and thereby be a Settlement Contractor under this Agreement. The SRSC Corp.

will assemble any such counterparts and attach them to the final Agreement and distribute copies of the final Agreement to the parties.

15. PROTECTION OF WATER AND AIR QUALITY

The SRSC Corp. shall comply with all applicable water and air pollution laws and regulations of the United States and state law; and shall obtain all required permits or licenses from the appropriate Federal, State, or local authorities necessary for the delivery of water by the Settlement Contractors; and shall be responsible for compliance with all Federal, State, and local water quality standards applicable to surface and subsurface drainage and/or discharges generated through the use of Central Valley Project facilities or Settlement Contractor facilities or water provided by the Settlement Contractor within its water service area.

This article shall not affect or alter any legal obligations of the Secretary of the Interior to provide drainage or other discharge services.

16. BOOKS, RECORDS, AND REPORTS

The SRSC Corp. and Settlement Contractors shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this Agreement, including as applicable the SRSC Corp.'s and Settlement Contractors' financial transactions; water supply data; Project operation, maintenance, and replacement logs; Project land and rights-of-way use agreements; the water users' land-use (crop census), landownership, land-leasing, and water-use data; and other matters that the Contracting Officer may require. Reports shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require. Subject to applicable Federal laws and regulations, each party to this Agreement shall have the right during office hours to examine and make copies of the other party's books and records relating to matters covered by this Agreement.

17. ASSIGNMENT LIMITED - SUCCESSORS AND ASSIGNS OBLIGATED

The provisions of this Agreement shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this Agreement or any right or interest therein by either party shall be valid until approved in writing by the other party.

18. OFFICIALS NOT TO BENEFIT

No Member of or Delegate to the Congress, Resident Commissioner, or official of the SRSC Corp. and the Settlement Contractors shall benefit from this Agreement other than as a water user or landowner in the same manner as other water users or landowners.

19. NOTICES

All notices and other communications required under this Agreement shall be in writing and shall be deemed to have been duly given on the date of service, if served personally, on the person to whom notice is to be given, or on the third (3rd) day after mailing, if mailed to the party to whom notice is to be given by first class mail, registered or certified, postage-prepaid, and properly addressed as follows:

To SRSC Corp.:
P.O. Box 150
Willows, CA 95988

To Reclamation: U.S. Bureau of Reclamation
California Great Basin Region
Resources Management Division
Attention: Regional Resources Manager, CGB-400
2800 Cottage Way
Sacramento, California 95842

To Settlement Contractors:
c/o SRSC Corp.
P.O. Box 150
Willows, CA 95988

20. CONTRACT DRAFTING CONSIDERATIONS

This Agreement has been negotiated and reviewed by the parties hereto, each of whom is sophisticated in the matters to which this Agreement pertains. The double-spaced articles of this Agreement have been drafted, negotiated, and reviewed by the Parties, and no one party shall be considered to have drafted the stated articles.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

UNITED STATES OF AMERICA

By: _____
Regional Director
Interior Region 10 California- Great Basin
Bureau of Reclamation

THE SACRAMENTO RIVER SETTLEMENT CONTRACTORS, A CALIFORNIA NONPROFIT MUTUAL BENEFIT CORPORATION

By: _____
President, Board of Directors

627 EXHIBIT A

628 (January 10, 2025 version)

SRSC	Contract No.	Contract Total (af)	% of SRSC Contract Total	Program Water Reduction (Based on 500,000 AF) **	SRSC Funding (Based on 500,000 AF)
Glenn-Colusa Irrigation District	14-06-200-855A-R-1	825,000	39.501%	197,505	$93,814,682.75
Reclamation District No. 108	14-06-200-876A-R-1	232,000	11.108%	55,541	$26,381,825.94
Sutter Mutual Water Company	14-06-200-815A-R-1	226,000	10.821%	54,104	$25,699,537.34
Anderson-Cottonwood Irrigation District	14-06-200-3346A-R-1	125,000	5.985%	29,925	$14,214,345.87
Natomas Central Mutual Water Company	14-06-200-885A-R-1	120,200	5.755%	28,776	$13,668,514.99
Reclamation District No. 1004	14-06-200-890A-R-1	71,400	3.419%	17,093	$8,119,234.36
Princeton-Codora-Glenn Irrigation District	14-06-200-849A-R-1	67,810	3.247%	16,234	$7,710,998.35
Provident Irrigation District	14-06-200-856A-R-1	54,730	2.620%	13,102	$6,223,609.20
Conaway Preservation Group, LLC	14-06-200-7422A-R-1	40,862	1.956%	9,782	$4,646,612.81
Meridian Farms Water Company	14-06-200-838A-R-1	35,000	1.676%	8,379	$3,980,016.84
Sycamore Mutual Water Company	14-06-200-2146A-R-1	31,800	1.523%	7,613	$3,616,129.59
RRG Garden Properties, LLC	14-06-200-878A-R-1	29,800	1.427%	7,134	$3,388,700.06
Pleasant Grove Verona Mutual Water Company	14-06-200-5520A-R-1	26,290	1.259%	6,294	$2,989,561.22
Redding, City of	14-06-200-2871A-R-1	21,000	1.005%	5,027	$2,388,010.11

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Maxwell Irrigation District	14-06-200-6078A-R-1	17,980	0.861%	4,304	$2,044,591.51
M&T Chico Ranch, Inc.	14-06-200-940A-R-1	17,956	0.860%	4,299	$2,041,862.36
Woodland-Davis	14-06-200-7422X-R-1	10,000	0.479%	2,394	$1,137,147.67
Pelger Road 1700	14-06-200-1286A-R-1	10,070	0.482%	2,411	$1,145,107.70
Tisdale Irrigation and Drainage Company	14-06-200-2781A	9,900	0.474%	2,370	$1,125,776.19
Pelger Mutual Water Company	14-06-200-2073A	8,860	0.424%	2,121	$1,007,512.84
Carter Mutual Water Company	14-06-200-2401A	7,122	0.341%	1,705	$809,876.57
Lomo Cold Storage	14-06-200-931A	7,110	0.340%	1,702	$808,511.99
Baber, Jack, et al	14-06-200-1604A	6,260	0.300%	1,499	$711,854.44
RD Heer Capital, LLC	14-06-200-2427A	4,740	0.227%	1,135	$539,008.00
Robert's Ditch Irrigation Company	14-06-200-935A	4,440	0.213%	1,063	$504,893.57
Windswept Land & Livestock	14-06-200-2045A	4,040	0.193%	967	$459,407.66
TeVelde Family Revocable Trust	14-06-200-2149A	4,000	0.192%	958	$454,859.07
Knights Landing Investors, LLC	14-06-200-4604A	3,640	0.174%	871	$413,921.75
Andreotti Associates	14-06-200-1898A	3,620	0.173%	867	$411,647.46
Oji Brothers Farm, Inc.	14-06-200-3753A	3,200	0.153%	766	$363,887.25

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Saeed, Faraz A.	8-07-20-W0117	3,160	0.151%	757	$359,338.66
Eastside Mutual Water Company	14-06-200-1053A	2,804	0.134%	671	$318,856.21
Richter Brothers, et al	14-06-200-4362A	2,780	0.133%	666	$316,127.05
Howald Farms, Inc.	14-06-200-1042A	2,760	0.132%	661	$313,852.76
Griffin & Prater Tenancy-in-Common	14-06-200-2895A	2,760	0.132%	661	$313,852.76
Tarke, Stephen	14-06-200-1949A	2,700	0.129%	646	$307,029.87
Dennis, L.C. (Canal Farms)	14-06-200-2896A	1,815	0.087%	435	$206,392.30
Giusti, Richard, et al	14-06-200-4076A	1,610	0.077%	385	$183,080.77
T&P Farms	14-06-200-2993A	1,560	0.075%	373	$177,395.04
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Van Ruiten Bros.	14-06-200-880A	1,485	0.071%	356	$168,866.43
MCM Properties, Inc.	14-06-200-7827A	1,470	0.070%	352	$167,160.71
Byrd, Anna C. and Jane Osborne	14-06-200-1595A	1,265	0.061%	303	$143,849.18
Lonon, Michael, et al	14-06-200-8658A	1,155	0.055%	277	$131,340.56
Kary, Carol	14-06-200-2520A	1,000	0.048%	239	$113,714.77
Lauppe, Burton	14-06-200-1289A	950	0.045%	227	$108,029.03

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Henle Family Limited Partnership	14-06-200-932A	935	0.045%	224	$106,323.31
Green Valley Corporation (Swenson Farms, LLC)	14-06-200-5210A	890	0.043%	213	$101,206.14
Swenson Farms, LLC	14-06-200-5211A	880	0.042%	211	$100,068.99
Jaeger, William, et al	7-07-20-W0002	870	0.042%	208	$98,931.85
Wallace, Kenneth L. Living Trust	14-06-200-1175A-X	867	0.042%	208	$98,590.70
O'Brien, Frank J., Family Trust	14-06-200-4105X	839	0.040%	201	$95,406.69
Driscoll Strawberry Associates, Incorporated	14-06-200-4736A	820	0.039%	196	$93,246.11
Exchange Bank (TNC)	14-06-200-3774A	780	0.037%	187	$88,697.52
Lake California Property Owners Association	14-06-200-4961A	780	0.037%	187	$88,697.52
River Partners (Forry)	14-06-200-7691X	752	0.036%	180	$85,513.50
Sacramento, County of	14-06-200-2404A	750	0.036%	180	$85,286.08
Chesney, Adona, Bypass Trust et al	14-06-200-930A	700	0.034%	168	$79,600.34
Leviathan, Inc.	14-06-200-7308A	700	0.034%	168	$79,600.34
Butte Creek Farms (P)	14-06-200-7744X	640	0.031%	153	$72,777.45
Odysseus Farms Partnership	14-06-200-8574A	630	0.030%	151	$71,640.30
Yolo Land Trust	14-06-200-2148A	630	0.030%	151	$71,640.30

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Van Ruiten Bros.	14-06-200-880X	584	0.028%	140	$66,409.42
Heidrick & McGinnis Properties, L.P.	14-06-200-1176A	560	0.027%	134	$63,680.27
Dyer, Jeffrey E. and Jan Wing	14-06-200-2486A	520	0.025%	124	$59,131.68
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Riverby Ranches, LLC	14-06-200-934A	500	0.024%	120	$56,857.38
Natomas Basin Conservancy	14-06-200-1364A	490	0.023%	117	$55,720.24
Anderson, Art, et al	14-06-200-3591A	490	0.023%	117	$55,720.24
Seaver, Charles	14-06-200-3296A	480	0.023%	115	$54,583.09
Reische, Laverne C., et ux	14-06-200-1150A	450	0.022%	108	$51,171.65
Butler, Dianne E., Revocable Intervivos Trust	14-06-200-2365A	434	0.021%	104	$49,352.21
Yocha Dehe Wintun Nation (formerly Heidrick)	14-06-200-8322A	430	0.021%	103	$48,897.35
Lockett, William P. & Jean B.	14-06-200-4105A	417	0.020%	100	$47,419.06
Reclamation District #1000	14-06-200-1779A	404	0.019%	97	$45,940.77
Tuttle, Charles W. - Trust	14-06-200-7296A	390	0.019%	93	$44,348.76

SRSC	Contract No.	Contract Total (af)	% of SRSC Contract Total	Program Water Reduction (Based on 500,000 AF) **	SRSC Funding (Based on 500,000 AF)
Ehrke, Allen A., et ux	14-06-200-8330A	380	0.018%	91	$43,211.61
Wilson Ranch Partnership	14-06-200-4520A	370	0.018%	89	$42,074.46
Wallace, Joseph and Janine	14-06-200-5200A	355	0.017%	85	$40,368.74
Lauppe, B & K	14-06-200-1364X	350	0.017%	84	$39,800.17
Van Ruiten Bros.	14-06-200-1415A	325	0.016%	78	$36,957.30
Charter, Nickolas J. and Charter, Michael J.	14-06-200-8118A	300	0.014%	72	$34,114.43
Cummings, William C.	7-07-20-W0054	300	0.014%	72	$34,114.43
Riverview Golf & Country Club	14-06-200-8286A	280	0.013%	67	$31,840.13
Morehead, Joseph A., et ux	14-06-200-5789A	255	0.012%	61	$28,997.27
Gomes, Frank & Judy - Trust	14-06-200-1827X	246	0.012%	59	$27,973.83
Anderson Properties L.P., R and J	14-06-200-1726A	237	0.011%	57	$26,950.40
Driver Family Trust	14-06-200-1314A	230	0.011%	55	$26,154.40
Kaelin, Cameron C. Trust (Gillaspy)	14-06-200-8117A	210	0.010%	50	$23,880.10
Fedora, Sib, et al	14-06-200-2916A	210	0.010%	50	$23,880.10
Redding Rancheria Tribe	7-07-20-W0006	205	0.010%	49	$23,311.53
Butte Creek Farms (M)	14-06-200-1976A	204	0.010%	49	$23,197.81

SRSC	Contract No.	Contract Total (af)	% of SRSC Contract Total	Program Water Reduction (Based on 500,000 AF) **	SRSC Funding (Based on 500,000 AF)
Western Almonds, LLC (Knights Landing Properties)	14-06-200-889A	200	0.010%	48	$22,742.95
Jansen, Peter & Sandy	14-06-200-1426A	190	0.009%	45	$21,605.81
Empire Group, LLC	14-06-200-2145A	181	0.009%	43	$20,582.37
Cachil Dehe Band of Wintun Indians of the Colusa Indian Community	14-06-200-7206A	180	0.009%	43	$20,468.66
Penner, Roger & Leona	14-06-200-960A	180	0.009%	43	$20,468.66
KLSY, LLC	14-06-200-7556A	170	0.008%	41	$19,331.51
ZelMar Ranches	14-06-200-1827A	164	0.008%	39	$18,649.22
Van Ruiten Bros.	14-06-200-5200X	160	0.008%	38	$18,194.36
Driver, William Trust, et al	14-06-200-939A-1	160	0.008%	38	$18,194.36
Sooch, Jagtar, et al (Munson)	14-06-200-7049A	155	0.007%	37	$17,625.79
Nelson Family Trust	14-06-200-1954A	136	0.007%	33	$15,465.21
Churkin, Michael, et al	14-06-200-7227A	130	0.006%	31	$14,782.92
Hale & Marks	14-06-200-7572A	130	0.006%	31	$14,782.92
Micke, Daniel	14-06-200-7995A	100	0.005%	24	$11,371.48
Butte Creek Farms (A)	14-06-200-5206A	95	0.005%	23	$10,802.90

SRSC	Contract No.	Contract Total (af)	% of SRSC Contract Total	Program Water Reduction (Based on 500,000 AF) **	SRSC Funding (Based on 500,000 AF)
Willey, Edwin & Marjorie, Revocable Trust	14-06-200-3556A	95	0.005%	23	$10,802.90
Reische, Eric	14-06-200-1150X	90	0.004%	22	$10,234.33
Yocha Dehe Wintun Nation (formerly Heidrick)	14-06-200-1616A	85	0.004%	20	$9,665.76
Davis, Grover L., et ux	14-06-200-1851A	85	0.004%	20	$9,665.76
Howard, Theodore	14-06-200-1976X	76	0.004%	18	$8,642.32
Hale & Marks	14-06-200-1638A	75	0.004%	18	$8,528.61
Eggleston, Ronald H., et ux	14-06-200-7339A	65	0.003%	16	$7,391.46
B & D Family Partnership	14-06-200-4178A	60	0.003%	14	$6,822.89
Leonard, James C.	14-06-200-1175A	53	0.003%	13	$6,026.88
Butte Creek Farms (Y)	14-06-200-2851A	36	0.002%	9	$4,093.73
Wisler, John Jr.	14-06-200-5215A	35	0.002%	8	$3,980.02
Driver, Gary, et al	14-06-200-8585A	30	0.001%	7	$3,411.44
Hatfield, Robert and Bonnie	14-06-200-2365X	26	0.001%	6	$2,956.58
King, Laura	14-06-200-1086Z	26	0.001%	6	$2,956.58
Alexander, Thomas, et ux	14-06-200-7754A	22	0.001%	5	$2,501.72
Driver, Gregory E.	14-06-200-939A-2	20	0.001%	5	$2,274.30

SRSC	Contract No.	Contract Total (af)	% of SRSC Contract Total	Program Water Reduction (Based on 500,000 AF) **	SRSC Funding (Based on 500,000 AF)
Lauppe, Alan, et al (ELH)	14-06-200-1364Y	20	0.001%	5	$2,274.30
Daniell, Harry	14-06-200-4348A	20	0.001%	5	$2,274.30
King, Ben	14-06-200-1086Y	19	0.001%	5	$2,160.58
Driver Family Trust	14-06-200-2398A	16	0.001%	4	$1,819.44
Rubio, Exequiel & Elsa	14-06-200-2368A	16	0.001%	4	$1,819.44
Gjermann, Hal	14-06-200-4010A	12	0.001%	3	$1,364.58
Burdick 1999 Family Trust	14-06-200-2552A	10	0.000%	2	$1,137.15
Total	**133 Contracts**	**2,088,559**	**100%**	**500,000**	**$237,500,000**
**If the Program Water amount identified during any Phase One Program Year is less than 500,000 AF, then there will be proportionate reductions to the amounts shown in this column for each contractor. During any Phase Two Program Year, there will be proportionate reductions based on Contract Totals to meet the obligation in Article 4(c).				**5% SRSC**	**$12,500,000**
				IRA Funding	**$250,000,000**

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EXHIBIT A

SRSC	Contract No.	Contract Total (af)	% of SRSC Contract Total	Program Water Reduction (Based on 500,000 AF)- see note below**	SRSC Funding (Based on 500,000 AF)
Glenn-Colusa Irrigation District	14-06-200-855A-R-1	825,000	39.501%	197,505	$93,814,682.75
Reclamation District No. 108	14-06-200-876A-R-1	232,000	11.108%	55,541	$26,381,825.94
Sutter Mutual Water Company	14-06-200-815A-R-1	226,000	10.821%	54,104	$25,699,537.34
Anderson-Cottonwood Irrigation District	14-06-200-3346A-R-1	125,000	5.985%	29,925	$14,214,345.87
Natomas Central Mutual Water Company	14-06-200-885A-R-1	120,200	5.755%	28,776	$13,668,514.99
Reclamation District No. 1004	14-06-200-890A-R-1	71,400	3.419%	17,093	$8,119,234.36
Princeton-Codora-Glenn Irrigation District	14-06-200-849A-R-1	67,810	3.247%	16,234	$7,710,998.35
Provident Irrigation District	14-06-200-856A-R-1	54,730	2.620%	13,102	$6,223,609.20
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Yocha Dehe Wintun Nation (formerly Heidrick)	14-06-200-8322A	430	0.021%	103	$48,897.35
Lockett, William P. & Jean B.	14-06-200-4105A	417	0.020%	100	$47,419.06
Reclamation District #1000	14-06-200-1779A	404	0.019%	97	$45,940.77
Tuttle, Charles W. - Trust	14-06-200-7296A	390	0.019%	93	$44,348.76
Ehrke, Allen A., et ux	14-06-200-8330A	380	0.018%	91	$43,211.61
Wilson Ranch Partnership	14-06-200-4520A	370	0.018%	89	$42,074.46
Wallace, Joseph and Janine	14-06-200-5200A	355	0.017%	85	$40,368.74
Lauppe, B & K	14-06-200-1364X	350	0.017%	84	$39,800.17
Van Ruiten Bros.	14-06-200-1415A	325	0.016%	78	$36,957.30
Charter, Nickolas J. and Charter, Michael J.	14-06-200-8118A	300	0.014%	72	$34,114.43
Cummings, William C.	7-07-20-W0054	300	0.014%	72	$34,114.43
Riverview Golf & Country Club	14-06-200-8286A	280	0.013%	67	$31,840.13
Morehead, Joseph A., et ux	14-06-200-5789A	255	0.012%	61	$28,997.27
Gomes, Frank & Judy - Trust	14-06-200-1827X	246	0.012%	59	$27,973.83
Anderson Properties L.P., R and J	14-06-200-1726A	237	0.011%	57	$26,950.40
Driver Family Trust	14-06-200-1314A	230	0.011%	55	$26,154.40
Kaelin, Cameron C. Trust (Gillaspy)	14-06-200-8117A	210	0.010%	50	$23,880.10
Fedora, Sib, et al	14-06-200-2916A	210	0.010%	50	$23,880.10
Redding Rancheria Tribe	7-07-20-W0006	205	0.010%	49	$23,311.53
Butte Creek Farms (M)	14-06-200-1976A	204	0.010%	49	$23,197.81
estern Almonds, LLC (Knights Landing Properties)	14-06-200-889A	200	0.010%	48	$22,742.95
Jansen, Peter & Sandy	14-06-200-1426A	190	0.009%	45	$21,605.81
Empire Group, LLC	14-06-200-2145A	181	0.009%	43	$20,582.37
Cachil Dehe Band of Wintun Indians of the Colusa Indian Community	14-06-200-7206A	180	0.009%	43	$20,468.66
Penner, Roger & Leona	14-06-200-960A	180	0.009%	43	$20,468.66
KLSY, LLC	14-06-200-7556A	170	0.008%	41	$19,331.51
ZelMar Ranches	14-06-200-1827A	164	0.008%	39	$18,649.22
Van Ruiten Bros.	14-06-200-5200X	160	0.008%	38	$18,194.36
Driver, William Trust, et al	14-06-200-939A-1	160	0.008%	38	$18,194.36
Sooch, Jagtar, et al (Munson)	14-06-200-7049A	155	0.007%	37	$17,625.79
Nelson Family Trust	14-06-200-1954A	136	0.007%	33	$15,465.21
Churkin, Michael, et al	14-06-200-7227A	130	0.006%	31	$14,782.92
Hale & Marks	14-06-200-7572A	130	0.006%	31	$14,782.92
Micke, Daniel	14-06-200-7995A	100	0.005%	24	$11,371.48
Butte Creek Farms (A)	14-06-200-5206A	95	0.005%	23	$10,802.90
Willey, Edwin & Marjorie, Revocable Trust	14-06-200-3556A	95	0.005%	23	$10,802.90

Reische, Eric	14-06-200-1150X	90	0.004%	22	$10,234.33
Yocha Dehe Wintun Nation (formerly Heidrick)	14-06-200-1616A	85	0.004%	20	$9,665.76
Davis, Grover L., et ux	14-06-200-1851A	85	0.004%	20	$9,665.76
Howard, Theodore	14-06-200-1976X	76	0.004%	18	$8,642.32
Hale & Marks	14-06-200-1638A	75	0.004%	18	$8,528.61
Eggleston, Ronald H., et ux	14-06-200-7339A	65	0.003%	16	$7,391.46
B & D Family Partnership	14-06-200-4178A	60	0.003%	14	$6,822.89
Leonard, James C.	14-06-200-1175A	53	0.003%	13	$6,026.88
Butte Creek Farms (Y)	14-06-200-2851A	36	0.002%	9	$4,093.73
Wisler, John Jr.	14-06-200-5215A	35	0.002%	8	$3,980.02
Driver, Gary, et al	14-06-200-8585A	30	0.001%	7	$3,411.44
Hatfield, Robert and Bonnie	14-06-200-2365X	26	0.001%	6	$2,956.58
King, Laura	14-06-200-1086Z	26	0.001%	6	$2,956.58
Alexander, Thomas, et ux	14-06-200-7754A	22	0.001%	5	$2,501.72
Driver, Gregory E.	14-06-200-939A-2	20	0.001%	5	$2,274.30
Lauppe, Alan, et al (ELH)	14-06-200-1364Y	20	0.001%	5	$2,274.30
Daniell, Harry	14-06-200-4348A	20	0.001%	5	$2,274.30
King, Ben	14-06-200-1086Y	19	0.001%	5	$2,160.58
Driver Family Trust	14-06-200-2398A	16	0.001%	4	$1,819.44
Rubio, Exequiel & Elsa	14-06-200-2368A	16	0.001%	4	$1,819.44
Gjermann, Hal	14-06-200-4010A	12	0.001%	3	$1,364.58
Burdick 1999 Family Trust	14-06-200-2552A	10	0.000%	2	$1,137.15
Total	**133 Contracts**	**2,088,559**	**100%**	**500,000**	**$237,500,000**
				5% SRSC	**$12,500,000**
				IRA Funding	**$250,000,000**

**If the Program Water amount identified during any Phase One Program Year is less than 500,000 AF, then there will be proportionate reductions to the amounts shown in this column for each contractor.

UNITED STATES

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

Central Valley Project, California

AGREEMENT BETWEEN THE UNITED STATES BUREAU OF RECLAMATION, THE SACRAMENTO RIVER SETTLEMENT CONTRACTORS, A CALIFORNIA NONPROFIT MUTUAL BENEFIT CORPORATION, AND INDIVIDUAL SACRAMENTO RIVER SETTLEMENT CONTRACTORS FOR THE ESTABLISHMENT OF A DROUGHT PROTECTION PROGRAM

THIS AGREEMENT, made this _____ day of ~~*insert month and year*~~January, 2025, pursuant to the Reclamation Act of 1939 (53 Stat. 1187), the Reclamation Reform Act of 1982 (P.L. 97-293), and the Inflation Reduction Act of 2022 (P.L. 117-169), between the UNITED STATES BUREAU OF RECLAMATION, hereinafter the United States or Reclamation, and represented by the officer executing this Agreement, the SACRAMENTO RIVER SETTLEMENT CONTRACTORS, a California nonprofit mutual benefit corporation, hereinafter referred to as the SRSC Corp., acting for and on behalf of its members and any other non-member Sacramento River settlement contractor that receives funding pursuant to this Agreement, and individual Sacramento River settlement contractors that have executed this Agreement.

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EXPLANATORY RECITALS

[1st] WHEREAS, the United States has constructed and is operating the Central Valley Project (Project) for diversion, storage, carriage, and distribution of waters of the Sacramento River, the American River, the Trinity River, and the San Joaquin River and their tributaries for irrigation and other beneficial uses to serve Project purposes; and

[2nd] WHEREAS, Reclamation has entered into contracts with senior water right holders on the Sacramento River, known as the Sacramento River settlement contractors, for the settlement of claimed water rights; and

[3rd] WHEREAS, Reclamation and the Sacramento River settlement contractors renewed these contracts in or around 2005, which among other things provide for a 25% reduction of water available for diversion in a Critical Year as defined in the contracts; and

[4th] WHEREAS, on September 30, 2021, Reclamation requested reinitiation of consultation with the United States Fish and Wildlife Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service regarding the long-term operations of the Central Valley Project and the State Water Project pursuant to 50 C.F.R. § 402.16 of the federal Endangered Species Act;

[~~X~~5th] WHEREAS, on November 9, 2023, Reclamation issued a "Biological Assessment for the 2021 Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and the State Water Project";

[~~X~~6th] WHEREAS, Reclamation issued a Final Environmental Impact Statement (EIS) for the Long-Term Operation of the Central Valley Project and the State Water Project on November 15, 2024;

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[~~X~~7th] WHEREAS, Reclamation issued a ~~[~~Record of Decision~~]~~ on the Long-Term Operation of the Central Valley Project and State Water Project on December ~~__~~20, 2024;

[~~X~~8th] WHEREAS, in anticipation of Reclamation's operational commitments in the LTO Biological Assessment, Reclamation and the undersigned Sacramento River settlement contractors agree to a Drought Protection Program under specific hydrologic conditions;

[~~X~~9th] WHEREAS, the undersigned Sacramento River settlement contractors agree to a Drought Protection Program, to be implemented in two phases, based on the parties' commitment to improve spawning, rearing, and migratory conditions for salmon species in the Upper Sacramento River, hatchery operations, and other spawning locations in tributaries like Battle Creek, and to otherwise support the recovery of salmon species;

[~~X~~10th] WHEREAS, the undersigned Sacramento River settlement contractors agree to a second phase of a Drought Protection Program based on anticipated investments in drought resiliency projects;

[~~X~~11th] WHEREAS, the SRSC Corp. will coordinate activities among its members and other Sacramento River settlement contractors and distribute funding to the undersigned Sacramento River settlement contractors as set forth in the articles to follow;

[~~X~~12th] WHEREAS, the SRSC Corp. will accept funding and coordinate activities in support of the Winter-Run Action Plan and to assist the United States in achieving the milestones to support recovery of salmon species in the Upper Sacramento River; and

[13th] WHEREAS, the U.S. Fish and Wildlife Service issued a biological opinion on the Sacramento River Settlement Contractors Drought Protection Program, on January 7, 2025; and

[~~X~~14th] WHEREAS, ~~the United States has~~Reclamation completed an Environmental Assessment ~~titled "~~for the Sacramento River Settlement Contractors Drought Protection

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Program~~"~~, and signed a Finding of No Significant Impact ~~dated *Month* _____, 202*X*~~, on January 8, 2025,

[~~Xth~~15th] WHEREAS, ~~[Notice of Preparation or Completion EIR for CEQA];~~on December 30, 2024, Glenn-Colusa Irrigation District, as lead agency, certified the Final Environmental Impact Report for the Drought Protection Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation, adopted Findings of Fact and a Statement of Overriding Considerations, adopted a Mitigation Monitoring and Reporting Program, and approved the project, and other Sacramento River settlement contractors, as responsible agencies, approved execution of this Agreement in reliance on the Final Environmental Impact Report.

NOW, THEREFORE, in consideration of the mutual and dependent covenants herein contained, the parties agree as follows:

1. DEFINITIONS

When used herein unless otherwise distinctly expressed, or manifestly incompatible with the intent of the parties as expressed in this Agreement, the term:

(a) "Agreements to Support Healthy Rivers and Landscapes" shall mean the suite of plans and voluntary agreements proposed by signatory state agencies, Reclamation, public water agencies, and other water users as an alternative program of implementation for achieving water quality objectives for the Sacramento River, tributaries, and the Delta as part of the California State Water Resources Control Board's update of its Bay-Delta Water Quality Control Plan;

(b) "Base Supply" shall mean the quantity of Surface Water established in Articles 3 and 5 of the Settlement Contracts, and listed in Exhibit A of each Settlement Contract, which

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may be diverted by the Contractor from the Sacramento River or its Source of Supply without payment to the United States for such quantities diverted;

(c) "Contract Totals" shall mean the sum of the Base Supply and Project Water available for diversion under the Settlement Contracts held by the Settlement Contractors that have executed this Agreement;

(d) "Critical Year" shall have the same meaning as the term "Critical Year" in the Settlement Contracts, which, as stated in the Settlement Contracts, means any Year in which either of the following eventualities exists:

(i) The forecasted full natural inflow to Shasta Lake for the current Water Year, as such forecast is made by the United States on or before February 15 and reviewed as frequently thereafter as conditions and information warrant, is equal to or less than 3.2 MAF; or

(ii) The total accumulated actual deficiencies below 4.0 million acre-feet in the immediately prior Water Year or series of successive prior Water Years each of which had inflows of less than 4.0 million acre-feet, together with the forecasted deficiency for the current Water Year, exceed 800,000 acre-feet.

For the purpose of determining a Critical Year, the computation of inflow to Shasta Lake shall be performed in a manner that considers the extent of upstream development above Shasta Lake during the year in question, and shall be used as the full natural flow to Shasta Lake. In the event that major construction has occurred or occurs above Shasta Lake after September 1, 1963, and which has materially altered or alters the regimen of the stream systems contributing to Shasta Lake, the computed inflow to Shasta Lake used to define a Critical Year will be adjusted to eliminate the effect of such

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material alterations. After consultation with the State of California, the National Weather Service, and other recognized forecasting agencies, the Contracting Officer will select the forecast to be used and will make the details of it available to the Settlement Contractors. The same forecasts used by the United States for the operation of the Project shall be used to make the forecasts hereunder;

(e) "Contracting Officer" will mean Reclamation's Regional Director (unless otherwise stated) or his duly authorized representative;

(f) "CVPIA" shall mean the Central Valley Project Improvement Act, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

(g) "Drought Resiliency Projects" shall mean an integrated, broad range of actions intended to strengthen the resilience of the Settlement Contractors' water system and long-term water delivery capabilities, thereby assisting Reclamation and the Settlement Contractors to withstand and recover from climatic variability in order to support healthy rivers and landscapes (including but not limited to terrestrial ecosystems) and create durable water savings while sustaining a more drought-resilient economy that retains its vitality. Drought Resiliency Projects include but are not limited to the following actions: 1) protecting and enhancing natural systems through habitat projects and other environmental stewardship; 2) making investments to conserve water supplies over the long-term; 3) diversifying water supplies; and 4) enhancing water management actions with improved data, forecasting, conveyance, and administration under the Settlement Contracts;

(h) "Effective Date" shall mean January ~~_____~~10, 2025.

(i) "Exhibit A" shall mean the listing of those Settlement Contractors that have executed this Agreement, which Exhibit may be modified by the SRSC Corp. without

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amendment of this Agreement if and when those entities or persons that hold a Settlement Contract with Reclamation as originally executed in or about 1964, and as renewed in or about 2005, execute this Agreement after the Effective ~~date~~Date but on or before ~~_____~~July 31, 2025.

(j) "Final EIR" shall mean the ~~"~~Final Environmental Impact Report to ~~Support~~support a Drought Protection Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation,~~" dated~~ certified by Glenn-Colusa Irrigation District on December 30, 2024.

(k) "Five Agency Memorandum of Understanding" shall mean the "Memorandum of Agreement for the Purpose of the Recovery of Winter-Run Chinook Salmon Pursuant to the Winter-Run Action Plan by and among United States Fish and Wildlife Service, National Marine Fisheries Service, Bureau of Reclamation, California Department of Water Resources, California Department of Fish and Wildlife, and Sacramento River Settlement Contractors Corporation" dated ~~[date]~~_____, 2025.

(l) "Inflation Reduction Act" or "Act" shall mean Public Law No. 117-169, 136 Stat. 1818 (2022).

(m) "LTO Biological Assessment" means the "Biological Assessment for the 2021 Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and the State Water Project" issued by Reclamation on November 9, 2023.

(n) "Parties" shall mean the United States or Reclamation, SRSC Corp., and the Settlement Contractors that have executed this Agreement.

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(o) "Phase One" shall mean the period that lasts ten years from the date of the execution of this Agreement when the provisions of Article 3 of this Agreement are effective.

(p) "Phase One Program Year" shall mean when all the following conditions are satisfied by April 15 in any Year during Phase One:

(i) Based on Bin 3B Indicators in the LTO Biological Assessment, forecasted end-of-April Shasta Lake storage is less than 3.0 million acre-feet;

(ii) Based on Bin 3B Indicators in the LTO Biological Assessment, forecasted end-of-September Shasta Lake storage is less than 2.0 million acre-feet;

(iii) Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet; and

(iv) Reclamation forecasts a Critical Year under the Settlement Contracts.

Forecasts to determine whether conditions (i)-(iv) are satisfied shall be based on a 90% exceedance.

(q) "Phase Two" shall mean the period following the expiration of Phase One through February 28, 2045, when the provisions of Article 4 of this Agreement are effective.

(r) "Phase Two Program Year" shall mean when all the following conditions are satisfied by April 15 in any Year during Phase Two:

(i) Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet; and

(ii) Reclamation forecasts a Critical Year under the Settlement Contracts.

Forecasts to determine whether conditions (i)-(ii) are satisfied shall be based on a 90% exceedance.

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(s) "Program Water" shall mean the total quantity reduced under all Settlement Contracts participating in the Drought Protection Program during a Phase One Program Year, not to exceed a combined 500,000 acre-feet per Phase One Program Year, in order to result in a forecasted end-of-September storage in Shasta Lake of up to 2.0 million acre-feet; the total reduction shall be in addition to reductions under Article 5 of the Settlement Contracts.

(t) "Project" shall mean the Central Valley Project owned by the United States and managed by the Department of Interior, Bureau of Reclamation;

(u) "Project Water" shall have the same meaning as the term "Project Water" in the Settlement Contracts, which, as stated in the Settlement Contracts, means all Surface Water diverted or scheduled to be diverted each Year by the Contractor from the Sacramento River which is in excess of the Base Supply. The United States recognizes the right of the Contractor to make arrangements for acquisition of water from projects of others than the United States for delivery through the Sacramento River and tributaries subject to written agreement between Contractor and the United States as to identification of such water which water when so identified shall not be deemed Project Water under this Settlement Contract;

(v) "Rates" shall have the same meaning as the term "Rates" in the Settlement Contracts, which, as stated in the Settlement Contracts, means the payments for Project Water determined annually by the Contracting Office in accordance with the then current applicable water ratesetting Policies for the Project, as described in subdivision (a) of Article 8 of the Settlement Contract.

(w) "Reclamation Program Water" shall mean any Program Water made available for use by Reclamation pursuant to this Agreement;

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(x) "Record of Decision" shall mean the decision document issued on ~~[DATE]~~ ~~for~~December 20, 2024, in which Reclamation ~~has~~ selected an alternative for the long-term operations of the Central Valley Project and State Water ~~Projects~~Project based on the analysis of the range of alternatives analyzed in the EIS titled "Long-Term Operations of the Central Valley Project and State Water Project", posted on November 15, 2024.

(y) "Recoverable SRS Contractor Program Water" shall mean the quantity of SRS Contractor Program Water that is available for use in accordance with Article 3(g)-(i); except that portion determined by Reclamation as Recoverable SRS Contractor Program Water Spill;

(z) "Recoverable SRS Contractor Program Water Spill" shall mean Recoverable SRS Contractor Program Water that, upon determination by Reclamation, is irrecoverably lost from Reclamation's control at Shasta Reservoir;

(aa) "Rescheduling Fee" shall have the same meaning as the term "Rescheduling Fee" in the Settlement Contracts, which, as stated in the Settlement Contracts, means the payments required for each acre-foot of Base Supply rescheduled pursuant to subdivision (c)(l) of Article 3 of the Settlement Contract, as determined annually by the Contracting Officer in accordance with the then-current applicable water rate setting policies for the Project;

(bb) "SRS Contractor Program Water" shall mean any Program Water that is not made available for use by Reclamation as Reclamation Program Water;

(cc) "Secretary" shall mean the Secretary of the Interior, a duly appointed successor, or an authorized representative acting pursuant to any authority of the Secretary and through any agency of the Department of the Interior;

(dd) "Settlement Contractor(s)" shall mean those entities or persons that hold a Settlement Contract with Reclamation as originally executed in or about 1964, and as renewed in

or about 2005, and who have agreed to participate in the Drought Protection Program by executing this Agreement.

(ee) "Settlement Contract(s)" shall mean the Sacramento River Settlement Contracts as originally executed in or about 1964, and as renewed in or about 2005.

(ff) "Surface Water" shall have the same meaning as the term "Surface Water" in the Settlement Contracts, which, as stated in the Settlement Contracts, means only those waters that are considered as surface water under California law;

(gg) "Drought Protection Program" shall mean the program implementing reductions to Contract Totals in Phase One pursuant to Article 3 of this Agreement and in Phase Two pursuant to Article 4 of this Agreement.

(hh) "Water Year" shall have the same meaning as the term "Water Year" in the Settlement Contracts, which, as stated in the Settlement Contracts, means the period commencing with October 1 of one year and extending through September 30 of the next;

(ii) "Winter-Run Action Plan" or "WRAP" shall mean the plan that has been developed collaboratively among representatives from Reclamation, National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Water Resources, California Department of Fish and Wildlife, and the SRSC Corp. as an integrated plan to improve the survival and viability of Winter-run Chinook salmon that functions alongside planned operation of Shasta Reservoir, and as the plan is identified and described in Sections 3.13.3.2 and 3.16.1 of the LTO Biological Assessment; and

(jj) "Year" shall have the same meaning as the term "Year" in the Settlement Contracts, which, as stated in the Settlement Contracts means a calendar year.

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2. DURATION OF CONTRACTUAL OBLIGATIONS

Except for Reclamation's obligations under Article 7 of this Agreement, the Parties' respective rights, responsibilities and performance obligations during Phase One of the Drought Protection Program shall remain in effect from February 1, 2025, through February 15, 2035. The Parties' respective rights, responsibilities and performance obligations during Phase Two of the Drought Protection Program shall begin on February 16, 2035, and shall remain in effect through February 28, 2045.

3. PHASE ONE OF ~~THEDROUGHT~~THE DROUGHT PROTECTION PROGRAM

(a) Reclamation will establish a Drought Protection Program to reduce water furnished to Settlement Contractors in certain years and under specific hydrologic conditions as defined in this Agreement. The Drought Protection Program will be implemented in two phases, with each phase lasting approximately ten years. This article prescribes the terms of Phase One of the Drought Protection Program.

(b) Reclamation will identify whether any Year is a Phase One Program Year, as defined in Article 1(p), and the amount of Program Water based on the following forecasts and process:

(i) On March 15 of each Year, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors as to whether the conditions for a Phase One Program Year are forecasted to be satisfied, and if so, will identify the initial quantity of Program Water.

(ii) On April 15 of each Year, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors as to whether the conditions for a Phase

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One Program Year are satisfied, and if so, will identify the final amount of Program Water.

(iii) Reclamation may not increase the amount of Program Water after April 15 under this Agreement. The Settlement Contractors may voluntarily agree to an increase in the quantity of Program Water subject to a separate agreement with Reclamation.

(iv) The forecast provided by Reclamation on April 15 will be the final notice to Settlement Contractors as to whether it is a Phase One Program Year.

(c) In addition to reductions under Article 5 of the Settlement Contracts, in a Phase One Program Year, Reclamation will reduce the Contract Totals for the Settlement Contractors by the final amount of Program Water identified on April 15; the reduction to Contract Totals because of reductions for Program Water shall be distributed among the Settlement Contractors as identified in Exhibit A. The Settlement Contractors may redistribute the reductions to Contract Totals among the Settlement Contractors, provided that the total amount of Program Water identified by Reclamation is met by the combined reduction to Contract Totals of the Settlement Contractors. Any water reductions pursuant to this subdivision shall be deemed equivalent to a reasonable beneficial use of water to the extent of the reduction in supply, do not reflect any change to the underlying water rights of the Settlement Contractors, and will not be considered by Reclamation as a reduction in water use or demand during any renewal of the Settlement Contracts, unless otherwise mutually agreed.

(d) By April 15 of any Phase One Program Year, Reclamation shall have the first right to make Program Water available for use by Reclamation upon a mutually agreed upon amount of funding made available to the Settlement Contractors; such water shall be

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"Reclamation Program Water." Program Water not funded by Reclamation by April 15 shall be "SRS Contractor Program Water."

(e) Between April 15 and July 15 in a Phase One Program Year, the Settlement Contractors may voluntarily provide an option to Reclamation to provide funding for use of SRS Contractor Program Water by Reclamation at an amount agreed upon in the future by Reclamation and the Settlement Contractors.

(f) In a Phase One Program Year, no later than July 15, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors that identifies the forecasted end-of-September Shasta Lake storage:

(i) If the forecasted end-of-September Shasta Lake storage is greater than 2.0 million acre-feet, then the SRS Contractor Program Water will become "Recoverable SRS Contractor Program Water" and may be used in accordance with subdivisions (g)-(i) of this Article 3. Recoverable SRS Contractor Program Water will be distributed among the Settlement Contractors in accordance with Exhibit A.

(ii) If the forecasted end-of-September Shasta Lake storage is less than 2.0 million acre-feet, then Reclamation and the Settlement Contractors will meet and confer on operations for the remaining period of the Water Year in accordance with Article 6 of this Agreement.

(g) Each Settlement Contractor may use its amount of Recoverable SRS Contractor Program Water for the following purposes and subject to Reclamation's operational constraints:

(i) Diversion and use within a Settlement Contractor Service Area identified in Exhibit B of a Settlement Contract;

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(ii) Settlement Contractor flow contributions or other actions under the Agreements to Support Healthy Rivers and Landscapes;

(iii) Subject to Reclamation's right of first refusal to provide funding to make Recoverable SRS Contractor Program Water available for use by Reclamation, request assignment and delivery to Project water service and/or repayment contractors or National Wildlife Refuges, or

(iv) Subject to Reclamation's right of first refusal to provide funding to make Recoverable SRS Contractor Program Water available for use by Reclamation, transfer to non-Project contractors in accordance with Article 3(e) of the Settlement Contracts.

Use of Recoverable SRS Contractor Program Water plus quantities diverted or transferred under the Settlement Contracts in each Year shall not exceed the Contract Totals.

(h) Requested use of Recoverable SRS Contractor Program Water shall not result in a forecasted end-of-September Shasta Lake storage of less than 2.0 million acre-feet during the year of the requested use.

(i) Requests by Settlement Contractors to use Recoverable SRS Contractor Program Water for the purposes in subdivision (g)(i)-(iv) of this Article 3 shall be submitted to Reclamation at least two weeks prior to the date of the requested use. Reclamation and the Settlement Contractors shall cooperate to reach agreement on a schedule for the requested use, subject to Reclamation's operational constraints, within two weeks of submittal of a request.

(j) After October 1 of each Year, SRS Contractor Program Water shall become Recoverable SRS Contractor Program Water. Any Recoverable SRS Contractor Program Water shall be carried over in Shasta Lake subject to the following:

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(i) Reclamation shall have the right to provide funding to make any Recoverable SRS Contractor Program Water available for use by Reclamation beginning October 1. Any Recoverable SRS Contractor Program Water that Reclamation does not fund by April 15 of the following year shall remain Recoverable SRS Contractor Program Water.

(ii) In the event the following year is not a Phase One Program Year, Settlement Contractors may use Recoverable SRS Contractor Program Water for the purposes and subject to the conditions in subdivision (g) of this Article 3. Requested use of Recoverable SRS Contractor Program Water shall not result in a forecasted end-of-September Shasta Lake storage of less than 2.0 million acre-feet during the Year of the requested use.

(iii) Recoverable SRS Contractor Program Water that is carried over may become Recoverable SRS Contractor Program Water Spill. The determination of Recoverable SRS Contractor Program Water Spill will be made by Reclamation.

(iv) Reclamation shall provide an accounting of Recoverable SRS Contractor Program Water Spill with a notification to SRS Contactors within 45 days its determination.

(v) Recoverable SRS Contractor Program Water Spill shall be accounted as meeting the Settlement Contractors' obligations to provide flow contributions under the Agreements to Support Healthy Rivers and Landscapes to the extent possible.

(k) Recoverable SRS Contractor Program Water remaining in Shasta at the end of Phase One, if any, will be carried over in Shasta for future use for the purposes and subject to the conditions in subdivision (g).

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4. PHASE TWO OF THE DROUGHT PROTECTION PROGRAM

(a) This article prescribes the terms of Phase Two of the Drought Protection Program. Phase Two shall expire on February 28, 2045, unless otherwise extended by mutual agreement.

(b) Reclamation will identify whether any Year is a Phase Two Program Year, as defined in Article 1(r), based on the following forecasts and process:

(i) On March 15 of each Year during Phase Two, Reclamation will provide a forecast based on a 90% exceedance to the Settlement Contractors as to whether the conditions for a Phase Two Program Year are forecasted to be satisfied; and

(ii) If the conditions for a Phase Two Program Year are forecasted to be satisfied on March 15, then Reclamation and the Settlement Contractors will begin to meet and confer on whether a reduction, in addition to reductions under Article 5 of the Settlement Contracts, is necessary to promote the survival and recovery of federally endangered or threatened species in the Sacramento River below Shasta Dam above I Street Bridge.

(iii) On April 15 of each year during Phase Two, Reclamation will provide a forecast based on a 90% exceedance to Settlement Contractors as to whether the conditions for a Phase Two Program Year are satisfied. The forecast provided by Reclamation on April 15 will be the final notice to Settlement Contractors as whether it is a Phase Two Program Year.

(c) If Reclamation determines that is a Phase Two Program Year on April 15, and, as a result of the meet and confer process described in Article 6, Reclamation and the Settlement Contractors agree that a reduction in addition to reductions under Article 5 of the Settlement Contracts is necessary to achieve temperature control in the Upper Sacramento River, then the

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Settlement Contractors will voluntarily reduce the Contract Totals under the Settlement Contracts by up to 100,000 acre-feet.

(d) The Settlement Contractors may distribute the reductions to Contract Totals among the Settlement Contractors, provided that the total amount of up to 100,000 acre-feet is met by the combined reduction to Contract Totals by the Settlement Contractors.

(e) Any water reductions pursuant to Article 4(c) shall be deemed equivalent to a reasonable beneficial use of water to the extent of the reduction in supply, do not reflect any change to the underlying water rights of the Settlement Contractors, and will not be considered by Reclamation as a reduction in water use or demand during any renewal of the Settlement Contracts, unless otherwise mutually agreed.

(f) Reclamation will utilize any water savings resulting from the reductions by the Settlement Contractors under Article 4(c) of this Agreement for non-reimbursable purposes necessary to promote the survival and recovery of federally endangered or threatened species in the Sacramento River below Shasta Dam above I Street Bridge and will not make these savings available for water supply allocations to CVP contractors in a Phase Two Program Year.

(g) The Parties agree that during Phase Two any voluntary reductions in water furnished to the Settlement Contractors beyond the reductions provided for in Article 4(c) of this Agreement shall be subject to a separate agreement with Reclamation.

5. SETTLEMENT CONTRACT PERFORMANCE

(a) Reclamation agrees to the following terms during a Phase One Program Year or a Phase Two Program Year:

(i) Reclamation will allow Settlement Contractors to reschedule the amounts of Base Supply not diverted in a month into any other months, including into the critical

months defined in the Settlement Contracts, or otherwise as needed to accommodate the demand shift pattern.

(ii) Reclamation shall ensure that water furnished under the Settlement Contracts is available on a pattern that allows the Settlement Contractors to make use of the entire Contract Total, with applicable reductions under the Settlement Contracts and this Agreement.

(iii) Reclamation will waive the requirement of Article 3(c)(2)(ii) of the Settlement Contracts.

(iv) Reclamation will allow the accounting order for diversion schedules for each month to be regular monthly Base Supply, then unused Base Supply rescheduled from another month, and then Project Water.

(v) Reclamation shall waive fees for the rescheduling of Base Supply into other months as set forth in Article 3(c)(1) of the Settlement Contracts.

(vi) Reclamation will waive the take or pay provisions in Article 8(a)(1) of the Settlement Contracts.

(vii) For the purpose of future water transfers related to groundwater substitution or crop idling/shifting, Reclamation will account for baseline conditions only in years that do not involve reductions to Contract Totals beyond those described in Article 5 of the Settlement Contracts.

(viii) Both Base Supply and Project Water shall be available for use in water transfers consistent with sections 3403(f) and 3405(a)(1)(M) of the CVPIA.

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(b) In the event of a conflict between the terms in subdivision (a) of Article 5 of this Agreement and the terms of a Settlement Contract, the terms in subdivision (a) of Article 5 of this Agreement shall govern.

(c) To the maximum extent possible, the terms in subdivision (a) of Article 5 of this Agreement will also apply to the use of Recoverable SRS Contractor Program Water if it becomes available for use in a Phase One Program Year in Phase One of the Drought Protection Program.

6. MEET AND CONFER

The Settlement Contractors will meet and confer with Reclamation as appropriate to determine if there is any additional role for the Settlement Contractors in connection with Reclamation's operational decision-making for Shasta Reservoir annual operations in Phase One Program Years and Phase Two Program Years. This determination will include consideration of what actions are feasible, consistent with the terms of this Agreement and the Settlement Contracts. In addition to the reduction during Critical Years as set forth in the Settlement Contracts, and the reductions under Articles 3 and 4 of this Agreement, the types of actions that may be considered include, but are not necessarily limited to: (1) the scheduling of spring diversions by the Settlement Contractors; (2) voluntary, compensated water transfers by the Settlement Contractors subject to Reclamation approval; and (3) smoothed diversions by the Settlement Contractors during the fall months. Any mutually agreeable proposed actions resulting from these meet-and-confer discussions must be consistent with the terms of this Agreement and the Settlement Contracts and subject to other regulatory approvals.

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7. FUNDING FOR THE DROUGHT PROTECTION PROGRAM

(a) Reclamation will fund the Drought Protection Program by providing the following payment to SRSC Corp.:

(i) $250 million upon the Effective Date of this Agreement, in a one-time, non-refundable payment to the SRSC Corp., with funds available to Reclamation under the Inflation Reduction Act.

(ii) The Settlement Contractors shall use the majority of the proceeds from Article 7(a)(i) to invest in Drought Resiliency Projects. For purposes of this provision, Drought Resiliency Projects include actions taken by Settlement Contractors and costs of those actions incurred from August 16, 2022, the date of enactment of the Inflation Reduction Act, to December 20, 2024, up to $30 million. The balance of the proceeds (less than the majority of funds from the Inflation Reduction Act) may be used for any lawful Settlement Contractor purposes.

(iii) The proceeds from Article 7(a), once transferred to the Settlement Contractors under Article 11, are eligible to meet any local agency cost share for a matching funds requirement.

(b) In accordance with Article 2 of this Agreement, Reclamation has the right to the first 275,000 acre-feet of Program Water during Phase One. Reclamation shall have the right to take actions to make additional quantities of Program Water or SRS Contractor Program Water available for use by Reclamation as set forth in subdivisions (d), (e), and (g) of Article 3 of this Agreement in exchange for a mutually agreed payment or payments to the Settlement Contractors based upon future negotiations between Reclamation and the Settlement Contractors.

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(c) The funds described in subdivision (a) of this Article will be distributed by the SRSC Corp. to the Settlement Contractors in accordance with Exhibit A. The SRSC Corp. will retain 5% of the funds described in subdivision (a) of Article 7 as consideration for its obligations arising under this Agreement and as an administrative fee for managing such funds. The SRSC Corp. will make the balance of such funds available to Settlement Contractors who are party to this Agreement proportionately based on a Settlement Contractor's share of Contract Totals.

(d) The Settlement Contractors agree to comply with any mitigation requirements contained in the Final EIR associated with the water reductions described in Articles 3 and 4 and Drought Resiliency Projects described in Article 7(a)(ii).

8. SUPPORT OF THE WINTER RUN ACTION PLAN

(a) During Phase One of the Drought Protection Program, and upon Reclamation acquiring a cumulative Program Water quantity of 500,000 acre-feet under Article 3 of this Agreement, any additional Program Water is contingent on completing mutually agreed Winter Run Action Plan (WRAP) deadlines, milestones, and timely deliverables for each WRAP priority action, as set forth in the mutually agreeable schedule to be developed by Reclamation and the Settlement Contractors consistent with section 4.10 of the Five Agency Memorandum of Understanding, or as otherwise agreed upon between Reclamation and the SRSC Corp.

(b) To support the Winter Run Action Plan, Reclamation will use its rate-setting policies and reduce the Rates for Project Water by $10 per acre-foot for all Project Water charged to each Settlement Contractor during Phase One. Reclamation will notify each Settlement Contractor of the $10 per acre-foot reduction in accordance with the procedures in Article 8(b) of the Settlement Contract. Each Settlement Contractor will pay Rates for Project

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Water, reduced by $10 per acre-foot, in accordance with the schedule set forth in Article 8(c) of the Settlement Contract.

(c) The SRSC Corp. will invoice each Settlement Contractor based on the amount of Project Water that Reclamation charges the Settlement Contractor in Reclamation's final water account record for the Water Year in acre-feet and multiply that amount by $10. Each Settlement Contractor shall pay the amount invoiced, based on this formula, to the SRSC Corp. annually. The funds collected by the SRSC Corp. will be managed by the SRSC Corp. and provided either through contract, grant, or direct funding for studies and programs that support the Winter-Run Action Plan.

(d) All funds collected under this Article 8 are non-reimbursable.

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9. RESERVATION OF RIGHTS

Reclamation and the Settlement Contractors agree to enter into this Agreement in anticipation of Reclamation's operational commitments in the LTO Biological Assessment and Record of Decision. In the event that there are legal actions concerning the Record of Decision in any forum, the Settlement Contractors reserve their rights to participate in such actions to ensure consistency with and the performance of this Agreement or the Settlement Contracts. Nothing in this Agreement shall limit the Settlement Contractors from defending any actions brought against this Agreement or the Settlement Contracts.

In the event a court of competent jurisdiction finds that the Record of Decision, or any portion thereof, is unlawful, this Agreement shall continue to remain in effect in accordance with Article 2 of this Agreement.

During the term of this Agreement, Reclamation will not voluntarily take any actions or seek any relief, over any objection of the Settlement Contractors, that would result in further water reductions under the Settlement Contracts beyond those reductions agreed to in this Agreement or consistent with the Settlement Contracts, unless required by applicable law or court order.

10. DISCLAIMER OF LIABILITY

Subject to the conditions, limitations, and provisions hereinafter expressed, the Settlement Contractors agree to hold harmless, and the United States and its officers, agents, or employees assume no responsibility for any damage whether direct or indirect arising out of or in any manner caused by reducing Contract Totals in a Phase One Program Year by the amount of Program Water determined in accordance with Article 3 of this Agreement, or a Phase Two Program Year in accordance with Article 4 of this Agreement.

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11. METHOD OF PAYMENT

(a) The SRSC Corp. shall register at the U.S Federal District Registration System for Award Management (SAM) website at www.sam.gov prior to receipt of payment. The SRSC Corp. will notify Reclamation when it has successfully established a SAM account and provide Reclamation the necessary routing information for prompt payment.

(b) All payment made by the United States under this Agreement shall be made by electronic funds transfer (EFT) using the EFT information contained in the SAM database. The SRSC Corp. is responsible during the term of this Agreement for the accuracy and completeness of the data within the SAM database, and for any liability resulting from the United States or Reclamation's reliance on inaccurate or incomplete data. To remain registered in the SAM database after initial registration, the SRSC Corp. is required to review and update on an annual basis, from the date of initial registration or subsequent updates, its information in the SAM database to ensure it is current, and complete.

(c) The SRSC Corp. will disburse the funds to the Settlement Contractors in accordance with Exhibit A.

(d) Any funds not distributed in accordance with subsection (c) of this Article 9 shall be retained by the SRSC Corp.

12. NO ARGUMENT, PRECEDENT, OR ADMISSION

Nothing in this Agreement shall be offered for or against a Party (or any of the Settlement Contractors) as argument, admission, admission of wrongdoing, liability, waiver, acquiescence, or precedent regarding any issue of fact or law, including but not limited to issues related to the interpretation or future performance of the Settlement Contracts, in any mediation, arbitration, litigation, or other administrative or legal proceeding, except that this Agreement may be used in

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any future proceeding to interpret or enforce the terms of this Agreement, consistent with applicable law. No actions under this Agreement shall be evidence of lack of beneficial use of the subject water supplies, or shall in any way prejudice any of the Settlement Contractors' water rights or Reclamation's water rights.

13. AUTHORIZATION

The Parties represent and warrant that the persons executing this Agreement on behalf of each respective Party has full power and authority to enter this Agreement and that the Parties are authorized by law to perform the services and actions set forth herein.

14. NO COUNTERPARTS CLAUSE

This Agreement may be executed in counterparts with the same force and effect as if executed in one complete document by all Parties. Sacramento River settlement contractors may become party to this Agreement by delivering a signed counterpart to SRSC Corp. on or before ~~_____~~July 31, 2025, and thereby be a Settlement Contractor under this Agreement. The SRSC Corp. will assemble any such counterparts and attach them to the final Agreement and distribute copies of the final Agreement to the parties.

15. PROTECTION OF WATER AND AIR QUALITY

The SRSC Corp. shall comply with all applicable water and air pollution laws and regulations of the United States and state law; and shall obtain all required permits or licenses from the appropriate Federal, State, or local authorities necessary for the delivery of water by the Settlement Contractors; and shall be responsible for compliance with all Federal, State, and local water quality standards applicable to surface and subsurface drainage and/or discharges generated through the use of Central Valley Project facilities or Settlement Contractor facilities or water provided by the Settlement Contractor within its water service area.

This ~~Article~~article shall not affect or alter any legal obligations of the Secretary of the Interior to provide drainage or other discharge services.

16. BOOKS, RECORDS, AND REPORTS

The SRSC Corp. and Settlement Contractors shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this Agreement, including as applicable the SRSC Corp.'s and Settlement Contractors' financial transactions; water supply data; Project operation, maintenance, and replacement logs; Project land and rights-of-way use agreements; the water users' land-use (crop census), landownership, land-leasing, and water-use data; and other matters that the Contracting Officer may require. Reports shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require. Subject to applicable Federal laws and regulations, each party to this Agreement shall have the right during office hours to examine and make copies of the other party's books and records relating to matters covered by this Agreement.

17. ASSIGNMENT LIMITED - SUCCESSORS AND ASSIGNS OBLIGATED

The provisions of this Agreement shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this Agreement or any right or interest therein by either party shall be valid until approved in writing by the other party.

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18. OFFICIALS NOT TO BENEFIT

No Member of or Delegate to the Congress, Resident Commissioner, or official of the SRSC Corp. and the Settlement Contractors shall benefit from this Agreement other than as a water user or landowner in the same manner as other water users or landowners.

19. NOTICES

All notices and other communications required under this Agreement shall be in writing and shall be deemed to have been duly given on the date of service, if served personally, on the person to whom notice is to be given, or on the third (3rd) day after mailing, if mailed to the party to whom notice is to be given by first class mail, registered or certified, postage-prepaid, and properly addressed as follows:

To SRSC Corp.:
~~[Add Address/Attn: to]~~
P.O. Box 150
Willows, CA 95988

To Reclamation: U.S. Bureau of Reclamation
California Great Basin Region
Resources Management Division
Attention: Regional Resources Manager, CGB-400
2800 Cottage Way
Sacramento, California 95842

To Settlement Contractors:
c/o SRSC Corp.
P.O. Box 150
Willows, CA 95988

20. CONTRACT DRAFTING CONSIDERATIONS

This Agreement has been negotiated and reviewed by the parties hereto, each of whom is sophisticated in the matters to which this Agreement pertains. The double-spaced articles of this Agreement have been drafted, negotiated, and reviewed by the Parties, and no one party shall be considered to have drafted the stated articles.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

UNITED STATES OF AMERICA

By:

Regional Director
Interior Region 10 California- Great Basin
Bureau of Reclamation

THE SACRAMENTO RIVER SETTLEMENT CONTRACTORS, A CALIFORNIA NONPROFIT MUTUAL BENEFIT CORPORATION

By:

President, Board of Directors

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642 EXHIBIT A

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645 SETTLEMENT CONTRACTOR COUNTERPART

646 Date:_____ Settlement Contractor Name:
647 GLENN-COLUSA IRRIGATION DISTRICT
648 By:_____
649 Jeffrey P. Sutton, General Manager

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SETTLEMENT CONTRACTOR COUNTERPART

Date:_____

Settlement Contractor Name:
RECLAMATION DISTRICT NO. 108

~~Type of Entity:~~_____

By:_____

Lewis Bair, General Manager

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660 SETTLEMENT CONTRACTOR COUNTERPART

661 Date: _____ Settlement Contractor Name:
662 SUTTER MUTUAL WATER COMPANY
663 By: _____
664 William F. Henle, Board President

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SETTLEMENT CONTRACTOR COUNTERPART

Date: _____

Settlement Contractor Name:
ANDERSON-COTTONWOOD IRRIGATION DISTRICT
By: _____
Daniel Ruiz, General Manager

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SETTLEMENT CONTRACTOR COUNTERPART

Date: _____

Settlement Contractor Name:
NATOMAS CENTRAL MUTUAL WATER COMPANY
By: _____
Tom Ramos, Board President

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683 SETTLEMENT CONTRACTOR COUNTERPART

684 Date:_____ Name of Contractor:_____
685 By:_____
686 Name:
687 _____
688 _____
689 Title:_____

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692 ~~EXHIBIT A~~

693 ~~[This appendix will include a table of signatory Settlement Contractors and the allocations of~~
694 ~~Program Water reductions, Recoverable SRS Contractor Program Water, payments, and funds~~
695 ~~retained by the SRSC Corp. for administration and the Winter Run Action Plan.]~~

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Summary report: Litera Compare for Word 11.10.0.38 Document comparison done on 1/9/2025 8:48:26 AM	
Style name: Default Style	
Intelligent Table Comparison: Active	
Original filename: 12052024 DRAFT Drought Protection Program Agreement (00172695-22xD2C75)(4520458.1).docx	
Modified filename: 01082025 FINAL DRAFT Drought Protection Program Agreement (00172695-27xD2C75) (002).docx	
Changes:	
Add	89
~~Delete~~	48
~~Move From~~	0
Move To	0
Table Insert	0
~~Table Delete~~	0
Table moves to	0
~~Table moves from~~	0
Embedded Graphics (Visio, ChemDraw, Images etc.)	1
Embedded Excel	0
Format changes	0
Total Changes:	138

December 2024
State Clearinghouse Number: 2024050834

Drought Protection Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation Project

Mitigation Monitoring and Reporting Program

Prepared for the Glenn-Colusa Irrigation District

December 2024
State Clearinghouse Number: 2024050834

Drought Protection Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation Project

Mitigation Monitoring and Reporting Program

Prepared for
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, California 95988

Prepared by
Anchor QEA
33 New Montgomery Street, Suite 1210
San Francisco, California 94105

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ABBREVIATIONS

BMP	best management practice
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
EIR	Environmental Impact Report
ESA	Endangered Species Act
FEIR	Final Environmental Impact Report
GCID	Glenn-Colusa Irrigation District
GGS	giant garter snake
GSP	Groundwater Sustainability Plan
HCP	Habitat Conservation Plan
IDP	Inadvertent Discovery Plan
MMRP	Mitigation and Monitoring Reporting Program
mph	mile per hour
MRZ	mineral resource zone
NPDES	National Pollutant Discharge Elimination System
OHP	Office of Historic Preservation
Reclamation	U.S. Bureau of Reclamation
RWQCB	Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SRSC	Sacramento River Settlement Contractors
SRSCNC	Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1 Introduction

On December 30, 2024, the Glenn-Colusa Irrigation District (GCID), in compliance with the California Environmental Quality Act (CEQA; California Public Resources Code, Division 13, Section 21000 et seq.) and CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.) certified a Final Environmental Impact Report (FEIR) to support the approval of the Drought Protection Program Agreement[1] (project or Agreement) between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation (SRSCNC), individual Sacramento River Settlement Contractors (SRSC), and the U.S. Bureau of Reclamation (Reclamation). Under the project, the SRSCNC and individual members of the SRSC will enter into an Agreement with Reclamation to forego a larger percentage of their contract supply in specified drought years under two phases. In addition, the SRSC will engage in drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities. The project would occur within the SRSC service areas in eight counties: Shasta, Tehama, Glenn, Butte, Sutter, Colusa, Yolo, and Sacramento.

CEQA (PRC Section 21081.6) requires a Lead or Responsible Agency to adopt a Mitigation Monitoring and Reporting Program (MMRP) when approving or carrying out a project. The purpose of this program is to ensure that when an environmental document, either an Environmental Impact Report (EIR) or a negative declaration, identifies measures to reduce potential adverse environmental impacts to less-than-significant levels, that those measures are implemented as detailed in the environmental document. As lead agency for the EIR, GCID is responsible for implementation of this MMRP.

The EIR prepared for the project addresses the potential environmental impacts and, where appropriate, recommends measures to mitigate these impacts. As such, this MMRP is required to ensure that adopted mitigation measures are successfully implemented and a monitoring strategy was prepared for each mitigation measure. Once GCID adopts the MMRP, the individual SRSC members signing the Agreement would be required to comply with these mitigation measures as enforceable conditions of the Agreement. Individual SRSC members must document their compliance with all applicable mitigation measures and provide proof of compliance to the SRSCNC, which shall maintain a record of compliance that is available for inspection and verification by GCID.

Therefore, in accordance with the aforementioned requirements, this document lists each mitigation measure, describes the methods for implementation, and identifies the responsible party or parties.

[1] Prior to its approval, the Drought Protection Program Agreement was previously known as the Water Reduction Program Agreement.

2 Monitoring Program

This MMRP was prepared and is accompanied by the associated reporting forms used to verify compliance with individual mitigation measures. This MMRP identifies each mitigation measure by discipline, the entity or organization responsible for implementation, and the monitoring phase required for each measure. Certain inspections and reports may require preparation by qualified individuals; these are specified as needed.

Table 1
Mitigation and Monitoring Program

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-AGR-1: Site Drought-Resiliency Projects Outside of Forest Lands. Drought-resiliency projects will not be sited in forest lands.	The SRSC member implementing the drought-resiliency project shall review all proposed drought-resiliency project locations to ensure that none are sited in forest lands.	During planning for drought-resiliency projects.
MM-AIR-1: Construction Truck Idling Requirements. During construction of drought resiliency projects, SRSC contractors will require construction contractors to minimize heavy-duty construction equipment idling time to 2 minutes where feasible. Currently, the In-Use Off-Road Diesel Vehicle Rule restricts construction equipment idling to 5 minutes. This measure would further reduce the time allowance for idling to 2 minutes to reduce emissions. Exceptions include equipment that needs to idle to perform work, vehicles being serviced, or vehicles in a queue waiting for work consistent with the In-Use Off-Road Diesel Vehicle Rule.	This measure shall be incorporated into any applicable construction contracts initiated by an individual SRSC for a drought-resiliency project.	Prior to commencement of and during all drought-resiliency project construction events.
MM-AIR-2: Dust Reduction Measures. • During drought-resiliency project construction in non-Agreement Years, the following dust control measures will be implemented as applicable to the drought-resiliency project: – Active construction areas will be watered at least twice daily. – Haul trucks will maintain at least two feet of freeboard. – Trucks hauling soil, sand, and other loose materials will be covered. – Non-toxic binders (e.g., latex acrylic copolymer) will be applied to exposed areas after cut-and-fill operations and hydroseed area. – Inactive storage piles will be covered. • During Agreement Years, a 20-mph speed limit for vehicles driving on unpaved roads or farmland devoid of crops will be established and enforced. Speed limits will be posted and workers will be notified in writing of restrictions. In addition, the	This measure shall be incorporated into any applicable construction contracts initiated by an individual SRSC for a drought-resiliency project.	Prior to commencement of drought-resiliency project construction in non-Agreement Years and during all Agreement Years, as specified in the measure.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
following measures will be implemented as applicable to the drought-resiliency project: – Haul trucks will maintain at least 2 feet of freeboard. – Trucks hauling soil, sand, and other loose materials will be covered. – Non-toxic binders (e.g., latex acrylic copolymer) will be applied to exposed areas after cut-and-fill operations and hydroseed area. – Inactive storage piles will be covered.		
MM-BIO-1: Conduct Desktop Special Status Wildlife Species, Plant Species, and Aquatic Resources Evaluation for Drought-Resiliency Projects. Prior to implementing a drought-resiliency project that involves grading, vegetation removal, or other form of construction in irrigation and drainage canals or upland areas outside of established agricultural croplands with a history of discing, planting, and maintenance, a qualified biologist will conduct a desktop evaluation of the site using digital web-based aerial photography. The purpose of the desktop evaluation will be to determine the potential for special status wildlife and plant species habitat or aquatic resources subject to regulation by the USACE, RWQCB, or CDFW to occur on site. A qualified biologist will also perform a review of the USFWS Information for Planning and Consultation, CNDDB, CNPS, and Calflora databases to identify known records or potential for special status plant or wildlife species to occur in the project vicinity. If through this assessment, the biologist determines that potential habitat for special status wildlife or plants or jurisdictional aquatic resources exist, then site-specific survey(s) will be conducted per MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5, and MM-BIO-6, as applicable.	If a drought-resiliency project involves grading, vegetation removal, or other form of construction in irrigation and drainage canals or upland areas outside of established agricultural croplands with a history of discing, planting, and maintenance, the SRSC implementing the project shall complete a desktop special status wildlife species, plant species, and aquatic resources evaluation.	During planning for and prior to construction of drought-resiliency projects.
MM-BIO-2: Conduct Special Status Plant Species Surveys and Avoidance for Drought-Resiliency Projects. If the drought-resiliency project site survey indicates that the project site contains suitable habitat for special-status plant species, surveys using USFWS, CDFW, and California Native Plant Society protocols will be	If a drought-resiliency project site contains suitable habitat for special-status plant species, the SRSC implementing the project shall ensure that surveys by a qualified biologist are conducted	During planning for, prior to construction of, and after completing construction for drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
conducted by a qualified biologist. If present, special-status plant species will be flagged for avoidance. If avoidance is not possible, USFWS and/or CDFW will be consulted to determine the appropriate approach for minimizing impacts to special-status plant species and compensating for unavoidable impacts, and the project proponents will implement all necessary minimization and compensation measures.	and that if present, special-status plant species are flagged for avoidance by the qualified biologist. If avoidance is not possible, the SRSC implementing the project shall consult with USFWS and/or CDFW regarding the appropriate approach for minimizing impacts to special status plant species and compensating for unavoidable impacts. The SRSC implementing the project shall implement all necessary minimization and compensation measures as applicable or required for drought-resiliency projects undertaken as part of the Agreement.	
MM-BIO-3: Conduct Special Status Wildlife Species Surveys and Avoidance for Drought-Resiliency Projects. If the drought-resiliency project site survey indicates that the project site provides habitat for special-status wildlife, site-specific pre-construction surveys using USFWS and/or CDFW protocols will be conducted by a qualified biologist. If special-status wildlife species are actively using an area within the site, work shall not be permitted to occur within 100 feet until the animals have left on their own or, if necessary, are relocated in accordance with MM-BIO-5. Setback areas will be flagged. A qualified biologist shall be present during construction to monitor construction activities.	If a drought-resiliency project site contains suitable habitat for special status wildlife species, the SRSC implementing the project shall ensure that surveys by a qualified biologist are conducted. If wildlife is actively using the area, the SRSC shall verify the work area is flagged with setbacks until the animals have left on their own or are relocated in accordance with mitigation measure MM-BIO-5. Avoidance requirements in accordance with measure shall be incorporated into any applicable construction contracts initiated by an individual SRSC for a drought-resiliency project.	During planning for, prior to construction of, and during construction of drought-resiliency projects.
MM-BIO-4: Conduct Nesting Bird Species Surveys and Avoidance for Drought-Resiliency Projects. If the drought-resiliency project site survey indicates that the project site provides habitat for nesting birds that may be affected by construction and construction would occur between March 1 and September 15, pre-construction nesting bird surveys (two site visits at least one week apart) will be conducted by a qualified biologist within 14 days prior	If the drought-resiliency project site contains suitable habitat for nesting birds that may be affected by construction, the SRSC implementing the project shall ensure pre-construction nesting bird surveys are completed by a qualified biologist. If an active nest is found, the SRSC shall ensure an appropriate buffer zone is established	During planning for, within 14 days prior to commencement of construction activities for, and during construction of drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
to construction to detect the presence of nesting birds. If an active nest is found, then the qualified biologist will establish an appropriate buffer (minimum 100 feet for non-raptors and 250 feet for raptors) based on site-specific factors such as the topography, the type of work to be performed, natural visual and/or auditory barriers between the nest and proposed work area, and the species. If work must be performed within the established buffer zone, a qualified biologist should monitor the nest prior to work activities to determine baseline nesting behaviors. Work shall be permitted to occur within the buffer zone with a qualified biologist present to monitor the work for signs of disturbance, to adjust (increase) the buffer size as needed, and to exercise stop work authority if nest disturbance is observed. No further work may occur within the buffer zone until nesting birds have fledged from nests on their own. Setback areas will be flagged.	by a qualified biologist. If work must occur within the buffer zone, the SRSC shall ensure that a qualified biologist monitors the nest prior to construction, is present during all construction activities within the buffer zone, and flags all setback areas. Avoidance requirements in accordance with measure shall be incorporated into any applicable construction contracts initiated by an individual SRSC for a drought-resiliency project.	
MM-BIO-5: Implement General Biological Resources Protection Measures during Drought-Resiliency Project Construction. The construction contractor and operations personnel shall implement the following general biological resources protection measures during drought-resiliency project construction: • Limit construction and operations activities to daylight hours to the extent feasible. If nighttime activities are unavoidable, then workers shall direct all lights for nighttime lighting into the work area and shall minimize the lighting of natural habitat areas adjacent to the work area. Light glare shields shall be used to reduce the extent of illumination into sensitive habitats. If the work area is located near surface waters, the lighting shall be shielded such that it does not shine directly into the water. • Vegetation clearing will be limited to only those areas necessary for construction. • Any excavated and stockpiled soils will be placed outside of designated special status species habitat. • Dispose of cleared vegetation and soils at a location that will not create habitat for special status wildlife species.	The SRSC implementing a drought-resiliency project shall ensure that the general biological resources protection measures are implemented in constructing drought-resiliency projects. The general biological resources protection measures shall be incorporated into any applicable construction contracts initiated by an individual SRSC for a drought-resiliency project.	During planning for and prior to construction of drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
• Dispose of food-related and other garbage in wildlife-proof containers and remove the garbage from the project area daily during construction. Vehicles carrying trash will be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties. • Store all construction-related vehicles and equipment in the designated staging areas. These areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or wildlife species. • Construction-related vehicles and equipment will not exceed a 20 mile-per-hour speed limit at the construction site, staging areas, or on unpaved roads. • The qualified biologist will provide the contractor with worker environmental awareness training. • Prior to the initiation of work each day, the contractor will inspect construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by special-status species that could occupy such structures prior to being used for construction. • Avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction work day. The qualified biologist shall inspect open trenches and holes and shall remove or release any trapped wildlife found in the trenches or holes prior to filling by the construction contractors. Capture and relocation of trapped or injured wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits. Any sightings and any incidental take (mortality) shall be reported to CDFW via email within one working day of the discovery. Notification shall include the date, time, and location (U.S. Geological Survey (USGS) 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field) of the incident or of the discovery of an individual special-status species that is dead or injured (type of		

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
injury shall be included). For each special-status species encountered, the biologist shall submit a completed CNDDB field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site.		
MM-BIO-6: Implement GGS Avoidance Measures for Drought-Resiliency Projects. If the need for a drought-resiliency project site survey is identified as part of MM-BIO-1, and the initial assessment indicates that that the project site provides habitat for GGS, avoidance measures must be implemented to avoid GGS during construction. Construction activities within GGS habitat will be restricted to between May 1 and October 1, to the extent feasible. If work must be conducted within GGS habitat between October 2 and April 30, two GGS pre-construction surveys will be conducted in any area within 200 feet of GGS aquatic habitat by a qualified biologist. The first survey will occur within 15 days prior to onset of construction and the second will occur within 24 hours prior to the onset of construction. The information collected from the first pre-construction survey will serve primarily to alert the biologist and construction crews of the general level of GGS activity at the site and borrow area, and the second survey will serve to minimize potential for take of GGS. If GGS is found in the project area, then to avoid direct impacts on GGS, the following measures will be implemented during construction of the drought-resiliency project: • Temporary fencing will be installed to exclude GGS from the work area. The design of the fence will be approved by the CDFW prior to installation. • Fence installation will be supervised by a qualified biologist. • The qualified biologist will provide the contractor with worker environmental awareness training, including instructing the contractor on how to inspect the exclusion fence. • Prior to the initiation of work each day, the contractor will inspect the exclusion fence to ensure it is functional for the intended purpose.	The SRSC implementing the project shall ensure that the GGS avoidance measures are implemented in constructing drought-resiliency projects. Avoidance requirements in accordance with this measure shall be incorporated into any applicable construction contracts initiated by an individual SRSC for a drought-resiliency project.	During planning for and prior to construction of drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
If GGS is observed within the temporary fencing around the construction site, the contractor will stop work and allow the species to leave the site of its own volition or the snake will be captured by a qualified biologist with appropriate collecting/handling permits and relocated to the nearest suitable habitat beyond the influence of the project work area. "Take" of a state or federal special status species is prohibited without appropriate permits from the USFWS and CDFW.		
MM-BIO-7: Obtain Incidental Take Authorization for Take of Listed Species from Drought-Resiliency Project Impacts. If species avoidance is not expected to be possible through implementation of MM-BIO-1, MM-BIO-3, MM-BIO-4, MM-BIO-5, or MM-BIO-6, USFWS and/or CDFW will be consulted to determine the appropriate approach for minimizing impacts to special-status wildlife species and compensating for potential incidental take. Impacts will be compensated for through purchase of mitigation credits at an approved conservation bank and/or on or offsite restoration and enhancement. Incidental take authorization will be obtained for take of listed species resulting from construction of a drought-resiliency project.	The SRSC implementing the project shall ensure that incidental take authorization is obtained if special status species avoidance is not possible for constructing drought-resiliency projects.	Prior to the commencement of construction activities for drought-resiliency projects.
MM-BIO-8: Compensate for Permanent Loss of Special Status Wildlife Species Habitat from Drought-Resiliency Projects. If it is determined through implementation of MM-BIO-1 and MM-BIO-3 that a drought-resiliency project site includes high-quality foraging or breeding habitat for special status wildlife species and there will be a permanent loss of such habitat resulting from construction, impacts will be compensated for through onsite and/or offsite restoration, enhancement, and/or purchase of mitigation credits at an approved conservation bank. Based on the findings of MM-BIO-3, the qualified biologist will prepare a plan that outlines proposed compensatory mitigation and coordinate with USFWS and CDFW. Compensatory lands will be of similar or better quality than habitat lost, preferably located in the vicinity of the drought-resiliency project site, and be permanently preserved through a conservation	The SRSC implementing the project shall ensure that compensatory mitigation is provided for permanent loss of special status species habitat from construction of drought-resiliency projects.	After implementation of mitigation measures MM-BIO-1 and MM-BIO-3 for drought-resiliency project sites that include high-quality foraging or breeding habitat for special status wildlife species and where there will be a permanent loss of such habitat resulting from construction.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
easement. The plan will identify conservation actions to ensure that the compensatory lands are managed to provide for the continued existence of the species. The plan will also identify an approach for funding assurance for the long-term management of the conserved land, as relevant.		
MM-BIO-9: Tree Replanting Requirements for Drought-Resiliency Projects. Avoid native tree removal where practicable through adjustments to the alignment of ditches, pipelines, or other construction features. If protected or heritage native tree removal is not avoidable, local county requirements for replacement would be prescribed at the ratio specified in their general plan. Replanting ratios vary between counties. For trees known to be used by nesting raptors, preservation efforts shall be pursued to the maximum extent possible. Nest tree losses in HCP covered areas could be subject to replacement at 15:1 such as in the Natomas Basin HCP.	The SRSC implementing the project shall ensure that trees are replanted in accordance with this measure to compensate for any tree removal required for construction or operation of drought-resiliency projects.	During drought-resiliency project planning and prior to any tree removal associated with a drought-resiliency project.
MM-BIO-10: Timing Requirements for Discing in Fallow Fields During Agreement Years. If discing occurs in idled croplands during an Agreement Year, the following will be adhered to: • Between February 15 and September 15, discing will occur when vegetation is on average 12 inches or less in height. • Between September 15 and February 15, discing may occur without vegetation height restriction.	During Agreement Years, all SRSC members idling croplands shall ensure that the timing requirements stated in this measure are complied with when discing croplands fallowed under the Agreement.	Prior to discing croplands idled as a result of the Agreement.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-BIO-11: Maintain Minimum Water Depth in Irrigation and Drainage Canals in Key Areas During Agreement Years. Certain croplands abut or are immediately adjacent to areas with known important GGS populations that may be in or connected to areas with specific management plans for GGS either for mitigation or as wildlife refuges. Croplands abutting or immediately adjacent to the following areas are considered important GGS populations: • Butte Creek between Upper Butte Basin and Gray Lodge Wildlife areas • Colusa Basin drainage canal between Delevan and Colusa National Wildlife Refuges • Gilsizer Slough • Colusa Drainage Canal • Land side of the Toe Drain along the Sutter Bypass • Willow Slough and Willow Slough Bypass in Yolo County • Hunters and Logan Creeks between Sacramento and Delevan National Wildlife Refuges • Lands in the Natomas Basin To the extent practicable, irrigation and drainage canal water depths in areas that are considered important GGS populations will be similar to years when the Agreement is not in effect or, where information on baseline water depths is limited, at least 2 feet deep.	During Agreement Years and to the extent practicable, all SRSC members idling croplands shall ensure that any croplands abutting or immediately adjacent to the areas specified in this measure maintain irrigation and drainage canal water depths of at least 2 feet deep.	Prior to cropland idling during Agreement Years.
MM-BIO-12: Conduct Aquatic Resources Surveys and Avoidance for Drought-Resiliency Projects If the drought-resiliency project site survey identified in MM-BIO-1 indicates that the project site contains potentially jurisdictional aquatic resources, including wetlands, other waters, and riparian habitat, that may be affected by construction, an aquatic resources delineation to identify and delineate wetlands and other waters shall be conducted. Wetlands and waters identified on site will be flagged as environmentally sensitive areas and avoided to the extent practicable. Permanent impacts to jurisdictional aquatic resources will be mitigated per MM-BIO-13.	The SRSC implementing the project shall ensure that aquatic resources surveys and avoidance measures are implemented for drought-resiliency projects.	During planning for and prior to construction of drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-BIO-13: Obtain Required Permits and Implement Wetland Mitigation for Drought-Resiliency Projects. If impacts to wetlands and waters cannot be avoided, then required permits, potentially including permits from the USACE, RWQCB, and CDFW would be obtained and complied with per MM-BIO-13. Mitigation for project-related permanent impacts to jurisdictional wetlands or other waters will be provided at a minimum 1:1 ratio through onsite and/or offsite restoration, enhancement, and/or purchase of mitigation credits at an approved bank.	The SRSC implementing the project shall ensure that required USACE, RWQCB, and CDFW permits are obtained and that mitigation for permanent impacts to waters and wetlands is provided at a minimum 1:1 ratio for drought-resiliency projects. This measure shall be incorporated into any applicable construction contracts initiated by any SRSC for a proposed drought-resiliency project.	Prior to construction of, during construction of, and after construction of drought-resiliency projects.
MM-HYD-1: Implement Erosion and Spill Control Measures for Drought-Resiliency Projects. To ensure that contaminants are not accidentally introduced into irrigation ditches and canals, the following measures will be implemented during construction of drought-resiliency projects: • Use of BMPs (e.g., filter fabric or sandbags) to prevent pollutants from entering drainage channels • Equipment be inspected daily for leaks or spills • Materials for cleanup of spills be available on site • Flammable materials be stored in appropriate containers • Spill prevention kits be in close proximity when using hazardous materials • Spills and leaks be cleaned up immediately and disposed of in accordance with local, state, and federal regulations • Vehicles and equipment be kept clean • Construction personnel to be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills For drought-resiliency projects involving over an acre of land disturbance, a NPDES Construction Stormwater General Permit will be obtained and a construction Stormwater Pollution Prevention Plan (SWPPP) will be prepared.	This measure and all listed BMPs shall be incorporated into any applicable construction contracts initiated by a SRSC member for any drought-resiliency project and enforced by the SRSC. Implementation of the measures and listed BMPs shall be documented by the SRSC implementing the project.	Prior to commencement of and during construction of drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-HYD-2: Install and Operate Groundwater Wells in Accordance with Groundwater Sustainability Plans (GSPs) and the SGMA for all Groundwater Pumping Activities undertaken under the Agreement. The installation of any new groundwater wells and the operation of existing and new groundwater wells will be in accordance with targets and requirements set by applicable GSPs managed by Groundwater Sustainability Agencies in the project area, as well as the requirements set forth by SGMA, including the submittal of annual reports regardless of determination status following adoption of a GSP or alternative.	The implementing SRSC shall ensure that any installation and operation of new wells, and operation of existing wells, is in accordance with GSPs and SGMA.	During planning for any new groundwater wells; ongoing for continued compliance for existing groundwater wells.
MM-CUL-1: Conduct CHRIS Review and Desktop Evaluation for Drought-Resiliency Projects. Prior to the start of any drought-resiliency project, a qualified historian/archaeologist will request information regarding cultural resources already recorded in CHRIS to determine whether a drought-resiliency project may be located in an area where cultural resources are recorded. If through this review, a cultural resource is identified within resiliency project area or the historian/archaeologist determines through desktop review that the specific project area has potential to contain cultural resources, then implementation of MM-CUL-2 will be required.	The SRSC implementing the project shall verify that a CHRIS review and desktop evaluation has been completed for the drought-resiliency projects by a qualified historian/archaeologist. If a cultural resource is identified or it is determined that the project area has the potential to contain cultural resources, the SRSC shall ensure implementation of mitigation measure MM-CUL-2.	During planning for and prior to the construction of any drought-resiliency project.
MM-CUL-2: Conduct Pre-Construction Surveys and Establish Buffers for Drought-Resiliency Projects. If determined required by the qualified historian/archaeologist in MM-CUL-1, a site-specific pre-construction field survey will be conducted by a qualified historian/archeologist prior to the start of construction activities. The pre-construction survey will be designed to identify historic structures, archaeological sites, and potential Tribal cultural resources that may be present at the specific location of the drought-resiliency project that is to be implemented. Reports would be made available to the Office of Historic Preservation (OHP) and Native American Tribes that have requested consultation (if any), and these entities would be afforded an opportunity to comment prior to the start of construction. Any historical or archaeological	If a qualified historian/archeologist determines that a site-specific pre-construction survey is required prior to the start of construction of a drought-resiliency project, the implementing SRSC shall ensure that a site-specific pre-construction survey is conducted. Reports on historic structures, archeological sites, and potential Tribal cultural resources that may be present a specific drought-resiliency project site shall be made available to OHP and Native American Tribes that have requested consultation and any resource shall be recorded and flagged with a 30-foot buffer (or appropriate).	Prior to the start of construction for drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
resources identified during the survey would be recorded and flagged with a 30-foot buffer (or based on topography and access points to protect the find, as determined appropriate by the qualified historian/archeologist).	This measure shall be written in applicable contracts for drought-resiliency projects.	
MM-CUL-3: Develop and Implement Applicable Monitoring and Mitigation for Drought-Resiliency Project Impacts. If the pre-construction survey conducted in MM-CUL-2 identifies any historic or archaeological resources and a Tribe(s) has requested consultation, then that Tribe(s) will be notified. If historic structures, archaeological sites, and potential Tribal cultural resources are identified and flagged, but impacts cannot be avoided or adequately minimized, then OHP and Tribes that have requested consultation (if any) will be provided a project-specific monitoring and mitigation plan. Impacts will be mitigated through implementation of this plan, with mitigation expected to include but not be limited to monitoring, resource investigation, documentation, recovery, or preservation as well as interpretive measures.	If historic or archaeological resources are identified in a project area and a Tribe(s) has requested consultation, the SRSC implementing the project shall confirm that requesting Tribe(s) are properly notified; that resources are identified and flagged and impacts are minimized and avoided; or, if needed, a project-specific monitoring and mitigation plan is developed and shared with requesting Tribe(s). This measure shall be written in applicable contracts for drought-resiliency projects.	Prior to the start of construction for drought-resiliency projects.
MM-CUL-4: Develop Inadvertent Discovery Plan (IDP) to be Implemented if Prehistoric or Historical Archaeological Resources Are Encountered during Drought-Resiliency Project Construction. A qualified archaeologist will develop an IDP for the proposed project to be provided to onsite personnel involved in drought-resiliency projects that involve excavation below depths routinely disced or disturbed through routine agricultural operations. The IDP will include steps to be taken in the event that cultural resources, any artifact, or an unusual amount of bone, shell, or non-native stone are identified during construction. Work will immediately stop and activities will be relocated to another area beyond 10 meters (30 feet) of the discovery. In the case of potential human remains, the find must be reported to local law enforcement. The IDP will specify steps to notify and consult with the OHP and Tribes. If the resources are found to be significant, they would be avoided or if avoidance is not possible, mitigated in accordance with MM-CUL-3.	For drought-resiliency projects that involve excavation below depths routinely disced or disturbed, the SRSC implementing the project shall ensure an IDP is prepared by a qualified archaeologist and that it is implemented if prehistoric or historical archaeological resources are encountered during construction. Plans for all drought-resiliency projects that involve excavation shall include the IDP to be provided to onsite personnel, this measure shall be written in applicable contracts.	Prior to the start of construction for drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-GEO-1: Needed Implementation of Geotechnical Recommendations for Drought-Resiliency Projects. Recommendations from geotechnical assessments or reports for specific project elements would be implemented as needed, including use of materials and construction techniques specifically addressing potential seismic and geologic hazards.	The SRSC implementing the project shall ensure that geotechnical assessments or reports are consulted or prepared to verify the need for specific project elements, if any, to ensure seismic and geological hazards requirements are included in the final drought-resiliency project design.	During planning for drought-resiliency projects.
MM-GEO-2: Unstable Area Buffer for Drought-Resiliency Projects. Within a 50-foot-wide buffer around unstable areas regardless of percent slope, no drought-resiliency project construction would occur without approval from an earth sciences/physical sciences professional.	The SRSC implementing the project shall engage an earth sciences/physical sciences professional to determine the need for and, if needed, establish a 50-foot buffer around any unstable areas regardless of percent slope. If needed, the implementing SRSC shall ensure this requirement is included in final drought-resiliency project plans.	Prior to construction of any drought-resiliency project that includes unstable areas as determined by an earth sciences/physical sciences professional.
MM-GEO-3: Adhere to Applicable Seismic Design Parameters for Drought-Resiliency Projects. Drought-resiliency projects would adhere to all applicable seismic design parameters.	The SRSC implementing the project shall ensure that a drought-resiliency project is compliant with all applicable seismic design parameters and that these parameters are included in final drought-resiliency project plans.	During planning for any drought-resiliency project.
MM-HAZ-1: Soil Testing in Accordance with Disposal Site Requirements. To address potential impacts to people and the environment from management of potentially contaminated soils, any excavated soils that would not be reused on site would be tested in accordance with disposal site requirements.	For drought-resiliency projects that will not reuse excavated soils on site, the SRSC implementing the project shall require that applicable construction contracts and plans include a requirement to test excavated spoils in accordance with disposal site requirements.	During planning for any drought-resiliency project.
MM-HAZ-2: Spill Kits. All heavy construction equipment vehicles would maintain spill kits with oil-absorbent material and tarps to contain minor releases.	For drought-resiliency projects that involve use of heavy construction equipment vehicles, the SRSC implementing the project shall require that plans and contracts include a requirement to maintain spill kits with oil-absorbent material and tarps at all times to contain minor releases.	During planning for any drought-resiliency project.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-HAZ-3: Site Drought-Resiliency Projects Away from Active Cleanup Sites. Drought-resiliency projects will be sited away from active cleanup sites.	The SRSC implementing the project shall ensure that a drought-resiliency project is sited away from active cleanup sites.	During planning for any drought-resiliency project.
MM-MIN-1: Avoid Siting Drought-Resiliency Projects in Mineral Resource Zones. Site drought-resiliency projects away from areas mapped as MRZ to the extent practicable.	The SRSC implementing the project shall ensure that a drought-resiliency project is not sited in areas mapped as MRZ to the extent practicable.	During planning for any drought-resiliency project.
MM-NOI-1: Notification Requirements to Off-site Noise-sensitive Receptors for Drought-Resiliency Projects. Written notification of project activities would be provided to all off-site noise-sensitive receptors (e.g., residential land uses) located within 500 feet of drought-resiliency project locations. Notification would include anticipated dates and hours during which activities are anticipated to occur and contact information of the project representative, including a daytime telephone number.	The SRSC implementing the project shall ensure written notification of drought-resiliency project activities is provided to all off-site noise-sensitive receptors located within 500 feet of a drought-resiliency project site.	Prior to commencement of drought-resiliency project construction activities.
MM-NOI-2: Power Equipment Use and Maintenance Requirements for Drought-Resiliency Projects. All powered heavy equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.	Plans for all drought-resiliency projects shall include this requirement in all construction contracts that include the use of power equipment and power tools.	During planning for drought-resiliency projects and during drought-resiliency project construction activities.
MM-NOI-3: Heavy Equipment Must Operate at Least 25 Feet from Neighboring Structures for Drought-Resiliency Projects. Drought-resiliency projects involving the use of heavy equipment (such as a large bulldozer) will be sited to occur at least 25 feet from neighboring historical buildings and structures that are extremely susceptible to vibration damage.	If a project is sited near historic buildings or structures that are extremely susceptible to vibration damage, and the drought-resiliency project would use heavy equipment, the implementing SRSC shall review final project plans to ensure that the project is not sited within 25 feet of those historic buildings or structures.	During planning for drought-resiliency projects.

Mitigation Measures		
Measure	**Responsible Party and Implementation**	**Timing and Monitoring**
MM-UTI-1: Notify Utility Companies of Drought-Resiliency Projects. Prior to construction of the drought-resiliency projects, utility companies will be contacted to determine whether the potential for utility line crossing or conflict exists. Notice of construction of the drought-resiliency projects will be provided to utility providers to request additional information on the location, if any, of private cables or utilities.	The SRSC implementing the project shall notify all relevant utility companies in the vicinity of project activities to determine possible construction conflicts. The implementing SRSC shall verify this measure is included in final drought-resiliency project plans.	Prior to construction of a drought-resiliency project.
MM-UTI-2: Conduct Utility Surveys and Coordinate with Utility Companies for Drought-Resiliency Projects if Needed. During the design phase for each of the drought-resiliency projects and if coordination with utility companies reveals the potential for utility lines to be in the project area, site specific utilities surveys will be completed to locate, understand, and avoid conflicts with existing utilities. In addition, all overhead and buried utility lines will be demarcated and avoided unless modifications are required. Modifications will be coordinated with the utility company.	The SRSC implementing the project shall conduct utility surveys to locate, understand, and avoid conflicts with existing utilities and coordinate with utility companies for modifications, as necessary. This measure shall be incorporated into any applicable design and engineering contracts for all proposed drought-resiliency projects undertaken under the Agreement.	During planning for drought-resiliency projects.

DPP and HR - Natomas Info

USBR DPP Funds	13,668,516
HR Funding	
Upfront	4,284,000
Water	4,488,686
Total	22,441,202

Supply	**Reductions (AF)**		
Total (AF)	25%	DPP	HR
120,200	30,050	29,933	5,757

DPP - AF produced and Acres Fallowed					
Wells (AF)	Fallow (AF)	Total (AF)		Fallowed Acres	% Rice
15,000	15,000	30,000		3,750	22.7%

HR - AF produced and Acres Fallowed		
AF	Acres	% Rice
5,757	1,439	8.7%

DPP/LTO Funding Program

USBR DPP Funds	13,668,516
HR Funding	
Upfront	4,284,000
Water Payments	4,488,686
Total	22,441,202

	Qty	Price	Total		Benefit
Tax					Potential tax, Hold for 3 years
DPP			4,100,555		
HR			2,631,806		
Solar/Office			1,600,000		Stabilize power costs, Long term stability, Safety
Well Program					
Program Development			200,000		Creates support for our periodic groundwater usage
Well Construction	5	500,000	2,500,000		Produces water during shortages
GIS			200,000		Modernize land ownership records and organization
Flume Lining			2,200,000		Reliability, water savings
Pipeline					
Elkhorn			4,000,000		Reliability, water savings, labor savings
Lat 13			500,000		Reliability, water savings, labor savings
Drought					
Rate Reduction	3	1,000,000	3,000,000		Funding to help during drought years
Water Purchases	3	500,000	1,500,000		Purchase or pump well water during VA years
Total			22,432,361		

Appendix E - Water Shortage Contingency Plan, Sacramento County Water Agency

Sacramento County Water Agency Water Shortage Contingency Plan (ver 4-19-21)

Water Shortage Contingency Plan Overview

This Water Shortage Contingency Plan (WSCP) addresses the requirements in Water Code Section 10632 of the Urban Water Management Planning Act (The Act). The WSCP is incorporated into the 2020 Urban Water Management Plan (UWMP) and used by Sacramento County Water Agency (SCWA) to respond to water shortages as they may arise. This WSCP consists of the following required elements:

1. An analysis of water supply reliability
2. Procedures for conducting an annual water supply and demand assessment
3. Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage, including Triggers and Actions aligned with defined shortage levels.
4. Supply Augmentation Actions
5. Water Supply Operational Changes, Water Use Evaluation, Catastrophic Events, Local Hazard Mitigation Plan, and Oher Shortage Response Actions
6. Communication protocols and procedures
7. Compliance and Enforcement Procedures
8. Legal Authorities
9. Financial consequences of the WSCP
10. Monitoring and reporting requirements
11. Reevaluation and improvement procedures
12. Special Water Feature Distinction
13. Plan Adoption, Submittal, and Availability

This WSCP is included as an Appendix in the UWMP as a standalone plan that may be amended or refined and readopted as needed over coming months and years independently from the UWMP.

1. Water Supply Reliability Analysis

See Section 5 of the UWMP.

2. Annual Water Supply and Demand Assessment Procedures

SCWA's procedural methodology for managing shortages is developing its Annual Water Supply and Demand Assessment (WSDA). The WSDA will include an annual analysis of anticipated water reliability for the current year and one additional dry year. The WSDA is to be submitted to DWR by July 1 each year with the first WSDA due July 1, 2022.

The WSDA will be prepared at the beginning of each calendar year to evaluate near-term water supply reliability and determine what, if any, water shortages stages may be triggered during the required period. The WSDA will be used by SCWA decision-makers to prepare for and initiate implementation of any needed response actions, as well as to inform customers, the general public, interested parties, and local, regional, and state governments entities to prepare for such required actions, if necessary.

Analytical and Decision-making Processes

SCWA plans to conduct its WSDA according to the following timeline and process:

By February 1	Initial data collection and analysis
By March 1	Preliminary Draft WSDA subject to internal review and revisions
By April 1	Draft WSDA and results briefing for SCWA decision-makers
By May 1	Approval of WSDA SCWA Decision-makers
By June 1	Public Release of WSDA and Public Notifications
By June 15	Submit WSDA to DWR in advance of July 1 deadline

SCWA will submit its WSDA to DWR no later than July 1 each year.

3. Six Standard Water Shortage Stages, Triggers, Actions and Watering Schedule

Water Shortage Stages			
Stage	**Recommended Conservation (Water Use Reduction)**	**Suggested Actions**	**Water Savings Estimate Range**
1	Up to 10%	Fix leaks or faulty sprinklers in a timely manner.	0-1%
		Decorative water features (water fountains, etc.) must recirculate water and shall be leak proof.	0-1%
		Landscape watering shall be confined to a user's property and shall not runoff onto adjacent properties, roadsides or gutters.	0-5%
		No landscape watering shall occur while it is raining or snowing.	0-5%
		Use a shutoff nozzle on hoses.	0-1%
		Washing down impervious surfaces such as driveways and sidewalks is prohibited unless for public health and safety purposes.	0-1%
		Unauthorized use of hydrants is prohibited. Authorization for use must be obtained from water supplier.	0-1%
		Encourage customers to wash only full loads when washing dishes or clothes.	0-1%
		Encourage customers to use pool covers to minimize evaporation.	0-1%
		Encourage restaurants to only serve water to customers on request.	
		Irrigation is allowed based on the Stage 1 watering schedule. Plant containers, trees, shrubs, and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	5-10%
2	Up to 20%	Fix leaks or faulty sprinklers in a timely manner.	0-1%
		Request restaurants to only serve water to customers on request.	0-1%
		No restrictions on landscape watering with non-potable water.	Not applicable
		Irrigation is allowed based on the Stage 2 watering schedule using potable water. Plant containers, trees, shrubs, and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	5-10%
3	Up to 30%	Fix leaks or faulty sprinklers in a timely manner.	0-1%
		Decorative water features that use potable water must be drained and kept dry.	0-1%
		Car washing is only permitted using a commercial carwash that recirculates water or by high pressure/low volume wash systems.	0-1%
		Warm/Dry Season	
		Irrigation is allowed on the Stage 3 watering schedule using potable water.	5-20%
		Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	Not applicable
		Cool/Wet Season	
		Turf shall not be watered unless utilizing non-potable water during extended dry spells.	1-5%
		Plant containers, trees, shrubs and vegetable gardens shall be watered only by drip irrigation or hand watering.	0-1%
4	Up to 40%	Fix leaks or faulty sprinklers in a timely manner.	0-1%
		Existing pools shall not be emptied and refilled using potable water unless required for public health and safety purposes.	0-1%
		Warm/Dry Season	
		Irrigation is allowed on the Stage 4 watering schedule using potable water.	10-30%
		Plant containers, trees, shrubs and vegetable gardens may be watered additional days using only drip irrigation or hand watering.	Not applicable
		Cool/Wet Season	
		Turf shall not be watered unless utilizing non-potable water during extended dry spells.	1-5%
		Plant containers, trees, shrubs and vegetable gardens shall be watered only by drip irrigation or hand watering.	0-1%
5	Up to 50%	Water use for public health and safety purposes only.	
6	Greater than 50%	Water use for public health and safety purposes only. Customer rationing may be implemented.	

Stage 1 and Stage 2 Watering Schedule:

The following watering schedule is in effect within areas served by SCWA. Failure thereto constitutes 'water waste', and is an unauthorized use of SCWA water pursuant to Water Agency Code Sections 3.40.120 and 3.40.130.

- **Residential and Commercial Irrigation Schedule** - Irrigation is permitted based on the last digit of customer addresses, in accordance with the schedule below:

Stage 1 and Stage 2 - Irrigation Schedule

Addresses Ending In	Watering Days	Time of Day
Even Number (0, 2, 4, 6, 8)	Wednesday, Friday, Sunday	Between 8 p.m. and 8 a.m.
Odd Number (1, 3, 5, 7, 9)	Tuesday, Thursday, Saturday	

Stage 3 Water Schedule:

The following regulations are in effect during Stage 2, and are in addition to, or supersede where conflicting, Irrigation is permitted **2 days per week** based on the last digit of customer addresses, in accordance with the below schedule:
STAGE 3 - Irrigation Schedule include those in effect during the Stages 1-2:

Irrigation Restrictions

Addresses Ending In	Watering Days	Time of Day
Even Number (0, 2, 4, 6, 8)	Wednesday, Sunday	Between 8 p.m. and 8 a.m.
Odd Number (1, 3, 5, 7, 9)	Tuesday, Saturday	

Stage 4 Irrigation Schedule:

During Stage 4 conditions the following regulations go into effect during Stage 4, which are either in addition to, or supersede, those in effect during Stages 1-3.

- **Irrigation Restrictions** - Irrigation is permitted **1 day per week** based on the last digit of customer addresses, in accordance with the below schedule:

Addresses Ending In	Watering Days	Time of Day
Even Number (0, 2, 4, 6, 8)	Sunday	Between 8 p.m. and 8 a.m.
Odd Number (1, 3, 5, 7, 9)	Saturday	

Stage 5 and Stage 6 Irrigation Schedule:

During Stage 5 and Stage 6 conditions a Water Emergency will be issued by the Agency to its customers. The following regulations go into effect during Stage 5 and Stage 6, which are either in addition to, or supersede where conflicting, those in effect during the Stages 1-4:

- **Irrigation Restrictions** -All residential and commercial outdoor irrigation is **prohibited**.

4. Supply Augmentation Actions

The following water supply augmentation action may be used as response actions for the appropriate Water Shortage Stage. SCWA has access to 8,900 acre-ft per year from a remediated water sources that is not subject to Term 91. This water source is available when other water supply contracts are subject to cutbacks.

5. Operational Changes

The following water system operational changes may be used for appropriate Water Shortage Stages.

Landscape Irrigation

Landscape irrigation reductions focus on less watering and reducing or avoiding water waste during irrigation. Landscape irrigation reductions may vary by user class or customer type depending on water shortage conditions and ability to meet overall water use reduction targets. Water allocation or budget concepts may be applied by SCWA to equitably reduce landscape water use while minimizing customer impact.

Commercial, Industrial, and Institutional (CII)

The CII category of customers is diversified and may require a tailored approach for meeting specified water use reduction targets. This could include focusing on large landscape irrigation, or other means to meet CII water use reduction targets. The ability of CII customers to conserve water during a water shortage condition would be considered depending on which stage has been triggered and how much water use has already been reduced during previous stages. SCWA would work collaboratively with CII customers so water use cutbacks will not impact business operations and solvency.

Emergency Response Plan for Catastrophic Water Shortages

This section identifies actions to be undertaken by SCWA to prepare for, and implement during, a catastrophic interruption of water supplies. A catastrophic interruption could result from any event (either natural or man-made) that causes a water shortage severe enough to trigger a Stage 4-6 water supply shortage condition.

In order to prepare for catastrophic events, SCWA has prepared an Emergency Response Plan (ERP) in accordance with other state and federal regulations. The purpose of the ERP is to design actions necessary to minimize the impacts of supply interruptions due to catastrophic events.

The ERP coordinates overall company response to a disaster in any and all of its districts. In addition, the ERP requires each district to have a local disaster plan that coordinates emergency responses with other agencies in the area. The ERP also provides details on actions to be undertaken during specific catastrophic events. The following is a summary of actions cross-referenced against specific catastrophes for three of the most common possible catastrophic events: regional power outage (such as Public Safety Power Shutoff or “PSPS” events), natural disasters (such as earthquake, flood or storm damage, or fire), and malevolent acts.

Summary of Actions for Catastrophic Events	
Possible Catastrophe	**Summary of Actions**
Regional Power Outage	• Isolate areas that will take the longest to repair and/or present a public health threat. Arrange to provide emergency water. • Establish water distribution points and ration water if necessary. • If water service is restricted, attempt to provide potable water tankers or bottled water to the area. • Make arrangements to conduct bacteriological tests, in order to determine possible contamination. • Utilize backup power supply to operate pumps in conjunction with elevated storage.
Natural Disaster	• Assess the condition of the water supply system. • Complete the damage assessment checklist for reservoirs, water treatment plants, wells and boosters, system transmission and distribution. • Coordinate with Cal EMA utilities group or fire district to identify immediate firefighting needs. • Isolate areas that will take the longest to repair and/or present a public health threat. Arrange to provide emergency water. • Prepare report of findings, report assessed damages, advise as to materials of immediate need and identify priorities including hospitals, schools and other emergency operation centers. • Take actions to preserve storage. • Determine any health hazard of the water supply and issue any “Boil Water Order” or “Unsafe Water Alert” notification to the customers. • Cancel the order or alert information after completing comprehensive water quality testing. • Make arrangements to conduct bacteriological tests, in order to determine possible contamination.
Malevolent acts	• Assess threat or actual intentional contamination of the water system. • Notify local law enforcement to investigate the validity of the threat. • Get notification from public health officials if potential water contamination • Determine any health hazard of the water supply and issue any “Boil Water Order” or “Unsafe Water Alert” notification to the customers, if necessary. • Assess any structural damage from an intentional act. • Isolate areas that will take the longest to repair and or present a public health threat. Arrange to provide emergency water.

In addition to specific actions to be undertaken during a catastrophic event, SCWA performs maintenance activities, such as annual inspections for earthquake safety, and budgets for emergency items, such as auxiliary generators, to prepare for potential events.

Seismic Risk Assessment and Mitigation Plan

SCWA intends to submit a copy of the Sacramento County Local Hazardous Mitigation Plan.

Other Shortage Response Actions

Other shortage response actions may be considered by SCWA as required to meet specific water shortage conditions. Before these actions can be implemented, an amendment to this WSCP may be required.

6. Communication Protocols

SCWA will communicate when the WSCP is implemented and inform SCWA's customers. The intent of the communication protocol is to inform SCWA's customers and wholesale customers of the voluntary and mandatory water conservation activities.

SCWA will seek to engage customers and provide notice on the voluntary or mandatory water conservation actions. These locally-relevant actions may include:

- Publishing information on SCWA's website.
- Providing bill inserts and direct mailings above and beyond those legally required.
- Developing materials for non-English speaking customers.
- Preparing social media posts to communicate SCWA actions.
- Advertising actions on other media.

Taken together, all of these communication actions will result in an effectively implemented SCWA's WSCP.

7. Compliance and Enforcement Procedures

See attached Sacramento County Water Agency Code, Title 1, Chapter 1.25, and Enforcement. The SCWA Code is located at the following web page: https://countycounsel.saccounty.net/Pages/WaterAgencyCode.aspx.

8. Legal Authorities

SCWA is empowered to implement and enforce its shortage response actions specified in this section through its enabling legislation, see attached Sacramento

County Water Agency Code, Title 1, Chapter 1.30.020, Agency Act. https://countycounsel.saccounty.net/Documents/Title1_1.pdf.

9. Financial Consequences of WSCP

Implementation of this WSCP will likely have financial impacts to SCWA. Specifically, SCWA has established water rates that support its capital projects as well as its operation and maintenance activities. The rates are tied to SCWA's customers' normal water consumption activities that may be reduced through voluntary or mandatory water conservation activities. In this way, there may be revenue reductions to SCWA. In addition to the revenue reductions, SCWA may also see an increase in expenses resulting from augmented communication actions, increased enforcement activities, and overall water shortage management actions. This section addresses aspects of revenue reduction, expense increases, and additional costs that may arise during implementation of this WSCP.

Revenue and Expenditure Impacts

There may be a revenue impact during a shortage condition as customers are required to utilize less water. Under this case, SCWA may need to reprioritize spending priorities, develop reserves to compensate for decreased revenue, consider rate increases, or a drought surcharge during the water shortage.

10. Monitoring and Reporting

SCWA is committed to monitoring and reporting updates in implementing the WSCP. In order to determine the effectiveness of water management actions, SCWA will aggregate metered data and assess SCWA monitoring actions. Moreover, SCWA will update its customers in its communication protocols.

SCWA's monitoring and reporting actions may include the following, as locally necessary:

- Gathering customer water use data
- Assessments of customer water use
- Review trends in water supply availability
- Assess water conservation activities and enforcement actions, as applicable to achieving conservation objectives.
- Preparing written reports and presentations, as necessary, for SCWA management

11. Re-evaluation and Improvement Procedures

SCWA will review and assess its procedures for implementing the WSCP. Improvement procedures will include developing reports, memoranda, and presentations that assess the effectiveness of water conservation actions and the WSCP.

12. Special Water Feature Distinction

For purposes of water shortage contingency planning and implementation within the Laguna-Vineyard, Sunrise-Mather, and County Creek Estates, SCWA defines as "special water features" those that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains. Such special water features are considered distinct from swimming pools and spas (as defined in subdivision (a) of Section 115921 of the Health and Safety Code).

Water shortage response actions would focus on health and safety issues and tempering these uses based on the severity of the water shortage condition. The relative total water use from these sources would be a consideration for how special water features and swimming pool uses could be curtailed during specific water shortage conditions. Generally swimming pool filling and refilling would be impacted in the later stages of a water shortage condition. SCWA has determined that special water features are a relatively small discretionary use but would be restricted during a Stage 3 or higher water shortage condition.

13. Plan Adoption, Submittal, and Availability

The WSCP has been adopted, submitted, and is available as required by the Urban Water Management Planning Act. As a stand-alone document, the WSCP is also subject to the following separate adoption, submittal, and availability processes, and whenever it is separately amended or revised in the future. SCWA may refine each service area's WSCP through SCWA's governing procedures in altering each service area's WSCP. SCWA has followed all applicable law in adopting the WSCPs. The current adopted WSCP for the Zone 40 System shall be available to its customers at www.SCWA.net. Alternately, a copy of the WSCP can be obtained by calling (916) 874-4517.

Appendix F - NCMWC Letter of Interest to provide wholesale water to SCWA for UWSP Area

Natomas Central Mutual Water Company

2601 W. Elkhorn Blvd.
Rio Linda, CA 95673
916 419 5936

September 24, 2025

County of Sacramento
Planning and Environmental Review
Attn: Ms. Emma Patten
827 7th Street, Room 225
Sacramento, CA 95814

Dear Ms. Patten:

The purpose of this letter is to articulate Natomas Central Mutual Water Company's (NCMWC) interest to provide wholesale raw water to the Sacramento County Water Agency for the purposes of supplying surface water to the Upper Westside (UWS) project. We have been working closely with the Applicant in identifying adequate surface water supplies to serve the project. At the request of the County's comments to the Applicant we are providing additional information as it relates to curtailment of our water rights and the prioritizing of municipal and industrial (M&I) water usage.

We understand that UWS is proposing to utilize 100% surface water. As a result, it is important that we provide M&I water on a year-round basis, including in critical drought years. It is anticipated that our water shortage program will prioritize surface water for M&I use during drought and critical drought years. NCMWC anticipates making available surface water for priority needs at current market prices. Therefore, surface water can be prioritized for this project.

NCMWC will apply to amend our existing United States Bureau of Reclamation (USBR) contract and State Water Quality Control Board permits to allow for M&I water usage. Our USBR contract already contemplates future M&I water usage. Our current USBR contract allows for curtailment of 25% in critical drought years. If further curtailments were to occur NCMWC would prioritize this project. These USBR contract deliveries could also be reallocated to winter months to ensure adequate water delivery to NCMWC during winter months. We expect the process to amend our permits and contract to take approximately two years to complete.

Should you have any further questions we would be happy to discuss further with you our willingness to be a provider of M&I surface water to UWS.

Sincerely,

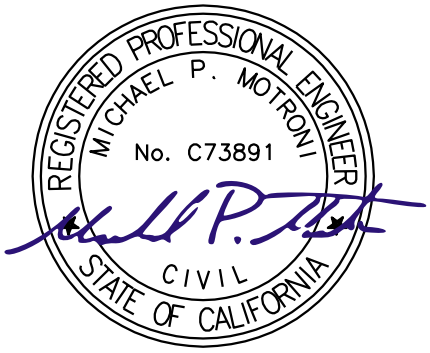
Brett Gray
General Manager

Cc: Nick Avdis, Avdis & Cucchi
Dan Cucchi, Avdis & Cucchi
Mike Motroni, Wood Rodgers

Appendix G - Upper West Side Specific Plan Water Supply Master Plan

Upper Westside Specific Plan
Water Master Plan

September 26, 2023



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C Street, Bldg 100-B
Sacramento, CA 95816
Tel: 916.341.7760
Fax: 916.341.7767

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1.0 BACKGROUND

The Upper Westside Specific Plan (Upper Westside, UWS, Plan Area) encompasses 2,066 acres in Natomas, situated between the Sacramento River and I-5, and immediately north of I-80. UWS is a master planned community that features a dynamic town center, a canal amenity, schools, a 10-acre Urban Farm, and a connected greenbelt system. Land use designations range from very low to very high residential, commercial mixed use, greenspace and agricultural areas. Land use designations are shown in **Exhibit 1**.

Domestic water for UWS can be supplied by either the Natomas Mutual Water Company (NMWC), via the Sacramento River, or from the City of Sacramento (City) as part of the American River Place of Use (POU). The City's authorized POU includes all land within the City limits, as well as defined areas adjacent to the City for other water purveyors, including the UWS Plan Area. This is shown in **Exhibit 5**. Water supplied from NMWC would require an on-site treatment plant to convert raw water to domestic water. Water supplied from the City would already be treated, and the City has existing infrastructure within the UWS area. The City operates an existing 24-inch transmission main in El Centro Road and San Juan Road, north and east of their intersection, and a 3-million gallon (MG) tank on San Juan Road, which is used for fire flow, operational uses (peaking), and for emergencies. These facilities are shown in **Exhibit 1**.

It is expected that either the Sacramento County Water Agency (SCWA) or the City's Department of Utilities (DOU) will be the water retailer for UWS. As a result the design criteria for each agency was analyzed, and the most conservative factors were utilized to develop the plan.

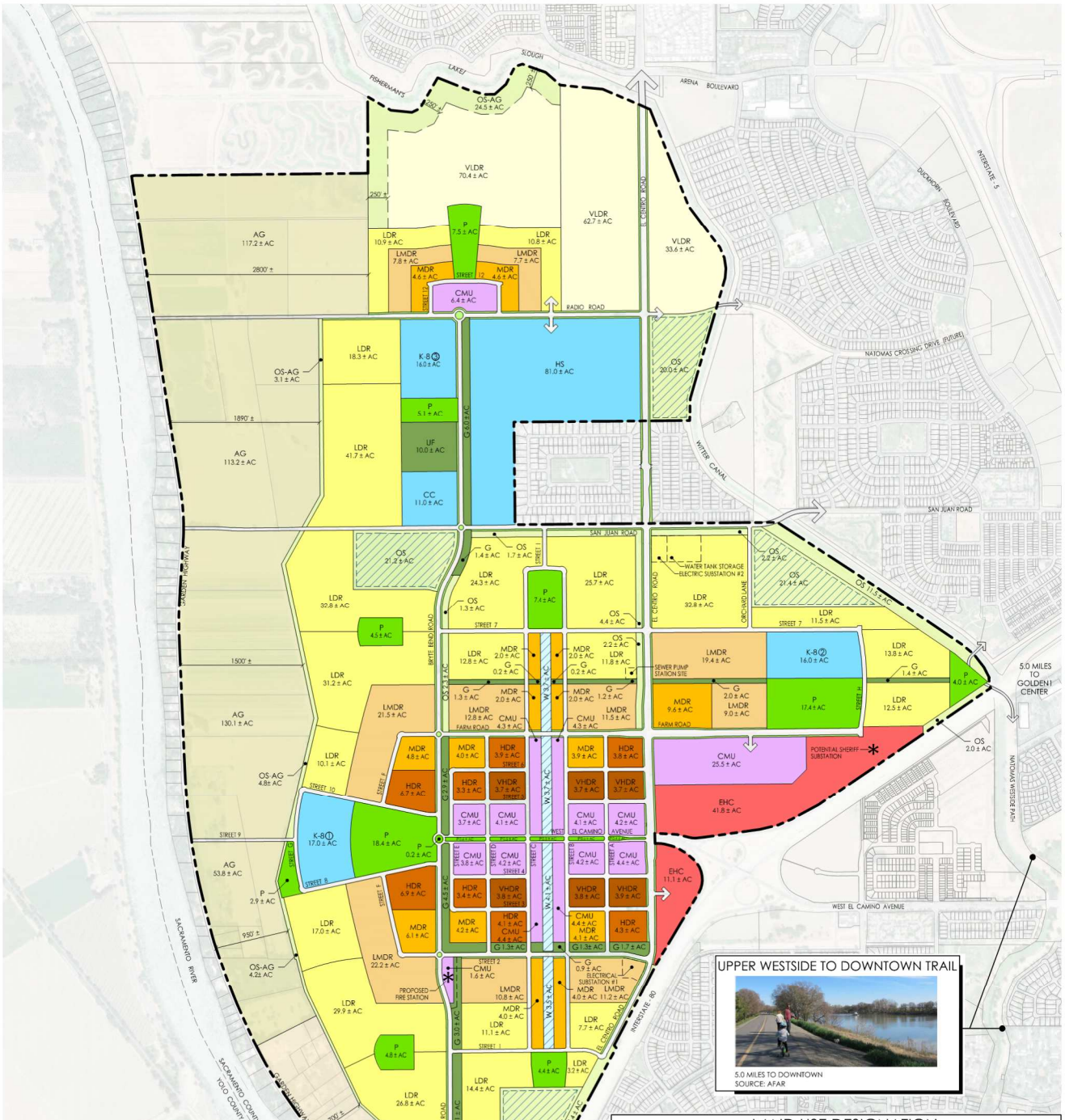
The purpose of this Water Master Plan is to analyze and identify the water distribution sizing requirements to serve UWS. A hydraulic model was built and evaluated to determine the size and layout of the distribution system required to meet the proposed water demands under the established system criteria. The criteria, water demand estimate, and water system improvement analysis are described in **Sections 2.0, 3.0,** and **4.0**. Additional discussion includes the following:

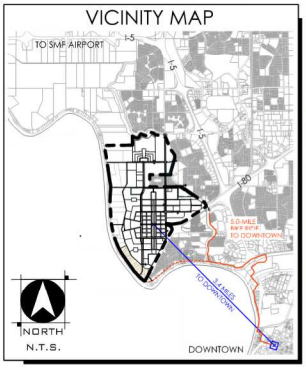
- Description of water supply sources and availability for the Plan Area (**Section 5.0**)

- Water supply analysis (**Section 6.0**)
- Description of the Sustainable Groundwater Management Act (**Section 7.0**)
- Capital Improvement Program and Fee Development (**Section 8.0**)

EXHIBIT 1

PRELIMINARY LAND USE PLAN
UPPER WESTSIDE
COUNTY OF SACRAMENTO, CALIFORNIA
JULY 2023





LAND USE DESIGNATION

COLOR	LAND USE DISTRICT	COMPARABLE ZONE OR DENSITY RANGE	TARGET DENSITY OR F.A.R.	ACRES ±	% OF ACRES	ESTIMATED DWELLING UNITS	% OF DWELLING UNITS	ESTIMATED SQ. FT. ±
VLDR	VERY LOW DENSITY RESIDENTIAL	RD-1 TO RD-3	1.3 DU/AC	166.7	8.1%	223 DU	2.4%	
LDR	LOW DENSITY RESIDENTIAL	RD-4 TO RD-7	5.5 DU/AC	495.9	90.6%	9,598 DU	95.0%	
LMDR	LOW/MEDIUM DENSITY RESIDENTIAL	RD-6 TO R-10	8.0 DU/AC	133.9	6.5%	1,071 DU	11.4%	
MDR	MEDIUM DENSITY RESIDENTIAL	RD-8 TO RD-20	12.0 DU/AC	61.9	3.0%	742 DU	7.9%	
HDR	HIGH DENSITY RESIDENTIAL	RD-20 TO RD-40	25.0 DU/AC	36.4	1.8%	910 DU	9.7%	
VHDR	VERY HIGH DENSITY RESIDENTIAL	RD-30 TO RD-30+	35.0 DU/AC	22.6	1.1%	791 DU	8.5%	
CMU	COMMERCIAL MIXED USE	CMU (RD-30 TO RD-100)+40.0 DU/AC | 0.60 FAR		83.6 [5]	4.0%	3,280 DU	35.1%	2,184,970 SF [3]
EHC	EMPLOYMENT/HIGHWAY COMMERCIAL	E/HC	0.40 FAR	52.9	2.6%			921,730 SF [3]
S	SCHOOL	K-8, HS, CC		141.0	6.8%			
P	PARK	P		79.1	3.8%			
G/UF	GREEN BELT / URBAN FARM	AG-B		44.0	2.1%			
OS	OPEN SPACE (BASINS & CHANNELS)	NR		117.6	5.7%			
OS-AG	OPEN SPACE (AG-BUFFER)	NR		36.6	1.8%			
AG-C	AG-CROPLAND [4]	AG		414.3	20.1%			
AR	AG-RESIDENTIAL [4]	AR		86.1	4.2%			
W	OPEN SPACE WATER (CANAL)	P		15.0	0.7%			
LSC	LANDSCAPE CORRIDOR			28.0	1.4%			
	MAJOR ROADS A	ROW		115.9	5.6%			
	MAJOR ROADS B (WITHIN AG-BUFFER) [4]	ROW		5.4	0.3%			
	TOTAL			2066.2	100%	9,356 DU'S		3,106,700 SF

NOTES
(1) NET ACREAGE BASED ON PRELIMINARY LAND USE PLAN GENERATED IN GIS/AUTOCAD BY WOOD RODGERS APRIL 2020. THIS PLAN IS SUBJECT TO CHANGE. ARTERIALS, COLLECTORS AND PRIMARY RESIDENTIAL STREETS, AND LANDSCAPE CORRIDORS AS SHOWN ON MAP ARE NETTED OUT.
(2) ESTIMATED POPULATION CALCULATION UTILIZING 3.0 PERSONS PER HOUSEHOLD (pph) FOR SINGLE-FAMILY AND 2.5 pph FOR MULTI-FAMILY (HDR AND HIGHER), RESULTING IN 25,578± PEOPLE [(4,981 DU x 2.5 pph)+(4,375 DU x 3.0 pph)=25,578 POPULATION]. THIS IS A PRELIMINARY ESTIMATE AND SUBJECT TO CHANGE.
(3) THE ALLOCATED SQUARE FOOTAGE (SF) IS IN ADDITION TO EXISTING COMMERCIAL LAND USES.
(4) AGRICULTURAL RESIDENTIAL (AR), AGRICULTURAL CROPLAND (AG). OPEN SPACE (OS) BUFFER TO THE NORTH AND WEST, AND MAJOR ROADS B AREAS ARE NOT INCLUDED IN PROPOSED 1,532-ACRE DEVELOPMENT AREA OR THE LPA/ESB EXPANSION REQUEST. IT IS ASSUMED THE "AG-BUFFER" AREA WILL REMAIN AS IS AND NO UNITS ARE ALLOCATED.
(5) THE 1.6-ACRE CMU SITE LOCATED SOUTHWEST OF THE TOWN CENTER IS DESIGNATED FOR A FIRE STATION AND THEREFORE WAS NOT ALLOCATED RESIDENTIAL UNITS OR COMMERCIAL SF.

NORTH
0 600 1200 2400

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
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Sacramento, CA 95816
Tel 916.341.7760
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2.0 SYSTEM CRITERIA

SCWA and the City each have established criteria for the sizing and analysis of domestic water systems. These criteria relate to water main sizes, system pressure, velocities, and roughness coefficients, as well as fire flow and storage volume. Since the water retailer for Upper Westside has not yet been determined, each water agencies criteria were compared, as discussed in the sections below. When designing the water system to serve UWS, the more restrictive of each agency's criteria was considered, unless the less restrictive criteria is determined to be reasonable, as explained below.

2.1 Water Main Criteria

SCWA and the City both have separate criteria for transmission mains (see **Table 1**) versus distribution mains (see **Table 2**). The SCWA criteria for system pressures is generally higher than the criteria published by the City DOU. However, both the City and SCWA require a minimum residual pressure of 20 psi in a distribution main during a fire flow event. Other criteria vary slightly as shown.

The minimum pressure criteria is 30 psi for both transmission and distribution mains, if the City becomes the water purveyor for the project. If SCWA becomes the water purveyor, minimum pressure allowed is 40 psi for transmission mains and 35 psi for distribution mains. These criteria would be met for SCWA by installing a booster pump at the point of connection to the City water supply. The tables herein have been highlighted to identify the criteria utilized for the UWS development area.

Table 1. Transmission Main Criteria Comparison

Criteria	SCWA	City
Water Main Size	16-inches and greater(5)	18-inches or greater(5)
Hazen Williams "C" Factor (roughness)	125	130
Maximum Pressure	75 psi	80 psi
Minimum Pressure	40 psi	30 psi(6)
Minimum Pressure During Fire Flow(1)	25 psi	Not specified
Maximum Velocity During ADD(2)	Not specified	3 fps
Maximum Velocity During MDD(3)	5 fps	5 fps
Maximum Velocity During PHD(4)	7 fps	Not specified
Maximum Velocity During Fire Flow(1)	10 fps	Not specified
Minimum Velocity	Not specified	0.10 fps
Maximum Head Loss	5 ft / 1000 ft	3 ft / 1000 ft

(1) Fire Flow is modeled concurrently with MDD
(2) (ADD) Average Day Demand
(3) (MDD) Maximum Day Demand
(4) (PHD) Peak Hour Demand
(5) Section 13 of the City of Sacramento standards defines a Transmission Main as "Water Mains larger than 12-inches in diameter that are used to convey large volumes of water from treatment plants, where the water is produced, to selected points throughout the Water System as well as to (and from) storage reservoirs to meet fluctuating daily and seasonal demands." The DOU indicates 18-in as the next size up from 12-in. Although the City will therefore require at minimum 18-inch pipes for their T-mains, 16-inch pipes (SCWA minimum T-main size) were modeled at this time in order to that the more hydraulically restrictive design. If the City becomes the water purveyor for this project, proposed 16-inch pipes will be upsized to 18-inch pipes.
(6) City system pressure at point of connection is below 40 psi during PHD flow at UWS. Therefore, 30 psi is used as the criteria if City becomes purveyor. If SCWA becomes purveyor, 40 psi minimum pressure applies.

Table 2. Distribution Main Criteria Comparison

Criteria	SCWA	City
Water Main Size	8-inches general minimum	• 12-inches on one square mile grid; 8-inches(2) in all other cases • Industrial minimum: 12 inches • Distribution to fire hydrants: 8 inches
Hazen Williams "C" Factor	125	130
Maximum Pressure	65 psi	80 psi
Minimum Pressure	35 psi	30 psi(3)
Minimum Pressure During Fire Flow(1)	20 psi	20 psi
Maximum Velocity During ADD	Not specified	5 fps
Maximum Velocity During MDD	5 fps	Not specified
Maximum Velocity During PHD	7 fps	7 fps
Maximum Velocity During Fire Flow(1)	10 fps	10 fps
Minimum Velocity	Not specified	0.10 fps
Maximum Head Loss (Non-Fire Scenario)	5 ft / 1000 ft	7 ft / 1000 ft
Maximum Head Loss During Fire Flow(1)	Not specified	10 ft / 1000 ft

(1) Fire Flow is modeled concurrently with MDD
(2) 6-inch may apply where minimum velocities aren't met. Cul-de-sacs and dead-ends have 6-inch, or 4-inch where minimum velocities aren't met and the dead-end is no longer than 250 feet.
(3) City system pressure at point of connection is 37.6 psi during PHD flow at UWS, upstream of meter. Therefore, the less restrictive criteria of 30 psi is used if City becomes purveyor; 35 psi minimum if SCWA becomes purveyor.

2.2 Fire Flow and Storage

For both possible water retailers, fire flow requirements are summarized in **Table 3.**

Table 3. Fire Flow Comparison

Fire Flow Requirement	SCWA	City
Single Family Residential (<3,600 sf)	1,500 gpm, 2 hours	1,500 gpm, 2 hours
Single Family Residential (>3,600 sf)	2,000 gpm, 2 hours	Not specified
Multi-Family Residential	Not specified [1]	2,500 gpm, 2 hours
Commercial	3,000 gpm, 3 hours	3,500 gpm, 4 hours
Industrial	4,000 gpm, 4 hours	4,500 gpm, 4 hours
Institutional	Not specified	4,500 gpm, 4 hours

(1) SCWA Water Study Approval Guidelines Table 5 does not list a required fire flow for Multi-Family Residential. Depending on the project specifics, the Commercial fire flow may be substituted.

For single family homes greater than 3,600 square feet, SCWA requires a larger fire flow than the City. For all other types of structures, the City requires a larger fire flow than SCWA.

Storage criteria differ between SCWA and the City. Both require some operational capacity, fire flow, and emergency water to be stored. Operational or equalization storage meets diurnal demand conditions including peak hour fluctuations, and allows the City's water supply sources to operate at a uniform rate throughout the day. Fire flow storage required is calculated for one event based on the flow rate and duration shown in **Table 3**. Emergency storage required generally varies widely by purveyor, as each agency's ability to treat and store water is different. SCWA for instance recommends emergency storage equivalent to 1/3 of average day demand. It is also possible that excess storage in the City system can be utilized. Further analysis and City input is needed to determine the total storage volume needed at UWS.

2.3 Conclusion

At this time, it is not known which of the two agencies will be the water purveyor for UWS. Therefore, both agencies' criteria for a water system were evaluated and compared. The more restrictive of each agency's operating criteria will be applied when evaluating and sizing the proposed on-site system, unless the less restrictive criteria is determined to be reasonable. The required fire flow is the largest of all estimates, and the storage facility shall be sized to meet the worst-case fire flow, as well as operational and emergency needs.

3.0 WATER DEMAND ESTIMATE

Wood Rodgers developed water demand projections for Upper Westside utilizing the most current land use information and demand factors. In this section, demand factors based on the guidelines of SCWA and the City are compared to assess the differences and to select the most appropriate factors for developing the water demand estimates. Water demand estimates are presented at full buildout as well as by project phasing.

3.1 Land Use

The proposed land use for UWS is shown in **Exhibit 1**. The proposed land use has sixteen different land use descriptions, whereas SCWA has fourteen and the City has six corresponding land use categories for the water demand factors. **Table 4** below lists the project land uses and their assumed equivalents related to the SCWA and City demand factor categories.

Table 4. Land Use

Proposed Specific Plan			SCWA Category	City Category (1)
Land Use Designation	**Land Use (Zoning)**	**Area (acre)**		
RW	Roads	122.0	Right-Of-Way	--
AG	Agricultural Reserve	410.2	Agricultural(3)	--
AG/RES	General Agriculture	86.1	Agricultural(3)	--
CC	Commercial & Office	1.2	Commercial	Commercial/Office
CMU	Mixed Use	82.0	Multi-Family-High-Density + Commercial (2)	Residential Medium (2)
E/HC	Commercial & Office	52.9	Commercial	Commercial/Office
HDR	High Density Residential (RD-25)	36.4	Multi-Family-High-Density	Residential Medium
LC	Landscape Corridor	38.2	Public Recreation	Park
LDR	Low Density Residential (RD-5)	429.2	Single Family	Residential Low
LMDR	Low Density Residential (RD-7)	133.0	Single Family	Residential Low
MDR	Medium Density Residential (RD-10)	62.5	Multi-Family-High-Density	Residential Medium
P	Recreation	82.3	Public Recreation	Park
SCHOOL	Public/Quasi-Public	141.1	Public	Mixed Use
UF	Agricultural Urban Reserve	45.1	Public Recreation	Park
VHDR	High Density Residential (RD-40)	22.6	Multi-Family-High-Density	Residential Medium
VLDR	Low Density Residential (RD-2)	164.5	Rural Estate	Residential Low
W(4)	Water/Public/Quasi-Public	15.0	Non-irrigated	--
WTLND(4)	Open Space	141.9	Non-irrigated	--

(1) City's use factors include 15% to account for rights-of-way and streets.
(2) See Section 3.2 (Demand Factors) for an explanation of demand factors chosen to represent proposed Mixed Use for UWS.
(3) Served by NMWC untreated water.
(4) The Lake Basins and Westside Canal may need make-up water in the late summer and fall during dry years to maintain a consistent water surface. Ideally, untreated water from NMWC is utilized for this purpose.

3.2 Demand Factors

With two potential water retailers for UWS, two published sets of water demand factors were reviewed and considered: SCWA demand factors (see **Table 5**) and City demand factors (see **Table 6**).

SCWA Zone 40's gross unit water demand factors are the 2030 Unit Water Demand Factors, found in the SCWA Water Study Guidelines Document, v.9.18. These are the same values presented as Buildout factors in the Zone 40 Water System Infrastructure Plan (WSIP) Update of 2016. The numbers are based on SCWA's study of county land use and water use data and are meant to be applied to gross land areas that have not been adjusted to remove streets and right of way areas. Water system losses are not included in these factors and are estimated to be an additional 7.5% per the WSIP[1]. System losses such as this are a result of leaking infrastructure, fire hydrants (flushing or fire protection), illegal water takes, adjustments for meter accuracy and other untracked water use.

[1] The City's Urban Water Management Plan reports higher historical retail water losses, averaging around 10%, possibly due to the age of its water infrastructure.

Table 5. SCWA Demand Factors

SCWA Land Use	Gross Unit Demand Factor (ac-ft/acre/year)	+ 7.5 % for losses (ac-ft/acre/year)	Factor Utilized (acre-ft /acre/year)
Rural Estate (RE) (1) (2)	1.37	1.47	1.47
Single Family (SF) (1) (2)	2.13	2.29	2.29
Multi-Family-Low-Density (MFLD) (1) (2)	2.44	2.62	2.62
Multi-Family-High-Density (MFHD) (1) (2)	3.33	3.58	3.58
Commercial (COM) (1) (2)	2.02	2.17	2.17
Industrial (IND) (1) (2)	2.02	2.17	2.17
Public (PUB) (1) (2)	0.81	0.87	0.87
Public Recreation (REC) (1) (2)	2.80	3.01	3.01
Mixed Land Use (MLU) (1) (2)	2.15	2.31	5.75 (3)
Right-Of-Way (ROW) (1) (2)	0.18	0.19	0.19
Self-supported/supplied by others (2)	0	0	0
Non-irrigated (2)	0	0	0
Industrial-unutilized (IUN) (1) (2)	0	0	0
Agricultural (2)	0	0	0
Water System Losses (7.5% of total sales)			

(1) Source: 2030 Unit Water Demand Factors, SCWA Water Study Approval Guideline, Table 1
(2) Source: Zone 40 WSIP Update 2016, Table 3-11
(3) See below for explanation of specially selected factor for UWS Commercial Mixed Use.

In comparison, the Gross Unit Water Use Factors for Study Areas per the City's Water Distribution System Criteria table, updated November 2016, are in broader categories and have higher residential factors. These factors include 10% for unaccounted water and 15% to account for rights-of-way and streets.

Table 6. City Demand Factors

City Land Use (1)	Gross Unit Water Use Factors for Study Areas (acre-ft/acre/year)	Factor Utilized (acre-ft/acre/year)
Residential Low (2)	3.6	3.6
Residential Medium (2)	3.8	3.8
Mixed Use	2.0	3.8 (3)
Commercial/Office	1.5	1.5
Industrial	0.9	0.9
Park	3.0	3.0
Water System Losses (10%, included in the above)		

(1) Source: City Water Distribution System Criteria Table, from their 2018 Water Study Design Manual
(2) The City's Design Manual (see Note 1) specifies water use factors for low and medium density but not high density. See Table 4 for how the proposed Specific Plan land uses were equated to City land use categories.
(3) See below for explanation of specially selected factor for UWS Commercial Mixed Use.

For this project, a special consideration is made for selecting a demand factor for Commercial Mixed Use land use areas. Areas that are assigned this land use are anticipated to be more similar to existing office/hotel and retail/residential spaces in the City than to a typical mixed use parcel, with densities closer to that of the Residential Medium designation. These areas will likely be a combination of office, hotel, retail, and residential, with a proposed land use density of 40 dwelling units per acre for multi-family residential, and 0.60 or 0.40 floor area ratio allowed for commercial (0.60 Town Center / 0.40 elsewhere). To account for this higher density, SCWA's demand factors for Multi Family – High Density and for Commercial land use are summed for a custom Mixed Use factor of 5.35 acre-ft/acre/year, or 5.75 acre-ft/acre/year including losses (see **Table 5**, above). Similarly, the City's demand factor for Mixed Use is raised from the typical 2.0 acre-ft/acre/year to match the Residential Medium factor of 3.8 acre-ft/acre/year (see **Table 6**, above).

3.3 Peaking Factors

The gross unit water use factors in **Table 5** and **Table 6** above are multiplied by the land use area to determine the Annual Demand and Average Day Demand (ADD). To calculate the Maximum Day Demand (MDD) and Peak Hour Demand (PHD), peaking factors are applied. SCWA and the City have different peaking factors as shown in **Table 7**.

Table 7. Demand Peaking Factors by Agency

Scenarios	SCWA (1)	City of Sacramento (2)
ADD to MDD	2	1.8
MDD to PHD	2	2
ADD to PHD	4	3.6

(1) Source: 2030 Unit Water Demand Factors, SCWA Water Study Approval Guideline, Table 1

(2) Source: City of Sacramento Department of Utilities based on recent data, due to landscape irrigation being restricted to two days per week. These factors differ from the City of Sacramento Water Distribution System Criteria Table, from their 2018 Water Study Design Manual

3.4 Water Demands

Land use areas, demand factors, and peaking factors were multiplied to find the Annual Demand, ADD, MDD, and PHD for both the SCWA and the City criteria. See **Table 8** below for a summary of the demand calculations. **Figure 1** compares the demand calculations between SCWA and the City. The full demand table is found in **Appendix 1**.

Table 8. Domestic Water Demand

	SCWA	City	Delta
Annual Demand (ac-ft/yr)	3,139	4,250	1,111
Average Day Demand (gpm)	1,946	2,635	689
Maximum Day Demand (gpm)	3,892	4,742	850
Peak Hour Demand (gpm)	7,784	9,485	1,701

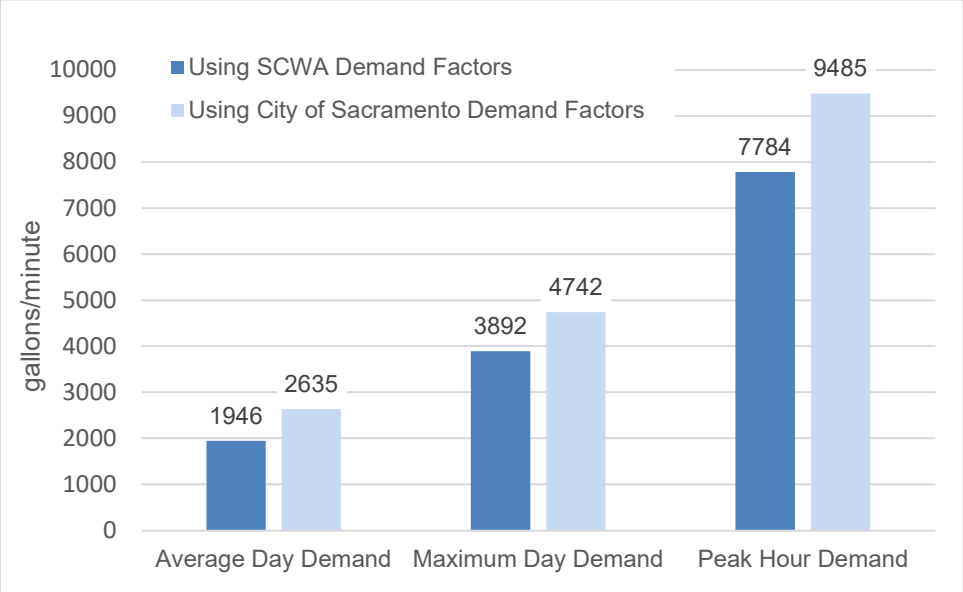


Figure 1. Comparison of Demands Based on SCWA and City Factors

The demand estimates are significantly higher using City criteria than SCWA criteria, for the following reasons:

- SCWA has a wider range of gross unit factors (1.37 to 3.33 ac-ft/ac/yr) to capture various residential densities from rural estate to multi-family high-density. The City, in contrast, uses 3.6 to 3.8 ac-ft/ac/yr for all residential land use, resulting in 57% higher Annual Demand for low density residential land use and 45% higher for medium density residential land use.

- City guidelines do not include a factor for public or school use (Institutional), therefore the Mixed Use factor was assumed.

- City guidelines include 10% for system losses, while the system losses for SCWA is assumed as 7.5%.

- For PHD, the City uses a peaking factor of 3.6 times the ADD, compared to SCWA's 4.0 x ADD. This makes the City projection of PHD 22% greater than SCWA's estimate, whereas the City projection of ADD is 36% greater than the SCWA's estimate of ADD.

For Average Day Demand, Maximum Day Demand, and Peak Hour Demand, the City factor-based demands will be used for conservative water system planning and analysis, since the domestic water demands as a result of the City's demand and peaking factors are higher than those using SCWA's factors (see **Figure 1)**. The selected domestic water demands are shown in **Table 9**.

Table 9 Domestic Water Demand Selection

	UWS Demands
Annual Demand (ac-ft/yr)	4,250
Average Day Demand (gpm)	2,635
Maximum Day Demand (gpm)	4,742
Peak Hour Demand (gpm)	9,485

3.5 Water Demands by Project Phase

UWS is currently proposed to be built out in four phases. See **Exhibit 2** for the current phasing plan. **Table 10** shows the area and land use that is proposed to be developed in each phase. Note that portions of the Plan Area will remain undeveloped for agriculture. The agricultural buffer along the west side of the Plan Area is proposed to be outside the Urban Services Boundary (USB). These areas are included in the Other column and are not anticipated to utilize urban domestic water. Therefore, they are not included in this Water Master Plan.

Table 10. Land Use Area Breakdown by Phase

Land Use	Phase 1 (ac)	Phase 2 (ac)	Phase 3 (ac)	Phase 4 (ac)	Other (ac)	Total (ac)
Roads	32	25	37	23	5	122
Agricultural Reserve	0	0	0	0	410	410
General Agriculture	0	0	0	0	86	86
Mixed Use	0	9	23	50	0	82
Commercial & Office	0	0	12	42	0	54
High Density Residential (RD-25)	7	15	0	15	0	36
Landscape Corridor	12	5	8	13	0	38
Low Density Residential (RD-5)	128	83	218	0	0	429
Low Density Residential (RD-7)	45	33	56	0	0	133
Medium Density Residential (RD-10)	14	9	31	8	0	63
Recreation	22	18	41	1	0	82

Land Use	Phase 1 (ac)	Phase 2 (ac)	Phase 3 (ac)	Phase 4 (ac)	Other (ac)	Total (ac)
Public/Quasi-Public	9	8	43	81	0	141
Agricultural Urban Reserve	10	6	23	6	0	45
High Density Residential (RD-40)	0	8	8	7	0	23
Low Density Residential (RD-2)	0	0	68	96	0	165
Public/Quasi-Public	4	2	2	8	0	15
Open Space	26	27	53	0	36	142
Total	**308**	**247**	**624**	**351**	**537**	**2,066**

Based on the proposed phasing, **Table 11** below is the annual water demand expected from each phase of development, using the City water use factors. Roads, Agricultural Reserve, General Agriculture, Public/Quasi-Public, and Natural Reserve areas are excluded as the City demand factor is zero. See **Figure 2** for a breakdown of water use by land use category at each phase.

Table 11. Annual Water Demand by Phase

Land Use Designation	Project Land Use (Zoning)	Phase1 (AFY)	Phase 2 (AFY)	Phase 3 (AFY)	Phase 4 (AFY)	Buildout (AFY)
RW	Roads	0(1)	0(1)	0(1)	0(1)	0(1)
CC	Commercial & Office	0.0	0.0	1.8	0.0	1.8
CMU	Mixed Use	0.0	32.6	89.0	190.0	311.6
E/HC	Commercial & Office	0.0	0.0	16.7	62.7	79.4
HDR	High Density Residential (RD-25)	26.2	56.0	0.0	56.1	138.3
LC	Landscape Corridor	36.8	15.1	23.9	38.9	114.7
LDR	Low Density Residential (RD-5)	462.1	298.2	785.0	0.0	1545.2
LMDR	Low Density Residential (RD-7)	160.3	117.8	200.6	0.0	478.7
MDR	Medium Density Residential (RD-10)	54.1	33.1	119.5	31.0	237.6
P	Recreation	66.4	53.5	122.6	4.3	246.8
SCHOOL	Public/Quasi-Public	17.2	16.9	85.9	162.1	282.1
UF	Agricultural Urban Reserve	28.7	17.7	70.3	18.7	135.4
VHDR	High Density Residential (RD-40)	0.0	29.0	28.5	28.5	86.0
VLDR	Low Density Residential (RD-2)	0.0	0.0	245.5	346.8	592.2
Total		**851.8**	**669.7**	**1,789.3**	**939.0**	**4,249.8**

(1) *To account for rights-of-way and streets, City demands add 15% onto the other land use zones*

The annual water demands by phase translate to the Average Day Demand, Maximum Day Demand, and Peak Hour Demand shown in **Table 12**, by unit conversion and the use of peaking factors from **Table 7**.

Table 12 Average Day Demand, Maximum Day Demand, and Peak Hour Demand by Phase

Land Use Designation	Project Land Use (Zoning)	Phase 1			Phase 2			Phase 3			Phase 4		
		Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)
RW	Roads	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]	0[(1)]
CC	Commercial & Office	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.1	4.1	0.0	0.0	0.0
CMU	Mixed Use	0.0	0.0	0.0	20.2	36.4	72.8	55.2	99.3	198.5	117.8	212.0	424.0
E/HC	Commercial & Office	0.0	0.0	0.0	0.0	0.0	0.0	10.4	18.6	37.3	38.9	69.9	139.9
HDR	High Density Residential (RD-25)	16.2	29.2	58.4	34.7	62.5	125.0	0.0	0.0	0.0	34.8	62.6	125.2
LC	Landscape Corridor	22.8	41.1	82.1	9.3	16.8	33.6	14.8	26.7	53.4	24.1	43.4	86.8
LDR	Low Density Residential (RD-5)	286.5	515.6	1031.3	184.9	332.7	665.5	486.7	876.0	1752.0	0.0	0.0	0.0
LMDR	Low Density Residential (RD-7)	99.4	178.9	357.8	73.0	131.4	262.9	124.4	223.9	447.7	0.0	0.0	0.0
MDR	Medium Density Residential (RD-10)	33.6	60.4	120.8	20.5	36.9	73.8	74.1	133.3	266.6	19.2	34.6	69.1
P	Recreation	41.1	74.1	148.1	33.2	59.7	119.4	76.0	136.9	273.7	2.7	4.8	9.5
SCHOOL	Public/Quasi-Public	10.7	19.2	38.4	10.5	18.9	37.8	53.2	95.8	191.6	100.5	180.9	361.9
UF	Agricultural Urban Reserve	17.8	32.1	64.1	10.9	19.7	39.4	43.6	78.4	156.9	11.6	20.9	41.8
VHDR	High Density Residential (RD-40)	0.0	0.0	0.0	18.0	32.3	64.6	17.7	31.8	63.6	17.7	31.8	63.6
VLDR	Low Density Residential (RD-2)	0.0	0.0	0.0	0.0	0.0	0.0	152.2	273.9	547.9	215.0	387.0	773.9
Total		**528**	**951**	**1,901**	**415**	**747**	**1,495**	**1,109**	**1,997**	**3,993**	**582**	**1,048**	**2,096**

(1) To account for rights-of-way and streets, City demands add 15% onto the other land use zones

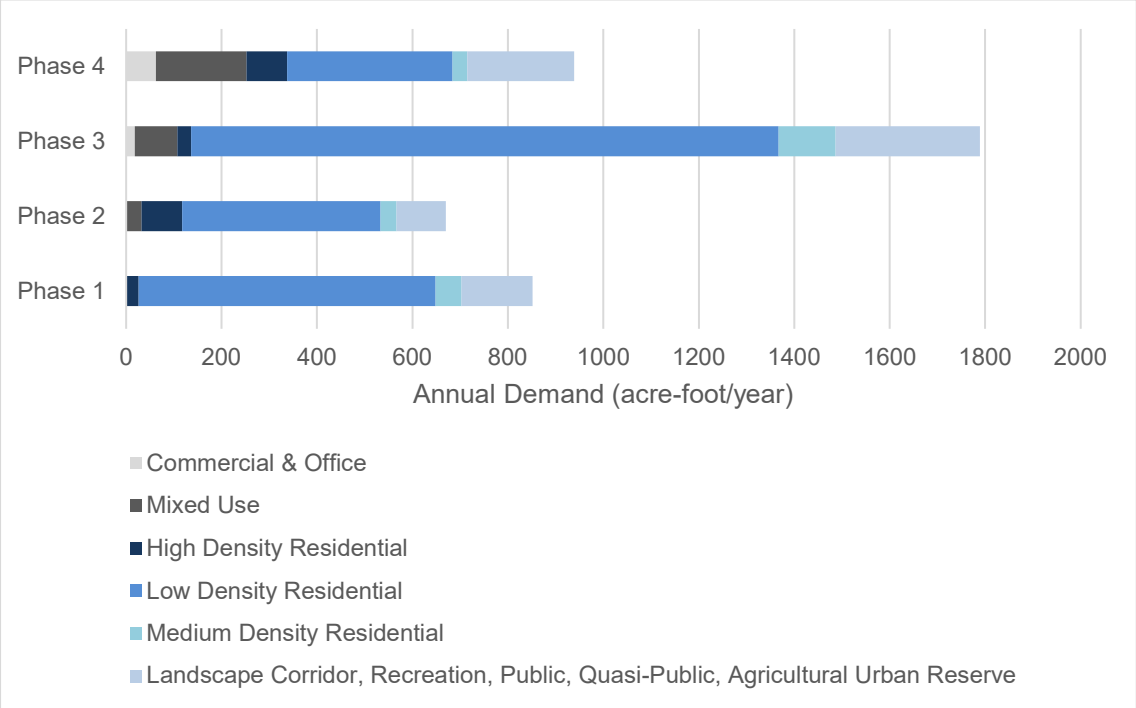


Figure 2. Annual Demands by Project Phase

3.6 Canal Make-up Water

It is anticipated that a make-up well will be required to maintain the water surface elevation within the Upper Westside canal stretching from Street 1 to Street 7 through the proposed town center. It is anticipated that a 1,500 gallon per minute well will provide make-up water in the canal. Further geotechnical investigation with design will be required to determine loss rates and sizing of the proposed well.

3.7 Conclusion

This section summarizes the proposed land use for UWS and compares the demand factors and peaking factors of SCWA and the City. At this time, it is not known which entity will be the water purveyor for the Plan Area. The City is anticipated to provide treated water to UWS, and SCWA will likely retail the water to customers. SCWA and the City have different guidelines and criteria that yield different estimates of

domestic water demand. For the most conservative approach, UWS will utilize the City's demand estimates, which provides the higher total demand.

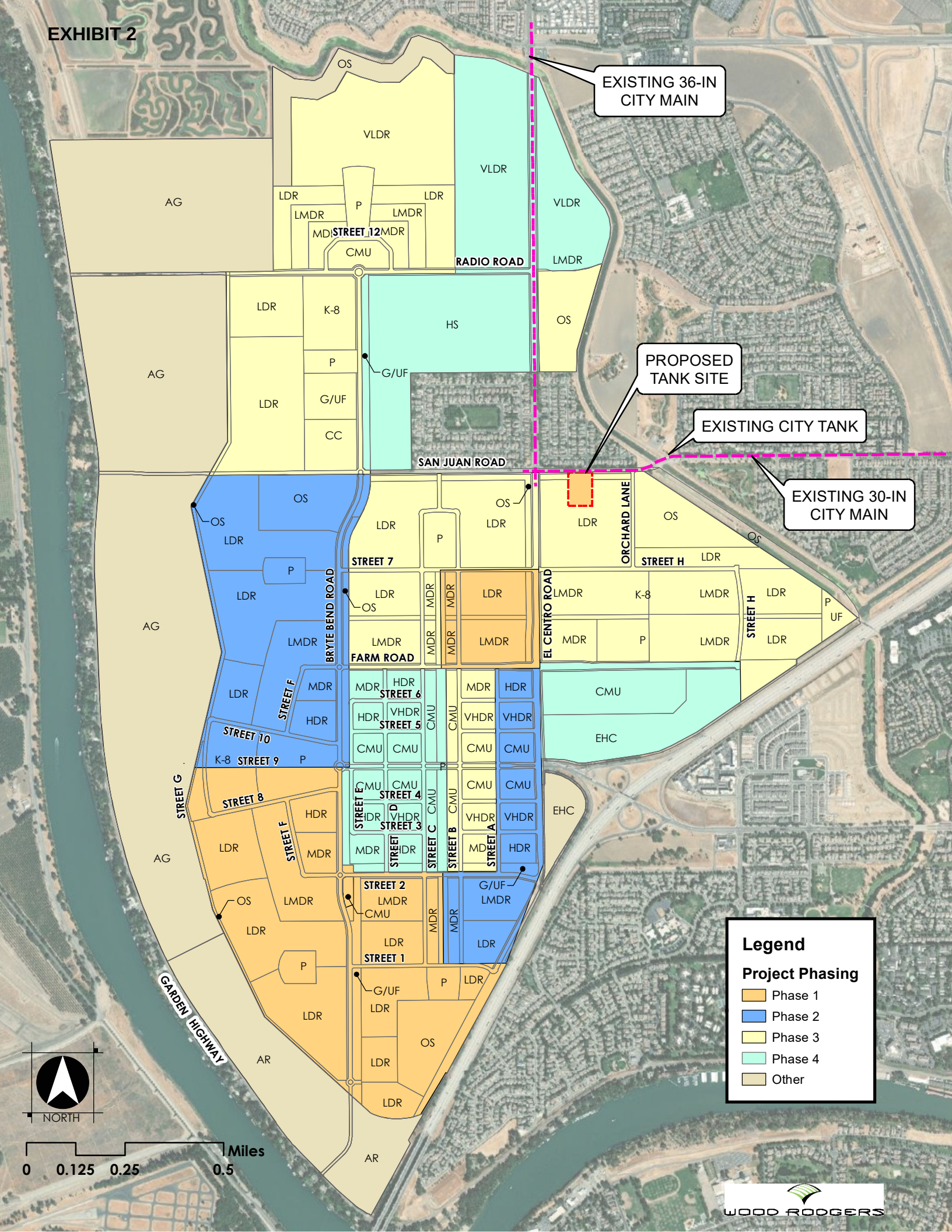


EXHIBIT 2
EXISTING 36-IN CITY MAIN
PROPOSED TANK SITE
EXISTING CITY TANK
EXISTING 30-IN CITY MAIN
RADIO ROAD
SAN JUAN ROAD
FARM ROAD
BRYTE BEND ROAD
EL CENTRO ROAD
ORCHARD LANE
GARDEN HIGHWAY
STREET 1
STREET 2
STREET 3
STREET 4
STREET 5
STREET 6
STREET 7
STREET 8
STREET 9
STREET 10
STREET 12
STREET A
STREET B
STREET C
STREET D
STREET E
STREET F
STREET G
STREET H
AG
AR
VLDR
LDR
LMDR
MDR
HDR
VHDR
CMU
EHC
HS
K-8
P
G/UF
CC
OS
UF
Legend
Project Phasing
Phase 1
Phase 2
Phase 3
Phase 4
Other
NORTH
0
0.125
0.25
0.5
Miles
WOOD RODGERS

4.0 WATER SYSTEM IMPROVEMENT ANALYSIS

This section discusses the hydraulic modeling and analysis performed to support the proposed Upper Westside development.

The analysis used the following methodology:

- The existing City water system adjacent to the project was reviewed, as the backbone infrastructure pipes for UWS are proposed to make connections to existing transmission mains.
- Performance criteria for the proposed pipe system were set based on both City and SCWA standards, as discussed in **Section 2.02.0 System Criteria**.
- A hydraulic pipe network model was developed based on the proposed backbone infrastructure layout.
- The model was used to simulate the City system supplying the proposed system with the domestic and fire demands calculated in **Section 3.03.0 Water Demand Estimate**. The modeled system was evaluated against sizing and operating criteria set in **Section 2.0**.

4.1 Existing System

The City currently retails and delivers water to the vicinity of the proposed project. This includes retailing to areas outside the City Limits and the West Drainage Canal. Existing City water infrastructure in the vicinity of UWS includes 36-inch and 30-inch transmission mains in El Centro Road and San Juan Road, north and east of their intersection, as shown in **Exhibit 2** and in **Exhibit 4**. El Centro Road also has an existing 12-inch distribution main, from Arena Boulevard (Natomas Central Drive) south to Interstate 80, and San Juan Road has roughly 1,600 LF of 12-inch distribution main west of El Centro Road.

There is an existing tank, San Juan Reservoir, on San Juan Road east of El Centro Road (see **Exhibit 4**). The partially underground tank has a capacity of 3 MG and includes a pump station. It is one of twelve storage reservoirs that the City operates (see **Section 5.0** for a discussion of City water supply facilities). The pump at San Juan Reservoir is operated to supplement pressure during Peak Hour Demand and

during fire flow, as well as in emergencies (see email correspondence with the City consultant West Yost, November 15, 2021).

4.2 Proposed Backbone Infrastructure

As shown on **Exhibit 3**, the proposed backbone water infrastructure for UWS will differ based on whether the County or the City manages the public water mains in UWS. The way in which UWS makes connections to the existing City water system will also depend on the retail water purveyor, as described below.

Scenario I (SCWA retail)

If the water system is operated by SCWA, El Centro Road and Street 2 are proposed to have a 16-inch transmission main. Mains proposed everywhere else will be 8- and 12-inch. See **Exhibit 3**. Where County mains are proposed parallel to existing City mains in the same street, adequate horizontal separation should be maintained to protect existing pipes. There will be two proposed metered connections to the existing City transmission main: one at the intersection of San Juan Road and El Centro Road, and one at Radio Road and El Centro Road. The City will use the meters to track wholesale water deliveries to SCWA. The City requires a reduced pressure backflow or an air gap at each tie-in that SCWA makes to the City system. The point of connection (POC) at San Juan Road and El Centro Road is intended to initially be a metered connection with a backflow and booster pump[2], later converted to a water storage tank (i.e. air gap) and booster pump facility to serve UWS at buildout. The point of connection at Radio Road and El Centro Road will consist of a meter and backflow, and it is intended to be a backup to the San Juan Road POC.

Scenario II (City retail)

If the City were to expand its water distribution system to serve UWS, the proposed system would consist of 8- and 12-inch distribution mains, which connect to existing City mains in San Juan Road and El Centro Road. Along San Juan Road, an 18-inch transmission main will be extended from the existing 30-

[2] Scenario I (SCWA retail) Phase 1 booster pump: approximately 15 HP or less pump on a variable frequency drive, with a bladder tank to handle low flows. A more formal design report is anticipated prior to these facilities being constructed.

inch main, as well as a 12-inch distribution main extended from the existing 12-inch. Along El Centro Road, multiple tie-ins will be made to the existing 12-inch main, which crosses Interstate 80 near Barandas Drive into the existing City main network southeast of the project. The project also proposes a connection with 12-inch pipe, between the southern end of UWS to the City system on the other side of Interstate 80. The connection may be accomplished via a bore-and-jack under the freeway. As required by the City, this connection provides for a better looped system to serve phase one.

In either scenario, backbone distribution mains of 8- and 12-inch pipes will be located in major backbone streets: El Centro Road, Bryte Bend Road, Radio Road, San Juan Road, Farm Road, West El Camino, and Street 2. See **Exhibit 3** for the proposed distribution main layout. The hydraulic model of the Plan Area at this stage includes pipes in the backbone streets, listed above, as well as some additional 8-inch and 12-inch pipes along in-tract roads (based on a preliminary lotting layout) to demonstrate how the distribution mains will be looped. The proposed pipe network was modeled to ensure pipes are adequately sized to support this development. As detailed lot layouts develop in the future, additional distribution mains will be added to serve adjacent customers, and these will further improve available pressures in the system.

4.3 Demands

Land use and the resulting expected water demand from UWS are discussed in Section 3.0 Water Demand Estimate. See Table 11 of the previous section for a summary of water demand expected from each phase.

4.4 Hydraulic Model

The proposed backbone water infrastructure for UWS is evaluated using the hydraulic modeling program H2ONET (version 16.0) developed by Innovyze. The model consists of the proposed backbone transmission and distribution pipes, connected to a fictitious reservoir and pump that represents the system pressure of the existing City water system (see **Section E. Existing Boundary Conditions** for more information).

In H2ONet, pipes are represented by link elements with an assigned roughness coefficient, size, and length. Per **Section 2.0 System Criteria**, a roughness coefficient of 125 is used for all pipes.

Links are joined by nodes, to which the surface elevation and water demand are assigned. For simplicity, ground surface elevations are used for all nodes, valves, and the pump. Elevations for proposed nodes are taken from the master grading exhibit for UWS prepared in September 2021 by Wood Rodgers. Any future changes to the proposed grading maybe incorporated into the model and the system re-evaluated at that time. Elevations in the model use the North American Vertical Datum of 1988.

Two sets of hydraulic models were developed to reflect the facilities proposed in two different scenarios: *Scenario I*, where the public water mains in UWS are part of the SCWA system; and *Scenario II*, where they belong to the City system. In the former scenario, at the two proposed metered connections to existing City transmission mains, general valve elements are modeled with head loss curves to represent head loss through the meters. A typical meter head loss curve is used and should be replaced if a specific model is specified by the water retailer. Downstream of each meter, another general valve element is modeled to represent a reduced pressure backflow device, as required by the City.

The project proposes a domestic water tank site with a booster pump station at southeast of the intersection of San Juan Road and El Centro Road. The storage tank would be constructed in *Scenario I*, for SCWA to store water that supports UWS in times of peak usage during the day, and in fire flow events. It may also provide domestic water during emergencies that affect the water supply from the City. The storage tank and booster pump station are not anticipated to be required for the first phase of residential development in *Scenario I*. However, it may be required prior to construction of the school site located in phase two. Modeling was performed as worst case scenario with no on-site tank during phase one. Ultimate timing of the tank and booster pump will be subject to Agency requirements.

The tank facility for *Scenario I (SCWA retail)* is modeled as a ground-level reservoir at this time, with a generic pump curve representing the additional head the booster pump system supplies. The tank size is assumed to be adequate to meet peak hour demand, fire flow demand, and emergency storage, although the exact size required will be confirmed at a later date with consideration given to the overall City system

capacity. The existing San Juan Reservoir just east of the Plan Area is not explicitly modeled since its operations are accounted for in the model boundary curve the City provided (see following **Section E. Model Boundary Conditions**.)

As previously discussed in **Section 2.02.0 System Criteria**, the system must meet certain operating goals and performance criteria of the water purveyor. These criteria include acceptable ranges for pressure, velocity, and head loss during domestic and fire flow scenarios, as well as storage requirements. To ensure proper sizing and layout of the backbone water distribution system to meet all operating criteria in all development phases, the hydraulic model developed simulates various demand scenarios.

4.5 Model Boundary Conditions

The City provided a water pressure curve from the City's water system model to be used as the boundary condition for the UWS model[3]. Per West Yost on November 29, 2021, the curve represents the City system response for all scenarios (ADD, MDD, PHD, and fire flow concurrent with MDD) at the intersection of San Juan Road and El Centro Road. The curve (head versus flow) is based on a ground elevation of 14 feet at this intersection, and it is assumed all City pipes are functioning (see email from City DOU, May 21, 2021, and from the City's consultant West Yost, November 19, 2021, **Appendix 2**). During peak events including Peak Hour Demand and fire flow, the San Juan Reservoir and other existing storage tanks throughout the City supplement the system in order to meet the required flow rate and duration. This is reflected in the boundary condition curve provided by the City and as shown in **Figure 3**.

[3] Received November 19, 2021

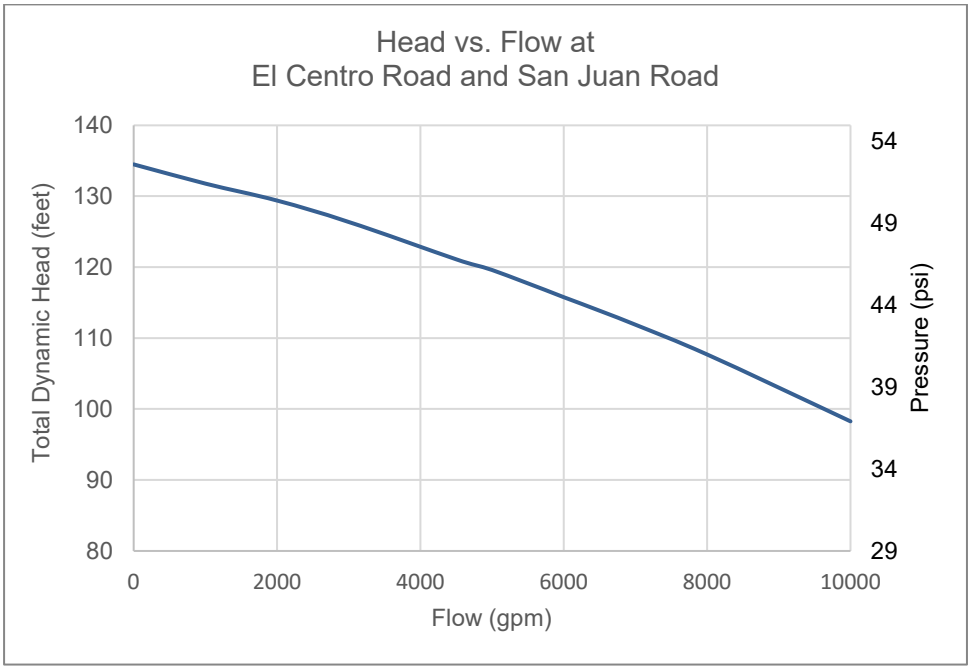


Figure 3. Model Boundary Curve (El Centro Road at San Juan Road)

The curve above gives the available pressure at the San Juan/El Centro point of connection for the various flow rates demanded by UWS. The curve is derived from a multi-day simulation in the City model and is representative of the City system's performance during maximum day, peak hour, and fire events (per conversation with West Yost on June 21, 2022). Refer to **Table 12** of **Section 3.03.0 Water Demand Estimate** for the Water System Scenario Demands.

Following additional discussion between the City and Wood Rodgers, on October 18, 2022, the City provided a second curve derived from their system model at the 12-inch water main connecting Barandas Drive and El Centro Road. See **Figure 4** below. If the City becomes the water retailer for UWS (*Scenario II*), this existing segment of pipe crossing Interstate 80 will serve as one of three proposed points of connection for the project. This curve is also assumed to be at a ground elevation of 14 feet.

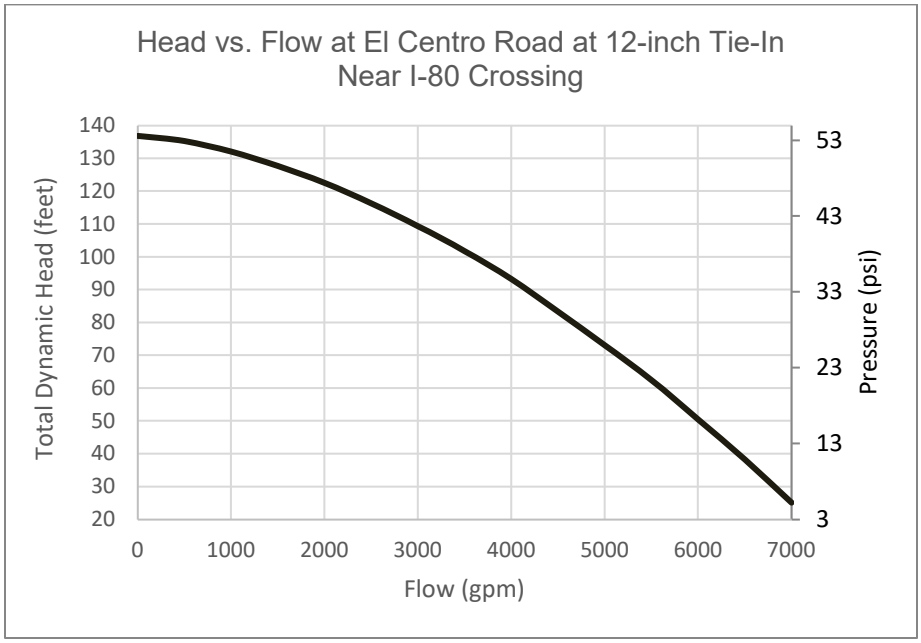


Figure 4. Model Boundary Curve (El Centro Road, South)

In the hydraulic model, the existing City water system adjacent to UWS is modeled with a fictitious reservoir and pump. The fictitious reservoir and pump feed the existing 30-inch and 36-inch City transmission mains in San Juan Road and El Centro Road, respectively, via nodes T010 and T040 (see **Figure 3**) using zero-loss pipes. A fixed hydraulic grade line (HGL) is assumed over T10 and T04. The fixed HGL is based on the City-provided curve at the intersection of San Juan and El Centro. The two *physical* tie-ins to the existing City system are located upstream of the two proposed meters, one near T020 and one near T030, as shown in **Figure 3**. However, in the rest of **Section 4.0**, "model points of connection" refers to nodes T010 and T040.

The locations, elevations, starting pressure, and HGLs at the project connection points are presented for *Scenario I* and *Scenario II*, in **Table 13** and **Table 14**. The HGLs are based on the City-provided curves at an elevation of 14 feet per the City model. Assuming a fixed HGL on the City side, the pressure available at each modeled points of connection are as shown below.

Table 13. Boundary Conditions – *Scenario I (SCWA retail)*

Model Point of Connection	Main Size (inch)	Elev. (ft)	ADD		MDD		PHD		MDD+FF	
			Pressure (psi)	HGL[(1)] (ft)	Pressure (psi)	HGL[(1)] (ft)	Pressure (psi)	HGL[(1)] (ft)	Pressure (psi)	HGL[(1)] (ft)
El Centro Road at T010	36	17.6	47.6	127.5	44.6	120.4	36.1	100.8	36.5	101.9
San Juan Road at T040	30	14.4	49.0		46.0		37.5		37.9	

(1) HGL is calculated based on elevation head of 14 feet at the intersection of El Centro and San Juan Road, per City DOU

Table 14. Boundary Conditions – *Scenario II (DOU retail)*

Model Point of Connection	Main Size (inch)	Elev. (ft)	ADD		MDD		PHD		MDD+FF	
			Pressure (psi)	HGL[(1)] (ft)	Pressure (psi)	HGL[(1)] (ft)	Pressure (psi)	HGL[(1)] (ft)	Pressure (psi)	HGL[(1)] (ft)
El Centro Road at T010	36	17.6	48.8	130.1	46.6	125.1	40.7	111.4	40.6	111.3
San Juan Road at T040	30	14.4	50.2		48.0		42.1		42.0	
El Centro Road Crossing to Barandas Drive at J_BRD	12	14.0	51.3	132.5	49.7	128.8	45.0	117.9	46.5	121.3
Southern Crossing to West River Drive at J_WRD	12	13.0	51.8		50.2		45.5		46.9	

(2) For T010 and T040, HGL is calculated based on elevation head of 14 feet at the intersection of El Centro and San Juan Road, per City DOU

4.6 Modeling Scenarios

The proposed system was modeled for two possible layouts based on purveyor (*Scenario I* and *Scenario II*) as described above, with six demand cases: average day, maximum day, peak hour, and maximum day plus fire flow at three different locations.

For *Scenario I (SCWA retail)*, Phase 1 relies on the existing City water system and a proposed booster pump to meet pressure criteria. The existing City water system includes the San Juan reservoir. The proposed onsite tank and a booster pump station is hydraulically required in Phase 2, but the timing will ultimately be subject to Agency requirements.

For *Scenario II (DOU retail)*, the City water supply has adequate pressure for UWS to meet the criteria set in Section II with three tie-ins to existing pipes. This is the case for all phases of development and for all domestic and fire flow scenarios modeled.

The fire flow scenarios assume a fire event occurs under the maximum day demand condition. As the largest required fire flow would occur at the proposed K-8 school site off of Bryte Bend Road or at the proposed high school site on Radio Road, a fire event is modeled at node J072 and at J023, each for a flow rate of 4,500 gpm (per **Section 2.0 System Criteria, Table 3**). An additional fire scenario is created for 2,000 gpm (single family residential) at node J040, farthest south from the fictitious reservoir. Following the proposed project phasing presented in **Exhibit 2**, the school fire flow of 4,500 gpm first becomes necessary with completion of the K-8 site in Phase 2. Phase 1 infrastructure only needs to support a 2,000 gpm residential fire flow, which is possible without the tank and booster pump station.

4.7 Modeling Results

Table 15 and **Table 16** summarize results for ADD, MDD, PHD, and MDD plus Fire Flow Scenarios. Detailed results for the demand scenarios are in **Appendix 3.**

Table 15. Modeling Results – *Scenario I (SCWA retail)*

Demand Scenario	Minimum Pressure Onsite, Transmission Main (psi)	Criteria	Minimum Pressure Onsite, Distribution Main (psi)	Criteria	Maximum Velocity (fps)	Criteria
Average Day Demand (3)	50.7	40 (1)	51.7	35 (1)	1.9	5 (2)
Maximum Day Demand (3)	50.7		50.2		3.4	5 (1)
Peak Hour Demand (3)	46.6		44.6		6.7	7 (1)
Maximum Day Demand plus 4,500 gpm Fire Flow at J023 (4)	48.5	25 (1)	29.2	20 (1) (2)	7.9	10 (1)
Maximum Day Demand plus 4,500 gpm Fire Flow at J072 (3)	42.3		33.7		6.6	
Maximum Day Demand plus 2,000 gpm Fire Flow at J040 (3)	48.3		44.7		4.8	

(1) Per SCWA
(2) Per City DOU
(3) Booster pump station is modeled to provide a pressure increase of 54 psi
(4) Booster pump station is modeled to provide a pressure increase of 63 psi

Table 16. Modeling Results – *Scenario II (DOU retail)*

Demand Scenario	Minimum Pressure Onsite, Transmission Main (psi)	Criteria	Minimum Pressure Onsite, Distribution Main (psi)	Criteria	Maximum Velocity (fps)	Criteria
Average Day Demand	48.3	30 (2)	48.9	30 (2)	2.0	5 (2)
Maximum Day Demand	46.8		45.7		3.0	5 (1)
Peak Hour Demand	41.1		37.2		5.2	7 (1)
Maximum Day Demand plus 4,500 gpm Fire Flow at J023	41.0	25 (1)	28.0	20 (1) (2)	7.8	10 (1)
Maximum Day Demand plus 4,500 gpm Fire Flow at J072	42.0		28.1		6.2	
Maximum Day Demand plus 2,000 gpm Fire Flow at J040	44.8		40.8		4.0	

(1) Per SCWA
(2) Per City DOU

During both purveyor scenarios and for all modeled demands, system pressures meet all criteria considered in **Section 2.0**. Pipe flow velocities onsite also stay within the City's and SCWA's operating criteria.

4.8 Conclusion

This water model has been prepared in accordance with the County of Sacramento Zone 40's WSIP and the City of Sacramento Water Distribution System Criteria. Based on the proposed land use, boundary conditions, and generally accepted water modeling practices, the system as proposed will meet the operating requirements set in **Section 2.0**. As more detailed layouts are designed in the future, and distribution mains added, further analysis may be needed to verify the layout and sizing of additional mains.

EXHIBIT 3

UPPER WESTSIDE WATER MASTER PLAN - MODEL LAYOUT

MAJOR WATER INFRASTRUCTURE SCENARIOS I & II

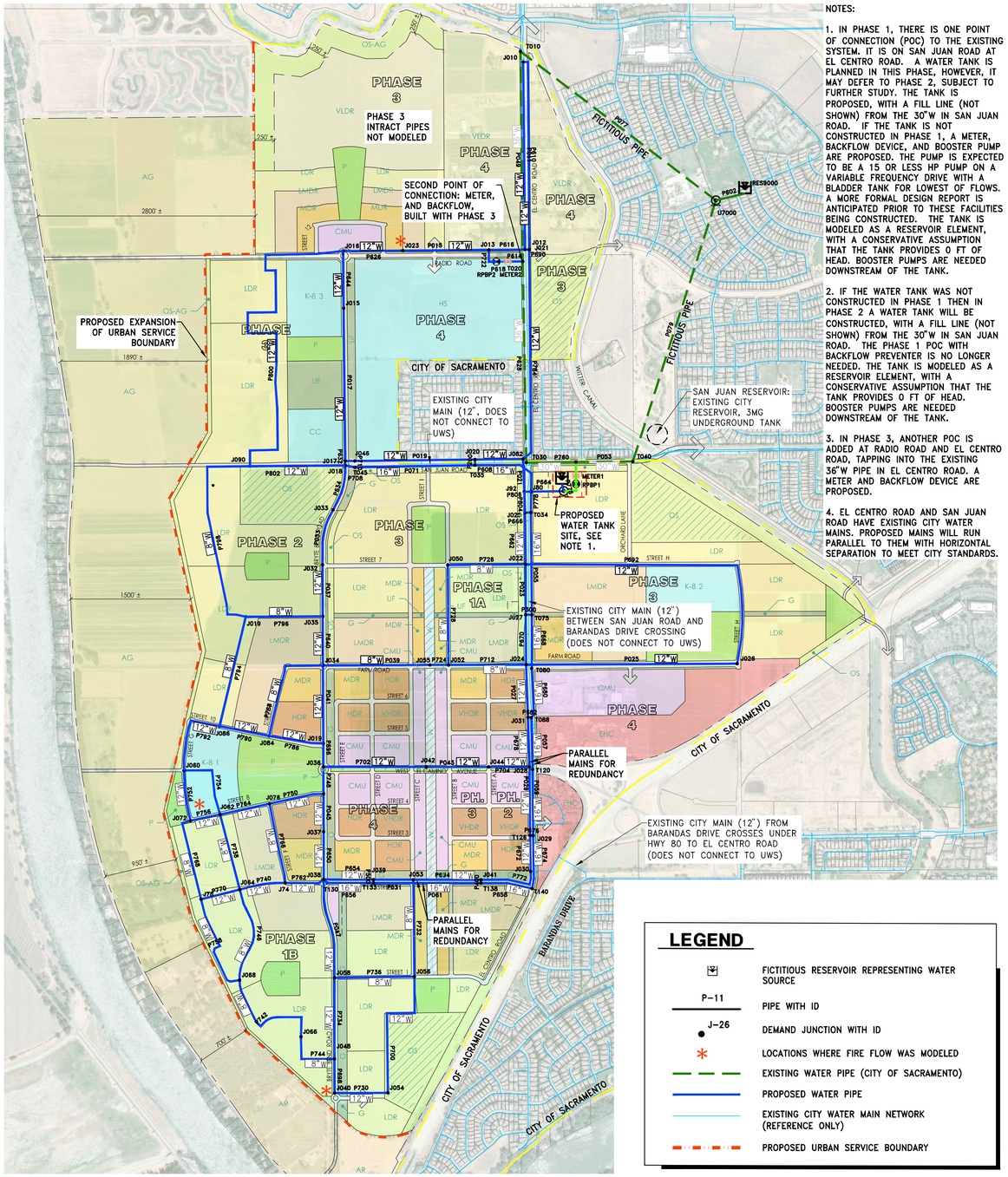
SACRAMENTO COUNTY, CALIFORNIA

AUGUST 4, 2023

800' 400' 0 800'

SCALE: 1" = 800'

SCENARIO I: SCWA AS WATER PURVEYOR, CITY PROVIDES WHOLESALE WATER



NOTES:

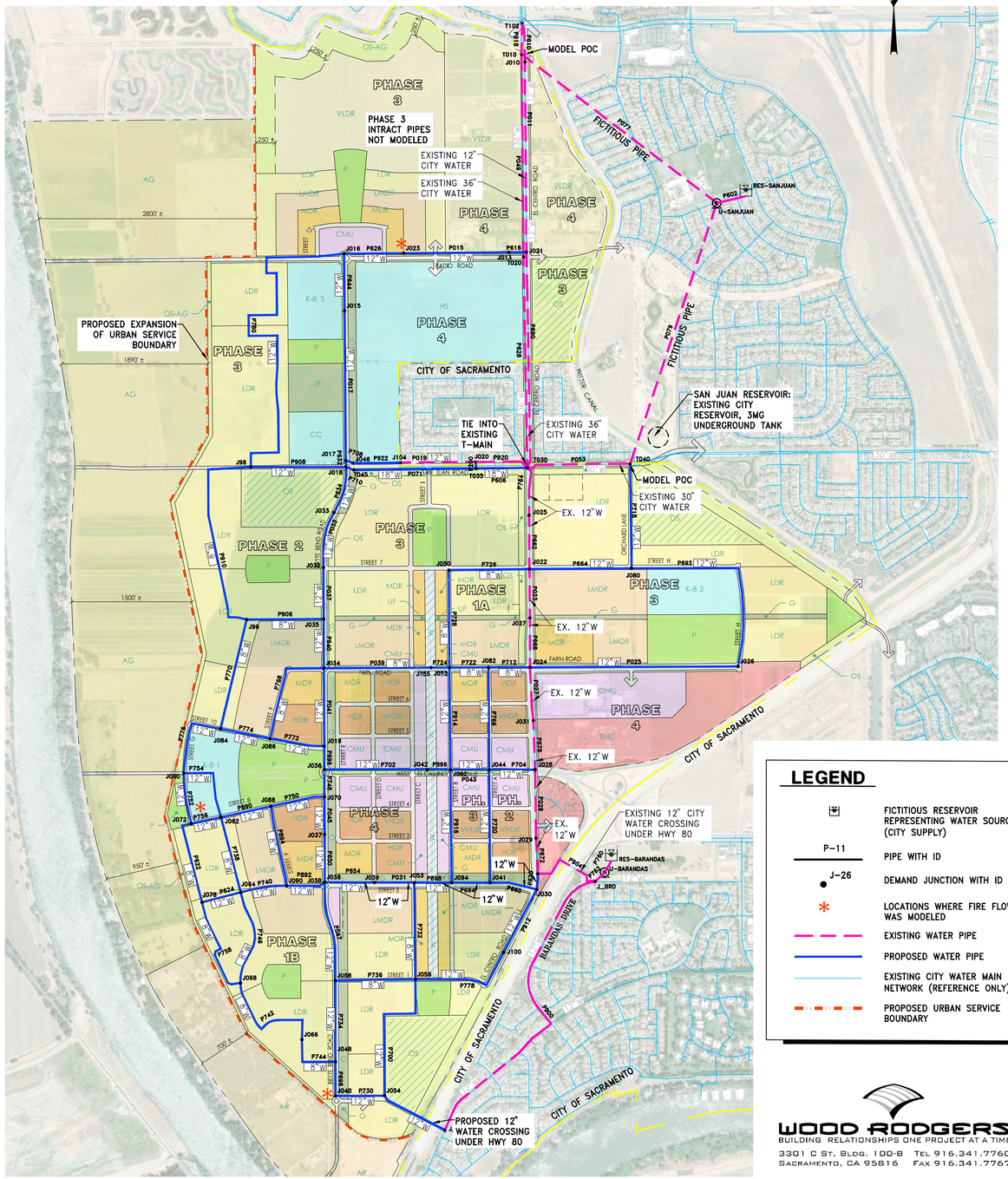
1. IN PHASE 1, THERE IS ONE POINT OF CONNECTION (POC) TO THE EXISTING SYSTEM. IT IS ON SAN JUAN ROAD AT EL CENTRO ROAD. A WATER TANK IS PLANNED IN THIS PHASE, HOWEVER, IT MAY DEFER TO PHASE 2, SUBJECT TO FURTHER STUDY. THE TANK IS PROPOSED, WITH A FILL LINE (NOT SHOWN) FROM THE 30"W IN SAN JUAN ROAD. IF THE TANK IS NOT CONSTRUCTED IN PHASE 1, A METER, BACKFLOW DEVICE, AND BOOSTER PUMP ARE PROPOSED. THE PUMP IS EXPECTED TO BE A 15 OR LESS HP PUMP ON A VARIABLE FREQUENCY DRIVE WITH A BLADDER TANK FOR LOWEST OF FLOWS. A MORE FORMAL DESIGN REPORT IS ANTICIPATED PRIOR TO THESE FACILITIES BEING CONSTRUCTED. THE TANK IS MODELED AS A RESERVOIR ELEMENT, WITH A CONSERVATIVE ASSUMPTION THAT THE TANK PROVIDES 0 FT OF HEAD. BOOSTER PUMPS ARE NEEDED DOWNSTREAM OF THE TANK.

2. IF THE WATER TANK WAS NOT CONSTRUCTED IN PHASE 1 THEN IN PHASE 2 A WATER TANK WILL BE CONSTRUCTED, WITH A FILL LINE (NOT SHOWN) FROM THE 30"W IN SAN JUAN ROAD. THE PHASE 1 POC WITH BACKFLOW PREVENTER IS NO LONGER NEEDED. THE TANK IS MODELED AS A RESERVOIR ELEMENT, WITH A CONSERVATIVE ASSUMPTION THAT THE TANK PROVIDES 0 FT OF HEAD. BOOSTER PUMPS ARE NEEDED DOWNSTREAM OF THE TANK.

3. IN PHASE 3, ANOTHER POC IS ADDED AT RADIO ROAD AND EL CENTRO ROAD, TAPPING INTO THE EXISTING 36"W PIPE IN EL CENTRO ROAD. A METER AND BACKFLOW DEVICE ARE PROPOSED.

4. EL CENTRO ROAD AND SAN JUAN ROAD HAVE EXISTING CITY WATER MAINS. PROPOSED MAINS WILL RUN PARALLEL TO THEM WITH HORIZONTAL SEPARATION TO MEET CITY STANDARDS.

SCENARIO II: CITY AS WATER PURVEYOR



LEGEND

- FICTITIOUS RESERVOIR REPRESENTING WATER SOURCE
- P-11 — PIPE WITH ID
- J-26 — DEMAND JUNCTION WITH ID
- LOCATIONS WHERE FIRE FLOW WAS MODELED
- EXISTING WATER PIPE (CITY OF SACRAMENTO)
- PROPOSED WATER PIPE
- EXISTING CITY WATER MAIN NETWORK (REFERENCE ONLY)
- PROPOSED URBAN SERVICE BOUNDARY

LEGEND

- FICTITIOUS RESERVOIR REPRESENTING WATER SOURCE (CITY SUPPLY)
- P-11 — PIPE WITH ID
- J-26 — DEMAND JUNCTION WITH ID
- LOCATIONS WHERE FIRE FLOW WAS MODELED
- EXISTING WATER PIPE
- PROPOSED WATER PIPE
- EXISTING CITY WATER MAIN NETWORK (REFERENCE ONLY)
- PROPOSED URBAN SERVICE BOUNDARY

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5.0 WATER SUPPLY SOURCES AND AVAILABILITY

The purpose of this section is to provide an overview of water supply sources and existing City water facilities available to the Plan Area. The information is taken from the City's 2020 Urban Water Management Plan (UWMP), dated May 2021.

5.1 Water Distribution Facilities

As described in the UWMP, the City produces, treats, stores, and delivers potable water to residential, commercial, and irrigation customers over a retail service area of about 101 square miles. It also wholesales water to customers including SCWA. The City's distribution system consists of two surface water treatment facilities, two pressure zones, groundwater wells, storage tanks, pumping facilities, and distribution/transmission pipelines (refer to **3.3 Water System Description** of the 2020 UWMP). Each of these facilities are summarized below, and the locations of the major facilities are shown on **Exhibit 4**.

Surface Water Supply and Treatment Facilities

The City treats surface water diverted from the Sacramento and American Rivers with two water treatment facilities: the Sacramento River Water Treatment Plant (SRWTP) and the E.A. Fairbairn Water Treatment Plant (EAFWTP). The locations of the water treatment plants are shown on **Exhibit 4**.

Sacramento River Water Treatment Plant (SRWTP)

The SRWTP, located just east of Interstate 5 and south of Richards Boulevard, treats water that is pumped from the Sacramento River about one-half mile downstream of the American River confluence (**Exhibit 4**). The City is permitted to operate the plant at 160 million gallons per day (MGD) in the summer months and 120 MGD for the rest of the year. The City is currently evaluating further expansion of the SRWTP to increase the diversion and treatment capacity to 310 MGD.

E. A. Fairbairn Water Treatment Plant (EAFWTP)

The EAFWTP is located on the south bank of the lower American River near Sacramento State University, approximately seven miles upstream from its confluence with the Sacramento River (**Exhibit 4**). The EAFWTP is currently rated at a diversion capacity of 200 MGD, with a permitted treatment capacity of 160 MGD (80 MGD for Basins 1 and 2, and 80 MGD for Basins 3 and 4). However, the

EAFWTP operates at reduced capacities as required by environmental and water rights agreements discussed below, as well as due to poor condition of some of its plant facilities (see UWMP **3.3.1**).

As a participant in the Sacramento area's regional Water Forum, the City's American River diversions at the EAFWTP is limited by environmental factors as specified by its Purveyor Specific Agreement (PSA). The City's PSA limits the diversion at the EAFWTP to 50,000 AF during extremely dry years, known as Conference Years (years with projected unimpaired inflow into Folsom Reservoir of 400,000 AF or less during March through November, or 550,000 AF or less for the whole year). During all other years (non-Conference Years), Hodge Flow conditions (flows determined by Judge Richard Hodge in 1987 litigation) limit the diversions from the American River during certain periods of the year based on the observed flow rate of the river, as shown in **Table 17**.

Table 17. Hodge Decision Flow Criteria

Period	American River Hodge Flow Criteria (cfs)(1)	Maximum Diversion Allowed (MGD)
January through February	2,000	77.6
March through May	3,000	77.6
June	3,000	100.2
July through August	1,750	100.2
September	1,750	77.6
October 1st through 14th	1,750	64.6
October 15th through December	2,000	64.6

Source: City UWMP Table 6-10 and Table 6-11

(1) During this table's time period, when the American River flow passing by the EAFWTP intake is less than the Hodge Flow, diversions to the EAFWTP are limited to this table's assigned Maximum Diversion Allowed. When observed flows exceed the Hodge Flow Criteria, the City may divert up to 200 MGD at the EAFWTP.

When the American River flow passing by the EAFWTP is greater than the Hodge Flow Criteria, the City may divert up to 200 MGD at the EAFWTP, the equivalent of approximately 224,000 AF in a year. In comparison, in a hypothetical Hodge Flow Year, where the Hodge Flow condition applies throughout the year, the diversion to EAFWTP is limited to approximately 89,600 AFY.

Groundwater Wells

The City currently has 26 permitted ground water wells in the North American Subbasin and 2 permitted ground water wells in the South American Subbasin, 23 of which are operated on a regular basis to supply municipal water. Three more wells have recently been constructed and will be brought on-line in the future (City UWMP **6.2.2.4**). The total pumping capacity of the wells is about 23 MGD, but the actual pumping capacity is 14 to 20 MGD accounting for some of the wells being off-line at times. As of 2020, the average age of the City's active potable water wells is about 60 years old with the oldest being 76 years old. The City's Groundwater Water Plan (2017) includes recommendations to replace one or two wells every year through 2040 to keep groundwater a reliable part of the City water supply (City UWMP **6.2.2.5**). Well locations are shown on **Exhibit 4**.

Storage Tanks

The City currently has seventeen (17) storage facilities: twelve (12) storage reservoirs are located throughout the City, and five (5) finished water clearwells located at the water treatment plants (two at EAFWTP and three at SRWTP). The cumulative distribution storage reservoir capacity is 49 million gallons (MG). The clearwell reservoirs located at EAFWTP and SRWTP have a combined capacity of approximately 45 MG.

The locations of the twelve storage tanks located throughout the City are shown on **Exhibit 4**.

Pumping Facilities

The City currently operates eighteen (18) high lift service pumps at the SRWTP and EAFWTP and has capacity to add an additional six (6) high lift service pumps at the EAFWTP. The locations of the booster pump facilities are shown on **Exhibit 4**. All of the storage reservoirs have pump stations to deliver water to residents and businesses as water demands vary. The City maintains one additional booster pump station to serve water in a small separated pressure zone in the northeast part of the City.

Distribution and Transmission Pipelines

The City maintains approximately 1,800 miles of transmission and distribution system mains ranging in size from 2 to 72 inches in diameter; with 415 miles of pipeline sizes 12 inches in diameter and larger.

Approximately 70 percent of the City's system consists of 6-inch and 8-inch diameter pipelines. There also exists a recycled water pipeline within the City, with a limited service area. This line is owned by the Sacramento Regional County Sanitation District (Regional San) and delivers recycled water from the Sacramento Regional Wastewater Treatment Plant to the Sacramento Power Authority Cogeneration Facility, as shown on **Exhibit 4** and further discussed in the 2020 UWMP.

Pressure Zones

Two pressure zones exist in the City. High service pumps at each of the treatment plants pump water directly into the distribution system, creating a pressure zone that encompasses the majority of the City. The second pressure zone is a small area in the northeast portion of the City. On average the City maintains approximately 45 pounds per square inch (psi) throughout its system with a minimum service pressure goal of 30 psi.

5.2 Water Supply

The City sources its water from the American River, the Sacramento River, and groundwater wells in its service area. As shown on **Exhibit 5**, the UWS Plan Area is not currently within City Limits but is located within the American River Place of Use. As such, UWS is included in the City's UWMP as part of its 30-year planning horizon (projected retail water use for the year 2050). This is discussed in **4.2.3 Projected Retail Water Use** and **4.3.3 Projected Wholesale Water Use** of the 2020 UWMP.

Surface Water Entitlements

The City has multiple surface water entitlements for water from the American and Sacramento Rivers. The Places of Use for water diverted under the American River permit includes not only the City limits, but also areas adjacent to the City. The City's current authorized Places of Use for water diverted under the Sacramento River permit includes all the land within the City limits, and the UWS Plan Area, which may change over time with annexations. These areas include portions of service areas of several other water purveyors. **Exhibit 5** illustrates the City's current American River Places of Use for these water supply sources.

The amount of water the City may divert from the Sacramento and American Rivers is established based on several factors. This includes provisions contained within State-issued water rights permits, a 1957 legal agreement between the City and the United States Bureau of Reclamation (USBR) known as the Settlement Contract, and a voluntary agreement made through the regional Water Forum in 2000.

A summary of allowed diversions in 5-year increments are shown in **Table 18**.

Table 18. Maximum Annual and Combined Annual Diversion Allowed to the Year 2040

Year	Maximum Diversion[(1)] from Sacramento River, AFY	Maximum Diversion[(1)] from American River, AFY	Maximum Combined Diversion[(1)], AFY
2015	81,800	189,000	252,000
2020	81,800	208,500	278,000
2025	81,800	228,000	304,000
2030	81,800	245,000	326,800
2035	81,800	245,000	326,800
2040	81,800	245,000	326,800

Source: City UWMP Table 6-9

(1) Per Schedule A of the 1957 Water Rights Settlement Contract between USBR and the City, a maximum amount is allowed from the Sacramento River, the American River, and both rivers concurrently.

In addition to the above maximum diversions per the Settlement Contract, the American River Water diversion at the EAFWTP is limited by the Water Forum PSA and by the Hodge Flow Criteria as previously discussed. However, the Maximum Combined Diversion the City is permitted remains the same. The City may divert its remaining American River water right through its existing Sacramento River diversion point, located downstream of the confluence of the American and Sacramento Rivers (see **6.2.3.2**, **7.1.1.3** UWMP).

Groundwater Supply

The City's UWMP includes data on its historical retail groundwater pumping from 2016 through 2020, shown below in **Table 19.**

Table 19. Retail Groundwater Volume Pumped (Acre-Feet)

Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	North American Subbasin	16,723	23,301	22,842	19,443	19,022
Alluvial Basin	South American Subbasin	863	2,619	2,467	1,524	1,407
	Total	17,586	25,920	25,309	20,967	20,429

Source: City UWMP Table 6-3

Currently, the City's wholesale agreements rely primarily on surface water (City UWMP **6.2.2.4**) with the exception of SCWA's Airport and Metro Air Park. The volume of groundwater historically supplied to SCWA is summarized in **Table 20**.

Table 20. Wholesale Groundwater Volume Supplied to SCWA (Acre-Feet)

Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	North American Subbasin	428	427	655	903	712

Source: City UWMP Table 6-4

Table 21 below summarizes the projected groundwater supply for the City based on the planned future groundwater pumping from the North American and South American Subbasins. Pumping from the North American Subbasin will follow a sustainable target pumping rate of 20,591 AF per year, as dedicated to the City by the Sacramento Groundwater Authority (SGA), who manages Sacramento County's portion of the North American Subbasin. From the South American Subbasin, which is managed by the Sacramento Central Groundwater Authority (SCGA), the City plans to gradually increase its annual extractions from a baseline of 4,077 AF to 19,000 AF. Both projections of pumping are subject to the Groundwater Sustainability Plan (GSP) developed for each subbasin as required by the Sustainable Groundwater Management Act (SGMA). A summary of the SGMA and how it relates to UWS is provided in **Section 7.0**.

Table 21. Groundwater Supplies – Projected

Water Purveyor	Projected Water Supply Volume (AFY)[1]				
	2025	2030	2035	2040	2045
City of Sacramento	27,083	31,107	35,131	39,155	39,155

Source: City UWMP Table 6-5

(1) Based on sustainable target pumping of 20,591 AFY from the North American Subbasin and up to approximately 19,000 AFY from the South American Subbasin.

As previously discussed, it is anticipated that a make-up well will be required to maintain the desired water surface elevation within the Upper Westside canal stretching from Street 1 to Street 7 through the proposed town center. It is anticipated that a 1,500 gallon per minute well will provide make-up water in the canal. Further geotechnical investigation with design will be required to determine loss rates and sizing of the proposed well.

Water Supply vs. Demand

For the Year 2050, assuming a typical rain year, projected retail demands and projected wholesale demands were summed to find the total projected demands. Subtracting the total project demand from the sum of the maximum combined surface water diversion and groundwater supply gives a net unused water, or surplus, for the City. This is shown in **Table 22**.

Table 22. Projected Unused Water for the Year 2050

Retail Demands[1] (AF)	Wholesale Demands[2] (AF)	Total Demands (AF)	Maximum Combined Diversion[3] (AF)	Groundwater Supply[4] (AF)	Net Unused Water (AF) (Surplus)
155,219	97,060	252,279	326,800	22,400	96,921

(1) Source: City UWMP Table 4-4

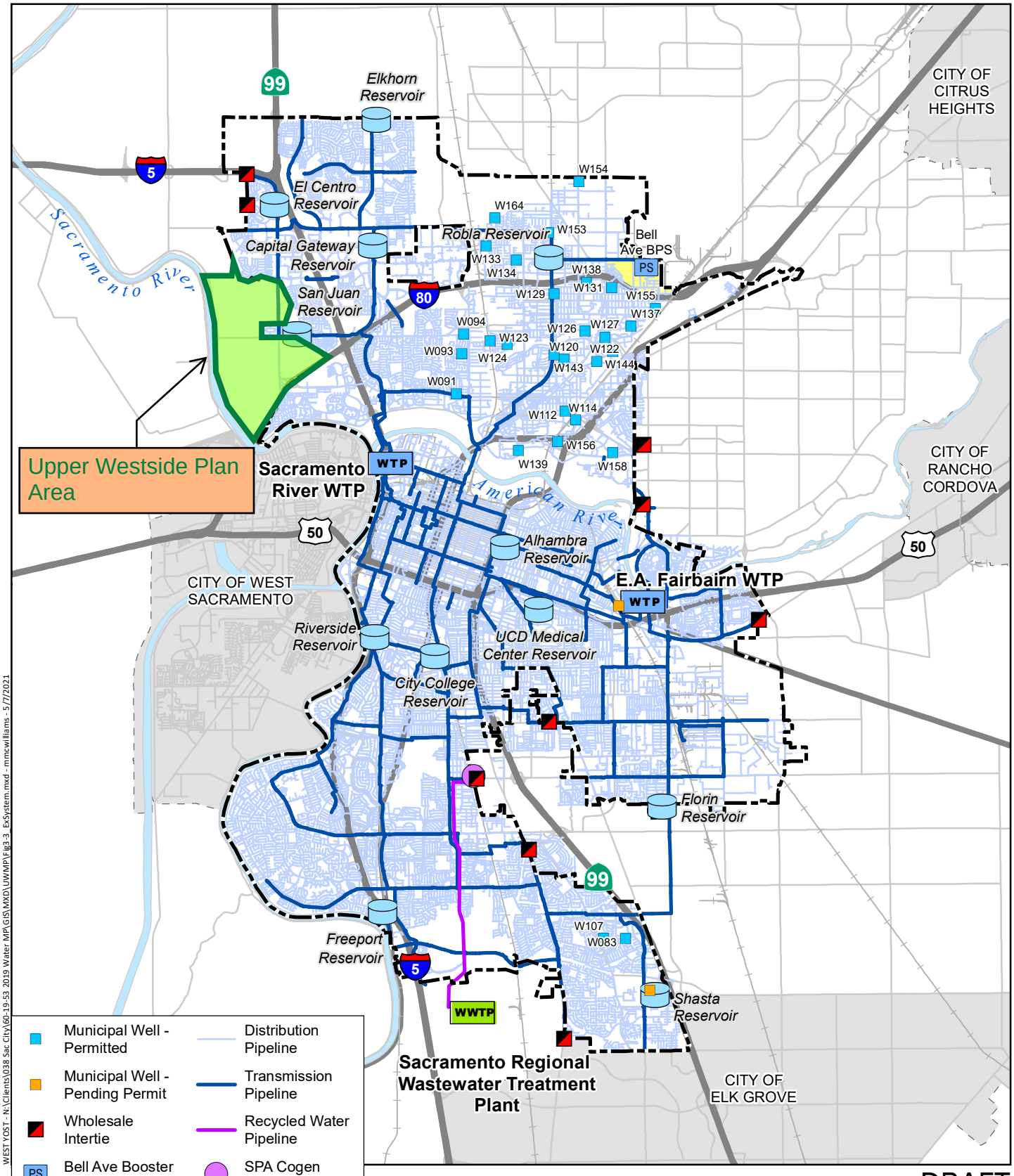
(2) Source: City UWMP Table 4-8, assume wholesale projected water use is equal to the maximum estimate in 2040, 2045, and 2050.

(3) Source: City UWMP Table 6-9

(4) Source: City UWMP Table 7-7, assume same as 2040-2045. Table 6-5 shows a projected groundwater supply of 39,155 AF. However, the UWMP's water service reliability analysis (Chapter 7) uses 22,400 AF.

Note that during Conference Years and during Hodge Flow conditions, American River water diversions at EAFWTP are limited. However, the remaining American River entitlements may be diverted at the

SRWTP downstream of the confluence. The City expects its Single Dry Year and Multiple Dry Year supplies to be adequate to meet projected demands (see UWMP, **7.1.3.2** and **7.1.3.3**). The UWMP also states that, "*As articulated in Section 7.1.3.2, the City has elected in the past, and may in the future, to engage in more aggressive demand management measures or reoperation of the water system to benefit broader statewide conditions during drier periods irrespective of legal entitlements to supply*."



Municipal Well - Permitted
Municipal Well - Pending Permit
Wholesale Intertie
Bell Ave Booster Pump Station
Storage Facility
Water Treatment Plant
Wastewater Treatment Plant
Distribution Pipeline
Transmission Pipeline
Recycled Water Pipeline
SPA Cogen Facility
Main Avenue Pressure Zone
City of Sacramento Limits

N

0 1.25 2.5
Miles

Notes:
1. Municipal wells with pending permit includes one well at the EAFWTP and two wells at the Shasta Storage facility.

WEST YOST - N:\Clients\038 Sac City\60-19-53 2019 Water MP\GIS\MXD\UWMP\Fig3-3_ExSystem.mxd - mmcwilliams - 5/7/2021

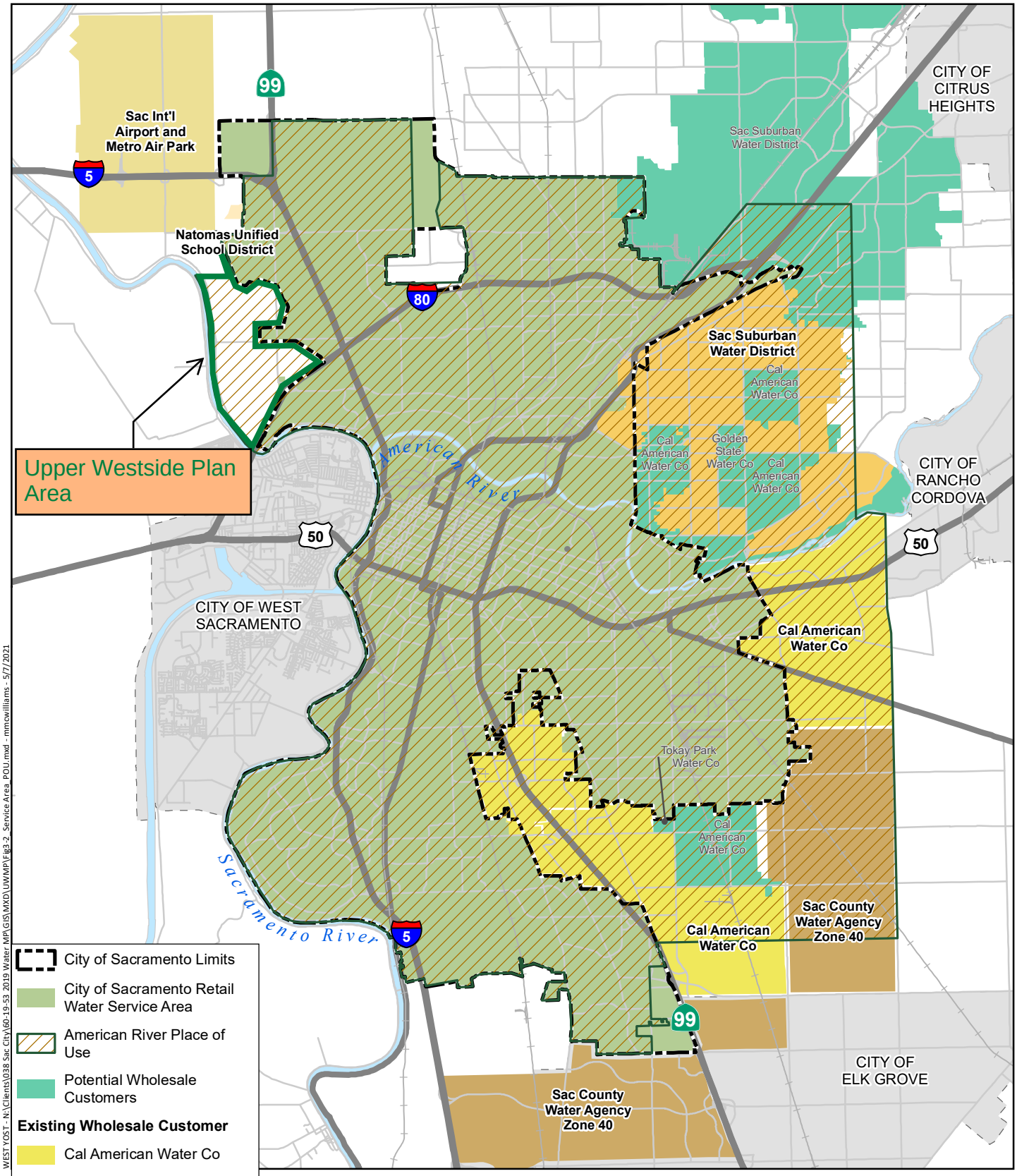
DRAFT

Exhibit 4

Water Treatment and Distribution System

City of Sacramento
2020 UWMP

WEST YOST



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DRAFT

Exhibit 5

Service Area, Limits, and Places of Use

City of Sacramento
2020 UWMP

WEST YOST

6.0 WATER SUPPLY SUFFICIENCY ANALYSIS

The following is an excerpt from Chapter 8 of the 2020 Urban Water Management Plan (May 2021 Draft), discussing the City's Water Shortage Contingency Plan:

> *Chapters 6 and 7 of the City's 2020 UWMP discuss the City's water supply sources and reliability, respectively. Findings show that the City will have enough supply with its current water supply sources to meet increased retail and wholesale demands for both a near-term (within the next 5 years) and long-term (within the next 20 years) timeframe.*
>
> *Statewide water supply conditions, changes in groundwater levels, subsidence, and actions by surrounding agencies may impact the City's available water supply. For the City, a water shortage condition occurs when the supply of potable water available cannot meet ordinary water demands for human consumption, sanitation, fire protection, and other beneficial uses. The City may be able to foresee its water shortage condition in some cases; however, in other cases, the water shortage may be caused by an unforeseen sudden or emergency event. In general, the City's water supply conditions may be affected by the following issues:*
>
> - *Intake structure issues on the Sacramento or American Rivers*
> - *Diversion limitations from Sacramento or American Rivers*
> - *Operational and/or water quality issues at the City's SRWTP or EAFWTP*
> - *Well production reduction and/or water quality issues*
>
> *Annually, the City determines the expected purchased water and surface water supplies availability for foreseeable water shortages. In other cases, the City may experience unforeseen water shortage when catastrophic interruption of water supplies occurs due to regional power outage, an earthquake, or other potential emergency events.*

> *In future years, the City will conduct an annual water supply and demand assessment in accordance with its Water Shortage Contingency Plan (WSCP). The analysis associated with this WSCP was developed in the context of the City's water supply sources and reliability.*

Per above, in June 2022, the City of Sacramento prepared its first Annual Water Supply and Demand Assessment and submitted an Annual Water Shortage Assessment Report (Annual Shortage Report) to the California Department of Water Resources (DWR). Per the Annual Assessment, for the period of July 1, 2022, to June 30, 2023, the City projects an annual surplus of 173%.

7.0 SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The City of Sacramento relies on surface water and groundwater. If groundwater is pursued for UWS, the Project will need to comply with the Sustainable Groundwater Management Act (SGMA).

7.1 Sustainable Groundwater Management Act

The following excerpt from the City's UWMP (Chapter 6, Section 6.2.2.2.1) describes the SGMA and its role.

> *The SGMA was passed in September 2014 as a three-bill legislative package composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley). The legislation provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for state intervention when necessary to protect the resource. The legislation lays out a process and a timeline for local authorities to achieve sustainable management of groundwater basins. It also provides tools, authorities, and deadlines to take the necessary steps to achieve the goal.*
>
> *SGMA applies to basins or subbasins designated by DWR as high- or medium-priority basins, based on a statewide ranking that uses criteria including population and extent of irrigated agriculture dependent on groundwater… 94 of California's 515 groundwater basins and subbasins have been identified as high-priority basins.*

In 2019, the state DWR released initial findings identifying 94 of its 515 groundwater basins as high- or medium-priority. Additional basins have since been identified as high-priority, including the North American Subbasin, where UWS is located (see **Table 21** below). Newly identified basins are required to form a GSA within two years of the basin's priority being finalized and must submit a GSP within five years of the same date. Once the GSP is in place, local agencies must fully implement the plan within 20 years.

Table 23. Groundwater Basin Prioritization for SGMA

Rank	Basin Number	Basin Name	Overall Basin Ranking Score	Overall Basin Priority
24	5-21.64	Sacramento Valley / North American Subbasin	23	High
29	5-21.65	Sacramento Valley / South American Subbasin	22	High

7.2 Management of the North American Subbasin

The North American Subbasin is on track to complying with SGMA requirements. The following excerpt from the City's UWMP (Chapter 6, Section **6.2.2.2.2**) describes how it has satisfied the first steps of SGMA implementation.

> *Local agencies have invested substantial time and resources to participate in the following regional planning activities affecting the management of groundwater resources in the North American Subbasin:*
>
> - *Sacramento Groundwater Authority (SGA)*
> - *Sacramento Water Forum*
> - *American River Basin Cooperating Agencies Regional Water Master Plan*
> - *Sacramento Metropolitan Water Authority (SMWA)*
> - *Regional Water Authority (RWA) (successor to the SMWA)*
>
> *The SGA was formed as a joint powers authority in 1998 to collectively manage Sacramento County's portion of the North American Subbasin. SGA is governed by a joint powers agreement between the City, the County, City of Folsom, and the City of Citrus Heights, who each have police power to manage and protect the underlying groundwater basin. Appointed representatives of fourteen local water purveyors [and] a representative from both the agricultural and private pumpers serve as the Board of Directors to the SGA. As of 2020, the members of the SGA collectively provide high quality, reliable water supply to over 500,000 people, in addition to irrigation supply.*

On December 11, 2014, the SGA adopted the SGA Groundwater Management Plan (GMP) to help establish a framework for maintaining a sustainable groundwater resource for the various purveyors overlying the groundwater basin within Sacramento County, north of the American River. A copy of the SGA GMP (December 2014) can be found on the SGA website (GMP SGA 2014 Final).

On October 20, 2015, the SGA notified DWR that it would be the GSA for the North American Subbasin and will undertake the development of the GSP for the subbasin. Since that time, SGA has been working with the other GSAs that have formed over the remaining portions of the North American Subbasin in the development of a single GSP for the subbasin.

Ultimately, five GSAs collaborated on the GSP for the North American subbasin: SGA GSA, Reclamation District 1001 GSA, South Sutter Water District GSA, Sutter County GSA, and West Placer County GSA. The North American Subbasin Groundwater Sustainability Plan was finalized in December 2021 and adopted by each GSA. The GSP will be assessed every five years by the GSAs as it is implemented over 20 years.

7.3 Overdraft Conditions

The State of California characterizes its groundwater basins in its publication, DWR Bulletin 118. In its descriptions, neither the North American Subbasin nor the South American Subbasin are in, or projected to be, in overdraft from current management practices.

8.0 CAPITAL IMPROVEMENT PROGRAM AND FEE DEVELOPMENT

This section provides the basis for a Capital Improvement Program to support the proposed water infrastructure for UWS. Economic Planning Systems is developing a fee program for the Plan Area. Project cost analysis was performed for the two major water infrastructures studied. In *Scenario I*, SCWA is assumed to own the proposed public water system for UWS. *Scenario II* includes the infrastructure needed if the project were to be incorporated into the City of Sacramento's water system.

8.1 Water System Projects and Costs

Presented below are planning-level cost estimates for each phase of the development, as well as a sum for buildout. The summary costs contain contingencies, soft costs, and land acquisition costs. A placeholder of $26,060,000 is given for the Tank Site, including a booster pump station and land acquisition. Further modeling is needed with the City system to determine the required storage for UWS, and timing. Costs for the booster pump station will also vary based on final design, and a more formal design report is anticipated prior to these facilities being constructed.

Phase 1 costs are presented with water transmission and water distribution separated out for fee development. Other phases are shown with the combined cost of transmission and distribution facilities.

Segments correspond to roads as follows:

- Segment A: Bryte Bend Road
- Segment B: El Centro Road
- Segment C: Radio Road
- Segment D: San Juan Road
- Segment E: Farm Road
- Segment F: West El Camino
- Segment G: Street 2

Exhibits 6 through **15** correspond to the estimates presented below. Note that while all modeled pipes are shown in the Exhibits, only those within backbone roads (as labeled with Segment names) included in the cost estimate.

Scenario I (SCWA retail) - Phase 1 Projects

Estimated Cost of Water Transmission: $28,580,000

For detailed cost estimates, see **Appendix 4**. For segment locations, see **Exhibit 6**.

- Segment B-1-T: El Centro Road - Approximately 5,700 LF between San Juan Road and Street 2.
- Segment G-1-T: Street 2 - Approximately 2,700 LF between Bryte Bend Road and El Centro Road.
- Include a connection to existing main in San Juan Road with water storage tank and booster pump station. The tank has been included in the initial phase even though hydraulically it is not required for Phase 1. Timing will be subject to Agency requirements and therefore to be conservative is included as a Phase 1 cost.

Estimated Cost of Water Distribution: $3,220,000

For detailed cost estimates, see **Appendix 5**. For segment locations, see **Exhibit 6**.

- Segment A-1-D: Bryte Bend Road – Approximately 4,250 LF south of West El Camino.
- Segment B-1-D: El Centro Road - Approximately 5,200 LF between San Juan Road and Street 2.
- Segment E-1-D: Farm Road - Approximately 1,300 LF between Street C and El Centro Road.
- Segment G-1-D: Street 2 - Approximately 2,700 LF between Bryte Bend Road and El Centro Road.

Scenario I (SCWA retail) – Phase 2 Projects

Estimated Total Cost: $3,620,000

For detailed cost estimates, see **Appendix 6 & 7**. For segment locations, see **Exhibit 7**.

- Segment A-2: Bryte Bend Road – Approximately 3,950 LF between San Juan Road and West El Camino.
- Segment D-2: San Juan Road – Approximately 4,000 LF west of El Centro Road, including 300 LF south down El Centro Road to connect to Phase 1.
- Segment F-2: West El Camino – Approximately 550 LF west of El Centro Road.

Scenario I (SCWA retail) - Phase 3 Projects

Estimated Total Cost: $3,810,000

For detailed cost estimates, see **Appendix 8 & 9**. For segment locations, see **Exhibit 8**.

- Segment A-3: Bryte Bend Road - Approximately 2,730 LF between Radio Road and San Juan Road.
- Segment B-3: El Centro Road - Approximately 3,200 LF between Radio Road and 300 LF past San Juan Road.
- Segment C-3: Radio Road - Approximately 2,350 LF between Bryte Bend Road and El Centro Road.
- Segment D-3: San Juan Road - Approximately 2,350 LF between Bryte Bend Road and El Centro Road.
- Segment E-3: Farm Road - Approximately 2,700 LF between El Centro Road and Street H.
- Segment F-3: West El Camino - Approximately 790 LF

Scenario I (SCWA retail) - Phase 4 Projects

Estimated Total Cost: $1,280,000

For detailed cost estimates, see **Appendix 9 & 10**. For segment locations, see **Exhibit 9**.

- Segment B-4: El Centro Road - Approximately 2,600 LF north of Radio Road.
- Segment E-4: Farm Road - Approximately 1,370 LF between Bryte Bend Road and Street C.
- Segment F-4: West El Camino - Approximately 1,370 LF between Bryte Bend Road and Street C.

Scenario I (SCWA retail) - All Phases

Estimated Total Cost: $40,510,000

For full buildout, see **Exhibit 10.**

Scenario II (DOU retail) - Phase 1 Projects

Estimated Total Cost: $2,250,000

For detailed cost estimates, see **Appendix 11**. For segment locations, see **Exhibit 11**.

- Segment A-1-D: Bryte Bend Road – Approximately 4,250 LF south of West El Camino.
- Segment B-1-D: El Centro Road - Approximately 200 LF between existing water main and Street 2.
- Segment E-1-D: Farm Road - Approximately 1,300 LF between Street C and El Centro Road.
- Segment G-1-D: Street 2 - Approximately 2,700 LF between Bryte Bend Road and El Centro Road.
- Includes offsite work – Approximately 350 across Interstate 80, near south end of Plan Area.

Scenario II (DOU retail) - Phase 2 Projects

Estimated Total Cost: $3,760,000

For detailed cost estimates, see **Appendix 12 & 13**. For segment locations, see **Exhibit 12**.

- Segment A-2: Bryte Bend Road - Approximately 3,950 LF between San Juan Road and West El Camino.

- Segment D-2: San Juan Road - Approximately 4,150 LF between the Tank Site and the western plan boundary

- Segment F-2: West El Camino - Approximately 550 LF west of El Centro Road.

Scenario II (DOU retail) - Phase 3 Projects

Estimated Total Cost: $2,300,000

For detailed cost estimates, see **Appendix 14**. For segment locations, see **Exhibit 13**.

- Segment A-3: Bryte Bend Road - Approximately 2,730 LF between Radio Road and San Juan Road.

- Segment B-3: El Centro Road - Approximately 1,360 LF between Radio Road and Alcantar Circle.

- Segment C-3: Radio Road - Approximately 2,350 LF between Bryte Bend Road and El Centro Road.

- Segment D-3: San Juan Road - Approximately 700 LF between Bryte Bend Road and El Centro Road.

- Segment E-3: Farm Road - Approximately 2,715 LF between El Centro Road and Street H.

Scenario II (DOU retail) – Phase 4 Projects

Estimated Total Cost: $640,000

For detailed cost estimates, see **Appendix 15**. For segment locations, see **Exhibit 14**.

- Segment E-4: Farm Road – Approximately 1,330 LF between Bryte Bend Road and Street C.

- Segment F-4: West El Camino – Approximately 1,365 LF between Bryte Bend Road and Street C.

Scenario II (DOU retail) - All Phases

Estimated Total Cost: $8,950,000

For full buildout, see **Exhibit 15.**

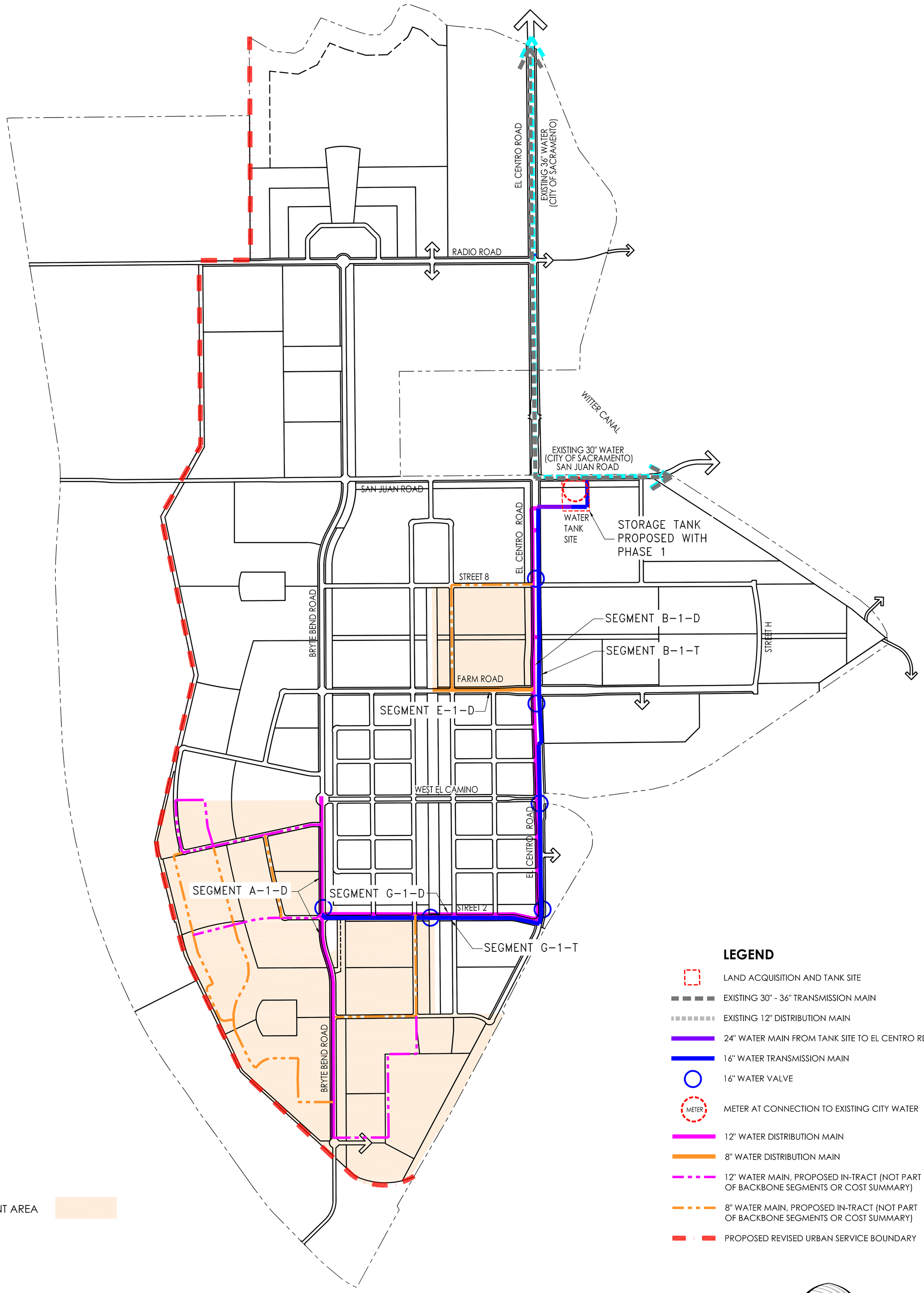
EXHIBIT 6

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 1

UPPER WESTSIDE - SCENARIO I

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



CONCEPTUAL PHASES

PHASE 1 DEVELOPMENT AREA

NORTH

0 800 400 1600

LEGEND

- LAND ACQUISITION AND TANK SITE
- EXISTING 30" - 36" TRANSMISSION MAIN
- EXISTING 12" DISTRIBUTION MAIN
- 24" WATER MAIN FROM TANK SITE TO EL CENTRO RD
- 16" WATER TRANSMISSION MAIN
- 16" WATER VALVE
- METER — METER AT CONNECTION TO EXISTING CITY WATER
- 12" WATER DISTRIBUTION MAIN
- 8" WATER DISTRIBUTION MAIN
- 12" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- 8" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- PROPOSED REVISED URBAN SERVICE BOUNDARY

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3741 Douglas Blvd., Ste. 150 Tel 916.341.7760
Roseville, CA 95661 Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

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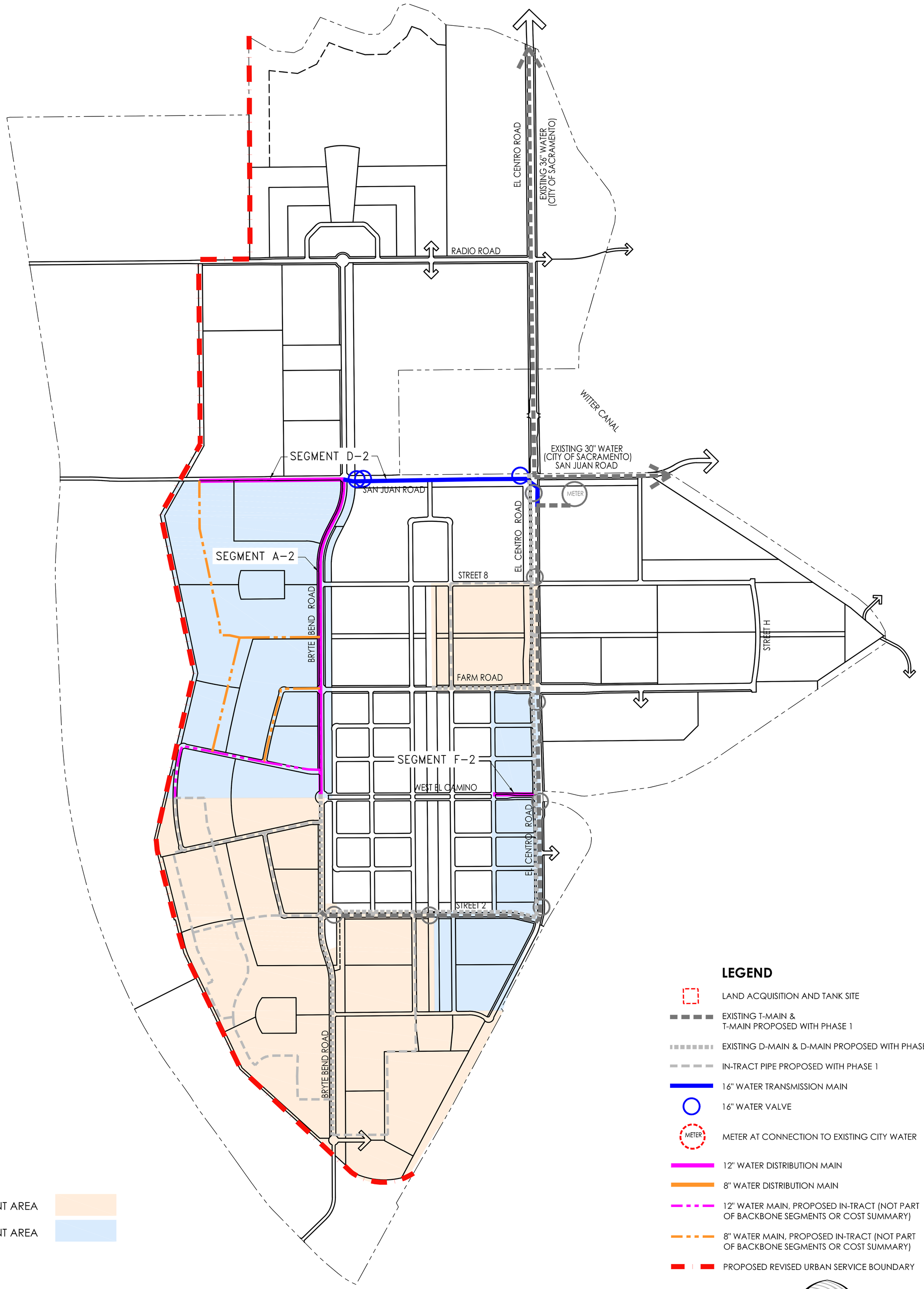
EXHIBIT 7

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 2

UPPER WESTSIDE - SCENARIO I

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



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Roseville, CA 95661
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Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

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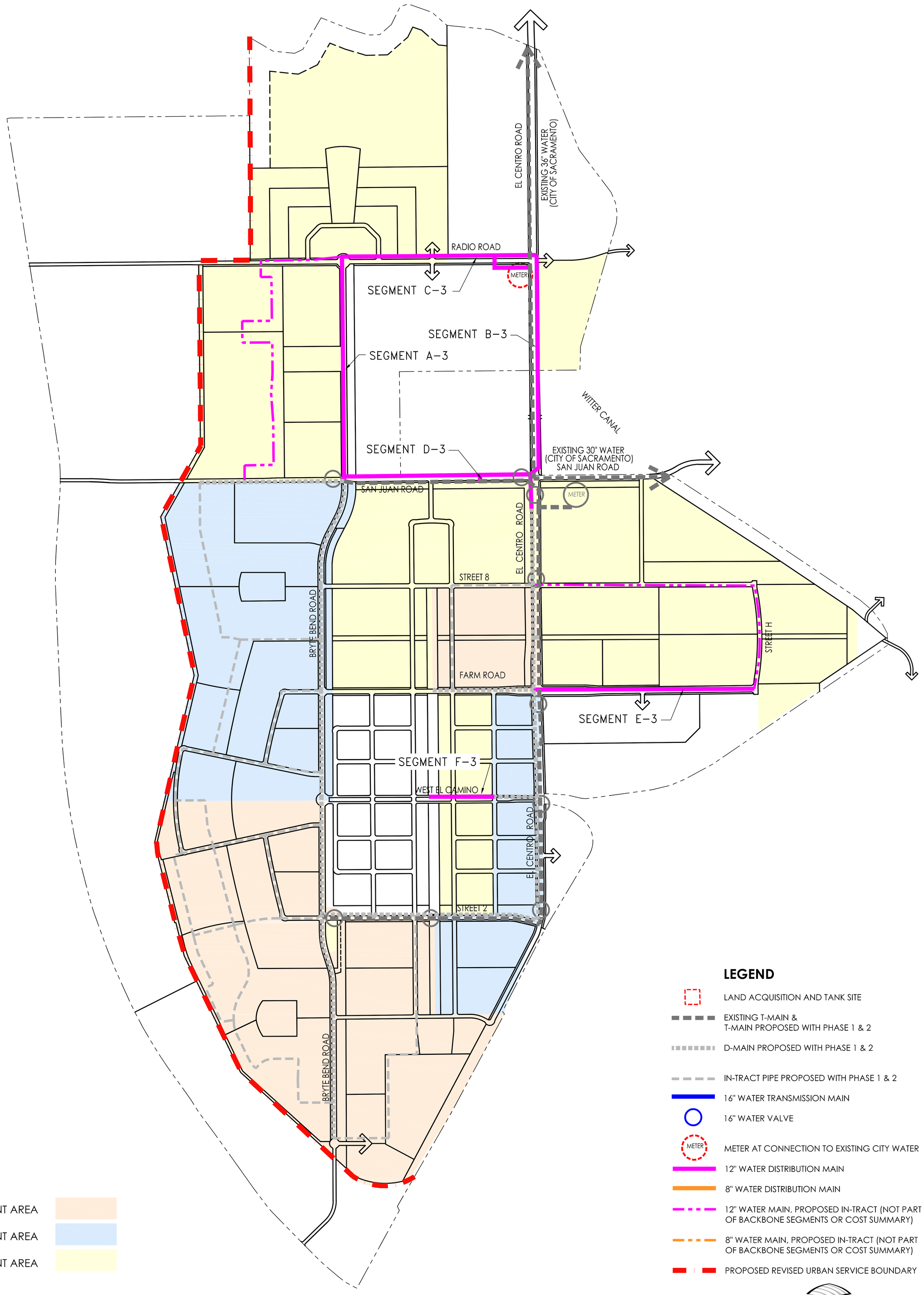
EXHIBIT 8

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 3

UPPER WESTSIDE - SCENARIO I

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



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CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

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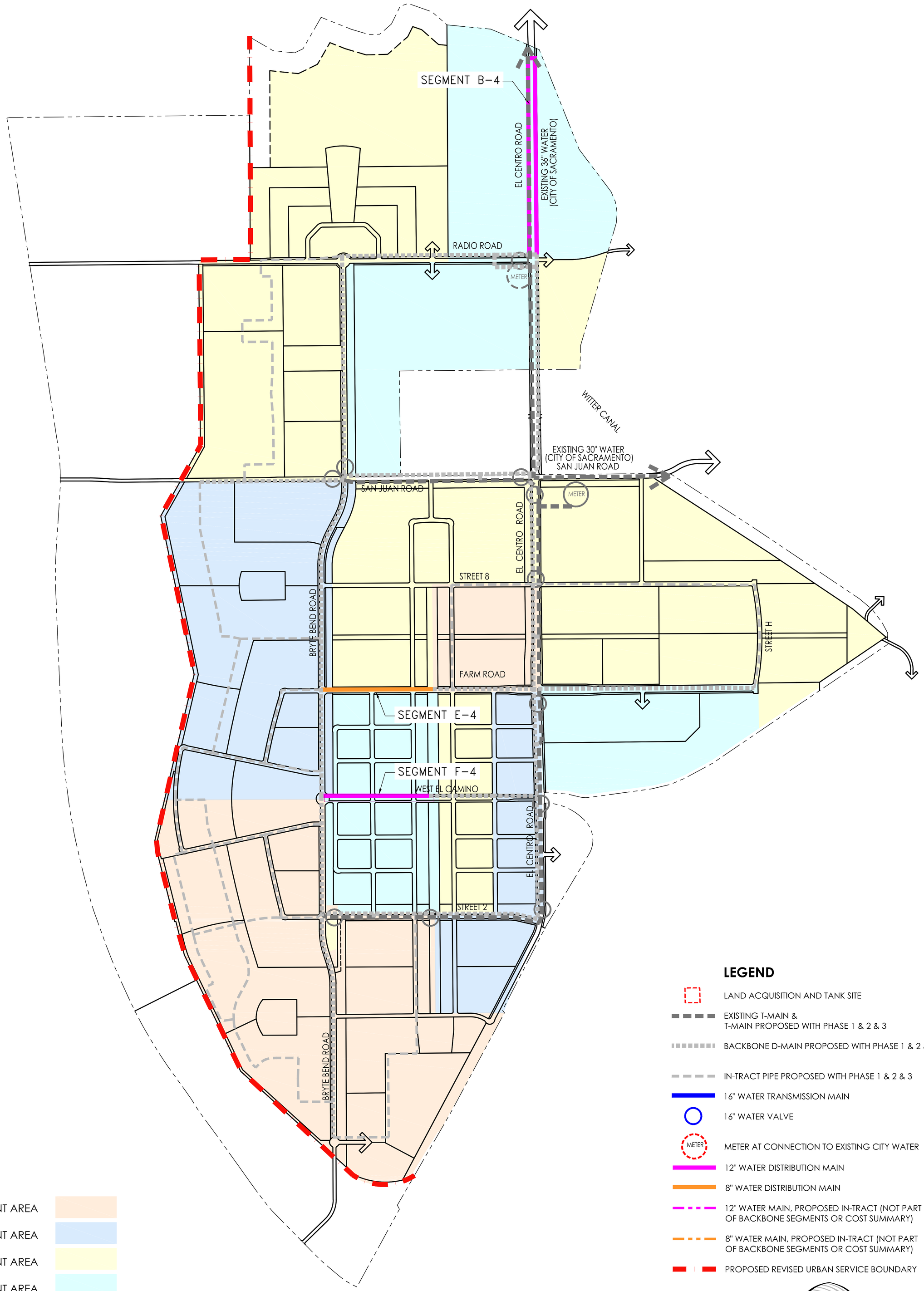
EXHIBIT 9

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 4

UPPER WESTSIDE - SCENARIO I

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



LEGEND

- LAND ACQUISITION AND TANK SITE
- EXISTING T-MAIN & T-MAIN PROPOSED WITH PHASE 1 & 2 & 3
- BACKBONE D-MAIN PROPOSED WITH PHASE 1 & 2 & 3
- IN-TRACT PIPE PROPOSED WITH PHASE 1 & 2 & 3
- 16" WATER TRANSMISSION MAIN
- 16" WATER VALVE
- METER AT CONNECTION TO EXISTING CITY WATER
- 12" WATER DISTRIBUTION MAIN
- 8" WATER DISTRIBUTION MAIN
- 12" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- 8" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- PROPOSED REVISED URBAN SERVICE BOUNDARY

CONCEPTUAL PHASES

- PHASE 1 DEVELOPMENT AREA
- PHASE 2 DEVELOPMENT AREA
- PHASE 3 DEVELOPMENT AREA
- PHASE 4 DEVELOPMENT AREA

NORTH

0 400 800 1600

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Tel 916.341.7760
Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

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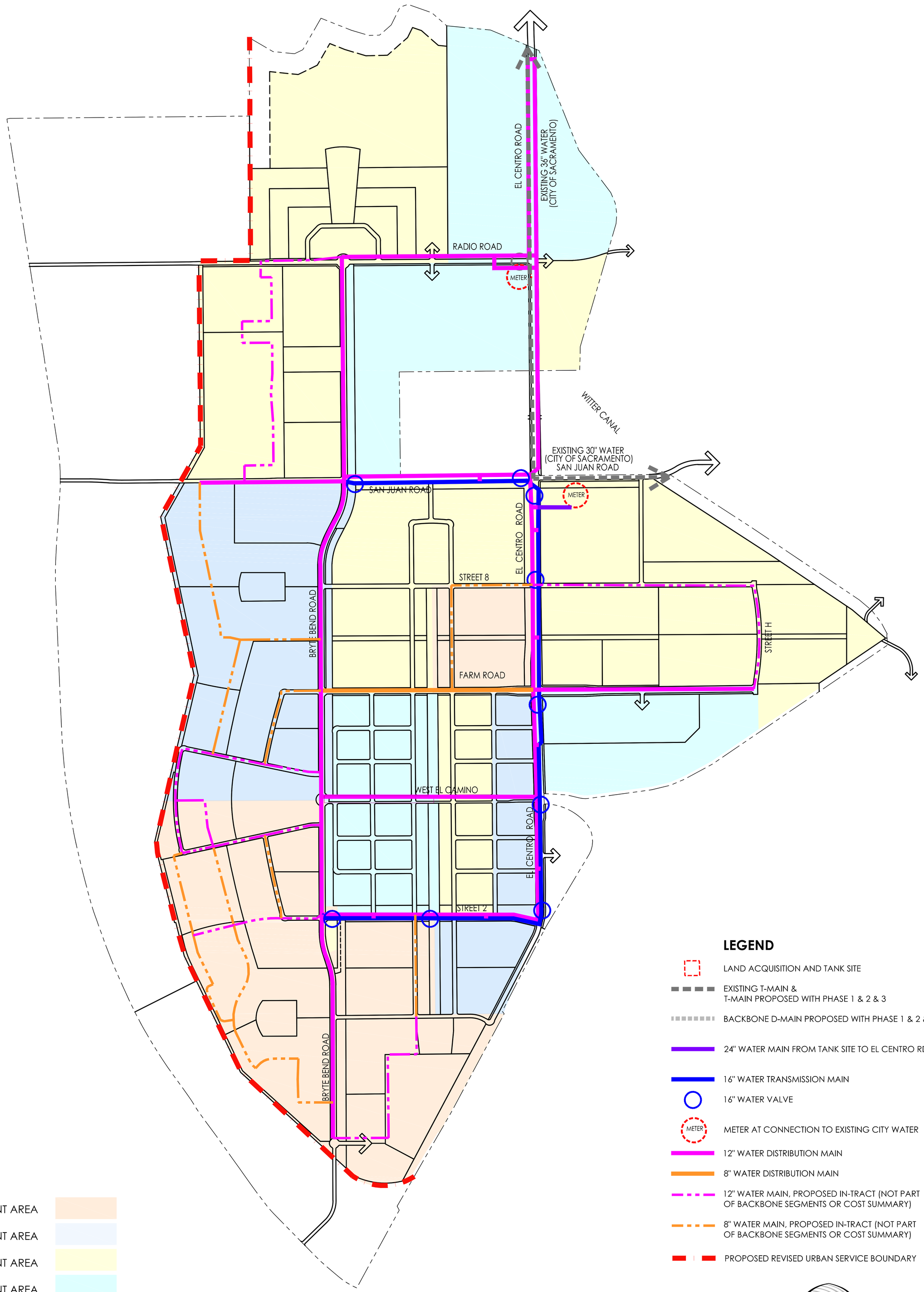
EXHIBIT 10

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - BUILDOUT

UPPER WESTSIDE - SCENARIO I

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



CONCEPTUAL PHASES

- PHASE 1 DEVELOPMENT AREA
- PHASE 2 DEVELOPMENT AREA
- PHASE 3 DEVELOPMENT AREA
- PHASE 4 DEVELOPMENT AREA

NORTH

0 400 800 1600

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Tel 916.341.7760 Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

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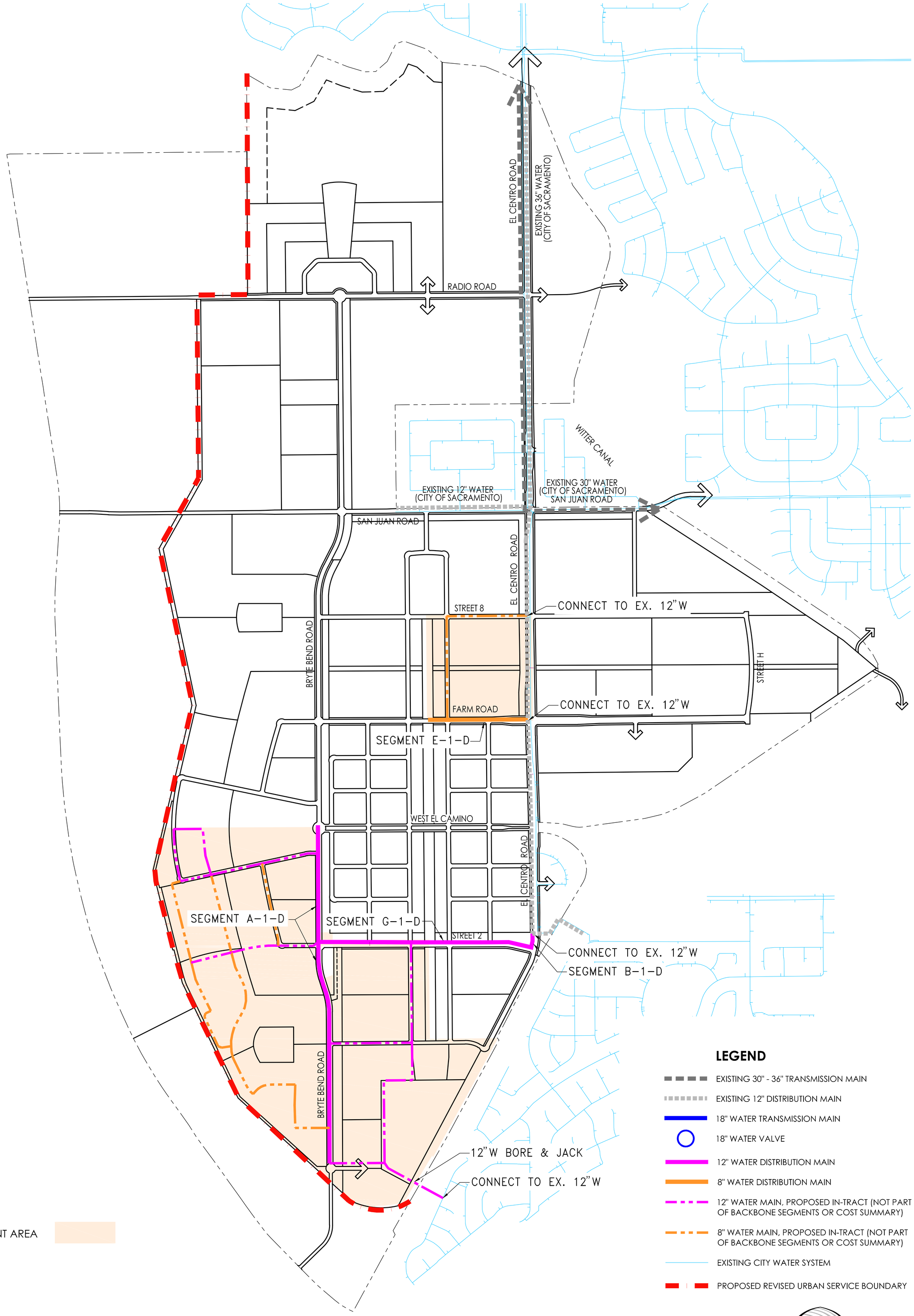
EXHIBIT 11

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 1

UPPER WESTSIDE - SCENARIO II

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



CONCEPTUAL PHASES

PHASE 1 DEVELOPMENT AREA

NORTH

0 400 800 1600

LEGEND

- EXISTING 30" - 36" TRANSMISSION MAIN
- EXISTING 12" DISTRIBUTION MAIN
- 18" WATER TRANSMISSION MAIN
- 18" WATER VALVE
- 12" WATER DISTRIBUTION MAIN
- 8" WATER DISTRIBUTION MAIN
- 12" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- 8" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- EXISTING CITY WATER SYSTEM
- PROPOSED REVISED URBAN SERVICE BOUNDARY

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
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Roseville, CA 95661 Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

J:\2000-s\3616_Natomas_Boot\Natomas_Boot-OA\Civil\Studies\Water\Exhibits\EXH_3616-WATER-PHASES.dwg 8/3/2023 11:02 AM Jason Reed

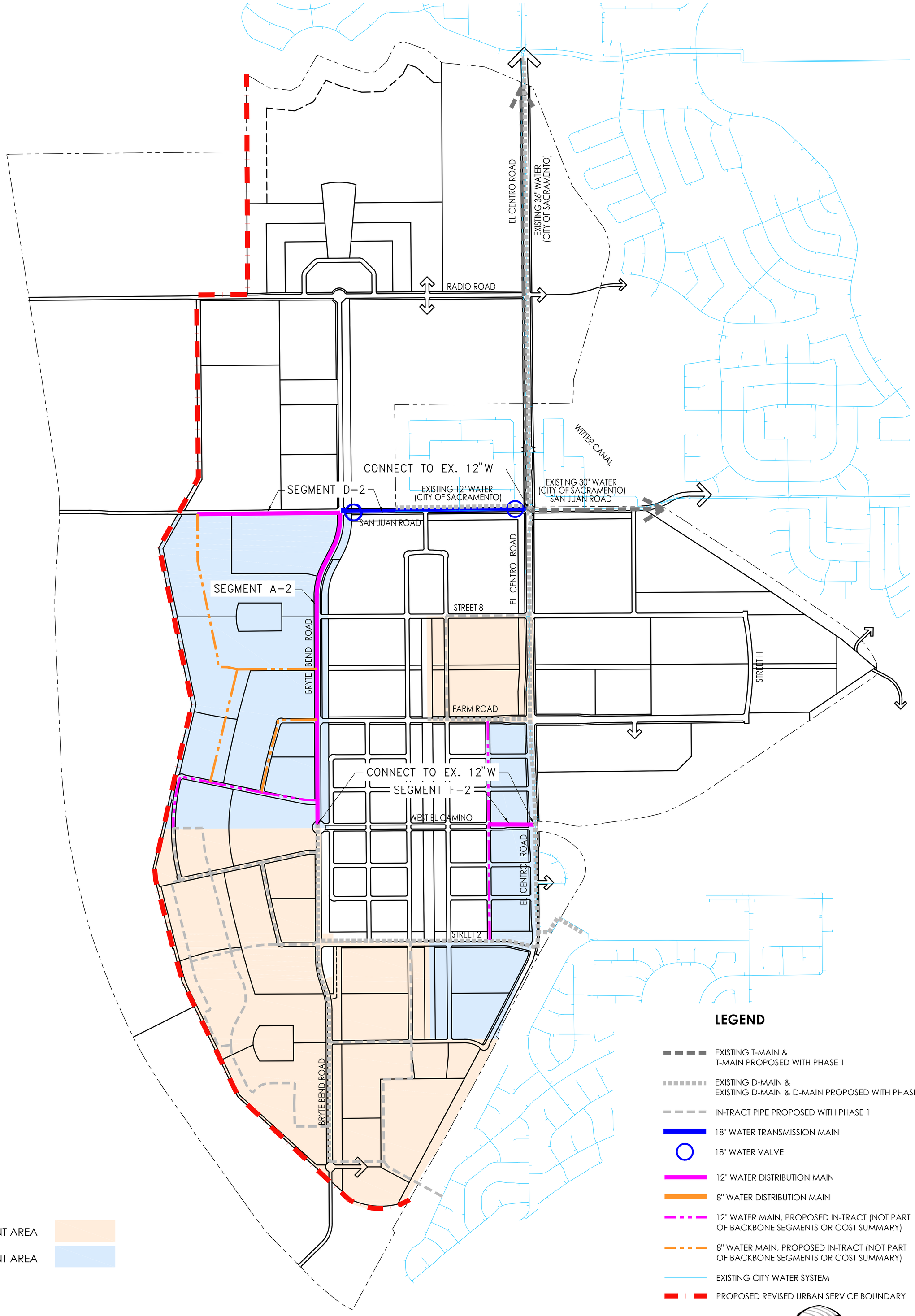
EXHIBIT 12

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 2

UPPER WESTSIDE - SCENARIO II

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



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Tel 916.341.7760
Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

J:\3000+\3816_Natomas_Boot\Natomas_Boot-DA\Civil\Studies\Water\Exhibits\EXH_3816-WATER-PHASES.dwg 8/5/2023 11:04 AM Jason Reed

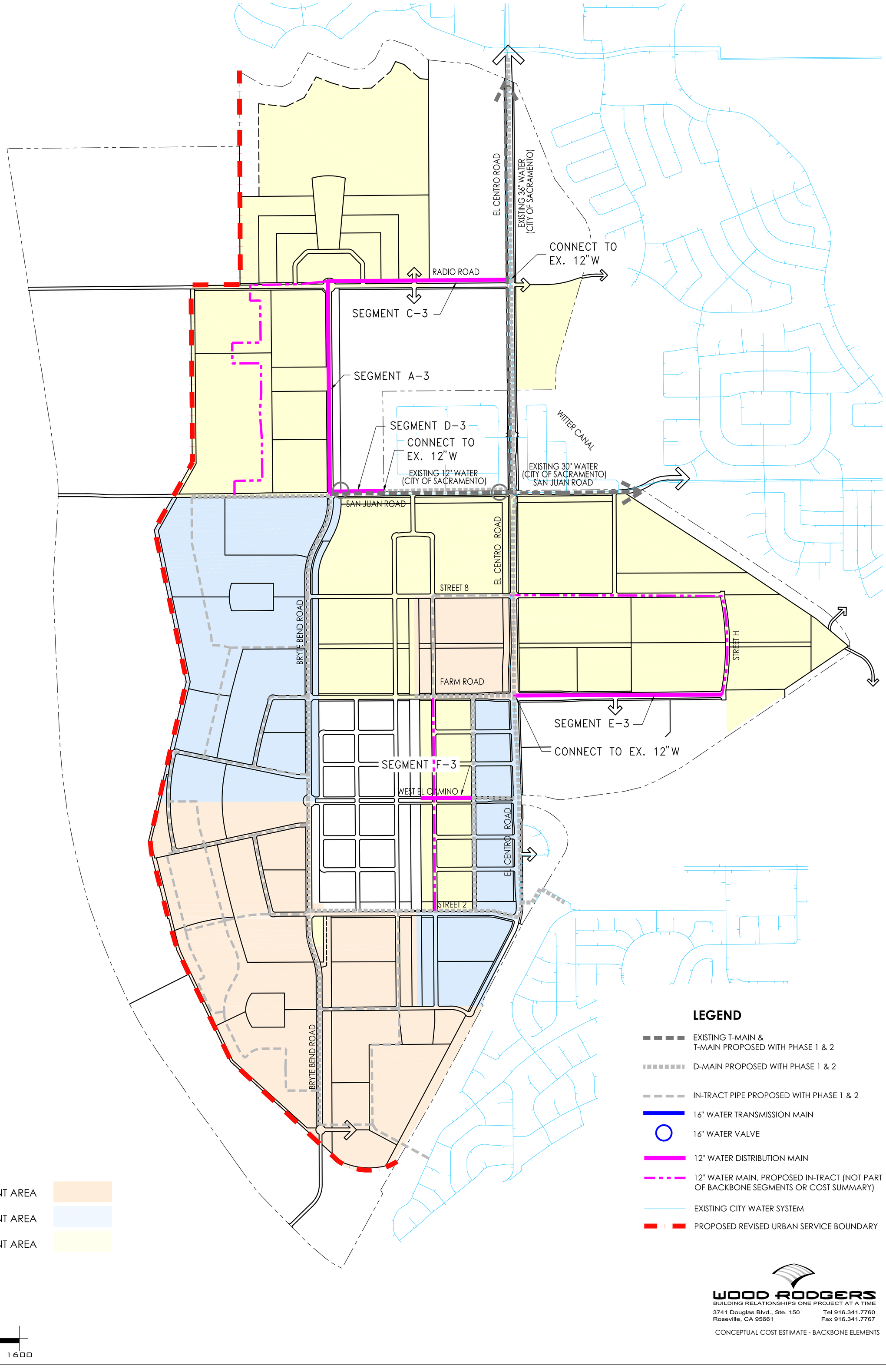
EXHIBIT 13

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 3

UPPER WESTSIDE - SCENARIO II

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



CONCEPTUAL PHASES

PHASE 1 DEVELOPMENT AREA

PHASE 2 DEVELOPMENT AREA

PHASE 3 DEVELOPMENT AREA

LEGEND

- EXISTING T-MAIN & T-MAIN PROPOSED WITH PHASE 1 & 2
- D-MAIN PROPOSED WITH PHASE 1 & 2
- IN-TRACT PIPE PROPOSED WITH PHASE 1 & 2
- 16" WATER TRANSMISSION MAIN
- 16" WATER VALVE
- 12" WATER DISTRIBUTION MAIN
- 12" WATER MAIN, PROPOSED IN-TRACT (NOT PART OF BACKBONE SEGMENTS OR COST SUMMARY)
- EXISTING CITY WATER SYSTEM
- PROPOSED REVISED URBAN SERVICE BOUNDARY

NORTH

0 400 800 1600

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Roseville, CA 95661
Tel 916.341.7760
Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

J:\3300-s\3616_Natomas_Boot\Natomas_Boot-OA\Civil\Studies\Water\Exhibits\EXH_3616-WATER-PHASES.dwg 8/3/2023 11:05 AM Jason Reed

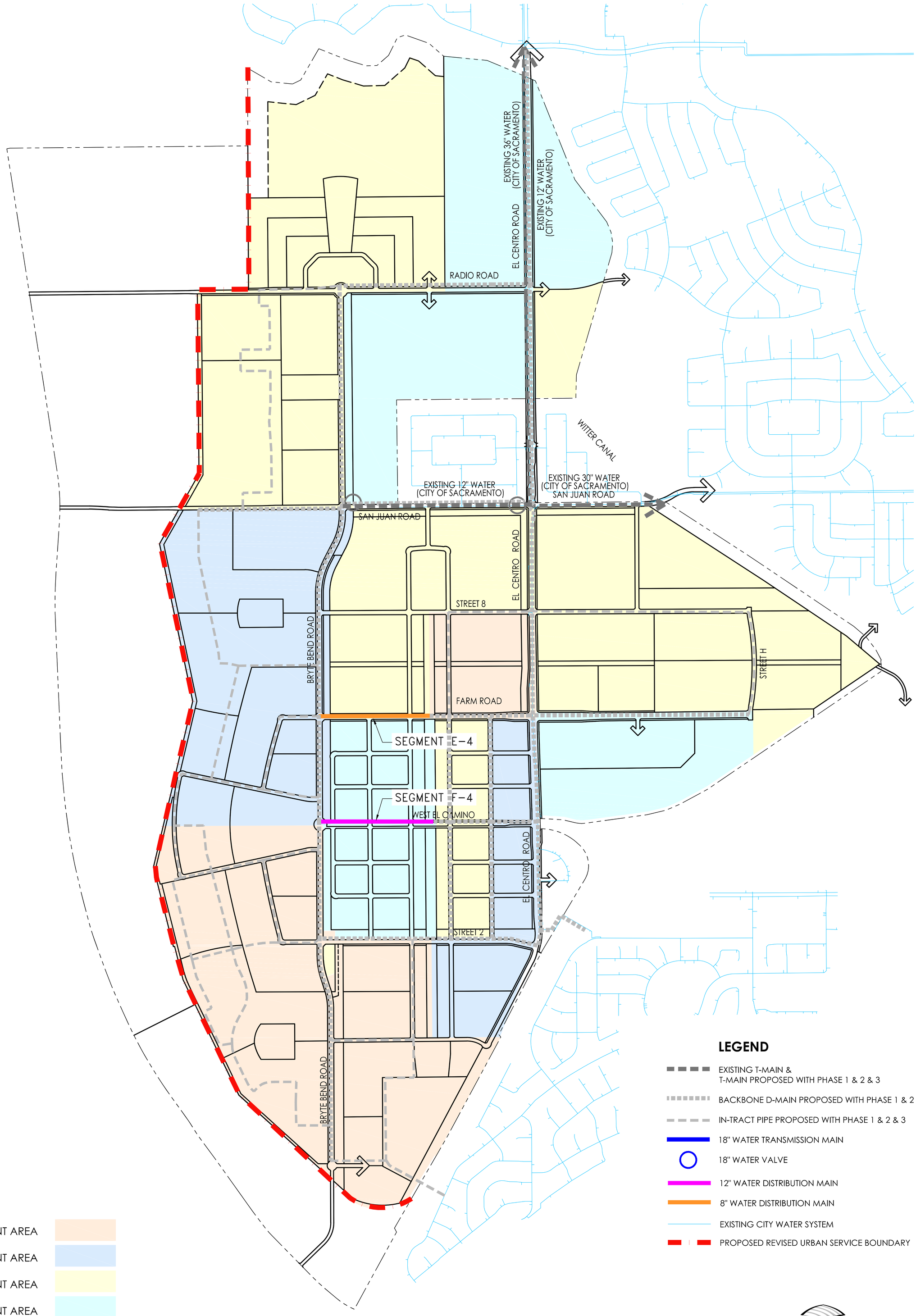
EXHIBIT 14

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - PHASE 4

UPPER WESTSIDE - SCENARIO II

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



CONCEPTUAL PHASES

- PHASE 1 DEVELOPMENT AREA
- PHASE 2 DEVELOPMENT AREA
- PHASE 3 DEVELOPMENT AREA
- PHASE 4 DEVELOPMENT AREA

NORTH

0 800 400 1600

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Roseville, CA 95661 Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

J:\3000-s\3616_Natomas_Bsot-OA\Civil\Studies\Water\Exhibits\EXH_3616-WATER-PHASES.dwg 8/5/2023 11:06 AM Jason Reed

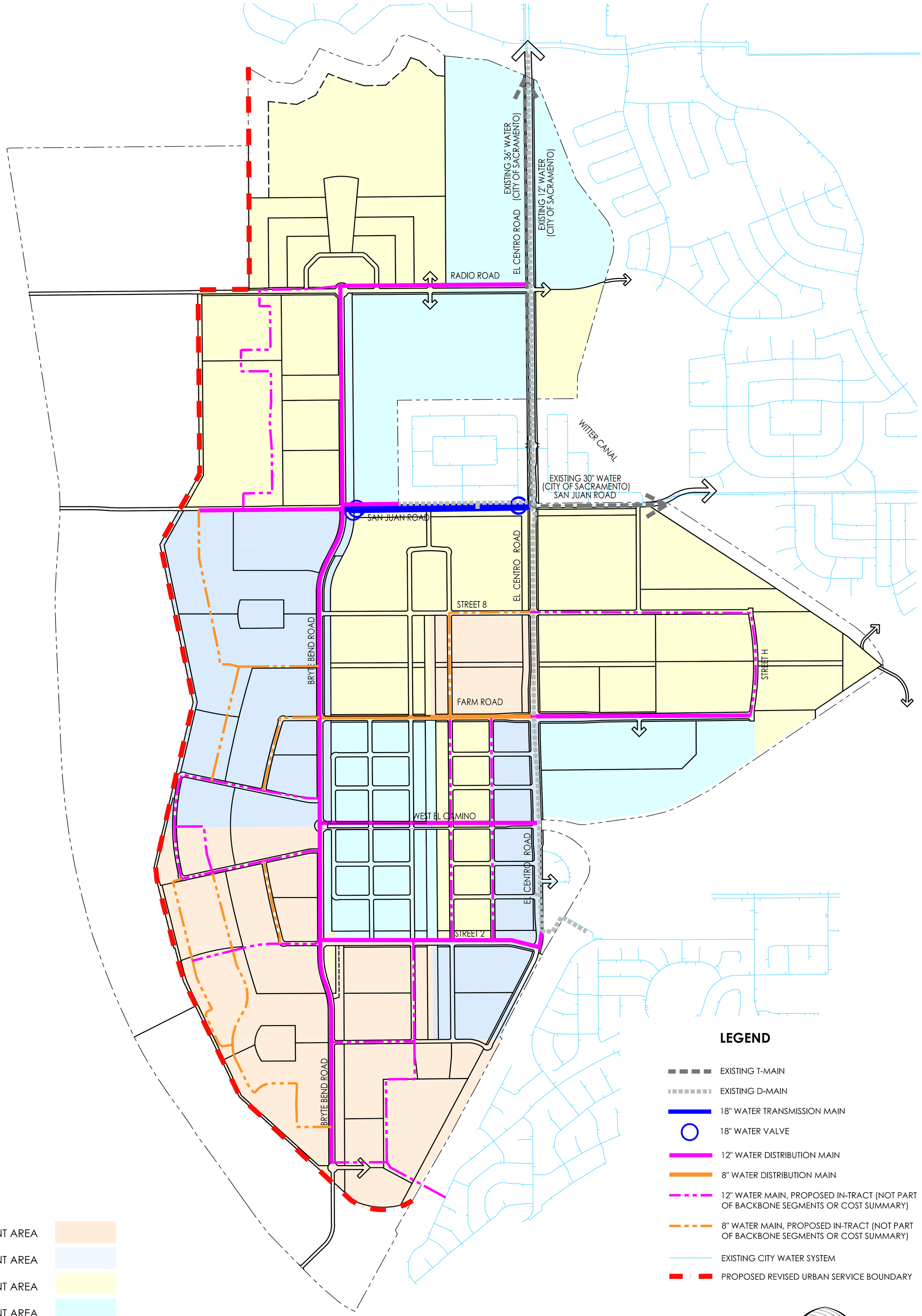
EXHIBIT 15

BACKBONE COST ESTIMATE EXHIBIT - WATER - DISTRIBUTION & TRANSMISSION - BUILDOUT

UPPER WESTSIDE - SCENARIO II

COUNTY OF SACRAMENTO, CALIFORNIA

AUGUST 4, 2023



CONCEPTUAL PHASES

PHASE 1 DEVELOPMENT AREA

PHASE 2 DEVELOPMENT AREA

PHASE 3 DEVELOPMENT AREA

PHASE 4 DEVELOPMENT AREA

NORTH

0 800 400 1600

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Roseville, CA 95661 Fax 916.341.7767

CONCEPTUAL COST ESTIMATE - BACKBONE ELEMENTS

J:\3000-s\3016_Jhotomas_Boot\Watermas_Boot-cA\Civil\Studies\Water\Exhibits\EXH_3016-WATER-PHASES.dwg 8/3/2023 11:07 AM Jason Reed

8.2 Buy-In Costs and Supply Fees

The recommended action for Buy in Costs and Supply Fees is to have the City provide wholesale potable water for retail in UWS. With the City treating and delivering wholesale American River POU Water, the need for on-site water treatment is eliminated.

One-time fees for this option include: City of Sacramento Connection Fee, and Natomas Central Mutual Water Company (NCMWC) cancellation fee. The anticipated initial costs to support Phase 1 connection to the City water system is approximately $12.3 million; for buildout, it is approximately $61.2 million. Refer to the costs presented in **Table 24** below.

Table 24. Preliminary City Water Treatment / Supply Costs

Description	Phase 1	Phase 2	Phase 3	Phase 4
City Connection Fee[4]	$11,200,000	$8,800,000	$23,530,000	$12,350,000
NCMWC Cancellation	$1,080,000	$860,000	$2,180,000	$1,230,000
Sub-Total	$12,280,000	$9,660,000	$25,710,000	$13,580,000
Cumulative Total	$12,280,000	$21,940,000	$47,650,000	$61,230,000

The City Connection Fee is subject to negotiations between the applicant, SCWA, and City. While the fee shown above is based upon MGD for maximum day demands it may be higher to account for peak hour demand and fire flow if connections to the City system are made in advance of UWS water tank construction. If a higher fee is charged by the City to account for higher instantaneous flows to UWS, those paid fees will offset subsequent phases that would develop after tank construction. The fees above do not account for a potentially higher City Connection Fee since the project cost estimates include the water tank in Phase 1 as a worst-case scenario cost. The estimated cost for the water tank would be sufficient to cover a connection fee for an additional 2000 gpm of fire flow in addition to maximum day demands in the event the tank is not provided in Phase I. The proposed land use for Phase I is not expected to exceed 2000 gpm of fire flow demand.

[4] Based upon maximum day demand MGD; Assumes Zone 50 fees but subject to negotiation with applicant, SCWA, and City.

Recurring costs with this option include wholesale water cost and monthly City charges for: metered connection to City transmission main; standby fire service per connection to transmission main; and capital improvement project (CIP) fees. These recurring costs, along with the Operations and Maintenance (O&M) costs of water treatment, get passed to the rate payers by way of monthly utility fees.

9.0 REFERENCES

Sacramento County Water Agency Water Study Approval Guidelines, v9.18

City of Sacramento Water Distribution System Criteria, January 2018

Upper Westside Water Supply Master Plan – Technical Memorandum #2 – Estimated Water Demands by Wood Rodgers, October 19, 2021.

Sacramento County Water Agency Zone 40 Water System Infrastructure Plan Update, 2016

City of Sacramento 2020 Urban Water Management Plan, Draft Report, May 2021

California Department of Water Resources 2022 Annual Water Supply and Demand Assessment Summary Report, November 2022

City of Sacramento 2022 Annual Water Shortage Assessment Report, June 17, 2022

APPENDIX A

PROJECT WATER DEMANDS

APPENDIX A

UPPER WESTSIDE

Preliminary Project Water Demands by Purveyor

Updated: February 3, 2023

Proposed Project Land Use				SCWA (WSIP Update 2016) Demands						City of Sacramento Demands					
Land Use Designation	Project Land Use (Zoning)	Sum of AcreNet	SCWA Land Use Category	Demand Factor	Factor with 7.5% System Losses	Annual Demand (AFY)	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)	City Land Use Category	Demand Factor (*)	Annual Demand (AFY)	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)
RW	**Roads**	**122.0**	Right-Of-Way	0.18	0.19	23.6	15	29	59	--(*)	--	0.0	0	0	0
AG	**Agricultural Reserve**	**410.2**	Agricultural	0	0.00	0.0	0	0	0	--	--	0.0	0	0	0
AG/RES	**General Agriculture**	**86.1**	Agricultural	0	0.00	0.0	0	0	0	--	--	0.0	0	0	0
CC	**Commercial & Office**	**1.2**	Commercial	2.02	2.17	2.7	2	3	7	Commercial/Office	1.5	1.8	1	2	4
CMU	**Mixed Use**	**82.0**	Mixed Land Use	5.35	5.75	471.5	292	585	1169	Mixed Use	3.8	311.6	193	348	695
E/HC	**Commercial & Office**	**52.9**	Commercial	2.02	2.17	114.9	71	143	285	Commercial/Office	1.5	79.4	49	89	177
HDR	**High Density Residential (RD-25)**	**36.4**	Multi-Family-High-Density	3.33	3.58	130.2	81	161	323	Residential Medium	3.8	138.3	86	154	309
LC	**Landscape Corridor**	**38.2**	Public Recreation	2.8	3.01	115.1	71	143	285	Park	3.0	114.7	71	128	256
LDR	**Low Density Residential (RD-5)**	**429.2**	Single Family	2.13	2.29	982.8	609	1219	2437	Residential Low	3.6	1545.2	958	1724	3449
LMDR	**Low Density Residential (RD-7)**	**133.0**	Single Family	2.13	2.29	304.5	189	378	755	Residential Low	3.6	478.7	297	534	1068
MDR	**Medium Density Residential (RD-10)**	**62.5**	Multi-Family-Low-Density	2.44	2.62	164.0	102	203	407	Residential Medium	3.8	237.6	147	265	530
P	**Recreation**	**82.3**	Public Recreation	2.8	3.01	247.6	153	307	614	Park	3.0	246.8	153	275	551
SCHOOL	**Public/Quasi-Public**	**141.1**	Public	0.81	0.87	122.8	76	152	305	Mixed Use	2.0	282.1	175	315	630
UF	**Agricultural Urban Reserve**	**45.1**	Public Recreation	2.8	3.01	135.8	84	168	337	Park	3.0	135.4	84	151	302
VHDR	**High Density Residential (RD-40)**	**22.6**	Multi-Family-High-Density	3.33	3.58	81.0	50	100	201	Residential Medium	3.8	86.0	53	96	192
VLDR	**Low Density Residential (RD-2)**	**164.5**	Rural Estate	1.37	1.47	242.3	150	300	601	Residential Low	3.6	592.2	367	661	1322
W	**Public/Quasi-Public**	**15.0**	Non-irrigated	0	0.00	0.0	0	0	0	--	--	0.0	0	0	0
WTLND	**Natural Reserve**	**141.9**	Non-irrigated	0	0.00	0.0	0	0	0	--	--	0.0	0	0	0
Grand Total		**2066.3**				**3138.9**	**1946**	**3892**	**7784**			**4249.8**	**2635**	**4742**	**9485**

(*)City's use factor includes 10% for unaccounted-for water and 15% to account for rights-of-way and streets.

Notes:
City has no category for agricultural parcels. SCWA sees them as not supplied by SCWA water.
City category of Mixed Use was assumed for the school parcel.
All parks were assumed to be irrigated with domestic water at this time.

APPENDIX B

MODEL ASSUMPTIONS AT BOUNDARY

APPENDIX B

Sayo Chaoka

From: Megan Thomas <MeThomas@cityofsacramento.org>
Sent: Tuesday, October 18, 2022 1:49 PM
To: Sayo Chaoka
Cc: Mike Motroni; Jason Reed
Subject: RE: UWS Response
Attachments: Elcentro_12in.pdf

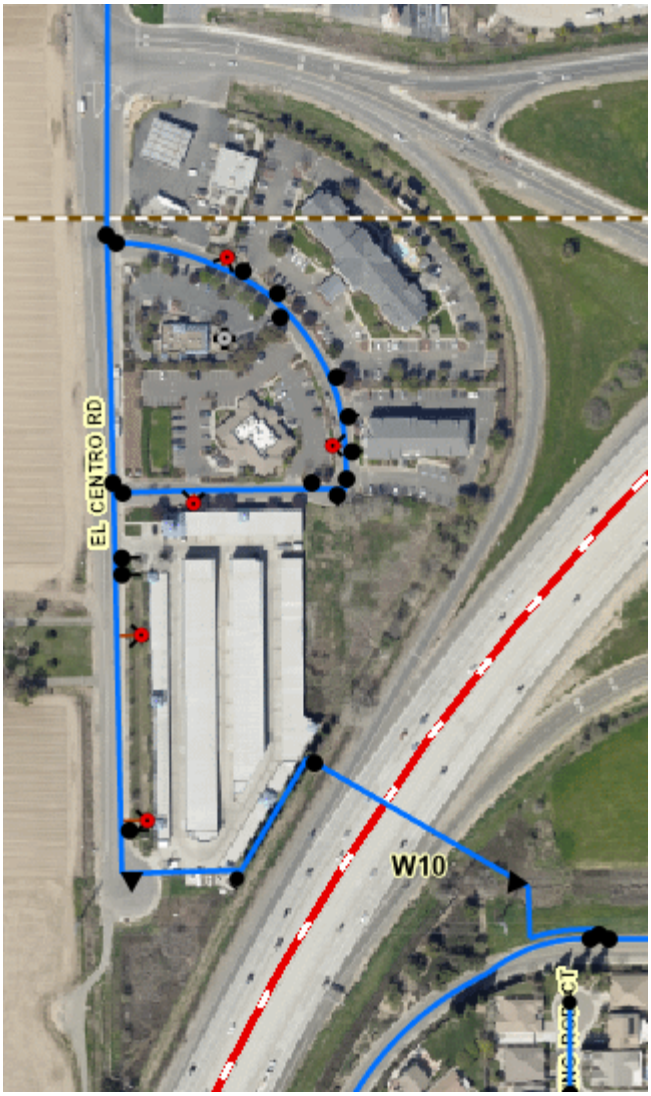
CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Sayo,

I just received the information on the 12" tie-in to the south of your project. Please note that this is assuming the water system is City owned. Also, please note that your project plans didn't reflect the City's existing 12" that runs through El Centro today (from Barandas Dr., across I-80, through to San Juan Rd.), see snapshot below. This should help improve your cost situation for the looping end of things for meeting the City's standards for water main installations.

Let me know if you have any questions.

Megan



From: Sayo Chaoka <schaoka@WoodRodgers.com>
Sent: Monday, October 17, 2022 4:36 PM
To: Megan Thomas <MeThomas@cityofsacramento.org>
Cc: Mike Motroni <mmotroni@WoodRodgers.com>; Jason Reed <jreed@WoodRodgers.com>
Subject: RE: UWS Response

Hi Megan,

I hope you had a good weekend.

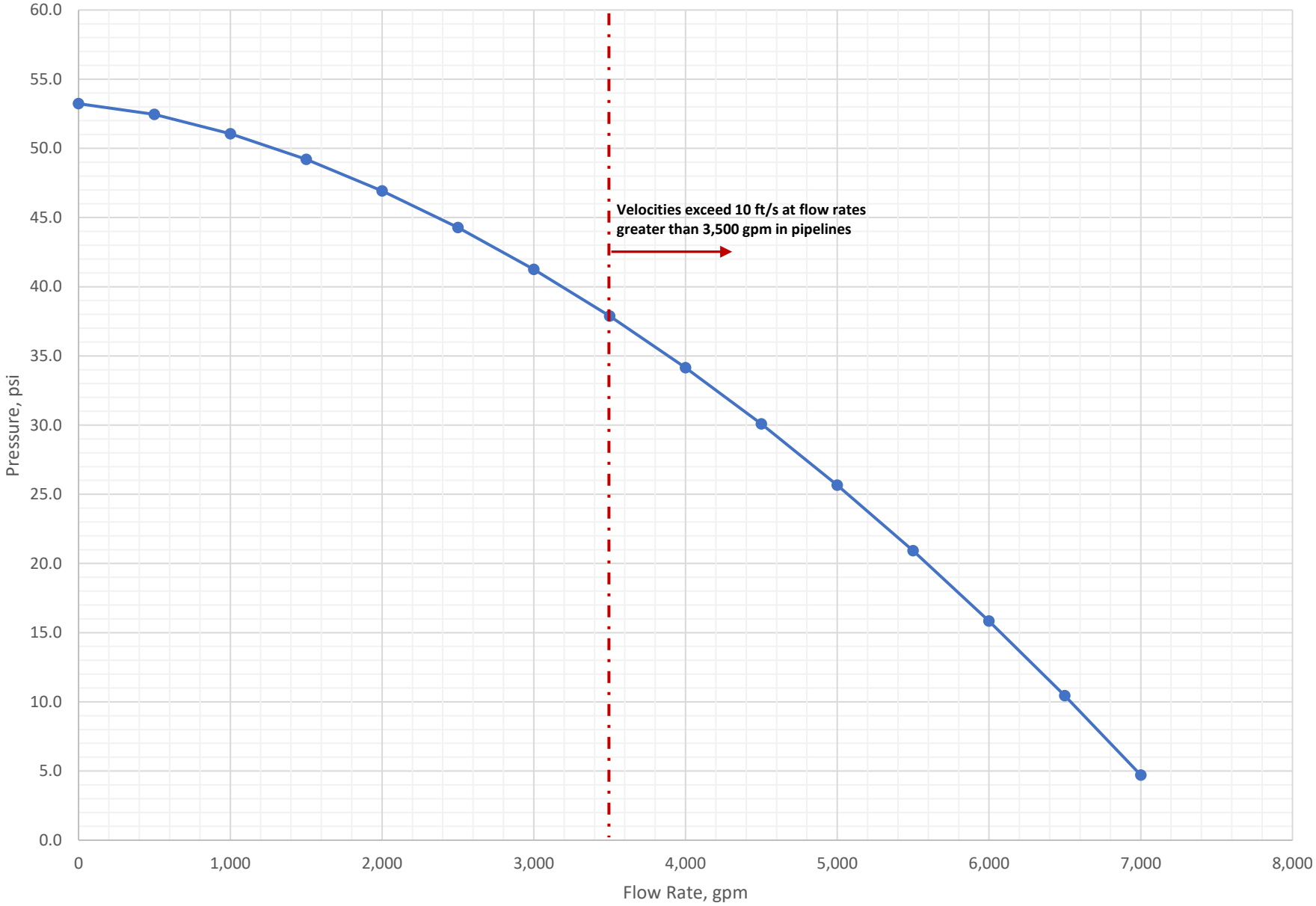
Do you have a new system curve or curves for us to apply to the Upper Westside water model at El Centro and San Juan Road, based on your meeting with West Yost last week?

Thank you,

Sayo

Sayo Chaoka, PE | Project Engineer

Pressure Rating Curve at 12-inch diameter along El Centro



Luke Philbert

From: Bobby Vera <bvera@westyost.com>
Sent: Monday, December 13, 2021 1:22 PM
To: Sayo Chaoka; Brenda Estrada
Cc: Brett Ewart; Mike Motroni; Luke Philbert
Subject: RE: UWS Response

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Hi Sayo –

The curve sent on 11/19 is appropriate to use for your planning level analysis. Thanks!

Bobby Vera, PE
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From: Sayo Chaoka <schaoka@WoodRodgers.com>
Sent: Wednesday, December 8, 2021 9:54 AM
To: Bobby Vera <bvera@westyost.com>; Brenda Estrada <bestrada@westyost.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>
Subject: RE: UWS Response

[This message has originated from outside of West Yost]

Hi Bobby,

Following up on my question below. Could you confirm the curve you sent on 11/19 is good for use as the model boundary for all scenarios – ADD, MDD, PHD, and MDD + Fire Flow?

Thank you,

Sayo Chaoka | Civil Engineer

Wood Rodgers, Inc. | www.woodrodgers.com |
916.341.7760 Tel
916.341.7769 Direct

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From: Sayo Chaoka
Sent: Friday, December 3, 2021 9:25 AM
To: Bobby Vera <bvera@westyost.com>; Brenda Estrada <bestrada@westyost.com>

Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>
Subject: RE: UWS Response

Hi Bobby,

In our conversation last Tuesday, you explained that we would be provided one curve from the City's model. This is to be used during all scenarios (ADD, MDD, PHD, MDD plus fire flow) as the model boundary condition for our hydraulic model. Does it mean that due to the existing storage tanks and pumps kicking in during peak periods, the City system's ability to provide flow/pressure to Upper Westside is unaltered by a peak event?

Please confirm and we will proceed with the curve you provided on November 19th.

Thank you,

Sayo Chaoka | Civil Engineer

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916.341.7769 Direct

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From: Bobby Vera [mailto:bvera@westyost.com]
Sent: Monday, November 29, 2021 4:22 PM
To: Sayo Chaoka <schaoka@WoodRodgers.com>; Brenda Estrada <bestrada@westyost.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>
Subject: RE: UWS Response

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Hi Sayo –

I would simply just interpolate to get pressure/head for 7,762 gpm. Below is the table with that interpolation. A conservative approach would be just to assume the head/pressure conditions at 8,000 gpm since that is close to your 7,762 gpm and buys you some buffer capacity.

Flow, gpm	Pressure, psi	Head, ft
0	52.2	134.5
1,000	51	131.8
2,000	50	129.4
3,000	48.7	126.4
4,505	46.4	121.1
5,000	45.7	119.6
6,000	44.1	115.8
7,000	42.4	111.9
7,762	41.0	108.6

8,000	40.6	107.7
10,000	36.5	98.3

Let me know if you need anything else. Thanks.

Bobby Vera, PE
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direct 916.306.2212
Currently working from home. Please use mobile: 209.996.0756

From: Sayo Chaoka <schaoka@WoodRodgers.com>
Sent: Monday, November 29, 2021 3:15 PM
To: Bobby Vera <bvera@westyost.com>; Brenda Estrada <bestrada@westyost.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>
Subject: RE: UWS Response

[This message has originated from outside of West Yost]

Hi Bobby,

I hope you had a good holiday weekend.

Would you be able to also provide a curve (table), similar to you did below, for the peak hour scenario? Buildout peak hour demand for Upper Westside is estimated to be 7,762 gpm.

Thank you,

Sayo Chaoka | Civil Engineer

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916.341.7769 Direct

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From: Sayo Chaoka
Sent: Friday, November 19, 2021 2:24 PM
To: Bobby Vera <bvera@westyost.com>; Brenda Estrada <bestrada@westyost.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>
Subject: RE: UWS Response

Thank you very much, Bobby. Have a great weekend.

Sayo Chaoka | Civil Engineer

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916.341.7760 Tel
916.341.7769 Direct

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From: Bobby Vera [mailto:bvera@westyost.com]
Sent: Friday, November 19, 2021 2:23 PM
To: Sayo Chaoka <schaoka@WoodRodgers.com>; Brenda Estrada <bestrada@westyost.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>
Subject: RE: UWS Response

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Hi Sayo –

As discussed, below is the rating curve that is taken out to 10,000 gpm. If you use the values in the table below, they would be appropriate for your modeling efforts. Let us know if you have any questions. Thanks!

Flow, gpm	Pressure, psi	Head, ft
0	52.2	134.5
1,000	51.0	131.8
2,000	50.0	129.4
3,000	48.7	126.4
4,505	46.4	121.1
5,000	45.7	119.6
6,000	44.1	115.8
7,000	42.4	111.9
8,000	40.6	107.7
10,000	36.5	98.3

Bobby Vera, PE
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direct 916.306.2212
Currently working from home. Please use mobile: 209.996.0756

From: Sayo Chaoka <schaoka@WoodRodgers.com>
Sent: Friday, November 19, 2021 2:09 PM
To: Brenda Estrada <bestrada@westyost.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>; Bobby Vera <bvera@westyost.com>
Subject: RE: UWS Response

[This message has originated from outside of West Yost]

Thank you, Brenda and Bobby,

This is helpful. Yes, there are new transmission and distribution mains proposed with the new development. Please see attached and let me know if you need this in a different format.

I see that for MDD plus fire flow, we will be at 38 psi – or possibly better with the addition of the proposed UWS pipes. Could you please update our MDD estimate to 5,259 gpm, (FF is still at 4,500 gpm), incorporate the attached pipes, and let me know what the pressure curve will be?

Thanks again,

Sayo Chaoka | Civil Engineer

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916.341.7769 Direct

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From: Brenda Estrada [mailto:bestrada@westyost.com]
Sent: Friday, November 19, 2021 12:44 PM
To: Sayo Chaoka <schaoka@WoodRodgers.com>
Cc: Brett Ewart <bewart@cityofsacramento.org>; Mike Motroni <mmotroni@WoodRodgers.com>; Luke Philbert <lphilbert@WoodRodgers.com>; Bobby Vera <bvera@westyost.com>
Subject: FW: UWS Response

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Hi Sayo,
I apologize for not forwarding this information earlier this week. Please see answers below to your questions as well as possible clarification needed for the pressure curve.

Please let us know if you have any additional questions.
Thanks,
Brenda

From: Bobby Vera <bvera@westyost.com>
Sent: Monday, November 15, 2021 3:19 PM
To: Brenda Estrada <bestrada@westyost.com>
Subject: UWS Response

Brenda – See below.

Question	Response
Pressure curve at El Centro & San Juan during 4,500 gpm fire flow. (Conservative estimate for MDD at UWS is 5,300 gpm.)	*Attached is the Pressure Rating Curve for the intersection of El Centro and San Juan Roads. At 4,500 gpm we predicted a pressure of 46 psi. This was,*

	however, not including the MDD of a nearby development. *Does the proposed development include infrastructure that would loop existing infrastructure? If so we would need to incorporate that into the model to see if this would improve residual pressure.* *Assuming the demand associated with the development is taken out at the intersection (total flow of 9,800 gpm; 4,500 gpm ff + your conservative estimate of 5,300 gpm) the residual pressure would be 38 psi.*
Size of the San Juan reservoir. Is this used during fires only, or peak hour, too?	*San Juan is 3.0 MG tank. This tank is used for both fire flow and operational uses (peaking) as well as emergency.*
Size/type of meters required along El Centro and San Juan for UWS to connect to City system.	*This would be City preference and would be dependent on the layout of the site. If all supply coming from that intersection, then a combination of meters with double check valve assemblies would be needed per City's design criteria. Note that there would be additional head losses through these appurtenances that would need to be accounted for to ensure that 20 psi is maintained throughout the UWS development area.* *https://www.cityofsacramento.org/-/media/Corporate/Files/DOU/Specs-Drawings/Water.pdf?la=en*

Bobby Vera, PE
Senior Engineer
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Sacramento, CA 95826
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APPENDIX C

H2ONET MODEL RESULTS

Wood Rodgers, Inc.
S. Chaoka
2/3/2023

UPPER WESTSIDE WATER STUDY (Scenario II)
DOMESTIC WATER DEMAND

Updated: 2/2/2023

Node	Land Use	Area (acres)	Annual Demand ac-ft/yr	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)
J010	Multiple LU's - see Table 1	96.3	346.77	214.98	386.97	773.94
J012	Multiple LU's - see Table 1	25.5	16.35	10.14	18.25	36.50
J013	Multiple LU's - see Table 1	81.1	162.15	100.53	180.95	361.89
J016	Multiple LU's - see Table 1	177.1	594.35	368.48	663.26	1,326.51
J018	Multiple LU's - see Table 1	115.6	310.20	192.31	346.16	692.31
J019	Multiple LU's - see Table 1	28.1	81.14	50.30	90.55	181.09
J020	Multiple LU's - see Table 1	1.1	3.40	2.11	3.79	7.58
J022	Multiple LU's - see Table 1	23.6	75.84	47.02	84.63	169.27
J024	Multiple LU's - see Table 1	61.2	226.85	140.64	253.15	506.30
J025	Multiple LU's - see Table 1	87.6	213.96	132.65	238.77	477.54
J026	Multiple LU's - see Table 1	76.3	235.59	146.06	262.90	525.80
J028	Multiple LU's - see Table 1	84.4	219.71	136.21	245.18	490.36
J030	Multiple LU's - see Table 1	56.1	172.73	107.09	192.76	385.51
J032	Multiple LU's - see Table 1	60.5	200.33	124.20	223.56	447.12
J034	Multiple LU's - see Table 1	64.3	219.78	136.26	245.26	490.52
J035	Multiple LU's - see Table 1	31.2	112.20	69.56	125.21	250.42
J036	Multiple LU's - see Table 1	34.6	117.28	72.71	130.88	261.76
J037	Multiple LU's - see Table 1	0.0	0.00	0.00	0.00	0.00
J038	Multiple LU's - see Table 1	16.7	54.41	33.73	60.72	121.44
J039	Multiple LU's - see Table 1	14.9	54.36	33.70	60.66	121.33
J040	Multiple LU's - see Table 1	4.4	2.14	1.33	2.39	4.78
J042	Multiple LU's - see Table 1	17.2	64.58	40.04	72.07	144.14
J048	Multiple LU's - see Table 1	4.1	12.40	7.69	13.84	27.68
J050	Multiple LU's - see Table 1	22.6	76.62	47.50	85.50	170.99
J052	Multiple LU's - see Table 1	47.7	100.11	62.07	111.72	223.44
J053	Multiple LU's - see Table 1	14.5	53.14	32.95	59.30	118.60
J056	Multiple LU's - see Table 1	33.1	116.44	72.19	129.94	259.88
J058	Multiple LU's - see Table 1	6.1	18.24	11.31	20.36	40.71
J060	Multiple LU's - see Table 1	8.6	17.22	10.67	19.21	38.43
J064	Multiple LU's - see Table 1	22.2	79.89	49.53	89.15	178.31
J066	Multiple LU's - see Table 1	26.8	96.40	59.77	107.58	215.15
J068	Multiple LU's - see Table 1	29.9	107.80	66.83	120.30	240.59
J070	Multiple LU's - see Table 1	6.9	26.16	16.22	29.19	58.39
J072	Multiple LU's - see Table 1	17.0	61.23	37.96	68.33	136.67
---	Right of Way	116.8				
---	Water	15.0				
Total Area (acres)		**1529.1**				
Total Water Demand including unaccounted system losses (gpm)				**2635**	**4742**	**9485**

categories. City demand factors include losses a 10 % and right-of-way water demands at 15%. For SCWA-based estimates, 7.5% losses were added to

Upper Westside (Scenario I)
1. AVERAGE DAY DEMAND

Updated: 2/2/2023

JUNCTION REPORT

ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	214.98	17.6	137.54	52.0
J012	10.14	13.8	137.64	53.7
J013	100.53	13.8	137.62	53.7
J015	0.00	14.7	137.75	53.3
J016	368.48	15.0	137.62	53.1
J017	0.00	14.3	138.11	53.6
J018	192.31	14.0	138.10	53.8
J019	50.30	14.6	137.64	53.3
J020	2.11	15.5	138.56	53.3
J021	0.00	13.8	137.65	53.7
J022	47.02	13.6	138.41	54.1
J023	0.00	14.5	137.62	53.4
J024	140.64	14.3	138.07	53.6
J025	132.65	13.3	138.87	54.4
J026	146.06	13.0	138.07	54.2
J027	0.00	13.9	138.35	53.9
J028	136.21	14.9	137.80	53.2
J029	0.00	14.5	137.80	53.4
J030	107.09	14.2	137.74	53.5
J031	0.00	14.6	138.01	53.5
J032	124.20	13.6	137.74	53.8
J033	0.00	13.8	137.94	53.8
J034	136.26	14.2	137.64	53.5
J035	69.56	14.1	137.68	53.6
J036	72.71	14.9	137.64	53.2
J037	0.00	14.5	137.64	53.4
J038	33.73	10.0	137.65	55.3
J039	33.70	14.2	137.66	53.5
J040	1.33	13.4	137.62	53.8
J041	0.00	14.2	137.72	53.5
J042	40.04	14.9	137.70	53.2
J044	0.00	14.9	137.76	53.2
J046	0.00	13.0	138.14	54.2
J048	7.69	13.0	137.62	54.0
J050	47.50	14.2	138.07	53.7
J052	62.07	14.8	137.91	53.4
J053	32.95	14.2	137.66	53.5
J054	0.00	13.4	137.62	53.8
J055	0.00	14.8	137.87	53.3
J056	72.19	13.5	137.63	53.8
J058	11.31	13.5	137.63	53.8
J060	10.67	14.9	137.62	53.2
J062	0.00	18.4	137.62	51.7
J064	49.53	17.0	137.58	52.3
J066	59.77	17.0	137.54	52.2
J068	66.83	16.0	137.54	52.7
J070	16.22	14.8	137.64	53.2
J072	37.96	14.5	137.61	53.4
J076	0.00	14.0	137.63	53.6
J082	0.00	0.0	138.60	60.1
J084	0.00	14.1	137.64	53.6
J086	0.00	14.1	137.63	53.6
J088	0.00	14.1	137.69	53.6
J090	0.00	14.0	137.95	53.7
J74	0.00	14.0	137.62	53.6
J78	0.00	17.0	137.58	52.3
J80	0.00	13.2	138.97	54.5
J92	0.00	13.2	138.88	54.5
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	138.93	54.4
T035	0.00	13.0	138.56	54.4
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	138.14	54.2
T075	0.00	13.9	138.36	53.9
T080	0.00	14.3	138.18	53.7
T088	0.00	14.6	138.02	53.5
T120	0.00	14.9	137.92	53.3
T126	0.00	14.5	137.80	53.4
T133	0.00	14.2	137.66	53.5
T138	0.00	14.2	137.72	53.5
T140	0.00	14.2	137.76	53.6
T74	0.00	0.0	134.50	58.3

RESERVOIR / POC REPORT

ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-2,634.71	14

PUMP REPORT

ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.41	54.69	2,634.71	125.26

VALVE REPORT

ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	42.14	53.65	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
1. AVERAGE DAY DEMAND

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-106	0.30	0.10	0.04
P015	J013	J023	1109	12	125	3	0.01	0.00	0.00
P017	J015	J017	1969	12	125	-230	0.65	0.35	0.18
P019	J046	J020	1551	12	125	-287	0.81	0.42	0.27
P021	J082	J92	423	12	125	-469	1.33	0.28	0.67
P023	J022	J027	649	12	125	167	0.47	0.06	0.10
P025	J024	J026	2719	12	125	-6	0.02	0.00	0.00
P027	J024	J031	681	12	125	157	0.45	0.06	0.09
P029	J028	J029	883	12	125	33	0.09	0.00	0.00
P031	J039	J053	514	12	125	-14	0.04	0.00	0.00
P033	J033	J032	733	12	125	289	0.82	0.20	0.27
P037	J032	J035	665	12	125	165	0.47	0.06	0.10
P039	J034	J055	1379	8	125	-76	0.49	0.23	0.17
P041	J034	J019	1005	12	125	43	0.12	0.01	0.01
P043	J044	J042	804	12	125	150	0.42	0.06	0.08
P045	J070	J037	486	12	125	-59	0.17	0.01	0.01
P047	J038	J058	1285	12	125	67	0.19	0.02	0.02
P049	T010	T020	2706	36	120	3	0.00	0.00	0.00
P053	T74	T040	734	30	120	3	0.00	0.00	0.00
P055	T034	T075	1318	16	125	791	1.26	0.57	0.43
P057	T088	T120	671	16	125	430	0.69	0.09	0.14
P059	T120	T126	853	16	125	430	0.69	0.12	0.14
P061	T138	T133	1387	16	125	222	0.35	0.06	0.04
P071	T045	T035	1549	16	125	-616	0.98	0.42	0.27
P077	U7000	T010	3165	999	125	3	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-3	0.00	0.00	0.00
P200	J020	T035	73	12	125	-149	0.42	0.01	0.08
P300	T075	J027	78	12	125	199	0.56	0.01	0.14
P400	T138	J041	43	12	125	52	0.15	0.00	0.01
P500	T133	J039	45	12	125	83	0.23	0.00	0.03
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	765	1.22	0.41	0.41
P610	J010	J021	2480	12	125	-109	0.31	0.11	0.05
P614	T020	ETER-RADIO	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	104	0.29	0.02	0.04
P626	J023	J016	770	12	125	3	0.01	0.00	0.00
P628	T020	T030	2594	36	120	3	0.00	0.00	0.00
P632	J017	J018	57	12	125	56	0.16	0.00	0.01
P634	J018	J033	603	12	125	289	0.82	0.16	0.27
P640	J035	J034	633	12	125	116	0.33	0.03	0.05
P644	J016	J015	738	12	125	-230	0.65	0.13	0.18
P650	J037	J038	616	12	125	-59	0.17	0.01	0.01
P654	J038	J039	640	12	125	-63	0.18	0.01	0.02
P656	T133	J038	659	16	125	140	0.22	0.01	0.02
P658	T140	T138	666	16	125	274	0.44	0.04	0.06
P662	J025	J022	665	12	125	478	1.36	0.46	0.69
P664	UBOOSTER	J80	423	24	125	2635	1.87	0.24	0.56
P666	J025	T034	75	12	125	-502	1.42	0.06	0.76
P668	J027	J024	643	12	125	366	1.04	0.27	0.42
P670	T075	T080	691	16	125	592	0.94	0.18	0.25
P672	J029	J030	463	12	125	189	0.54	0.06	0.13
P674	T126	T140	685	16	125	274	0.44	0.04	0.06
P676	T126	J029	39	12	125	156	0.44	0.00	0.09
P678	J031	J028	640	12	125	319	0.90	0.21	0.33
P680	T080	T088	646	16	125	592	0.94	0.16	0.25
P682	T088	J031	43	12	125	161	0.46	0.00	0.09
P690	J021	J012	54	12	125	220	0.62	0.01	0.16
P692	J022	J026	4009	12	125	153	0.43	0.34	0.08
P694	J053	J041	873	12	125	-134	0.38	0.06	0.07
P696	J019	J036	301	12	125	-19	0.05	0.00	0.00
P698	J048	J040	440	12	125	-22	0.06	0.00	0.00
P700	J056	J054	1851	12	125	23	0.07	0.00	0.00
P702	J042	J036	1326	12	125	110	0.31	0.06	0.05
P704	J028	J044	526	12	125	150	0.42	0.04	0.08
P708	T045	J018	125	16	125	616	0.98	0.03	0.27
P710	J046	J017	123	12	125	287	0.81	0.03	0.27
P712	J052	J024	1000	8	125	-74	0.47	0.16	0.16
P722	RP-RADIORE	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-76	0.49	0.04	0.17
P726	J022	J050	1003	8	125	112	0.71	0.34	0.34
P728	J050	J052	1289	8	125	64	0.41	0.16	0.12
P730	J054	J040	686	12	125	23	0.07	0.00	0.00
P732	J053	J056	1249	12	125	87	0.25	0.04	0.03
P734	J058	J048	1047	12	125	48	0.14	0.01	0.01
P736	J056	J058	1030	8	125	-8	0.05	0.00	0.00
P738	J062	J064	1000	8	125	34	0.22	0.04	0.04
P740	J064	J74	595	8	125	-49	0.31	0.04	0.07
P742	J068	J066	1483	8	125	-2	0.02	0.00	0.00

Upper Westside (Scenario I)
1. AVERAGE DAY DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	-62	0.40	0.08	0.11
P746	J064	J068	1239	8	125	33	0.21	0.04	0.04
P748	J036	J070	350	12	125	18	0.05	0.00	0.00
P750	J070	J076	710	12	125	61	0.17	0.01	0.02
P752	J072	J060	655	12	125	-34	0.10	0.00	0.01
P754	J060	J062	944	12	125	15	0.04	0.00	0.00
P756	J062	J072	391	12	125	35	0.10	0.00	0.01
P758	J78	J068	1341	8	125	32	0.20	0.04	0.03
P760	T030	T74	640	30	120	3	0.00	0.00	0.00
P762	J74	J038	514	8	125	-42	0.27	0.03	0.06
P764	J076	J062	651	12	125	54	0.15	0.01	0.01
P766	J74	J076	1043	8	125	-7	0.04	0.00	0.00
P768	J78	J072	1122	8	125	-31	0.20	0.04	0.03
P770	J064	J78	513	12	125	1	0.00	0.00	0.00
P772	J030	J041	805	12	125	82	0.23	0.02	0.03
P776	RESTANK	UBOOSTER	97	24	125	2635	1.87	0.05	0.56
P778	J80	T034	270	24	125	1293	0.92	0.04	0.15
P782	J020	J082	619	12	125	-140	0.40	0.04	0.07
P784	J082	J021	2748	12	125	329	0.93	0.95	0.35
P786	J019	J084	706	12	125	12	0.03	0.00	0.00
P788	J034	J084	1417	8	125	13	0.08	0.01	0.01
P790	J084	J086	651	12	125	25	0.07	0.00	0.00
P792	J086	J060	1030	12	125	60	0.17	0.02	0.01
P794	J088	J086	1449	8	125	35	0.22	0.06	0.04
P796	J035	J088	992	8	125	-21	0.13	0.02	0.02
P798	J088	J090	2721	8	125	-56	0.36	0.26	0.09
P800	J090	J016	4945	12	125	135	0.38	0.33	0.07
P802	J018	J090	1227	12	125	191	0.54	0.16	0.13
P804	J92	J025	270	12	125	109	0.31	0.01	0.04
P806	J80	J92	86	12	125	578	1.64	0.09	0.99

Upper Westside (Scenario I)
2. MAXIMUM DAY DEMAND

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	134.10	50.5
J012	18.25	13.8	134.40	52.3
J013	180.95	13.8	134.35	52.2
J015	0.00	14.7	134.74	52.0
J016	663.26	15.0	134.34	51.7
J017	0.00	14.3	135.79	52.6
J018	346.16	14.0	135.79	52.8
J019	90.55	14.6	134.40	51.9
J020	3.79	15.5	137.13	52.7
J021	0.00	13.8	134.43	52.3
J022	84.63	13.6	136.70	53.3
J023	0.00	14.5	134.34	51.9
J024	253.15	14.3	135.70	52.6
J025	238.77	13.3	138.07	54.1
J026	262.90	13.0	135.70	53.2
J027	0.00	13.9	136.51	53.1
J028	245.18	14.9	134.89	52.0
J029	0.00	14.5	134.88	52.2
J030	192.76	14.2	134.71	52.2
J031	0.00	14.6	135.52	52.4
J032	223.56	13.6	134.70	52.5
J033	0.00	13.8	135.30	52.7
J034	245.26	14.2	134.42	52.1
J035	125.21	14.1	134.51	52.2
J036	130.88	14.9	134.40	51.8
J037	0.00	14.5	134.42	52.0
J038	60.72	10.0	134.44	53.9
J039	60.66	14.2	134.47	52.1
J040	2.39	13.4	134.34	52.4
J041	0.00	14.2	134.65	52.2
J042	72.07	14.9	134.58	51.9
J044	0.00	14.9	134.77	51.9
J046	0.00	13.0	135.89	53.3
J048	13.84	13.0	134.34	52.6
J050	85.50	14.2	135.69	52.6
J052	111.72	14.8	135.22	52.2
J053	59.30	14.2	134.47	52.1
J054	0.00	13.4	134.35	52.4
J055	0.00	14.8	135.11	52.1
J056	129.94	13.5	134.36	52.4
J058	20.36	13.5	134.37	52.4
J060	19.21	14.9	134.34	51.8
J062	0.00	18.4	134.34	50.2
J064	89.15	17.0	134.23	50.8
J066	107.58	17.0	134.10	50.7
J068	120.30	16.0	134.10	51.2
J070	29.19	14.8	134.40	51.8
J072	68.33	14.5	134.33	51.9
J076	0.00	14.0	134.36	52.2
J082	0.00	0.0	137.26	59.5
J084	0.00	14.1	134.39	52.2
J086	0.00	14.1	134.39	52.1
J088	0.00	14.1	134.56	52.2
J090	0.00	14.0	135.33	52.6
J74	0.00	14.0	134.36	52.2
J78	0.00	17.0	134.23	50.8
J80	0.00	13.2	138.36	54.2
J92	0.00	13.2	138.11	54.1
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	138.24	54.1
T035	0.00	13.0	137.15	53.8
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	135.89	53.3
T075	0.00	13.9	136.54	53.1
T080	0.00	14.3	136.02	52.8
T088	0.00	14.6	135.53	52.4
T120	0.00	14.9	135.25	52.1
T126	0.00	14.5	134.89	52.2
T133	0.00	14.2	134.48	52.1
T138	0.00	14.2	134.65	52.2
T140	0.00	14.2	134.77	52.3
T74	0.00	0.0	134.50	58.3

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-4,742.48	14

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.36	54.62	4,742.48	125.22

VALVE REPORT							
ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstrea... Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	40.55	52.07	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
2. MAXIMUM DAY DEMAND

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-190	0.54	0.31	0.13
P015	J013	J023	1109	12	125	6	0.02	0.00	0.00
P017	J015	J017	1969	12	125	-415	1.18	1.05	0.53
P019	J046	J020	1551	12	125	-516	1.46	1.24	0.80
P021	J082	J92	423	12	125	-844	2.39	0.84	1.99
P023	J022	J027	649	12	125	300	0.85	0.19	0.29
P025	J024	J026	2719	12	125	-12	0.03	0.00	0.00
P027	J024	J031	681	12	125	283	0.80	0.18	0.26
P029	J028	J029	883	12	125	59	0.17	0.01	0.01
P031	J039	J053	514	12	125	-25	0.07	0.00	0.00
P033	J033	J032	733	12	125	520	1.47	0.59	0.81
P037	J032	J035	665	12	125	296	0.84	0.19	0.29
P039	J034	J055	1379	8	125	-137	0.88	0.69	0.50
P041	J034	J019	1005	12	125	78	0.22	0.02	0.02
P043	J044	J042	804	12	125	269	0.76	0.19	0.24
P045	J070	J037	486	12	125	-106	0.30	0.02	0.04
P047	J038	J058	1285	12	125	121	0.34	0.07	0.05
P049	T010	T020	2706	36	120	6	0.00	0.00	0.00
P053	T74	T040	734	30	120	6	0.00	0.00	0.00
P055	T034	T075	1318	16	125	1423	2.27	1.70	1.29
P057	T088	T120	671	16	125	775	1.24	0.28	0.42
P059	T120	T126	853	16	125	775	1.24	0.36	0.42
P061	T138	T133	1387	16	125	400	0.64	0.17	0.12
P071	T045	T035	1549	16	125	-1108	1.77	1.26	0.81
P077	U7000	T010	3165	999	125	6	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-6	0.00	0.00	0.00
P200	J020	T035	73	12	125	-268	0.76	0.02	0.24
P300	T075	J027	78	12	125	358	1.02	0.03	0.41
P400	T138	J041	43	12	125	93	0.26	0.00	0.03
P500	T133	J039	45	12	125	149	0.42	0.00	0.08
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	1376	2.20	1.21	1.21
P610	J010	J021	2480	12	125	-196	0.56	0.33	0.13
P614	T020	TER-RADIO	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	187	0.53	0.06	0.12
P626	J023	J016	770	12	125	6	0.02	0.00	0.00
P628	T020	T030	2594	36	120	6	0.00	0.00	0.00
P632	J017	J018	57	12	125	101	0.29	0.00	0.04
P634	J018	J033	603	12	125	520	1.47	0.49	0.81
P640	J035	J034	633	12	125	209	0.59	0.09	0.15
P644	J016	J015	738	12	125	-415	1.18	0.39	0.53
P650	J037	J038	616	12	125	-106	0.30	0.03	0.04
P654	J038	J039	640	12	125	-113	0.32	0.03	0.05
P656	T133	J038	659	16	125	251	0.40	0.03	0.05
P658	T140	T138	666	16	125	493	0.79	0.12	0.18
P662	J025	J022	665	12	125	861	2.44	1.37	2.06
P664	UBOOSTER	J80	423	24	125	4742	3.36	0.70	1.66
P666	J025	T034	75	12	125	-904	2.56	0.17	2.26
P668	J027	J024	643	12	125	659	1.87	0.81	1.26
P670	T075	T080	691	16	125	1065	1.70	0.52	0.75
P672	J029	J030	463	12	125	341	0.97	0.17	0.37
P674	T126	T140	685	16	125	493	0.79	0.12	0.18
P676	T126	J029	39	12	125	282	0.80	0.01	0.26
P678	J031	J028	640	12	125	574	1.63	0.62	0.97
P680	T080	T088	646	16	125	1065	1.70	0.49	0.75
P682	T088	J031	43	12	125	290	0.82	0.01	0.28
P690	J021	J012	54	12	125	395	1.12	0.03	0.49
P692	J022	J026	4009	12	125	275	0.78	1.00	0.25
P694	J053	J041	873	12	125	-241	0.68	0.17	0.20
P696	J019	J036	301	12	125	-34	0.10	0.00	0.01
P698	J048	J040	440	12	125	-39	0.11	0.00	0.01
P700	J056	J054	1851	12	125	42	0.12	0.01	0.01
P702	J042	J036	1326	12	125	197	0.56	0.18	0.13
P704	J028	J044	526	12	125	269	0.76	0.13	0.24
P708	T045	J018	125	16	125	1108	1.77	0.10	0.81
P710	J046	J017	123	12	125	516	1.46	0.10	0.80
P712	J052	J024	1000	8	125	-134	0.85	0.47	0.47
P722	RP-RADIORD	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-137	0.88	0.12	0.50
P726	J022	J050	1003	8	125	201	1.28	1.01	1.01
P728	J050	J052	1289	8	125	115	0.74	0.46	0.36
P730	J054	J040	686	12	125	42	0.12	0.01	0.01
P732	J053	J056	1249	12	125	157	0.45	0.11	0.09
P734	J058	J048	1047	12	125	86	0.24	0.03	0.03
P736	J056	J058	1030	8	125	-15	0.09	0.01	0.01
P738	J062	J064	1000	8	125	61	0.39	0.11	0.11
P740	J064	J74	595	8	125	-88	0.56	0.13	0.22
P742	J068	J066	1483	8	125	-4	0.03	0.00	0.00

Upper Westside (Scenario I)
2. MAXIMUM DAY DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	-112	0.71	0.24	0.34
P746	J064	J068	1239	8	125	59	0.38	0.13	0.10
P748	J036	J070	350	12	125	32	0.09	0.00	0.00
P750	J070	J076	710	12	125	109	0.31	0.03	0.05
P752	J072	J060	655	12	125	-61	0.17	0.01	0.02
P754	J060	J062	944	12	125	28	0.08	0.00	0.00
P756	J062	J072	391	12	125	64	0.18	0.01	0.02
P758	J78	J068	1341	8	125	57	0.36	0.13	0.10
P760	T030	T74	640	30	120	6	0.00	0.00	0.00
P762	J74	J038	514	8	125	-76	0.48	0.09	0.17
P764	J076	J062	651	12	125	97	0.28	0.02	0.04
P766	J74	J076	1043	8	125	-12	0.08	0.01	0.01
P768	J78	J072	1122	8	125	-56	0.36	0.11	0.09
P770	J064	J78	513	12	125	1	0.00	0.00	0.00
P772	J030	J041	805	12	125	148	0.42	0.06	0.08
P776	RESTANK	UBOOSTER	97	24	125	4742	3.36	0.16	1.66
P778	J80	T034	270	24	125	2327	1.65	0.12	0.44
P782	J020	J082	619	12	125	-252	0.72	0.13	0.21
P784	J082	J021	2748	12	125	592	1.68	2.83	1.03
P786	J019	J084	706	12	125	21	0.06	0.00	0.00
P788	J034	J084	1417	8	125	23	0.15	0.03	0.02
P790	J084	J086	651	12	125	44	0.13	0.01	0.01
P792	J086	J060	1030	12	125	108	0.31	0.05	0.04
P794	J088	J086	1449	8	125	63	0.40	0.17	0.12
P796	J035	J088	992	8	125	-38	0.24	0.05	0.05
P798	J088	J090	2721	8	125	-101	0.64	0.77	0.28
P800	J090	J016	4945	12	125	243	0.69	0.98	0.20
P802	J018	J090	1227	12	125	344	0.98	0.46	0.38
P804	J92	J025	270	12	125	196	0.56	0.04	0.13
P806	J80	J92	86	12	125	1040	2.95	0.25	2.93

Upper Westside (Scenario I)
3. PEAK HOUR DEMAND

Updated: 2/2/2023

JUNCTION REPORT

ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	773.94	17.6	120.44	44.6
J012	36.50	13.8	121.55	46.7
J013	361.89	13.8	121.34	46.6
J015	0.00	14.7	122.76	46.8
J016	1326.51	15.0	121.34	46.1
J017	0.00	14.3	126.56	48.6
J018	692.31	14.0	126.55	48.8
J019	181.09	14.6	121.52	46.3
J020	7.58	15.5	131.40	50.2
J021	0.00	13.8	121.64	46.7
J022	169.27	13.6	129.83	50.4
J023	0.00	14.5	121.34	46.3
J024	506.30	14.3	126.22	48.5
J025	477.54	13.3	134.79	52.6
J026	525.80	13.0	126.23	49.1
J027	0.00	13.9	129.14	49.9
J028	490.36	14.9	123.33	47.0
J029	0.00	14.5	123.28	47.1
J030	385.51	14.2	122.66	47.0
J031	0.00	14.6	125.58	48.1
J032	447.12	13.6	122.64	47.3
J033	0.00	13.8	124.79	48.1
J034	490.52	14.2	121.61	46.5
J035	250.42	14.1	121.95	46.7
J036	261.76	14.9	121.53	46.2
J037	0.00	14.5	121.60	46.4
J038	121.44	10.0	121.70	48.4
J039	121.33	14.2	121.81	46.6
J040	4.78	13.4	121.34	46.8
J041	0.00	14.2	122.43	46.9
J042	144.14	14.9	122.18	46.5
J044	0.00	14.9	122.87	46.8
J046	0.00	13.0	126.92	49.4
J048	27.68	13.0	121.33	46.9
J050	170.99	14.2	126.19	48.5
J052	223.44	14.8	124.52	47.5
J053	118.60	14.2	121.81	46.6
J054	0.00	13.4	121.36	46.8
J055	0.00	14.8	124.09	47.4
J056	259.88	13.5	121.41	46.8
J058	40.71	13.5	121.44	46.8
J060	38.43	14.9	121.34	46.1
J062	0.00	18.4	121.32	44.6
J064	178.31	17.0	120.92	45.0
J066	215.15	17.0	120.46	44.8
J068	240.59	16.0	120.45	45.3
J070	58.39	14.8	121.52	46.2
J072	136.67	14.5	121.30	46.3
J076	0.00	14.0	121.41	46.5
J082	0.00	0.0	131.88	57.1
J084	0.00	14.1	121.52	46.6
J086	0.00	14.1	121.50	46.6
J088	0.00	14.1	122.12	46.8
J090	0.00	14.0	124.88	48.0
J74	0.00	14.0	121.39	46.5
J78	0.00	17.0	120.92	45.0
J80	0.00	13.2	135.83	53.1
J92	0.00	13.2	134.92	52.7
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	135.40	52.9
T035	0.00	13.0	131.46	51.3
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	126.92	49.4
T075	0.00	13.9	129.26	50.0
T080	0.00	14.3	127.38	49.0
T088	0.00	14.6	125.62	48.1
T120	0.00	14.9	124.60	47.5
T126	0.00	14.5	123.32	47.2
T133	0.00	14.2	121.82	46.6
T138	0.00	14.2	122.43	46.9
T140	0.00	14.2	122.87	47.1
T74	0	0	134.5	58.28

RESERVOIR / POC REPORT

ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-9,484.96	14

PUMP REPORT

ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.18	54.32	9,484.96	124.95

VALVE REPORT

ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	35.09	46.6	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
3. PEAK HOUR DEMAND

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-381	1.08	1.10	0.46
P015	J013	J023	1109	12	125	11	0.03	0.00	0.00
P017	J015	J017	1969	12	125	-830	2.35	3.80	1.93
P019	J046	J020	1551	12	125	-1032	2.93	4.48	2.89
P021	J082	J92	423	12	125	-1688	4.79	3.04	7.19
P023	J022	J027	649	12	125	601	1.70	0.69	1.06
P025	J024	J026	2719	12	125	-23	0.07	0.01	0.00
P027	J024	J031	681	12	125	567	1.61	0.65	0.95
P029	J028	J029	883	12	125	119	0.34	0.05	0.05
P031	J039	J053	514	12	125	-50	0.14	0.01	0.01
P033	J033	J032	733	12	125	1039	2.95	2.15	2.93
P037	J032	J035	665	12	125	592	1.68	0.69	1.03
P039	J034	J055	1379	8	125	-275	1.75	2.47	1.80
P041	J034	J019	1005	12	125	156	0.44	0.09	0.09
P043	J044	J042	804	12	125	538	1.53	0.70	0.87
P045	J070	J037	486	12	125	-212	0.60	0.08	0.15
P047	J038	J058	1285	12	125	242	0.69	0.25	0.20
P049	T010	T020	2706	36	120	12	0.00	0.00	0.00
P053	T74	T040	734	30	120	12	0.01	0.00	0.00
P055	T034	T075	1318	16	125	2846	4.54	6.14	4.66
P057	T088	T120	671	16	125	1549	2.47	1.01	1.51
P059	T120	T126	853	16	125	1549	2.47	1.29	1.51
P061	T138	T133	1387	16	125	800	1.28	0.62	0.44
P071	T045	T035	1549	16	125	-2217	3.54	4.54	2.93
P077	U7000	T010	3165	999	125	12	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-12	0.00	0.00	0.00
P200	J020	T035	73	12	125	-536	1.52	0.06	0.86
P300	T075	J027	78	12	125	716	2.03	0.12	1.47
P400	T138	J041	43	12	125	186	0.53	0.01	0.12
P500	T133	J039	45	12	125	297	0.84	0.01	0.29
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	2752	4.39	4.37	4.38
P610	J010	J021	2480	12	125	-393	1.11	1.20	0.48
P614	T020	:TER-RADIO	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	373	1.06	0.20	0.44
P626	J023	J016	770	12	125	11	0.03	0.00	0.00
P628	T020	T030	2594	36	120	12	0.00	0.00	0.00
P632	J017	J018	57	12	125	203	0.58	0.01	0.14
P634	J018	J033	603	12	125	1039	2.95	1.76	2.93
P640	J035	J034	633	12	125	417	1.18	0.34	0.54
P644	J016	J015	738	12	125	-830	2.35	1.42	1.93
P650	J037	J038	616	12	125	-212	0.60	0.10	0.15
P654	J038	J039	640	12	125	-226	0.64	0.11	0.17
P656	T133	J038	659	16	125	502	0.80	0.12	0.19
P658	T140	T138	666	16	125	986	1.57	0.44	0.65
P662	J025	J022	665	12	125	1721	4.88	4.96	7.45
P664	UBOOSTER	J80	423	24	125	9485	6.73	2.54	6.01
P666	J025	T034	75	12	125	-1807	5.13	0.61	8.15
P668	J027	J024	643	12	125	1317	3.74	2.92	4.54
P670	T075	T080	691	16	125	2130	3.40	1.88	2.72
P672	J029	J030	463	12	125	682	1.93	0.62	1.34
P674	T126	T140	685	16	125	986	1.57	0.45	0.65
P676	T126	J029	39	12	125	563	1.60	0.04	0.94
P678	J031	J028	640	12	125	1147	3.25	2.25	3.52
P680	T080	T088	646	16	125	2130	3.40	1.76	2.72
P682	T088	J031	43	12	125	581	1.65	0.04	1.00
P690	J021	J012	54	12	125	791	2.24	0.10	1.76
P692	J022	J026	4009	12	125	549	1.56	3.60	0.90
P694	J053	J041	873	12	125	-483	1.37	0.62	0.71
P696	J019	J036	301	12	125	-68	0.19	0.01	0.02
P698	J048	J040	440	12	125	-79	0.22	0.01	0.02
P700	J056	J054	1851	12	125	84	0.24	0.05	0.03
P702	J042	J036	1326	12	125	394	1.12	0.64	0.49
P704	J028	J044	526	12	125	538	1.53	0.46	0.87
P708	T045	J018	125	16	125	2217	3.54	0.37	2.93
P710	J046	J017	123	12	125	1032	2.93	0.36	2.89
P712	J052	J024	1000	8	125	-267	1.71	1.71	1.71
P722	RP-RADIORD	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-275	1.75	0.43	1.80
P726	J022	J050	1003	8	125	402	2.56	3.64	3.63
P728	J050	J052	1289	8	125	231	1.47	1.68	1.30
P730	J054	J040	686	12	125	84	0.24	0.02	0.03
P732	J053	J056	1249	12	125	314	0.89	0.40	0.32
P734	J058	J048	1047	12	125	173	0.49	0.11	0.11
P736	J056	J058	1030	8	125	-29	0.19	0.03	0.03
P738	J062	J064	1000	8	125	123	0.78	0.40	0.40
P740	J064	J74	595	8	125	-176	1.12	0.47	0.79
P742	J068	J066	1483	8	125	-9	0.06	0.00	0.00

Upper Westside (Scenario I)
3. PEAK HOUR DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	-224	1.43	0.87	1.23
P746	J064	J068	1239	8	125	118	0.76	0.47	0.38
P748	J036	J070	350	12	125	64	0.18	0.01	0.02
P750	J070	J076	710	12	125	218	0.62	0.12	0.16
P752	J072	J060	655	12	125	-121	0.34	0.04	0.05
P754	J060	J062	944	12	125	56	0.16	0.01	0.01
P756	J062	J072	391	12	125	127	0.36	0.02	0.06
P758	J78	J068	1341	8	125	114	0.72	0.47	0.35
P760	T030	T74	640	30	120	12	0.01	0.00	0.00
P762	J74	J038	514	8	125	-152	0.97	0.31	0.60
P764	J076	J062	651	12	125	194	0.55	0.09	0.13
P766	J74	J076	1043	8	125	-24	0.15	0.02	0.02
P768	J78	J072	1122	8	125	-112	0.71	0.38	0.34
P770	J064	J78	513	12	125	2	0.01	0.00	0.00
P772	J030	J041	805	12	125	296	0.84	0.23	0.29
P776	RESTANK	UBOOSTER	97	24	125	9485	6.73	0.58	6.01
P778	J80	T034	270	24	125	4653	3.30	0.43	1.61
P782	J020	J082	619	12	125	-504	1.43	0.47	0.77
P784	J082	J021	2748	12	125	1183	3.36	10.23	3.72
P786	J019	J084	706	12	125	43	0.12	0.01	0.01
P788	J034	J084	1417	8	125	46	0.29	0.09	0.07
P790	J084	J086	651	12	125	89	0.25	0.02	0.03
P792	J086	J060	1030	12	125	215	0.61	0.16	0.16
P794	J088	J086	1449	8	125	126	0.81	0.62	0.43
P796	J035	J088	992	8	125	-76	0.48	0.16	0.16
P798	J088	J090	2721	8	125	-202	1.29	2.76	1.02
P800	J090	J016	4945	12	125	486	1.38	3.54	0.72
P802	J018	J090	1227	12	125	688	1.95	1.67	1.36

Upper Westside (Scenario I)
4. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J023 (School on Radio Road)

Updated: 2/2/2023

JUNCTION REPORT

ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	93.95	33.1
J012	18.25	13.8	94.05	34.8
J013	180.95	13.8	89.93	33.0
J015	0.00	14.7	103.56	38.5
J016	663.26	15.0	95.80	35.0
J017	0.00	14.3	124.26	47.7
J018	346.16	14.0	124.42	47.8
J019	90.55	14.6	125.93	48.2
J020	3.79	15.5	129.51	49.4
J021	0.00	13.8	94.59	35.0
J022	84.63	13.6	132.56	51.5
J023	4500.00	14.5	81.77	29.2
J024	253.15	14.3	130.60	50.4
J025	238.77	13.3	135.15	52.8
J026	262.90	13.0	130.74	51.0
J027	0.00	13.9	132.14	51.2
J028	245.18	14.9	128.43	49.2
J029	0.00	14.5	128.38	49.3
J030	192.76	14.2	127.99	49.3
J031	0.00	14.6	129.96	50.0
J032	223.56	13.6	124.53	48.1
J033	0.00	13.8	124.47	48.0
J034	245.26	14.2	125.44	48.2
J035	125.21	14.1	124.82	48.0
J036	130.88	14.9	126.24	48.2
J037	0.00	14.5	126.60	48.6
J038	60.72	10.0	126.99	50.7
J039	60.66	14.2	127.14	48.9
J040	2.39	13.4	126.88	49.2
J041	0.00	14.2	127.70	49.2
J042	72.07	14.9	127.19	48.7
J044	0.00	14.9	127.94	49.0
J046	0.00	13.0	124.65	48.4
J048	13.84	13.0	126.87	49.3
J050	85.50	14.2	130.61	50.4
J052	111.72	14.8	129.31	49.6
J053	59.30	14.2	127.18	49.0
J054	0.00	13.4	126.90	49.2
J055	0.00	14.8	128.73	49.4
J056	129.94	13.5	126.95	49.2
J058	20.36	13.5	126.93	49.2
J060	19.21	14.9	126.02	48.2
J062	0.00	18.4	126.06	46.7
J064	89.15	17.0	126.06	47.3
J066	107.58	17.0	126.27	47.4
J068	120.30	16.0	126.03	47.7
J070	29.19	14.8	126.30	48.3
J072	68.33	14.5	126.04	48.3
J076	0.00	14.0	126.21	48.6
J082	0.00	0.0	129.51	56.1
J084	0.00	14.1	125.90	48.5
J086	0.00	14.1	125.90	48.5
J088	0.00	14.1	124.66	47.9
J090	0.00	14.0	120.29	46.1
J74	0.00	14.0	126.38	48.7
J78	0.00	17.0	126.06	47.3
J80	0.00	13.2	136.00	53.2
J92	0.00	13.2	135.09	52.8
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	135.70	53.0
T035	0.00	13.0	129.72	50.6
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	124.82	48.5
T075	0.00	13.9	132.20	51.3
T080	0.00	14.3	131.05	50.6
T088	0.00	14.6	129.98	50.0
T120	0.00	14.9	129.28	49.5
T126	0.00	14.5	128.40	49.4
T133	0.00	14.2	127.15	48.9
T138	0.00	14.2	127.70	49.2
T140	0.00	14.2	128.04	49.3
T74	0.00	0.0	134.50	58.3

RESERVOIR / POC REPORT

ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-9,242.48	14

PUMP REPORT

ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.19	54.35	9,242.48	124.98

VALVE REPORT

ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	21.47	32.99	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
4. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J023 (School on Radio Road)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-106	0.30	0.10	0.04
P015	J013	J023	1109	12	125	1710	4.85	8.16	7.36
P017	J015	J017	1969	12	125	-2073	5.88	20.70	10.51
P019	J046	J020	1551	12	125	-1078	3.06	4.86	3.13
P021	J082	J92	423	12	125	-2341	6.64	5.57	13.17
P023	J022	J027	649	12	125	460	1.30	0.42	0.65
P025	J024	J026	2719	12	125	-117	0.33	0.14	0.05
P027	J024	J031	681	12	125	566	1.60	0.65	0.95
P029	J028	J029	883	12	125	127	0.36	0.05	0.06
P031	J039	J053	514	12	125	-146	0.41	0.04	0.08
P033	J033	J032	733	12	125	-151	0.43	0.06	0.08
P037	J032	J035	665	12	125	-375	1.06	0.29	0.44
P039	J034	J055	1379	8	125	-320	2.05	3.29	2.39
P041	J034	J019	1005	12	125	-392	1.11	0.48	0.48
P043	J044	J042	804	12	125	560	1.59	0.75	0.93
P045	J070	J037	486	12	125	-451	1.28	0.30	0.62
P047	J038	J058	1285	12	125	113	0.32	0.06	0.05
P049	T010	T020	2706	36	120	12	0.00	0.00	0.00
P053	T74	T040	734	30	120	12	0.01	0.00	0.00
P055	T034	T075	1318	16	125	2103	3.36	3.51	2.66
P057	T088	T120	671	16	125	1265	2.02	0.70	1.04
P059	T120	T126	853	16	125	1265	2.02	0.88	1.04
P061	T138	T133	1387	16	125	758	1.21	0.56	0.40
P071	T045	T035	1549	16	125	-2311	3.69	4.91	3.17
P077	U7000	T010	3165	999	125	12	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-12	0.00	0.00	0.00
P200	J020	T035	73	12	125	-1038	2.94	0.21	2.92
P300	T075	J027	78	12	125	472	1.34	0.05	0.68
P400	T138	J041	43	12	125	106	0.30	0.00	0.04
P500	T133	J039	45	12	125	184	0.52	0.01	0.12
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	3348	5.34	6.28	6.29
P610	J010	J021	2480	12	125	-281	0.80	0.64	0.26
P614	T020	TER-RADIO	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	1891	5.36	4.12	8.87
P626	J023	J016	770	12	125	-2790	7.91	14.04	18.23
P628	T020	T030	2594	36	120	12	0.00	0.00	0.00
P632	J017	J018	57	12	125	-995	2.82	0.16	2.70
P634	J018	J033	603	12	125	-151	0.43	0.05	0.08
P640	J035	J034	633	12	125	-575	1.63	0.62	0.98
P644	J016	J015	738	12	125	-2073	5.88	7.76	10.51
P650	J037	J038	616	12	125	-451	1.28	0.38	0.62
P654	J038	J039	640	12	125	-269	0.76	0.15	0.24
P656	T133	J038	659	16	125	575	0.92	0.16	0.24
P658	T140	T138	666	16	125	864	1.38	0.34	0.51
P662	J025	J022	665	12	125	1212	3.44	2.59	3.89
P664	UBOOSTER	J80	423	24	125	9242	6.55	2.42	5.72
P666	J025	T034	75	12	125	-1712	4.86	0.55	7.38
P668	J027	J024	643	12	125	932	2.64	1.54	2.39
P670	T075	T080	691	16	125	1631	2.60	1.15	1.66
P672	J029	J030	463	12	125	527	1.50	0.39	0.83
P674	T126	T140	685	16	125	864	1.38	0.35	0.51
P676	T126	J029	39	12	125	400	1.14	0.02	0.50
P678	J031	J028	640	12	125	932	2.64	1.53	2.39
P680	T080	T088	646	16	125	1631	2.60	1.07	1.66
P682	T088	J031	43	12	125	366	1.04	0.02	0.42
P690	J021	J012	54	12	125	2015	5.72	0.54	9.98
P692	J022	J026	4009	12	125	380	1.08	1.82	0.45
P694	J053	J041	873	12	125	-441	1.25	0.52	0.60
P696	J019	J036	301	12	125	-590	1.67	0.31	1.03
P698	J048	J040	440	12	125	-78	0.22	0.01	0.02
P700	J056	J054	1851	12	125	81	0.23	0.05	0.03
P702	J042	J036	1326	12	125	488	1.38	0.96	0.72
P704	J028	J044	526	12	125	560	1.59	0.49	0.93
P708	T045	J018	125	16	125	2311	3.69	0.40	3.17
P710	J046	J017	123	12	125	1078	3.06	0.39	3.13
P712	J052	J024	1000	8	125	-231	1.47	1.30	1.30
P722	RP-RADIORD	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-320	2.05	0.57	2.39
P726	J022	J050	1003	8	125	287	1.83	1.95	1.95
P728	J050	J052	1289	8	125	202	1.29	1.30	1.01
P730	J054	J040	686	12	125	81	0.23	0.02	0.03
P732	J053	J056	1249	12	125	235	0.67	0.23	0.19
P734	J058	J048	1047	12	125	118	0.33	0.05	0.05
P736	J056	J058	1030	8	125	25	0.16	0.02	0.02
P738	J062	J064	1000	8	125	12	0.08	0.01	0.01
P740	J064	J74	595	8	125	-144	0.92	0.32	0.54
P742	J068	J066	1483	8	125	-75	0.48	0.24	0.16

Upper Westside (Scenario I)
4. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J023 (School on Radio Road)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	-182	1.16	0.60	0.84
P746	J064	J068	1239	8	125	24	0.16	0.03	0.02
P748	J036	J070	350	12	125	-234	0.66	0.06	0.18
P750	J070	J076	710	12	125	188	0.53	0.09	0.12
P752	J072	J060	655	12	125	89	0.25	0.02	0.03
P754	J060	J062	944	12	125	-115	0.33	0.05	0.05
P756	J062	J072	391	12	125	136	0.39	0.03	0.07
P758	J78	J068	1341	8	125	21	0.14	0.02	0.02
P760	T030	T74	640	30	120	12	0.01	0.00	0.00
P762	J74	J038	514	8	125	-219	1.40	0.61	1.18
P764	J076	J062	651	12	125	262	0.74	0.15	0.23
P766	J74	J076	1043	8	125	75	0.48	0.17	0.16
P768	J78	J072	1122	8	125	21	0.13	0.02	0.02
P770	J064	J78	513	12	125	42	0.12	0.00	0.01
P772	J030	J041	805	12	125	335	0.95	0.29	0.36
P776	RESTANK	UBOOSTER	97	24	125	9242	6.55	0.55	5.72
P778	J80	T034	270	24	125	3815	2.71	0.30	1.11
P782	J020	J082	619	12	125	-44	0.13	0.01	0.01
P784	J082	J021	2748	12	125	2296	6.51	34.92	12.71
P786	J019	J084	706	12	125	108	0.31	0.03	0.04
P788	J034	J084	1417	8	125	-108	0.69	0.45	0.32
P790	J084	J086	651	12	125	0	0.00	0.00	0.00
P792	J086	J060	1030	12	125	-184	0.52	0.12	0.12
P794	J088	J086	1449	8	125	-184	1.17	1.23	0.85
P796	J035	J088	992	8	125	75	0.48	0.16	0.16
P798	J088	J090	2721	8	125	259	1.65	4.38	1.61
P800	J090	J016	4945	12	125	1380	3.92	24.48	4.95
P802	J018	J090	1227	12	125	1121	3.18	4.13	3.37
P804	J92	J025	270	12	125	-262	0.74	0.06	0.23
P806	J80	J92	86	12	125	2079	5.90	0.91	10.57

Upper Westside (Scenario I)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	127.80	47.8
J012	18.25	13.8	128.09	49.5
J013	180.95	13.8	127.86	49.4
J015	0.00	14.7	127.86	49.0
J016	663.26	15.0	127.54	48.8
J017	0.00	14.3	128.71	49.6
J018	346.16	14.0	128.66	49.7
J019	90.55	14.6	109.82	41.3
J020	3.79	15.5	132.65	50.8
J021	0.00	13.8	128.15	49.6
J022	84.63	13.6	128.71	49.9
J023	0.00	14.5	127.67	49.0
J024	253.15	14.3	123.91	47.5
J025	238.77	13.3	134.99	52.7
J026	262.90	13.0	124.77	48.5
J027	0.00	13.9	127.28	49.1
J028	245.18	14.9	116.90	44.2
J029	0.00	14.5	116.48	44.2
J030	192.76	14.2	115.31	43.8
J031	0.00	14.6	121.34	46.3
J032	223.56	13.6	119.19	45.8
J033	0.00	13.8	124.39	47.9
J034	245.26	14.2	113.07	42.8
J035	125.21	14.1	115.57	44.0
J036	130.88	14.9	109.80	41.1
J037	0.00	14.5	109.84	41.3
J038	60.72	10.0	111.02	43.8
J039	60.66	14.2	111.73	42.3
J040	2.39	13.4	110.58	42.1
J041	0.00	14.2	113.97	43.2
J042	72.07	14.9	113.10	42.6
J044	0.00	14.9	115.40	43.6
J046	0.00	13.0	129.00	50.3
J048	13.84	13.0	110.49	42.2
J050	85.50	14.2	124.99	48.0
J052	111.72	14.8	121.90	46.4
J053	59.30	14.2	111.96	42.4
J054	0.00	13.4	110.72	42.2
J055	0.00	14.8	120.60	45.8
J056	129.94	13.5	111.10	42.3
J058	20.36	13.5	110.81	42.2
J060	19.21	14.9	97.30	35.7
J062	0.00	18.4	97.29	34.2
J064	89.15	17.0	99.45	35.7
J066	107.58	17.0	106.12	38.6
J068	120.30	16.0	100.12	36.5
J070	29.19	14.8	108.91	40.8
J072	4568.33	14.5	92.32	33.7
J076	0.00	14.0	103.38	38.7
J082	0.00	0.0	133.20	57.7
J084	0.00	14.1	108.35	40.9
J086	0.00	14.1	105.68	39.7
J088	0.00	14.1	115.28	43.8
J090	0.00	14.0	127.64	49.2
J74	0.00	14.0	104.27	39.1
J78	0.00	17.0	99.22	35.6
J80	0.00	13.2	136.00	53.2
J92	0.00	13.2	135.23	52.9
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	135.51	53.0
T035	0.00	13.0	132.68	51.9
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	128.96	50.3
T075	0.00	13.9	127.35	49.2
T080	0.00	14.3	124.26	47.7
T088	0.00	14.6	121.37	46.3
T120	0.00	14.9	119.23	45.2
T126	0.00	14.5	116.52	44.2
T133	0.00	14.2	111.75	42.3
T138	0.00	14.2	113.97	43.2
T140	0.00	14.2	115.23	43.8
T74	0.00	0.0	134.50	58.3

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-9,242.48	14

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.19	54.35	9,242.48	124.98

VALVE REPORT							
ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	60.93	49.42	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-185	0.53	0.29	0.12
P015	J013	J023	1109	12	125	222	0.63	0.19	0.17
P017	J015	J017	1969	12	125	-370	1.05	0.85	0.43
P019	J046	J020	1551	12	125	-924	2.62	3.65	2.36
P021	J082	J92	423	12	125	-1356	3.85	2.03	4.79
P023	J022	J027	649	12	125	890	2.52	1.42	2.19
P025	J024	J026	2719	12	125	-313	0.89	0.86	0.32
P027	J024	J031	681	12	125	1192	3.38	2.57	3.77
P029	J028	J029	883	12	125	388	1.10	0.42	0.47
P031	J039	J053	514	12	125	-376	1.07	0.23	0.44
P033	J033	J032	733	12	125	1675	4.75	5.20	7.09
P037	J032	J035	665	12	125	1452	4.12	3.62	5.44
P039	J034	J055	1379	8	125	-501	3.20	7.53	5.46
P041	J034	J019	1005	12	125	1096	3.11	3.25	3.23
P043	J044	J042	804	12	125	1025	2.91	2.29	2.85
P045	J070	J037	486	12	125	-828	2.35	0.93	1.92
P047	J038	J058	1285	12	125	223	0.63	0.22	0.17
P049	T010	T020	2706	36	120	12	0.00	0.00	0.00
P053	T74	T040	734	30	120	12	0.01	0.00	0.00
P055	T034	T075	1318	16	125	3319	5.30	8.16	6.19
P057	T088	T120	671	16	125	2318	3.70	2.14	3.19
P059	T120	T126	853	16	125	2318	3.70	2.72	3.19
P061	T138	T133	1387	16	125	1601	2.56	2.23	1.61
P071	T045	T035	1549	16	125	-1992	3.18	3.73	2.40
P077	U7000	T010	3165	999	125	12	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-12	0.00	0.00	0.00
P200	J020	T035	73	12	125	-381	1.08	0.03	0.46
P300	T075	J027	78	12	125	534	1.52	0.07	0.85
P400	T138	J041	43	12	125	145	0.41	0.00	0.08
P500	T133	J039	45	12	125	300	0.85	0.01	0.29
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	2373	3.79	3.32	3.32
P610	J010	J021	2480	12	125	-202	0.57	0.35	0.14
P614	T020	TER-RADIO	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	403	1.14	0.24	0.51
P626	J023	J016	770	12	125	222	0.63	0.13	0.17
P628	T020	T030	2594	36	120	12	0.00	0.00	0.00
P632	J017	J018	57	12	125	555	1.57	0.05	0.91
P634	J018	J033	603	12	125	1675	4.75	4.27	7.09
P640	J035	J034	633	12	125	1224	3.47	2.51	3.96
P644	J016	J015	738	12	125	-370	1.05	0.32	0.43
P650	J037	J038	616	12	125	-828	2.35	1.18	1.92
P654	J038	J039	640	12	125	-615	1.74	0.71	1.11
P656	T133	J038	659	16	125	1302	2.08	0.72	1.09
P658	T140	T138	666	16	125	1746	2.79	1.26	1.88
P662	J025	J022	665	12	125	1957	5.55	6.29	9.45
P664	UBOOSTER	J80	423	24	125	9242	6.55	2.42	5.72
P666	J025	T034	75	12	125	-1654	4.69	0.52	6.92
P668	J027	J024	643	12	125	1424	4.04	3.37	5.24
P670	T075	T080	691	16	125	2785	4.44	3.09	4.47
P672	J029	J030	463	12	125	960	2.72	1.17	2.53
P674	T126	T140	685	16	125	1746	2.79	1.29	1.88
P676	T126	J029	39	12	125	572	1.62	0.04	0.97
P678	J031	J028	640	12	125	1658	4.70	4.45	6.95
P680	T080	T088	646	16	125	2785	4.44	2.89	4.47
P682	T088	J031	43	12	125	466	1.32	0.03	0.66
P690	J021	J012	54	12	125	607	1.72	0.06	1.08
P692	J022	J026	4009	12	125	576	1.63	3.93	0.98
P694	J053	J041	873	12	125	-912	2.59	2.01	2.30
P696	J019	J036	301	12	125	141	0.40	0.02	0.07
P698	J048	J040	440	12	125	-244	0.69	0.09	0.20
P700	J056	J054	1851	12	125	246	0.70	0.38	0.20
P702	J042	J036	1326	12	125	953	2.70	3.31	2.49
P704	J028	J044	526	12	125	1025	2.91	1.50	2.85
P708	T045	J018	125	16	125	1992	3.18	0.30	2.40
P710	J046	J017	123	12	125	924	2.62	0.29	2.36
P712	J052	J024	1000	8	125	-292	1.86	2.01	2.01
P722	RP-RADIORE	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-501	3.20	1.31	5.46
P726	J022	J050	1003	8	125	406	2.59	3.72	3.71
P728	J050	J052	1289	8	125	321	2.05	3.09	2.39
P730	J054	J040	686	12	125	246	0.70	0.14	0.20
P732	J053	J056	1249	12	125	477	1.35	0.86	0.69
P734	J058	J048	1047	12	125	304	0.86	0.31	0.30
P736	J056	J058	1030	8	125	101	0.64	0.29	0.28
P738	J062	J064	1000	8	125	-303	1.93	2.15	2.15
P740	J064	J74	595	8	125	-621	3.96	4.83	8.12
P742	J068	J066	1483	8	125	-426	2.72	6.00	4.05

Upper Westside (Scenario I)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	-534	3.41	4.37	6.14
P746	J064	J068	1239	8	125	-144	0.92	0.67	0.54
P748	J036	J070	350	12	125	963	2.73	0.89	2.54
P750	J070	J076	710	12	125	1762	5.00	5.52	7.78
P752	J072	J060	655	12	125	-1740	4.93	4.98	7.60
P754	J060	J062	944	12	125	45	0.13	0.01	0.01
P756	J062	J072	391	12	125	2295	6.51	4.97	12.69
P758	J78	J068	1341	8	125	-162	1.03	0.90	0.67
P760	T030	T74	640	30	120	12	0.01	0.00	0.00
P762	J74	J038	514	8	125	-805	5.14	6.75	13.13
P764	J076	J062	651	12	125	1946	5.52	6.09	9.35
P766	J74	J076	1043	8	125	184	1.17	0.89	0.85
P768	J78	J072	1122	8	125	534	3.41	6.90	6.15
P770	J064	J78	513	12	125	373	1.06	0.22	0.44
P772	J030	J041	805	12	125	767	2.18	1.34	1.67
P776	RESTANK	UBOOSTER	97	24	125	9242	6.55	0.55	5.72
P778	J80	T034	270	24	125	4972	3.53	0.49	1.82
P782	J020	J082	619	12	125	-547	1.55	0.55	0.89
P784	J082	J021	2748	12	125	808	2.29	5.05	1.84
P786	J019	J084	706	12	125	864	2.45	1.47	2.08
P788	J034	J084	1417	8	125	384	2.45	4.72	3.33
P790	J084	J086	651	12	125	1248	3.54	2.67	4.11
P792	J086	J060	1030	12	125	1804	5.12	8.38	8.13
P794	J088	J086	1449	8	125	556	3.55	9.61	6.63
P796	J035	J088	992	8	125	103	0.66	0.29	0.29
P798	J088	J090	2721	8	125	-454	2.90	12.36	4.54
P800	J090	J016	4945	12	125	71	0.20	0.10	0.02
P802	J018	J090	1227	12	125	525	1.49	1.01	0.83

Upper Westside (Scenario I)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	147.80	56.4
J012	18.25	13.8	148.09	58.2
J013	180.95	13.8	147.86	58.1
J015	0.00	14.7	147.86	57.7
J016	663.26	15.0	147.54	57.4
J017	0.00	14.3	148.71	58.2
J018	346.16	14.0	148.66	58.4
J019	90.55	14.6	129.82	49.9
J020	3.79	15.5	152.65	59.4
J021	0.00	13.8	148.15	58.2
J022	84.63	13.6	148.71	58.5
J023	0.00	14.5	147.67	57.7
J024	253.15	14.3	143.91	56.2
J025	238.77	13.3	154.99	61.4
J026	262.90	13.0	144.77	57.1
J027	0.00	13.9	147.28	57.8
J028	245.18	14.9	136.90	52.8
J029	0.00	14.5	136.48	52.9
J030	192.76	14.2	135.31	52.5
J031	0.00	14.6	141.34	54.9
J032	223.56	13.6	139.19	54.4
J033	0.00	13.8	144.39	56.6
J034	245.26	14.2	133.07	51.5
J035	125.21	14.1	135.57	52.6
J036	130.88	14.9	129.80	49.8
J037	0.00	14.5	129.84	50.0
J038	60.72	10.0	131.02	52.4
J039	60.66	14.2	131.73	50.9
J040	2.39	13.4	130.58	50.8
J041	0.00	14.2	133.97	51.9
J042	72.07	14.9	133.10	51.2
J044	0.00	14.9	135.40	52.2
J046	0.00	13.0	149.00	58.9
J048	13.84	13.0	130.49	50.9
J050	85.50	14.2	144.99	56.7
J052	111.72	14.8	141.90	55.1
J053	59.30	14.2	131.96	51.0
J054	0.00	13.4	130.72	50.8
J055	0.00	14.8	140.60	54.5
J056	129.94	13.5	131.10	51.0
J058	20.36	13.5	130.81	50.8
J060	19.21	14.9	117.30	44.4
J062	0.00	18.4	117.29	42.9
J064	89.15	17.0	119.45	44.4
J066	107.58	17.0	126.12	47.3
J068	120.30	16.0	120.12	45.1
J070	29.19	14.8	128.91	49.4
J072	4568.33	14.5	112.32	42.4
J076	0.00	14.0	123.38	47.4
J082	0.00	0.0	153.20	66.4
J084	0.00	14.1	128.35	49.5
J086	0.00	14.1	125.68	48.4
J088	0.00	14.1	135.28	52.5
J090	0.00	14.0	147.64	57.9
J74	0.00	14.0	124.27	47.8
J78	0.00	17.0	119.22	44.3
J80	0.00	13.2	156.00	61.9
J92	0.00	13.2	155.23	61.5
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	155.51	61.6
T035	0.00	13.0	152.68	60.5
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	148.96	58.9
T075	0.00	13.9	147.35	57.8
T080	0.00	14.3	144.26	56.3
T088	0.00	14.6	141.37	54.9
T120	0.00	14.9	139.23	53.9
T126	0.00	14.5	136.52	52.9
T133	0.00	14.2	131.75	50.9
T138	0.00	14.2	133.97	51.9
T140	0.00	14.2	135.23	52.5
T74	0.00	0.0	134.50	58.3

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-9,242.48	14

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.19	63.01	9,242.48	144.98

VALVE REPORT							
ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	46.57	58.09	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-185	0.53	0.29	0.12
P015	J013	J023	1109	12	125	222	0.63	0.19	0.17
P017	J015	J017	1969	12	125	-370	1.05	0.85	0.43
P019	J046	J020	1551	12	125	-924	2.62	3.65	2.36
P021	J082	J92	423	12	125	-1356	3.85	2.03	4.79
P023	J022	J027	649	12	125	890	2.52	1.42	2.19
P025	J024	J026	2719	12	125	-313	0.89	0.86	0.32
P027	J024	J031	681	12	125	1192	3.38	2.57	3.77
P029	J028	J029	883	12	125	388	1.10	0.42	0.47
P031	J039	J053	514	12	125	-376	1.07	0.23	0.44
P033	J033	J032	733	12	125	1675	4.75	5.20	7.09
P037	J032	J035	665	12	125	1452	4.12	3.62	5.44
P039	J034	J055	1379	8	125	-501	3.20	7.53	5.46
P041	J034	J019	1005	12	125	1096	3.11	3.25	3.23
P043	J044	J042	804	12	125	1025	2.91	2.29	2.85
P045	J070	J037	486	12	125	-828	2.35	0.93	1.92
P047	J038	J058	1285	12	125	223	0.63	0.22	0.17
P049	T010	T020	2706	36	120	12	0.00	0.00	0.00
P053	T74	T040	734	30	120	12	0.01	0.00	0.00
P055	T034	T075	1318	16	125	3319	5.30	8.16	6.19
P057	T088	T120	671	16	125	2318	3.70	2.14	3.19
P059	T120	T126	853	16	125	2318	3.70	2.72	3.19
P061	T138	T133	1387	16	125	1601	2.56	2.23	1.61
P071	T045	T035	1549	16	125	-1992	3.18	3.73	2.40
P077	U7000	T010	3165	999	125	12	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-12	0.00	0.00	0.00
P200	J020	T035	73	12	125	-381	1.08	0.03	0.46
P300	T075	J027	78	12	125	534	1.52	0.07	0.85
P400	T138	J041	43	12	125	145	0.41	0.00	0.08
P500	T133	J039	45	12	125	300	0.85	0.01	0.29
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	2373	3.79	3.32	3.32
P610	J010	J021	2480	12	125	-202	0.57	0.35	0.14
P614	T020	:TER-RADIO	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	403	1.14	0.24	0.51
P626	J023	J016	770	12	125	222	0.63	0.13	0.17
P628	T020	T030	2594	36	120	12	0.00	0.00	0.00
P632	J017	J018	57	12	125	555	1.57	0.05	0.91
P634	J018	J033	603	12	125	1675	4.75	4.27	7.09
P640	J035	J034	633	12	125	1224	3.47	2.51	3.96
P644	J016	J015	738	12	125	-370	1.05	0.32	0.43
P650	J037	J038	616	12	125	-828	2.35	1.18	1.92
P654	J038	J039	640	12	125	-615	1.74	0.71	1.11
P656	T133	J038	659	16	125	1302	2.08	0.72	1.09
P658	T140	T138	666	16	125	1746	2.79	1.26	1.88
P662	J025	J022	665	12	125	1957	5.55	6.29	9.45
P664	UBOOSTER	J80	423	24	125	9242	6.55	2.42	5.72
P666	J025	T034	75	12	125	-1654	4.69	0.52	6.92
P668	J027	J024	643	12	125	1424	4.04	3.37	5.24
P670	T075	T080	691	16	125	2785	4.44	3.09	4.47
P672	J029	J030	463	12	125	960	2.72	1.17	2.53
P674	T126	T140	685	16	125	1746	2.79	1.29	1.88
P676	T126	J029	39	12	125	572	1.62	0.04	0.97
P678	J031	J028	640	12	125	1658	4.70	4.45	6.95
P680	T080	T088	646	16	125	2785	4.44	2.89	4.47
P682	T088	J031	43	12	125	466	1.32	0.03	0.66
P690	J021	J012	54	12	125	607	1.72	0.06	1.08
P692	J022	J026	4009	12	125	576	1.63	3.93	0.98
P694	J053	J041	873	12	125	-912	2.59	2.01	2.30
P696	J019	J036	301	12	125	141	0.40	0.02	0.07
P698	J048	J040	440	12	125	-244	0.69	0.09	0.20
P700	J056	J054	1851	12	125	246	0.70	0.38	0.20
P702	J042	J036	1326	12	125	953	2.70	3.31	2.49
P704	J028	J044	526	12	125	1025	2.91	1.50	2.85
P708	T045	J018	125	16	125	1992	3.18	0.30	2.40
P710	J046	J017	123	12	125	924	2.62	0.29	2.36
P712	J052	J024	1000	8	125	-292	1.86	2.01	2.01
P722	RP-RADIORD	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-501	3.20	1.31	5.46
P726	J022	J050	1003	8	125	406	2.59	3.72	3.71
P728	J050	J052	1289	8	125	321	2.05	3.09	2.39
P730	J054	J040	686	12	125	246	0.70	0.14	0.20
P732	J053	J056	1249	12	125	477	1.35	0.86	0.69
P734	J058	J048	1047	12	125	304	0.86	0.31	0.30
P736	J056	J058	1030	8	125	101	0.64	0.29	0.28
P738	J062	J064	1000	8	125	-303	1.93	2.15	2.15
P740	J064	J74	595	8	125	-621	3.96	4.83	8.12
P742	J068	J066	1483	8	125	-426	2.72	6.00	4.05

Upper Westside (Scenario I)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	-534	3.41	4.37	6.14
P746	J064	J068	1239	8	125	-144	0.92	0.67	0.54
P748	J036	J070	350	12	125	963	2.73	0.89	2.54
P750	J070	J076	710	12	125	1762	5.00	5.52	7.78
P752	J072	J060	655	12	125	-1740	4.93	4.98	7.60
P754	J060	J062	944	12	125	45	0.13	0.01	0.01
P756	J062	J072	391	12	125	2295	6.51	4.97	12.69
P758	J78	J068	1341	8	125	-162	1.03	0.90	0.67
P760	T030	T74	640	30	120	12	0.01	0.00	0.00
P762	J74	J038	514	8	125	-805	5.14	6.75	13.13
P764	J076	J062	651	12	125	1946	5.52	6.09	9.35
P766	J74	J076	1043	8	125	184	1.17	0.89	0.85
P768	J78	J072	1122	8	125	534	3.41	6.90	6.15
P770	J064	J78	513	12	125	373	1.06	0.22	0.44
P772	J030	J041	805	12	125	767	2.18	1.34	1.67
P776	RESTANK	UBOOSTER	97	24	125	9242	6.55	0.55	5.72
P778	J80	T034	270	24	125	4972	3.53	0.49	1.82
P782	J020	J082	619	12	125	-547	1.55	0.55	0.89
P784	J082	J021	2748	12	125	808	2.29	5.05	1.84
P786	J019	J084	706	12	125	864	2.45	1.47	2.08
P788	J034	J084	1417	8	125	384	2.45	4.72	3.33
P790	J084	J086	651	12	125	1248	3.54	2.67	4.11
P792	J086	J060	1030	12	125	1804	5.12	8.38	8.13
P794	J088	J086	1449	8	125	556	3.55	9.61	6.63
P796	J035	J088	992	8	125	103	0.66	0.29	0.29
P798	J088	J090	2721	8	125	-454	2.90	12.36	4.54
P800	J090	J016	4945	12	125	71	0.20	0.10	0.02
P802	J018	J090	1227	12	125	525	1.49	1.01	0.83
P804	J92	J025	270	12	125	542	1.54	0.24	0.88
P806	J80	J92	86	12	125	1897	5.38	0.77	8.93

Upper Westside (Scenario I)
6. MAXIMUM DAY DEMAND + FIRE FLOW OF 2,000 GPM AT J040

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	131.80	49.5
J012	18.25	13.8	132.10	51.3
J013	180.95	13.8	131.99	51.2
J015	0.00	14.7	132.28	51.0
J016	663.26	15.0	131.93	50.7
J017	0.00	14.3	133.22	51.5
J018	346.16	14.0	133.21	51.7
J019	90.55	14.6	126.87	48.7
J020	3.79	15.5	135.48	52.0
J021	0.00	13.8	132.14	51.3
J022	84.63	13.6	133.66	52.0
J023	0.00	14.5	131.95	50.9
J024	253.15	14.3	131.24	50.7
J025	238.77	13.3	136.90	53.6
J026	262.90	13.0	131.48	51.4
J027	0.00	13.9	133.02	51.6
J028	245.18	14.9	128.24	49.1
J029	0.00	14.5	127.90	49.1
J030	192.76	14.2	127.26	49.0
J031	0.00	14.6	130.19	50.1
J032	223.56	13.6	129.64	50.3
J033	0.00	13.8	131.60	51.0
J034	245.26	14.2	127.72	49.2
J035	125.21	14.1	128.53	49.6
J036	130.88	14.9	126.71	48.5
J037	0.00	14.5	125.96	48.3
J038	60.72	10.0	125.59	50.1
J039	60.66	14.2	125.65	48.3
J040	2002.39	13.4	117.65	45.2
J041	0.00	14.2	126.64	48.7
J042	72.07	14.9	127.36	48.7
J044	0.00	14.9	127.89	49.0
J046	0.00	13.0	133.39	52.2
J048	13.84	13.0	119.33	46.1
J050	85.50	14.2	131.73	50.9
J052	111.72	14.8	130.44	50.1
J053	59.30	14.2	125.46	48.2
J054	0.00	13.4	118.89	45.7
J055	0.00	14.8	130.04	49.9
J056	129.94	13.5	122.24	47.1
J058	20.36	13.5	122.19	47.1
J060	19.21	14.9	126.25	48.3
J062	0.00	18.4	126.15	46.7
J064	89.15	17.0	125.22	46.9
J066	107.58	17.0	120.13	44.7
J068	120.30	16.0	123.68	46.7
J070	29.19	14.8	126.26	48.3
J072	68.33	14.5	126.15	48.4
J076	0.00	14.0	126.16	48.6
J082	0.00	0.0	135.76	58.8
J084	0.00	14.1	126.87	48.9
J086	0.00	14.1	126.79	48.9
J088	0.00	14.1	128.55	49.6
J090	0.00	14.0	132.51	51.4
J74	0.00	14.0	125.59	48.4
J78	0.00	17.0	125.21	46.9
J80	0.00	13.2	137.47	53.8
J92	0.00	13.2	137.02	53.7
T010	0.00	17.6	134.50	50.7
T020	0.00	13.8	134.50	52.3
T030	0.00	13.0	134.50	52.7
T034	0.00	13.3	137.21	53.7
T035	0.00	13.0	135.51	53.1
T040	0.00	14.4	134.50	52.1
T045	0.00	13.0	133.38	52.2
T075	0.00	13.9	133.07	51.6
T080	0.00	14.3	131.59	50.8
T088	0.00	14.6	130.20	50.1
T120	0.00	14.9	129.20	49.5
T126	0.00	14.5	127.92	49.1
T133	0.00	14.2	125.69	48.3
T138	0.00	14.2	126.65	48.7
T140	0.00	14.2	127.27	49.0
T74	0.00	0.0	134.50	58.3

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES9000	0.00	0
RESTANK	-6,742.48	14

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U7000	14	-6.07	52.21	0.00	134.50
UBOOSTER	13	0.3	54.52	6,742.48	125.13

VALVE REPORT							
ID	Diameter (in)	Elevation (ft)	Upstream Pressure (psi)	Downstrea... Pressure (psi)	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
METER-RADIORD	10	13.8	52.3	52.2	0.00	0	0.23
RP-RADIORD	10	13.8	39.7	51.21	0.00	0	26.57

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario I)
6. MAXIMUM DAY DEMAND + FIRE FLOW OF 2,000 GPM AT J040

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2417	12	125	-189	0.54	0.30	0.12
P015	J013	J023	1109	12	125	89	0.25	0.03	0.03
P017	J015	J017	1969	12	125	-391	1.11	0.94	0.48
P019	J046	J020	1551	12	125	-684	1.94	2.09	1.35
P021	J082	J92	423	12	125	-1049	2.98	1.26	2.98
P023	J022	J027	649	12	125	579	1.64	0.64	0.99
P025	J024	J026	2719	12	125	-156	0.44	0.24	0.09
P027	J024	J031	681	12	125	735	2.09	1.05	1.54
P029	J028	J029	883	12	125	349	0.99	0.34	0.39
P031	J039	J053	514	12	125	342	0.97	0.19	0.37
P033	J033	J032	733	12	125	990	2.81	1.96	2.67
P037	J032	J035	665	12	125	766	2.17	1.11	1.66
P039	J034	J055	1379	8	125	-265	1.69	2.32	1.68
P041	J034	J019	1005	12	125	532	1.51	0.85	0.85
P043	J044	J042	804	12	125	467	1.32	0.53	0.66
P045	J070	J037	486	12	125	444	1.26	0.29	0.61
P047	J038	J058	1285	12	125	984	2.79	3.40	2.64
P049	T010	T020	2706	36	120	6	0.00	0.00	0.00
P053	T74	T040	734	30	120	6	0.00	0.00	0.00
P055	T034	T075	1318	16	125	2301	3.67	4.14	3.14
P057	T088	T120	671	16	125	1545	2.46	1.01	1.50
P059	T120	T126	853	16	125	1545	2.46	1.28	1.50
P061	T138	T133	1387	16	125	1015	1.62	0.96	0.69
P071	T045	T035	1549	16	125	-1471	2.35	2.13	1.37
P077	U7000	T010	3165	999	125	6	0.00	0.00	0.00
P079	U7000	T040	3531	999	125	-6	0.00	0.00	0.00
P200	J020	T035	73	12	125	-314	0.89	0.02	0.32
P300	T075	J027	78	12	125	430	1.22	0.04	0.57
P400	T138	J041	43	12	125	184	0.52	0.01	0.12
P500	T133	J039	45	12	125	564	1.60	0.04	0.94
P602	RES9000	U7000	385	999	125	0	0.00	0.00	0.00
P608	J80	T035	998	16	125	1786	2.85	1.96	1.96
P610	J010	J021	2480	12	125	-198	0.56	0.34	0.14
P614	T020	ETER-RADIOI	192	16	125	0	0.00	0.00	0.00
P616	J012	J013	465	12	125	270	0.77	0.11	0.24
P626	J023	J016	770	12	125	89	0.25	0.02	0.03
P628	T020	T030	2594	36	120	6	0.00	0.00	0.00
P632	J017	J018	57	12	125	293	0.83	0.02	0.28
P634	J018	J033	603	12	125	990	2.81	1.61	2.67
P640	J035	J034	633	12	125	664	1.88	0.81	1.28
P644	J016	J015	738	12	125	-391	1.11	0.35	0.48
P650	J037	J038	616	12	125	444	1.26	0.37	0.61
P654	J038	J039	640	12	125	-161	0.46	0.06	0.09
P656	T133	J038	659	16	125	451	0.72	0.10	0.15
P658	T140	T138	666	16	125	1198	1.91	0.62	0.94
P662	J025	J022	665	12	125	1368	3.88	3.24	4.87
P664	UBOOSTER	J80	423	24	125	6742	4.78	1.35	3.19
P666	J025	T034	75	12	125	-1239	3.52	0.30	4.05
P668	J027	J024	643	12	125	1009	2.86	1.78	2.77
P670	T075	T080	691	16	125	1870	2.98	1.48	2.14
P672	J029	J030	463	12	125	696	1.97	0.64	1.39
P674	T126	T140	685	16	125	1198	1.91	0.64	0.94
P676	T126	J029	39	12	125	346	0.98	0.01	0.38
P678	J031	J028	640	12	125	1061	3.01	1.95	3.04
P680	T080	T088	646	16	125	1870	2.98	1.38	2.14
P682	T088	J031	43	12	125	326	0.92	0.01	0.34
P690	J021	J012	54	12	125	477	1.35	0.04	0.69
P692	J022	J026	4009	12	125	419	1.19	2.19	0.55
P694	J053	J041	873	12	125	-686	1.95	1.19	1.36
P696	J019	J036	301	12	125	408	1.16	0.16	0.52
P698	J048	J040	440	12	125	1201	3.41	1.68	3.83
P700	J056	J054	1851	12	125	802	2.27	3.35	1.81
P702	J042	J036	1326	12	125	395	1.12	0.65	0.49
P704	J028	J044	526	12	125	467	1.32	0.35	0.66
P708	T045	J018	125	16	125	1471	2.35	0.17	1.37
P710	J046	J017	123	12	125	684	1.94	0.17	1.35
P712	J052	J024	1000	8	125	-177	1.13	0.80	0.80
P722	RP-RADIORD	J013	250	16	125	0	0.00	0.00	0.00
P724	J055	J052	239	8	125	-265	1.69	0.40	1.68
P726	J022	J050	1003	8	125	286	1.82	1.93	1.93
P728	J050	J052	1289	8	125	200	1.28	1.29	1.00
P730	J054	J040	686	12	125	802	2.27	1.24	1.81
P732	J053	J056	1249	12	125	970	2.75	3.22	2.57
P734	J058	J048	1047	12	125	1002	2.84	2.86	2.73
P736	J056	J058	1030	8	125	38	0.24	0.05	0.05
P738	J062	J064	1000	8	125	193	1.23	0.94	0.93
P740	J064	J74	595	8	125	-155	0.99	0.37	0.62
P742	J068	J066	1483	8	125	321	2.05	3.54	2.39

Upper Westside (Scenario I)
6. MAXIMUM DAY DEMAND + FIRE FLOW OF 2,000 GPM AT J040

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P744	J066	J048	712	8	125	213	1.36	0.80	1.12
P746	J064	J068	1239	8	125	225	1.44	1.54	1.24
P748	J036	J070	350	12	125	672	1.91	0.46	1.30
P750	J070	J076	710	12	125	199	0.56	0.10	0.14
P752	J072	J060	655	12	125	-215	0.61	0.10	0.16
P754	J060	J062	944	12	125	174	0.49	0.10	0.11
P756	J062	J072	391	12	125	35	0.10	0.00	0.01
P758	J78	J068	1341	8	125	216	1.38	1.54	1.15
P760	T030	T74	640	30	120	6	0.00	0.00	0.00
P762	J74	J038	514	8	125	-11	0.07	0.00	0.00
P764	J076	J062	651	12	125	54	0.15	0.01	0.01
P766	J74	J076	1043	8	125	-145	0.92	0.57	0.55
P768	J78	J072	1122	8	125	-182	1.16	0.94	0.83
P770	J064	J78	513	12	125	34	0.10	0.00	0.01
P772	J030	J041	805	12	125	503	1.43	0.61	0.76
P776	RESTANK	UBOOSTER	97	24	125	6742	4.78	0.31	3.19
P778	J80	T034	270	24	125	3540	2.51	0.26	0.97
P782	J020	J082	619	12	125	-374	1.06	0.27	0.44
P784	J082	J021	2748	12	125	675	1.92	3.62	1.32
P786	J019	J084	706	12	125	33	0.09	0.00	0.01
P788	J034	J084	1417	8	125	152	0.97	0.85	0.60
P790	J084	J086	651	12	125	186	0.53	0.08	0.12
P792	J086	J060	1030	12	125	408	1.16	0.53	0.52
P794	J088	J086	1449	8	125	222	1.42	1.76	1.21
P796	J035	J088	992	8	125	-23	0.15	0.02	0.02
P798	J088	J090	2721	8	125	-246	1.57	3.97	1.46
P800	J090	J016	4945	12	125	183	0.52	0.58	0.12
P802	J018	J090	1227	12	125	429	1.22	0.70	0.57
P804	J92	J025	270	12	125	368	1.04	0.12	0.43
P806	J80	J92	86	12	125	1417	4.02	0.45	5.20

Upper Westside (Scenario II)
1. AVERAGE DAY DEMAND

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J_BRD	0.00	14.0	131.79	51.0
J_WRD	0.00	13.0	130.48	50.9
J010	214.98	17.6	130.19	48.8
J012	10.14	13.8	130.09	50.4
J013	100.53	13.8	130.05	50.4
J015	0.00	14.7	129.95	49.9
J016	368.48	15.0	129.89	49.8
J017	0.00	14.3	130.09	50.2
J018	192.31	14.0	130.09	50.3
J019	50.30	14.6	129.91	50.0
J020	2.11	15.5	130.26	49.7
J022	47.02	13.6	130.10	50.5
J023	0.00	14.5	129.95	50.0
J024	140.64	14.3	130.02	50.2
J025	132.65	13.3	130.15	50.6
J026	146.06	13.0	130.00	50.7
J027	0.00	13.9	130.06	50.3
J028	136.21	14.9	130.03	49.9
J029	0.00	14.5	130.23	50.1
J030	107.09	14.2	130.20	50.3
J031	0.00	14.6	130.02	50.0
J032	124.20	13.6	129.92	50.4
J033	0.00	13.8	130.01	50.4
J034	136.26	14.2	129.90	50.1
J035	69.56	14.1	129.90	50.2
J036	72.71	14.9	129.92	49.8
J037	0.00	14.5	129.94	50.0
J038	33.73	14.0	129.96	50.2
J039	33.70	14.2	129.99	50.2
J040	1.33	13.4	130.12	50.6
J041	0.00	14.2	130.07	50.2
J042	40.04	14.9	129.97	49.9
J044	0.00	14.9	130.02	49.9
J046	0.00	13.0	130.11	50.7
J048	7.69	13.0	130.07	50.7
J050	47.50	14.2	129.98	50.2
J052	62.07	14.8	129.97	49.9
J053	32.95	14.2	130.03	50.2
J054	0.00	13.4	130.20	50.6
J055	0.00	14.8	129.93	49.9
J056	72.19	13.5	130.09	50.5
J058	11.31	13.5	130.03	50.5
J060	10.67	14.9	129.91	49.8
J062	0.00	18.4	129.91	48.3
J064	49.53	17.0	129.91	48.9
J066	59.77	17.0	129.92	48.9
J068	66.83	16.0	129.89	49.4
J070	16.22	14.8	129.92	49.9
J072	37.96	14.5	129.91	50.0
J076	0.00	14.3	130.33	50.3
J078	0.00	17.0	129.91	48.9
J080	0.00	13.5	130.14	50.5
J082	0.00	14.5	130.01	50.1
J084	0.00	14.5	129.91	50.0
J086	0.00	14.5	129.91	50.0
J088	0.00	16.0	129.92	49.4
J090	0.00	14.0	129.93	50.2
J092	0.00	14.9	129.99	49.9
J094	0.00	14.2	130.03	50.2
J100	0.00	14.1	130.15	50.3
J104	0.00	13.0	130.16	50.8
J96	0.00	14.1	129.92	50.2
J98	0.00	14.0	130.03	50.3
T010	0.00	17.6	130.35	48.9
T020	0.00	13.8	130.34	50.5
T030	0.00	13.0	130.33	50.8
T035	0.00	13.0	130.26	50.8
T040	0.00	14.4	130.35	50.3
T045	0.00	13.0	130.11	50.8
T102	0.00	17.6	130.34	48.9

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES-BARANDAS	-1,028.72	0
RES-SANJUAN	-1,605.99	0

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U-BARANDAS	14	-6.07	51.04	1,028.72	131.79
U-SANJUAN	14	-6.07	50.41	1,605.99	130.35

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario II)
1. AVERAGE DAY DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2451	12	125	99	0.28	0.09	0.04
P015	J013	J023	1355	12	125	141	0.40	0.10	0.07
P017	J015	J017	1930	12	125	-144	0.41	0.14	0.08
P019	J104	J020	977	12	125	-166	0.47	0.10	0.10
P023	J022	J027	629	12	125	129	0.37	0.04	0.06
P025	J024	J026	2682	12	125	29	0.08	0.01	0.00
P027	J031	J024	687	12	120	53	0.15	0.01	0.01
P029	J028	J029	883	12	125	-258	0.73	0.20	0.22
P031	J039	J053	514	12	125	-147	0.42	0.04	0.08
P033	J033	J032	733	12	125	194	0.55	0.10	0.13
P037	J032	J035	665	12	125	70	0.20	0.01	0.02
P039	J034	J055	1379	12	125	-72	0.20	0.03	0.02
P041	J034	J019	1005	12	125	-33	0.09	0.00	0.00
P043	J044	J092	499	12	125	125	0.35	0.03	0.06
P045	J070	J037	486	12	125	-92	0.26	0.02	0.03
P047	J038	J058	1285	12	125	-125	0.36	0.07	0.06
P049	T010	T020	2615	36	120	470	0.15	0.01	0.00
P053	T040	T030	1345	30	120	612	0.28	0.02	0.01
P071	T045	T035	1574	18	125	-483	0.61	0.15	0.10
P077	U-SANJUAN	T010	3165	999	125	784	0.00	0.00	0.00
P079	U-SANJUAN	T040	3546	999	125	822	0.00	0.00	0.00
P200	J020	T035	85	12	125	-10	0.03	0.00	0.00
P602	RES-SANJUAN	U-SANJUAN	385	999	125	1606	0.00	0.00	0.00
P606	T030	T035	661	18	125	493	0.62	0.07	0.10
P610	J010	T102	498	12	125	-314	0.89	0.16	0.32
P616	J012	J013	226	12	125	242	0.69	0.04	0.20
P620	J076	J030	203	12	125	462	1.31	0.13	0.65
P622	J078	J072	1141	8	125	3	0.02	0.00	0.00
P624	J064	J078	513	12	125	23	0.07	0.00	0.00
P626	J023	J016	770	12	125	141	0.40	0.06	0.07
P628	T020	T030	2717	36	120	470	0.15	0.01	0.00
P632	J017	J018	82	12	125	22	0.06	0.00	0.00
P634	J018	J033	618	12	125	194	0.55	0.08	0.13
P640	J035	J034	633	12	125	21	0.06	0.00	0.00
P644	J016	J015	738	12	125	-144	0.41	0.06	0.08
P650	J037	J038	616	12	125	-92	0.26	0.02	0.03
P654	J038	J039	640	12	125	-113	0.32	0.03	0.05
P660	J030	J041	612	12	125	245	0.69	0.12	0.20
P662	J025	J022	693	12	120	145	0.41	0.06	0.08
P664	J022	J080	1315	12	125	-94	0.27	0.04	0.03
P668	J027	J024	637	12	120	129	0.37	0.04	0.07
P672	J029	J076	458	12	125	-258	0.73	0.10	0.22
P678	J031	J028	634	12	120	-53	0.15	0.01	0.01
P690	J012	T030	2788	12	125	-153	0.43	0.23	0.08
P692	J080	J026	2656	12	125	117	0.33	0.14	0.05
P694	J094	J041	498	12	125	-148	0.42	0.04	0.08
P696	J019	J036	301	12	125	-79	0.22	0.01	0.02
P698	J048	J040	440	12	125	-186	0.53	0.05	0.12
P700	J056	J054	1903	12	125	-122	0.35	0.11	0.06
P702	J042	J036	1326	12	125	103	0.29	0.05	0.04
P704	J028	J044	592	12	125	68	0.19	0.01	0.02
P708	J046	J017	109	12	125	166	0.47	0.01	0.10
P710	T045	J018	107	18	125	483	0.61	0.01	0.10
P712	J082	J024	535	8	125	-13	0.08	0.00	0.01
P718	T040	J080	1344	12	125	211	0.60	0.20	0.15
P720	J044	J041	1457	12	125	-97	0.27	0.05	0.04
P722	J052	J082	503	8	125	-53	0.34	0.04	0.09
P724	J055	J052	239	8	125	-72	0.46	0.04	0.15
P726	J022	J050	1038	8	125	62	0.40	0.12	0.11
P728	J050	J052	1256	8	125	14	0.09	0.01	0.01
P730	J054	J040	630	12	125	187	0.53	0.08	0.12
P732	J053	J056	1249	12	125	-117	0.33	0.06	0.05
P734	J058	J048	1047	12	125	-93	0.27	0.04	0.03
P736	J056	J058	1030	8	125	43	0.28	0.06	0.06
P738	J062	J064	1000	8	125	1	0.01	0.00	0.00
P740	J064	J090	600	12	125	-93	0.26	0.02	0.03
P742	J068	J066	1483	8	125	-25	0.16	0.03	0.02
P744	J066	J048	712	8	125	-85	0.54	0.14	0.20
P746	J064	J068	1239	8	125	22	0.14	0.02	0.02
P748	J036	J070	350	12	125	-48	0.14	0.00	0.01
P750	J070	J088	702	12	125	27	0.08	0.00	0.00
P752	J072	J060	657	12	125	-6	0.02	0.00	0.00
P754	J060	J062	958	12	125	-17	0.05	0.00	0.00

Upper Westside (Scenario II)
1. AVERAGE DAY DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P756	J062	J072	392	12	125	29	0.08	0.00	0.00
P758	J078	J068	1337	8	125	20	0.13	0.02	0.01
P760	ES-BARANDA	U-BARANDAS	171	999	120	1029	0.00	0.00	0.00
P762	U-BARANDAS	J_BRD	169	999	120	1029	0.00	0.00	0.00
P764	T030	J025	637	12	120	277	0.79	0.17	0.27
P766	J082	J044	1317	12	125	-40	0.11	0.01	0.01
P768	J034	J086	1417	8	125	-10	0.06	0.01	0.00
P770	J96	J084	1449	8	125	14	0.09	0.01	0.01
P772	J019	J086	707	12	125	-5	0.01	0.00	0.00
P774	J086	J084	651	12	125	-14	0.04	0.00	0.00
P776	J084	J060	1031	12	125	0	0.00	0.00	0.00
P778	J056	J100	1411	12	125	-110	0.31	0.06	0.05
P780	J016	J98	4922	12	125	-84	0.24	0.14	0.03
P890	J088	J062	658	12	125	47	0.13	0.01	0.01
P892	J090	J038	509	12	125	-113	0.32	0.02	0.05
P894	J090	J088	1044	8	125	20	0.12	0.01	0.01
P896	J092	J042	299	12	125	143	0.41	0.02	0.07
P898	J053	J094	481	12	125	-63	0.18	0.01	0.02
P900	J_BRD	J_WRD	4236	12	125	309	0.88	1.31	0.31
P902	J_WRD	J054	904	12	125	309	0.88	0.28	0.31
P904	J_BRD	J076	985	12	125	720	2.04	1.46	1.48
P906	J035	J96	992	8	125	-21	0.13	0.02	0.02
P908	J98	J018	1227	12	125	-119	0.34	0.06	0.05
P910	J98	J96	2720	8	125	35	0.23	0.11	0.04
P912	J100	J030	916	12	125	-110	0.31	0.04	0.05
P914	J052	J092	1314	12	125	-67	0.19	0.02	0.02
P916	J092	J094	1456	12	125	-85	0.24	0.04	0.03
P918	T010	T102	392	36	120	314	0.10	0.00	0.00
P920	T030	J020	696	12	120	158	0.45	0.07	0.10
P922	J046	J104	596	12	125	-166	0.47	0.06	0.10

Upper Westside (Scenario II)
2. MAXIMUM DAY DEMAND

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	125.10	46.6
J012	18.25	13.8	124.80	48.1
J013	180.95	13.8	124.66	48.0
J015	0.00	14.7	124.30	47.5
J016	663.26	15.0	124.14	47.3
J017	0.00	14.3	124.72	47.8
J018	346.16	14.0	124.71	48.0
J019	90.55	14.6	123.73	47.3
J020	3.79	15.5	125.29	47.6
J022	145.35	13.6	124.47	48.0
J023	0.00	14.5	124.33	47.6
J024	253.15	14.3	124.03	47.6
J025	263.55	13.3	124.76	48.3
J026	262.90	13.0	124.03	48.1
J027	0.00	13.9	124.26	47.8
J028	245.18	14.9	124.03	47.3
J029	0.00	14.5	124.38	47.6
J030	112.76	14.2	124.28	47.7
J031	0.00	14.6	124.03	47.4
J032	223.56	13.6	123.89	47.8
J033	0.00	13.8	124.34	47.9
J034	245.26	14.2	123.74	47.5
J035	125.21	14.1	123.78	47.5
J036	247.62	14.9	123.74	47.2
J037	0.00	14.5	123.76	47.3
J038	149.88	14.0	123.77	47.6
J039	60.66	14.2	123.82	47.5
J040	2.39	13.4	123.99	47.9
J041	0.00	14.2	124.05	47.6
J042	72.07	14.9	123.86	47.2
J044	0.00	14.9	123.99	47.3
J046	0.00	13.0	124.75	48.4
J048	121.42	13.0	123.86	48.0
J050	0.00	14.2	124.21	47.7
J052	111.72	14.8	123.90	47.3
J053	59.30	14.2	123.91	47.5
J054	0.00	13.4	124.17	48.0
J055	0.00	14.8	123.81	47.2
J056	129.94	13.5	123.98	47.9
J058	140.65	13.5	123.79	47.8
J060	0.00	14.9	123.75	47.2
J062	0.00	18.4	123.75	45.7
J064	0.00	17.0	123.77	46.3
J066	0.00	17.0	123.84	46.3
J068	0.00	16.0	123.78	46.7
J070	0.00	14.8	123.75	47.2
J072	0.00	14.5	123.75	47.3
J076	0.00	14.3	124.56	47.8
J078	0.00	17.0	123.77	46.3
J080	0.00	13.5	124.66	48.2
J082	0.00	14.5	123.99	47.4
J084	0.00	14.5	123.75	47.3
J086	0.00	14.5	123.74	47.3
J088	0.00	16.0	123.75	46.7
J090	0.00	14.0	123.77	47.6
J092	0.00	14.9	123.91	47.2
J094	0.00	14.2	123.95	47.6
J100	80.00	14.1	124.10	47.7
J104	0.00	13.0	124.96	48.5
J96	0.00	14.1	123.85	47.6
J98	0.00	14.0	124.49	47.9
J_BRD	0.00	14.0	127.51	49.2
J_WRD	0.00	13.0	124.75	48.4
T010	0.00	17.6	125.59	46.8
T020	0.00	13.8	125.56	48.4
T030	0.00	13.0	125.53	48.8
T035	0.00	13.0	125.29	48.7
T040	0.00	14.4	125.59	48.2
T045	0.00	13.0	124.75	48.4
T102	0.00	17.6	125.59	46.8

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES-BARANDAS	-1,513.57	0
RES-SANJUAN	-3,228.91	0

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U-BARANDAS	14	-6.07	49.19	1,513.57	127.51
U-SANJUAN	14	-6.07	48.35	3,228.91	125.59

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario II)
2. MAXIMUM DAY DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2451	12	125	188	0.53	0.30	0.12
P015	J013	J023	1355	12	125	271	0.77	0.33	0.24
P017	J015	J017	1930	12	125	-253	0.72	0.41	0.21
P019	J104	J020	977	12	125	-326	0.92	0.33	0.34
P023	J022	J027	629	12	125	321	0.91	0.21	0.33
P025	J024	J026	2682	12	125	-6	0.02	0.00	0.00
P027	J031	J024	687	12	120	-21	0.06	0.00	0.00
P029	J028	J029	883	12	125	-355	1.01	0.35	0.40
P031	J039	J053	514	12	125	-219	0.62	0.08	0.16
P033	J033	J032	733	12	125	444	1.26	0.45	0.61
P037	J032	J035	665	12	125	221	0.63	0.11	0.17
P039	J034	J055	1379	12	125	-117	0.33	0.07	0.05
P041	J034	J019	1005	12	125	24	0.07	0.00	0.00
P043	J044	J092	499	12	125	209	0.59	0.07	0.15
P045	J070	J037	486	12	125	-63	0.18	0.01	0.02
P047	J038	J058	1285	12	125	-73	0.21	0.03	0.02
P049	T010	T020	2615	36	120	945	0.30	0.03	0.01
P053	T040	T030	1345	30	120	1231	0.56	0.07	0.05
P071	T045	T035	1574	18	125	-949	1.20	0.54	0.34
P077	U-SANJUAN	T010	3165	999	125	1521	0.00	0.00	0.00
P079	U-SANJUAN	T040	3546	999	125	1708	0.00	0.00	0.00
P200	J020	T035	85	12	125	-19	0.05	0.00	0.00
P602	RES-SANJUAN	U-SANJUAN	385	999	125	3229	0.00	0.00	0.00
P606	T030	T035	661	18	125	968	1.22	0.24	0.36
P610	J010	T102	498	12	125	-575	1.63	0.49	0.98
P616	J012	J013	226	12	125	452	1.28	0.14	0.63
P620	J076	J030	203	12	125	697	1.98	0.28	1.40
P622	J078	J072	1141	8	125	17	0.11	0.01	0.01
P624	J064	J078	513	12	125	0	0.00	0.00	0.00
P626	J023	J016	770	12	125	271	0.77	0.19	0.24
P628	T020	T030	2717	36	120	945	0.30	0.03	0.01
P632	J017	J018	82	12	125	73	0.21	0.00	0.02
P634	J018	J033	618	12	125	444	1.26	0.37	0.61
P640	J035	J034	633	12	125	142	0.40	0.05	0.07
P644	J016	J015	738	12	125	-253	0.72	0.16	0.21
P650	J037	J038	616	12	125	-63	0.18	0.01	0.02
P654	J038	J039	640	12	125	-159	0.45	0.06	0.09
P660	J030	J041	612	12	125	344	0.98	0.23	0.38
P662	J025	J022	693	12	120	353	1.00	0.30	0.43
P664	J022	J080	1315	12	125	-208	0.59	0.20	0.15
P668	J027	J024	637	12	120	321	0.91	0.23	0.36
P672	J029	J076	458	12	125	-355	1.01	0.18	0.40
P678	J031	J028	634	12	120	21	0.06	0.00	0.00
P690	J012	T030	2788	12	125	-282	0.80	0.73	0.26
P692	J080	J026	2656	12	125	268	0.76	0.63	0.24
P694	J094	J041	498	12	125	-240	0.68	0.10	0.19
P696	J019	J036	301	12	125	-15	0.04	0.00	0.00
P698	J048	J040	440	12	125	-292	0.83	0.12	0.28
P700	J056	J054	1903	12	125	-168	0.48	0.19	0.10
P702	J042	J036	1326	12	125	162	0.46	0.12	0.09
P704	J028	J044	592	12	125	131	0.37	0.04	0.06
P708	J046	J017	109	12	125	326	0.92	0.04	0.34
P710	T045	J018	107	18	125	949	1.20	0.04	0.34
P712	J082	J024	535	8	125	-52	0.33	0.04	0.08
P718	T040	J080	1344	12	125	477	1.35	0.93	0.69
P720	J044	J041	1457	12	125	-104	0.29	0.06	0.04
P722	J052	J082	503	8	125	-78	0.50	0.09	0.18
P724	J055	J052	239	8	125	-117	0.75	0.09	0.37
P726	J022	J050	1038	8	125	95	0.60	0.26	0.25
P728	J050	J052	1256	8	125	95	0.60	0.31	0.25
P730	J054	J040	630	12	125	294	0.83	0.18	0.28
P732	J053	J056	1249	12	125	-119	0.34	0.07	0.05
P734	J058	J048	1047	12	125	-136	0.38	0.07	0.07
P736	J056	J058	1030	8	125	78	0.50	0.18	0.18
P738	J062	J064	1000	8	125	-18	0.12	0.01	0.01
P740	J064	J090	600	12	125	0	0.00	0.00	0.00
P742	J068	J066	1483	8	125	-35	0.22	0.06	0.04
P744	J066	J048	712	8	125	-35	0.22	0.03	0.04
P746	J064	J068	1239	8	125	-18	0.11	0.01	0.01
P748	J036	J070	350	12	125	-101	0.29	0.01	0.04
P750	J070	J088	702	12	125	-38	0.11	0.00	0.01
P752	J072	J060	657	12	125	9	0.03	0.00	0.00
P754	J060	J062	958	12	125	-6	0.02	0.00	0.00
P756	J062	J072	392	12	125	-7	0.02	0.00	0.00

Upper Westside (Scenario II)
2. MAXIMUM DAY DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P758	J078	J068	1337	8	125	-17	0.11	0.01	0.01
P760	ES-BARANDA	U-BARANDAS	171	999	120	1514	0.00	0.00	0.00
P762	U-BARANDAS	J_BRD	169	999	120	1514	0.00	0.00	0.00
P764	T030	J025	637	12	120	616	1.75	0.76	1.20
P766	J082	J044	1317	12	125	-26	0.07	0.00	0.00
P768	J034	J086	1417	8	125	-10	0.06	0.01	0.00
P770	J96	J084	1449	8	125	46	0.29	0.10	0.07
P772	J019	J086	707	12	125	-52	0.15	0.01	0.01
P774	J086	J084	651	12	125	-62	0.17	0.01	0.02
P776	J084	J060	1031	12	125	-16	0.04	0.00	0.00
P778	J056	J100	1411	12	125	-160	0.45	0.13	0.09
P780	J016	J98	4922	12	125	-139	0.39	0.35	0.07
P890	J088	J062	658	12	125	-19	0.05	0.00	0.00
P892	J090	J038	509	12	125	-19	0.05	0.00	0.00
P894	J090	J088	1044	8	125	19	0.12	0.01	0.01
P896	J092	J042	299	12	125	234	0.66	0.06	0.19
P898	J053	J094	481	12	125	-159	0.45	0.04	0.09
P900	J_BRD	J_WRD	4236	12	125	462	1.31	2.76	0.65
P902	J_WRD	J054	904	12	125	462	1.31	0.59	0.65
P904	J_BRD	J076	985	12	125	1052	2.98	2.95	2.99
P906	J035	J96	992	8	125	-46	0.29	0.06	0.07
P908	J98	J018	1227	12	125	-231	0.66	0.22	0.18
P910	J98	J96	2720	8	125	92	0.59	0.64	0.24
P912	J100	J030	916	12	125	-240	0.68	0.18	0.19
P914	J052	J092	1314	12	125	-56	0.16	0.02	0.01
P916	J092	J094	1456	12	125	-81	0.23	0.04	0.03
P918	T010	T102	392	36	120	575	0.18	0.00	0.01
P920	T030	J020	696	12	120	311	0.88	0.24	0.34
P922	J046	J104	596	12	125	-326	0.92	0.20	0.34

Upper Westside (Scenario II)
3. PEAK HOUR DEMAND

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	773.94	17.6	110.65	40.3
J012	36.50	13.8	109.48	41.5
J013	361.89	13.8	108.94	41.2
J015	0.00	14.7	107.49	40.2
J016	1326.51	15.0	106.94	39.9
J017	0.00	14.3	108.95	41.0
J018	692.31	14.0	108.94	41.1
J019	181.09	14.6	104.13	38.8
J020	7.58	15.5	111.24	41.5
J022	290.69	13.6	107.47	40.7
J023	0.00	14.5	107.67	40.4
J024	506.30	14.3	105.28	39.4
J025	527.11	13.3	108.91	41.4
J026	525.80	13.0	105.36	40.0
J027	0.00	13.9	106.43	40.1
J028	490.36	14.9	105.10	39.1
J029	0.00	14.5	105.95	39.6
J030	385.51	14.2	105.56	39.6
J031	0.00	14.6	105.18	39.3
J032	447.12	13.6	105.15	39.7
J033	0.00	13.8	107.21	40.5
J034	490.52	14.2	104.18	39.0
J035	250.42	14.1	104.52	39.2
J036	495.24	14.9	104.12	38.7
J037	0.00	14.5	104.16	38.9
J038	299.75	14.0	104.18	39.1
J039	121.33	14.2	104.34	39.1
J040	4.78	13.4	104.74	39.6
J041	0.00	14.2	105.02	39.4
J042	144.14	14.9	104.51	38.8
J044	0.00	14.9	104.95	39.0
J046	0.00	13.0	109.10	41.6
J048	242.83	13.0	104.39	39.6
J050	0.00	14.2	106.20	39.9
J052	223.44	14.8	104.67	38.9
J053	118.60	14.2	104.60	39.2
J054	0.00	13.4	105.26	39.8
J055	0.00	14.8	104.40	38.8
J056	259.88	13.5	104.77	39.6
J058	281.31	13.5	104.21	39.3
J060	0.00	14.9	104.18	38.7
J062	0.00	18.4	104.18	37.2
J064	0.00	17.0	104.18	37.8
J066	0.00	17.0	104.33	37.8
J068	0.00	16.0	104.21	38.2
J070	0.00	14.8	104.15	38.7
J072	0.00	14.5	104.18	38.9
J076	0.00	14.3	106.40	39.9
J078	0.00	17.0	104.18	37.8
J080	0.00	13.5	108.31	41.1
J082	0.00	14.5	104.95	39.2
J084	0.00	14.5	104.18	38.9
J086	0.00	14.5	104.16	38.9
J088	0.00	16.0	104.17	38.2
J090	0.00	14.0	104.18	39.1
J092	0.00	14.9	104.69	38.9
J094	0.00	14.2	104.75	39.2
J100	0.00	14.1	105.25	39.5
J104	0.00	13.0	109.91	42.0
J96	0.00	14.1	104.78	39.3
J98	0.00	14.0	108.07	40.8
J_BRD	0.00	14.0	114.58	43.6
J_WRD	0.00	13.0	106.90	40.7
T010	0.00	17.6	112.45	41.1
T020	0.00	13.8	112.32	42.7
T030	0.00	13.0	112.18	43.0
T035	0.00	13.0	111.24	42.6
T040	0.00	14.4	112.45	42.5
T045	0.00	13.0	109.09	41.6
T102	0.00	17.6	112.45	41.1

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES-BARANDAS	-2,626.66	0
RES-SANJUAN	-6,858.30	0

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U-BARANDAS	14	-6.07	43.58	2,626.66	114.58
U-SANJUAN	14	-6.07	42.66	6,858.30	112.45

Distribution Mains
City DOU: Minimum Required Pressure is 30 psi during a no-fire, domestic scenario
SCWA: Minimum Required Pressure is 35 psi during a no-fire, domestic scenario

Transmission Mains
SCWA requires min. 40 psi during domestic demand scenarios. City criteria is 30 psi.

Upper Westside (Scenario II)
3. PEAK HOUR DEMAND

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2451	12	125	390	1.11	1.17	0.48
P015	J013	J023	1355	12	125	564	1.60	1.28	0.94
P017	J015	J017	1930	12	125	-500	1.42	1.46	0.75
P019	J104	J020	977	12	125	-688	1.95	1.33	1.36
P023	J022	J027	629	12	125	767	2.17	1.05	1.67
P025	J024	J026	2682	12	125	-89	0.25	0.08	0.03
P027	J031	J024	687	12	120	-194	0.55	0.10	0.14
P029	J028	J029	883	12	125	-573	1.63	0.86	0.97
P031	J039	J053	514	12	125	-399	1.13	0.26	0.50
P033	J033	J032	733	12	125	1015	2.88	2.05	2.80
P037	J032	J035	665	12	125	568	1.61	0.64	0.96
P039	J034	J055	1379	12	125	-214	0.61	0.22	0.16
P041	J034	J019	1005	12	125	118	0.34	0.05	0.05
P043	J044	J092	499	12	125	406	1.15	0.26	0.51
P045	J070	J037	486	12	125	-75	0.21	0.01	0.02
P047	J038	J058	1285	12	125	-85	0.24	0.04	0.03
P049	T010	T020	2615	36	120	2009	0.63	0.13	0.05
P053	T040	T030	1345	30	120	2616	1.19	0.27	0.20
P071	T045	T035	1574	18	125	-2004	2.53	2.16	1.37
P077	U-SANJUAN	T010	3165	999	125	3173	0.00	0.00	0.00
P079	U-SANJUAN	T040	3546	999	125	3686	0.00	0.00	0.00
P200	J020	T035	85	12	125	-39	0.11	0.00	0.01
P602	RES-SANJUAN	U-SANJUAN	385	999	125	6858	0.00	0.00	0.00
P606	T030	T035	661	18	125	2042	2.58	0.94	1.42
P610	J010	T102	498	12	125	-1164	3.30	1.80	3.61
P616	J012	J013	226	12	125	926	2.63	0.53	2.36
P620	J076	J030	203	12	125	1251	3.55	0.84	4.13
P622	J078	J072	1141	8	125	10	0.06	0.00	0.00
P624	J064	J078	513	12	125	-15	0.04	0.00	0.00
P626	J023	J016	770	12	125	564	1.60	0.73	0.94
P628	T020	T030	2717	36	120	2009	0.63	0.14	0.05
P632	J017	J018	82	12	125	188	0.53	0.01	0.12
P634	J018	J033	618	12	125	1015	2.88	1.73	2.80
P640	J035	J034	633	12	125	415	1.18	0.34	0.53
P644	J016	J015	738	12	125	-500	1.42	0.56	0.75
P650	J037	J038	616	12	125	-75	0.21	0.01	0.02
P654	J038	J039	640	12	125	-278	0.79	0.16	0.25
P660	J030	J041	612	12	125	541	1.54	0.53	0.87
P662	J025	J022	693	12	120	826	2.34	1.43	2.06
P664	J022	J080	1315	12	125	-454	1.29	0.83	0.63
P668	J027	J024	637	12	120	767	2.17	1.15	1.80
P672	J029	J076	458	12	125	-573	1.63	0.45	0.97
P678	J031	J028	634	12	120	194	0.55	0.09	0.14
P690	J012	T030	2788	12	125	-572	1.62	2.70	0.97
P692	J080	J026	2656	12	125	615	1.74	2.94	1.11
P694	J094	J041	498	12	125	-421	1.19	0.27	0.55
P696	J019	J036	301	12	125	49	0.14	0.00	0.01
P698	J048	J040	440	12	125	-518	1.47	0.35	0.81
P700	J056	J054	1903	12	125	-280	0.79	0.49	0.26
P702	J042	J036	1326	12	125	299	0.85	0.39	0.29
P704	J028	J044	592	12	125	277	0.78	0.15	0.25
P708	J046	J017	109	12	125	688	1.95	0.15	1.36
P710	T045	J018	107	18	125	2004	2.53	0.15	1.37
P712	J082	J024	535	8	125	-156	0.99	0.33	0.63
P718	T040	J080	1344	12	125	1069	3.03	4.15	3.09
P720	J044	J041	1457	12	125	-120	0.34	0.08	0.05
P722	J052	J082	503	8	125	-146	0.93	0.28	0.56
P724	J055	J052	239	8	125	-214	1.36	0.27	1.13
P726	J022	J050	1038	8	125	223	1.43	1.27	1.22
P728	J050	J052	1256	8	125	223	1.43	1.54	1.22
P730	J054	J040	630	12	125	522	1.48	0.52	0.82
P732	J053	J056	1249	12	125	-201	0.57	0.17	0.14
P734	J058	J048	1047	12	125	-223	0.63	0.18	0.17
P736	J056	J058	1030	8	125	144	0.92	0.56	0.54
P738	J062	J064	1000	8	125	-13	0.08	0.00	0.00
P740	J064	J090	600	12	125	29	0.08	0.00	0.00
P742	J068	J066	1483	8	125	-52	0.33	0.12	0.08
P744	J066	J048	712	8	125	-52	0.33	0.06	0.08
P746	J064	J068	1239	8	125	-27	0.17	0.03	0.02
P748	J036	J070	350	12	125	-148	0.42	0.03	0.08
P750	J070	J088	702	12	125	-72	0.21	0.01	0.02
P752	J072	J060	657	12	125	-14	0.04	0.00	0.00
P754	J060	J062	958	12	125	19	0.05	0.00	0.00

Upper Westside (Scenario II)
3. PEAK HOUR DEMAND

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P756	J062	J072	392	12	125	-24	0.07	0.00	0.00
P758	J078	J068	1337	8	125	-25	0.16	0.03	0.02
P760	ES-BARANDA	U-BARANDAS	171	999	120	2627	0.00	0.00	0.00
P762	U-BARANDAS	J_BRD	169	999	120	2627	0.00	0.00	0.00
P764	T030	J025	637	12	120	1353	3.84	3.28	5.15
P766	J082	J044	1317	12	125	9	0.03	0.00	0.00
P768	J034	J086	1417	8	125	20	0.13	0.02	0.01
P770	J96	J084	1449	8	125	124	0.79	0.60	0.41
P772	J019	J086	707	12	125	-111	0.32	0.03	0.05
P774	J086	J084	651	12	125	-92	0.26	0.02	0.03
P776	J084	J060	1031	12	125	33	0.09	0.00	0.00
P778	J056	J100	1411	12	125	-325	0.92	0.48	0.34
P780	J016	J98	4922	12	125	-263	0.75	1.13	0.23
P890	J088	J062	658	12	125	-55	0.16	0.01	0.01
P892	J090	J038	509	12	125	12	0.04	0.00	0.00
P894	J090	J088	1044	8	125	17	0.11	0.01	0.01
P896	J092	J042	299	12	125	443	1.26	0.18	0.60
P898	J053	J094	481	12	125	-317	0.90	0.16	0.32
P900	J_BRD	J_WRD	4236	12	125	802	2.28	7.68	1.81
P902	J_WRD	J054	904	12	125	802	2.28	1.64	1.81
P904	J_BRD	J076	985	12	125	1824	5.18	8.18	8.30
P906	J035	J96	992	8	125	-98	0.62	0.26	0.26
P908	J98	J018	1227	12	125	-484	1.37	0.87	0.71
P910	J98	J96	2720	8	125	222	1.42	3.29	1.21
P912	J100	J030	916	12	125	-325	0.92	0.31	0.34
P914	J052	J092	1314	12	125	-68	0.19	0.02	0.02
P916	J092	J094	1456	12	125	-105	0.30	0.06	0.04
P918	T010	T102	392	36	120	1164	0.37	0.01	0.02
P920	T030	J020	696	12	120	657	1.86	0.94	1.35
P922	J046	J104	596	12	125	-688	1.95	0.81	1.36

Upper Westside (Scenario II)
4. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J023 (School on Radio Road)

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	109.04	39.6
J012	18.25	13.8	99.66	37.2
J013	180.95	13.8	96.35	35.8
J015	0.00	14.7	93.66	34.2
J016	663.26	15.0	88.16	31.7
J017	0.00	14.3	108.05	40.6
J018	346.16	14.0	108.26	40.8
J019	90.55	14.6	109.27	41.0
J020	3.79	15.5	110.87	41.3
J022	145.35	13.6	110.96	42.2
J023	4500.00	14.5	79.11	28.0
J024	253.15	14.3	110.57	41.7
J025	263.55	13.3	111.23	42.4
J026	262.90	13.0	110.57	42.3
J027	0.00	13.9	110.78	42.0
J028	245.18	14.9	110.58	41.4
J029	0.00	14.5	111.42	42.0
J030	112.76	14.2	111.25	42.1
J031	0.00	14.6	110.57	41.6
J032	223.56	13.6	108.29	41.0
J033	0.00	13.8	108.27	40.9
J034	245.26	14.2	108.95	41.0
J035	125.21	14.1	108.49	40.9
J036	247.62	14.9	109.43	41.0
J037	0.00	14.5	109.64	41.2
J038	149.88	14.0	109.79	41.5
J039	60.66	14.2	110.03	41.5
J040	2.39	13.4	110.55	42.1
J041	0.00	14.2	110.61	41.8
J042	72.07	14.9	110.00	41.2
J044	0.00	14.9	110.43	41.4
J046	0.00	13.0	108.23	41.3
J048	121.42	13.0	110.27	42.2
J050	0.00	14.2	110.55	41.8
J052	111.72	14.8	110.06	41.3
J053	59.30	14.2	110.29	41.6
J054	0.00	13.4	110.96	42.3
J055	0.00	14.8	109.44	41.0
J056	129.94	13.5	110.56	42.1
J058	140.65	13.5	110.05	41.8
J060	0.00	14.9	109.47	41.0
J062	0.00	18.4	109.51	39.5
J064	0.00	17.0	109.73	40.2
J066	0.00	17.0	110.12	40.4
J068	0.00	16.0	109.80	40.6
J070	0.00	14.8	109.52	41.0
J072	0.00	14.5	109.51	41.2
J076	0.00	14.3	111.86	42.3
J078	0.00	17.0	109.72	40.2
J080	0.00	13.5	111.21	42.3
J082	0.00	14.5	110.41	41.6
J084	0.00	14.5	109.28	41.1
J086	0.00	14.5	109.27	41.1
J088	0.00	16.0	109.53	40.5
J090	0.00	14.0	109.74	41.5
J092	0.00	14.9	110.17	41.3
J094	0.00	14.2	110.36	41.7
J100	80.00	14.1	110.89	41.9
J104	0.00	13.0	109.23	41.7
J96	0.00	14.1	108.39	40.9
J98	0.00	14.0	105.33	39.6
J_BRD	0.00	14.0	118.42	45.3
J_WRD	0.00	13.0	112.27	43.0
T010	0.00	17.6	112.25	41.0
T020	0.00	13.8	112.11	42.6
T030	0.00	13.0	111.96	42.9
T035	0.00	13.0	110.87	42.4
T040	0.00	14.4	112.25	42.4
T045	0.00	13.0	108.42	41.4
T102	0.00	17.6	112.24	41.0

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES-BARANDAS	-2,332.30	0
RES-SANJUAN	-6,910.19	0

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U-BARANDAS	14	-6.07	45.25	2,332.30	118.42
U-SANJUAN	14	-6.07	42.57	6,910.19	112.25

Distribution Mains
Minimum Required Pressure is 20 psi during fire flow.

Transmission Mains
SCWA Required 25 psi, and City requires 20 psi, in transmission mains during fire flow.

Upper Westside (Scenario II)
4. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J023 (School on Radio Road)

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2451	12	125	1201	3.41	9.38	3.83
P015	J013	J023	1355	12	125	2299	6.52	17.25	12.73
P017	J015	J017	1930	12	125	-1722	4.88	14.39	7.46
P019	J104	J020	977	12	125	-769	2.18	1.64	1.68
P023	J022	J027	629	12	125	305	0.86	0.19	0.30
P025	J024	J026	2682	12	125	-8	0.02	0.00	0.00
P027	J031	J024	687	12	120	45	0.13	0.01	0.01
P029	J028	J029	883	12	125	-567	1.61	0.84	0.95
P031	J039	J053	514	12	125	-403	1.14	0.26	0.51
P033	J033	J032	733	12	125	-81	0.23	0.02	0.03
P037	J032	J035	665	12	125	-305	0.86	0.20	0.30
P039	J034	J055	1379	12	125	-333	0.95	0.49	0.36
P041	J034	J019	1005	12	125	-312	0.88	0.32	0.31
P043	J044	J092	499	12	125	406	1.15	0.26	0.51
P045	J070	J037	486	12	125	-271	0.77	0.12	0.24
P047	J038	J058	1285	12	125	-245	0.70	0.26	0.20
P049	T010	T020	2615	36	120	2092	0.66	0.14	0.05
P053	T040	T030	1345	30	120	2724	1.24	0.29	0.22
P071	T045	T035	1574	18	125	-2147	2.71	2.45	1.56
P077	U-SANJUAN	T010	3165	999	125	3679	0.00	0.00	0.00
P079	U-SANJUAN	T040	3546	999	125	3231	0.00	0.00	0.00
P200	J020	T035	85	12	125	-62	0.18	0.00	0.02
P602	RES-SANJUAN	U-SANJUAN	385	999	125	6910	0.00	0.00	0.00
P606	T030	T035	661	18	125	2209	2.79	1.09	1.64
P610	J010	T102	498	12	125	-1588	4.50	3.20	6.42
P616	J012	J013	226	12	125	2480	7.03	3.31	14.65
P620	J076	J030	203	12	125	1054	2.99	0.61	3.00
P622	J078	J072	1141	8	125	81	0.52	0.21	0.19
P624	J064	J078	513	12	125	38	0.11	0.00	0.01
P626	J023	J016	770	12	125	-2201	6.24	9.05	11.75
P628	T020	T030	2717	36	120	2092	0.66	0.15	0.05
P632	J017	J018	82	12	125	-953	2.70	0.20	2.49
P634	J018	J033	618	12	125	-81	0.23	0.02	0.03
P640	J035	J034	633	12	125	-489	1.39	0.46	0.72
P644	J016	J015	738	12	125	-1722	4.88	5.50	7.46
P650	J037	J038	616	12	125	-271	0.77	0.15	0.24
P654	J038	J039	640	12	125	-342	0.97	0.24	0.37
P660	J030	J041	612	12	125	593	1.68	0.63	1.03
P662	J025	J022	693	12	120	336	0.95	0.27	0.39
P664	J022	J080	1315	12	125	-236	0.67	0.25	0.19
P668	J027	J024	637	12	120	305	0.86	0.21	0.33
P672	J029	J076	458	12	125	-567	1.61	0.44	0.95
P678	J031	J028	634	12	120	-45	0.13	0.01	0.01
P690	J012	T030	2788	12	125	-1297	3.68	12.30	4.41
P692	J080	J026	2656	12	125	271	0.77	0.64	0.24
P694	J094	J041	498	12	125	-402	1.14	0.25	0.50
P696	J019	J036	301	12	125	-413	1.17	0.16	0.53
P698	J048	J040	440	12	125	-458	1.30	0.28	0.64
P700	J056	J054	1903	12	125	-251	0.71	0.40	0.21
P702	J042	J036	1326	12	125	369	1.05	0.57	0.43
P704	J028	J044	592	12	125	277	0.79	0.15	0.25
P708	J046	J017	109	12	125	769	2.18	0.18	1.68
P710	T045	J018	107	18	125	2147	2.71	0.17	1.56
P712	J082	J024	535	8	125	-104	0.66	0.16	0.30
P718	T040	J080	1344	12	125	506	1.44	1.04	0.77
P720	J044	J041	1457	12	125	-191	0.54	0.18	0.13
P722	J052	J082	503	8	125	-165	1.06	0.35	0.70
P724	J055	J052	239	8	125	-333	2.13	0.61	2.57
P726	J022	J050	1038	8	125	121	0.78	0.41	0.40
P728	J050	J052	1256	8	125	121	0.78	0.50	0.40
P730	J054	J040	630	12	125	460	1.31	0.41	0.65
P732	J053	J056	1249	12	125	-253	0.72	0.27	0.21
P734	J058	J048	1047	12	125	-250	0.71	0.22	0.21
P736	J056	J058	1030	8	125	137	0.87	0.51	0.49
P738	J062	J064	1000	8	125	-87	0.55	0.21	0.21
P740	J064	J090	600	12	125	-81	0.23	0.02	0.03
P742	J068	J066	1483	8	125	-87	0.56	0.32	0.21
P744	J066	J048	712	8	125	-87	0.56	0.15	0.21
P746	J064	J068	1239	8	125	-44	0.28	0.07	0.06
P748	J036	J070	350	12	125	-292	0.83	0.10	0.28
P750	J070	J088	702	12	125	-20	0.06	0.00	0.00
P752	J072	J060	657	12	125	126	0.36	0.04	0.06
P754	J060	J062	958	12	125	-107	0.30	0.04	0.04

Upper Westside (Scenario II)
4. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J023 (School on Radio Road)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P756	J062	J072	392	12	125	45	0.13	0.00	0.01
P758	J078	J068	1337	8	125	-43	0.28	0.08	0.06
P760	ES-BARANDA	U-BARANDAS	171	999	120	2332	0.00	0.00	0.00
P762	U-BARANDAS	J_BRD	169	999	120	2332	0.00	0.00	0.00
P764	T030	J025	637	12	120	599	1.70	0.72	1.14
P766	J082	J044	1317	12	125	-62	0.18	0.02	0.02
P768	J034	J086	1417	8	125	-89	0.57	0.32	0.22
P770	J96	J084	1449	8	125	-154	0.98	0.89	0.62
P772	J019	J086	707	12	125	10	0.03	0.00	0.00
P774	J086	J084	651	12	125	-79	0.22	0.02	0.02
P776	J084	J060	1031	12	125	-233	0.66	0.19	0.18
P778	J056	J100	1411	12	125	-268	0.76	0.34	0.24
P780	J016	J98	4922	12	125	-1143	3.24	17.18	3.49
P890	J088	J062	658	12	125	65	0.19	0.01	0.02
P892	J090	J038	509	12	125	-166	0.47	0.05	0.10
P894	J090	J088	1044	8	125	86	0.55	0.22	0.21
P896	J092	J042	299	12	125	441	1.25	0.18	0.60
P898	J053	J094	481	12	125	-209	0.59	0.07	0.15
P900	J_BRD	J_WRD	4236	12	125	712	2.02	6.15	1.45
P902	J_WRD	J054	904	12	125	712	2.02	1.31	1.45
P904	J_BRD	J076	985	12	125	1620	4.60	6.57	6.66
P906	J035	J96	992	8	125	59	0.38	0.10	0.10
P908	J98	J018	1227	12	125	-929	2.64	2.92	2.38
P910	J98	J96	2720	8	125	-213	1.36	3.05	1.12
P912	J100	J030	916	12	125	-348	0.99	0.35	0.39
P914	J052	J092	1314	12	125	-158	0.45	0.12	0.09
P916	J092	J094	1456	12	125	-193	0.55	0.19	0.13
P918	T010	T102	392	36	120	1588	0.50	0.01	0.03
P920	T030	J020	696	12	120	711	2.02	1.09	1.56
P922	J046	J104	596	12	125	-769	2.18	1.00	1.68

Upper Westside (Scenario II)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	113.75	41.7
J012	18.25	13.8	112.91	42.9
J013	180.95	13.8	112.59	42.8
J015	0.00	14.7	111.01	41.7
J016	663.26	15.0	110.89	41.6
J017	0.00	14.3	111.34	42.1
J018	346.16	14.0	111.29	42.2
J019	90.55	14.6	93.63	34.2
J020	3.79	15.5	113.39	42.4
J022	145.35	13.6	107.87	40.8
J023	0.00	14.5	111.51	42.0
J024	253.15	14.3	103.38	38.6
J025	263.55	13.3	110.59	42.2
J026	262.90	13.0	105.07	39.9
J027	0.00	13.9	105.72	39.8
J028	245.18	14.9	100.98	37.3
J029	0.00	14.5	101.40	37.7
J030	112.76	14.2	100.37	37.4
J031	0.00	14.6	102.13	37.9
J032	223.56	13.6	102.35	38.5
J033	0.00	13.8	107.21	40.5
J034	245.26	14.2	96.61	35.7
J035	125.21	14.1	99.01	36.8
J036	247.62	14.9	93.57	34.1
J037	0.00	14.5	92.84	33.9
J038	149.88	14.0	93.15	34.3
J039	60.66	14.2	95.26	35.1
J040	2.39	13.4	96.19	35.9
J041	0.00	14.2	99.45	36.9
J042	72.07	14.9	97.38	35.7
J044	0.00	14.9	99.61	36.7
J046	0.00	13.0	111.47	42.7
J048	121.42	13.0	95.28	35.7
J050	0.00	14.2	103.65	38.8
J052	111.72	14.8	98.54	36.3
J053	59.30	14.2	97.12	35.9
J054	0.00	13.4	97.50	36.5
J055	0.00	14.8	97.47	35.8
J056	129.94	13.5	97.41	36.4
J058	140.65	13.5	94.67	35.2
J060	0.00	14.9	83.94	29.9
J062	0.00	18.4	83.96	28.4
J064	0.00	17.0	89.96	31.6
J066	0.00	17.0	93.75	33.3
J068	0.00	16.0	90.56	32.3
J070	0.00	14.8	92.59	33.7
J072	4500.00	14.5	79.39	28.1
J076	0.00	14.3	101.61	37.8
J078	0.00	17.0	89.59	31.5
J080	0.00	13.5	108.97	41.4
J082	0.00	14.5	99.84	37.0
J084	0.00	14.5	90.56	33.0
J086	0.00	14.5	92.58	33.8
J088	0.00	16.0	88.92	31.6
J090	0.00	14.0	91.25	33.5
J092	0.00	14.9	98.36	36.2
J094	0.00	14.2	98.34	36.5
J100	80.00	14.1	99.05	36.8
J104	0.00	13.0	112.20	43.0
J96	0.00	14.1	98.87	36.7
J98	0.00	14.0	110.77	41.9
J_BRD	0.00	14.0	110.73	41.9
J_WRD	0.00	13.0	99.82	37.6
T010	0.00	17.6	114.48	42.0
T020	0.00	13.8	114.36	43.6
T030	0.00	13.0	114.24	43.9
T035	0.00	13.0	113.39	43.5
T040	0.00	14.4	114.48	43.4
T045	0.00	13.0	111.43	42.7
T102	0.00	17.6	114.48	42.0

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES-BARANDAS	-2,904.24	0
RES-SANJUAN	-6,338.24	0

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U-BARANDAS	14	-6.07	41.91	2,904.24	110.73
U-SANJUAN	14	-6.07	43.54	6,338.24	114.48

Distribution Mains
Minimum Required Pressure is 20 psi during fire flow.

Transmission Mains
SCWA Required 25 psi, and City requires 20 psi, in transmission mains during fire flow.

Upper Westside (Scenario II)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2451	12	125	327	0.93	0.84	0.34
P015	J013	J023	1355	12	125	517	1.47	1.09	0.80
P017	J015	J017	1930	12	125	-223	0.63	0.33	0.17
P019	J104	J020	977	12	125	-647	1.84	1.19	1.22
P023	J022	J027	629	12	125	1128	3.20	2.14	3.41
P025	J024	J026	2682	12	125	-453	1.29	1.69	0.63
P027	J031	J024	687	12	120	-772	2.19	1.25	1.82
P029	J028	J029	883	12	125	-388	1.10	0.42	0.47
P031	J039	J053	514	12	125	-1167	3.31	1.86	3.63
P033	J033	J032	733	12	125	1614	4.58	4.85	6.62
P037	J032	J035	665	12	125	1391	3.95	3.34	5.02
P039	J034	J055	1379	12	125	-450	1.28	0.85	0.62
P041	J034	J019	1005	12	125	1047	2.97	2.98	2.97
P043	J044	J092	499	12	125	959	2.72	1.26	2.52
P045	J070	J037	486	12	125	-405	1.15	0.25	0.51
P047	J038	J058	1285	12	125	-636	1.80	1.51	1.18
P049	T010	T020	2615	36	120	1902	0.60	0.12	0.05
P053	T040	T030	1345	30	120	2477	1.12	0.24	0.18
P071	T045	T035	1574	18	125	-1904	2.40	1.96	1.25
P077	U-SANJUAN	T010	3165	999	125	2615	0.00	0.00	0.00
P079	U-SANJUAN	T040	3546	999	125	3723	0.00	0.00	0.00
P200	J020	T035	85	12	125	-29	0.08	0.00	0.00
P602	RES-SANJUAN	U-SANJUAN	385	999	125	6338	0.00	0.00	0.00
P606	T030	T035	661	18	125	1933	2.44	0.85	1.28
P610	J010	T102	498	12	125	-714	2.02	0.73	1.46
P616	J012	J013	226	12	125	698	1.98	0.32	1.40
P620	J076	J030	203	12	125	1547	4.39	1.24	6.11
P622	J078	J072	1141	8	125	654	4.17	10.20	8.94
P624	J064	J078	513	12	125	486	1.38	0.37	0.72
P626	J023	J016	770	12	125	517	1.47	0.62	0.80
P628	T020	T030	2717	36	120	1902	0.60	0.12	0.05
P632	J017	J018	82	12	125	424	1.20	0.05	0.56
P634	J018	J033	618	12	125	1614	4.58	4.09	6.62
P640	J035	J034	633	12	125	1195	3.39	2.40	3.79
P644	J016	J015	738	12	125	-223	0.63	0.13	0.17
P650	J037	J038	616	12	125	-405	1.15	0.31	0.51
P654	J038	J039	640	12	125	-1106	3.14	2.10	3.29
P660	J030	J041	612	12	125	724	2.05	0.92	1.50
P662	J025	J022	693	12	120	1170	3.32	2.73	3.93
P664	J022	J080	1315	12	125	-530	1.50	1.11	0.84
P668	J027	J024	637	12	120	1128	3.20	2.34	3.67
P672	J029	J076	458	12	125	-388	1.10	0.22	0.47
P678	J031	J028	634	12	120	772	2.19	1.15	1.82
P690	J012	T030	2788	12	125	-390	1.11	1.33	0.48
P692	J080	J026	2656	12	125	716	2.03	3.90	1.47
P694	J094	J041	498	12	125	-901	2.56	1.12	2.25
P696	J019	J036	301	12	125	236	0.67	0.06	0.19
P698	J048	J040	440	12	125	-861	2.44	0.91	2.06
P700	J056	J054	1903	12	125	-107	0.30	0.08	0.04
P702	J042	J036	1326	12	125	1029	2.92	3.81	2.87
P704	J028	J044	592	12	125	914	2.59	1.37	2.31
P708	J046	J017	109	12	125	647	1.84	0.13	1.22
P710	T045	J018	107	18	125	1904	2.40	0.13	1.25
P712	J082	J024	535	8	125	-556	3.55	3.55	6.63
P718	T040	J080	1344	12	125	1246	3.54	5.51	4.10
P720	J044	J041	1457	12	125	177	0.50	0.16	0.11
P722	J052	J082	503	8	125	-334	2.13	1.30	2.58
P724	J055	J052	239	8	125	-450	2.87	1.07	4.47
P726	J022	J050	1038	8	125	427	2.73	4.22	4.07
P728	J050	J052	1256	8	125	427	2.73	5.11	4.07
P730	J054	J040	630	12	125	863	2.45	1.31	2.07
P732	J053	J056	1249	12	125	-266	0.76	0.29	0.24
P734	J058	J048	1047	12	125	-436	1.24	0.61	0.59
P736	J056	J058	1030	8	125	340	2.17	2.75	2.67
P738	J062	J064	1000	8	125	-527	3.37	6.00	6.00
P740	J064	J090	600	12	125	-878	2.49	1.29	2.14
P742	J068	J066	1483	8	125	-303	1.93	3.19	2.15
P744	J066	J048	712	8	125	-303	1.93	1.53	2.15
P746	J064	J068	1239	8	125	-135	0.86	0.60	0.48
P748	J036	J070	350	12	125	1017	2.88	0.98	2.81
P750	J070	J088	702	12	125	1422	4.03	3.67	5.23
P752	J072	J060	657	12	125	-1655	4.69	4.55	6.93
P754	J060	J062	958	12	125	-67	0.19	0.02	0.02
P756	J062	J072	392	12	125	2192	6.22	4.57	11.66

Upper Westside (Scenario II)
5. MAXIMUM DAY DEMAND + FIRE FLOW OF 4,500 GPM AT J072 (School)

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P758	J078	J068	1337	8	125	-168	1.07	0.96	0.72
P760	ES-BARANDA	U-BARANDAS	171	999	120	2904	0.00	0.00	0.00
P762	U-BARANDAS	J_BRD	169	999	120	2904	0.00	0.00	0.00
P764	T030	J025	637	12	120	1434	4.07	3.65	5.73
P766	J082	J044	1317	12	125	222	0.63	0.22	0.17
P768	J034	J086	1417	8	125	353	2.25	4.04	2.85
P770	J96	J084	1449	8	125	515	3.28	8.31	5.74
P772	J019	J086	707	12	125	721	2.04	1.05	1.49
P774	J086	J084	651	12	125	1073	3.04	2.02	3.11
P776	J084	J060	1031	12	125	1588	4.50	6.62	6.42
P778	J056	J100	1411	12	125	-630	1.79	1.63	1.16
P780	J016	J98	4922	12	125	77	0.22	0.12	0.02
P890	J088	J062	658	12	125	1731	4.91	4.96	7.53
P892	J090	J038	509	12	125	-1187	3.37	1.91	3.75
P894	J090	J088	1044	8	125	309	1.97	2.33	2.23
P896	J092	J042	299	12	125	1101	3.12	0.97	3.26
P898	J053	J094	481	12	125	-960	2.72	1.22	2.53
P900	J_BRD	J_WRD	4236	12	125	970	2.75	10.91	2.57
P902	J_WRD	J054	904	12	125	970	2.75	2.33	2.57
P904	J_BRD	J076	985	12	125	1934	5.49	9.12	9.25
P906	J035	J96	992	8	125	70	0.45	0.14	0.14
P908	J98	J018	1227	12	125	-367	1.04	0.52	0.43
P910	J98	J96	2720	8	125	444	2.84	11.90	4.37
P912	J100	J030	916	12	125	-710	2.01	1.32	1.44
P914	J052	J092	1314	12	125	200	0.57	0.18	0.14
P916	J092	J094	1456	12	125	59	0.17	0.02	0.01
P918	T010	T102	392	36	120	714	0.22	0.00	0.01
P920	T030	J020	696	12	120	622	1.76	0.85	1.22
P922	J046	J104	596	12	125	-647	1.84	0.73	1.22

Upper Westside (Scenario II)
6. MAXIMUM DAY DEMAND + FIRE FLOW OF 2,000 GPM AT J040

Updated: 2/2/2023

JUNCTION REPORT				
ID	Demand * (gpm)	Elevation (feet)	Head (feet)	Pressure (psi)
J010	386.97	17.6	120.28	44.5
J012	18.25	13.8	119.81	45.9
J013	180.95	13.8	119.61	45.9
J015	0.00	14.7	118.86	45.1
J016	663.26	15.0	118.72	45.0
J017	0.00	14.3	119.20	45.5
J018	346.16	14.0	119.19	45.6
J019	90.55	14.6	113.93	43.0
J020	3.79	15.5	120.28	45.4
J022	145.35	13.6	117.73	45.1
J023	0.00	14.5	119.04	45.3
J024	253.15	14.3	115.88	44.0
J025	263.55	13.3	118.87	45.7
J026	262.90	13.0	116.33	44.8
J027	0.00	13.9	116.84	44.6
J028	245.18	14.9	115.20	43.4
J029	0.00	14.5	115.49	43.8
J030	112.76	14.2	115.01	43.7
J031	0.00	14.6	115.53	43.7
J032	223.56	13.6	116.04	44.4
J033	0.00	13.8	117.75	45.0
J034	245.26	14.2	114.41	43.4
J035	125.21	14.1	115.12	43.8
J036	247.62	14.9	113.83	42.9
J037	0.00	14.5	113.45	42.9
J038	149.88	14.0	113.21	43.0
J039	60.66	14.2	113.38	43.0
J040	2002.39	13.4	109.57	41.7
J041	0.00	14.2	114.71	43.6
J042	72.07	14.9	114.33	43.1
J044	0.00	14.9	114.81	43.3
J046	0.00	13.0	119.27	46.1
J048	121.42	13.0	110.35	42.2
J050	0.00	14.2	116.31	44.2
J052	111.72	14.8	114.59	43.2
J053	59.30	14.2	113.57	43.1
J054	0.00	13.4	112.01	42.7
J055	0.00	14.8	114.49	43.2
J056	129.94	13.5	113.16	43.2
J058	140.65	13.5	111.82	42.6
J060	0.00	14.9	113.67	42.8
J062	0.00	18.4	113.62	41.3
J064	0.00	17.0	113.24	41.7
J066	0.00	17.0	111.15	40.8
J068	0.00	16.0	112.84	42.0
J070	0.00	14.8	113.63	42.8
J072	0.00	14.5	113.62	43.0
J076	0.00	14.3	115.64	43.9
J078	0.00	17.0	113.24	41.7
J080	0.00	13.5	118.24	45.4
J082	0.00	14.5	114.89	43.5
J084	0.00	14.5	113.92	43.1
J086	0.00	14.5	113.94	43.1
J088	0.00	16.0	113.62	42.3
J090	0.00	14.0	113.24	43.0
J092	0.00	14.9	114.49	43.2
J094	0.00	14.2	114.29	43.4
J100	80.00	14.1	114.15	43.4
J104	0.00	13.0	119.66	46.2
J96	0.00	14.1	115.19	43.8
J98	0.00	14.0	118.82	45.4
J_BRD	0.00	14.0	120.59	46.2
J_WRD	0.00	13.0	113.52	43.6
T010	0.00	17.6	120.86	44.8
T020	0.00	13.8	120.80	46.4
T030	0.00	13.0	120.73	46.7
T035	0.00	13.0	120.29	46.5
T040	0.00	14.4	120.86	46.1
T045	0.00	13.0	119.26	46.1
T102	0.00	17.6	120.86	44.8

RESERVOIR / POC REPORT		
ID	Flow (gpm)	Head (feet)
RES-BARANDAS	-2,158.54	0
RES-SANJUAN	-4,583.94	0

PUMP REPORT					
ID	Elevation (ft)	Upstream Pressure (psi)	Downstream Pressure (psi)	Flow (gpm)	Head Gain (ft)
U-BARANDAS	14	-6.07	46.19	2,158.54	120.59
U-SANJUAN	14	-6.07	46.3	4,583.94	120.86

Distribution Mains
Minimum Required Pressure is 20 psi during fire flow.

Transmission Mains
SCWA Required 25 psi, and City requires 20 psi, in transmission mains during fire flow.

Upper Westside (Scenario II)
6. MAXIMUM DAY DEMAND + FIRE FLOW OF 2,000 GPM AT J040

PIPE REPORT									
ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P011	J010	J012	2451	12	125	241	0.68	0.48	0.20
P015	J013	J023	1355	12	125	362	1.03	0.56	0.42
P017	J015	J017	1930	12	125	-231	0.65	0.35	0.18
P019	J104	J020	977	12	125	-458	1.30	0.63	0.64
P023	J022	J027	629	12	125	699	1.98	0.88	1.40
P025	J024	J026	2682	12	125	-223	0.63	0.46	0.17
P027	J031	J024	687	12	120	-390	1.11	0.35	0.51
P029	J028	J029	883	12	125	-320	0.91	0.29	0.33
P031	J039	J053	514	12	125	-343	0.97	0.19	0.38
P033	J033	J032	733	12	125	919	2.61	1.71	2.33
P037	J032	J035	665	12	125	695	1.97	0.93	1.39
P039	J034	J055	1379	12	125	-127	0.36	0.08	0.06
P041	J034	J019	1005	12	125	389	1.10	0.48	0.47
P043	J044	J092	499	12	125	460	1.30	0.32	0.65
P045	J070	J037	486	12	125	347	0.98	0.19	0.38
P047	J038	J058	1285	12	125	609	1.73	1.40	1.09
P049	T010	T020	2615	36	120	1355	0.43	0.06	0.02
P053	T040	T030	1345	30	120	1765	0.80	0.13	0.10
P071	T045	T035	1574	18	125	-1342	1.69	1.03	0.65
P077	U-SANJUAN	T010	3165	999	125	1983	0.00	0.00	0.00
P079	U-SANJUAN	T040	3546	999	125	2601	0.00	0.00	0.00
P200	J020	T035	85	12	125	-23	0.07	0.00	0.00
P602	RES-SANJUAN	U-SANJUAN	385	999	125	4584	0.00	0.00	0.00
P606	T030	T035	661	18	125	1365	1.72	0.45	0.67
P610	J010	T102	498	12	125	-628	1.78	0.57	1.15
P616	J012	J013	226	12	125	543	1.54	0.20	0.88
P620	J076	J030	203	12	125	1071	3.04	0.63	3.09
P622	J078	J072	1141	8	125	-111	0.71	0.38	0.33
P624	J064	J078	513	12	125	-5	0.02	0.00	0.00
P626	J023	J016	770	12	125	362	1.03	0.32	0.42
P628	T020	T030	2717	36	120	1355	0.43	0.07	0.02
P632	J017	J018	82	12	125	228	0.65	0.01	0.18
P634	J018	J033	618	12	125	919	2.61	1.44	2.33
P640	J035	J034	633	12	125	618	1.75	0.71	1.12
P644	J016	J015	738	12	125	-231	0.65	0.13	0.18
P650	J037	J038	616	12	125	347	0.98	0.24	0.38
P654	J038	J039	640	12	125	-283	0.80	0.17	0.26
P660	J030	J041	612	12	125	396	1.12	0.30	0.49
P662	J025	J022	693	12	120	733	2.08	1.15	1.65
P664	J022	J080	1315	12	125	-349	0.99	0.51	0.39
P668	J027	J024	637	12	120	699	1.98	0.97	1.51
P672	J029	J076	458	12	125	-320	0.91	0.15	0.33
P678	J031	J028	634	12	120	390	1.11	0.33	0.51
P690	J012	T030	2788	12	125	-321	0.91	0.92	0.33
P692	J080	J026	2656	12	125	486	1.38	1.90	0.72
P694	J094	J041	498	12	125	-530	1.50	0.42	0.84
P696	J019	J036	301	12	125	328	0.93	0.10	0.35
P698	J048	J040	440	12	125	792	2.25	0.78	1.77
P700	J056	J054	1903	12	125	443	1.26	1.15	0.60
P702	J042	J036	1326	12	125	343	0.97	0.50	0.38
P704	J028	J044	592	12	125	465	1.32	0.39	0.66
P708	J046	J017	109	12	125	458	1.30	0.07	0.64
P710	T045	J018	107	18	125	1342	1.69	0.07	0.65
P712	J082	J024	535	8	125	-279	1.78	0.99	1.85
P718	T040	J080	1344	12	125	835	2.37	2.62	1.95
P720	J044	J041	1457	12	125	134	0.38	0.10	0.07
P722	J052	J082	503	8	125	-151	0.96	0.30	0.59
P724	J055	J052	239	8	125	-127	0.81	0.10	0.43
P726	J022	J050	1038	8	125	237	1.51	1.42	1.37
P728	J050	J052	1256	8	125	237	1.51	1.72	1.37
P730	J054	J040	630	12	125	1210	3.43	2.44	3.88
P732	J053	J056	1249	12	125	321	0.91	0.42	0.33
P734	J058	J048	1047	12	125	699	1.98	1.47	1.40
P736	J056	J058	1030	8	125	231	1.47	1.34	1.30
P738	J062	J064	1000	8	125	118	0.76	0.38	0.38
P740	J064	J090	600	12	125	14	0.04	0.00	0.00
P742	J068	J066	1483	8	125	215	1.37	1.68	1.14
P744	J066	J048	712	8	125	215	1.37	0.81	1.14
P746	J064	J068	1239	8	125	110	0.70	0.40	0.33
P748	J036	J070	350	12	125	423	1.20	0.19	0.55
P750	J070	J088	702	12	125	77	0.22	0.02	0.02
P752	J072	J060	657	12	125	-146	0.41	0.05	0.08
P754	J060	J062	958	12	125	122	0.34	0.05	0.05
P756	J062	J072	392	12	125	-35	0.10	0.00	0.01

Upper Westside (Scenario II)
6. MAXIMUM DAY DEMAND + FIRE FLOW OF 2,000 GPM AT J040

PIPE REPORT

ID	From Node	To Node	Length (feet)	Diameter (inches)	Roughness (C-Value)	Flow (gpm)	Velocity (fps)	Headloss (feet)	HL/1000 (ft/kft)
P758	J078	J068	1337	8	125	105	0.67	0.41	0.30
P760	ES-BARANDA	U-BARANDAS	171	999	120	2159	0.00	0.00	0.00
P762	U-BARANDAS	J_BRD	169	999	120	2159	0.00	0.00	0.00
P764	T030	J025	637	12	120	996	2.83	1.86	2.92
P766	J082	J044	1317	12	125	129	0.36	0.08	0.06
P768	J034	J086	1417	8	125	111	0.71	0.47	0.33
P770	J96	J084	1449	8	125	186	1.19	1.27	0.87
P772	J019	J086	707	12	125	-30	0.09	0.00	0.00
P774	J086	J084	651	12	125	81	0.23	0.02	0.03
P776	J084	J060	1031	12	125	267	0.76	0.24	0.24
P778	J056	J100	1411	12	125	-482	1.37	1.00	0.71
P780	J016	J98	4922	12	125	-70	0.20	0.10	0.02
P890	J088	J062	658	12	125	-38	0.11	0.00	0.01
P892	J090	J038	509	12	125	129	0.37	0.03	0.06
P894	J090	J088	1044	8	125	-115	0.73	0.37	0.36
P896	J092	J042	299	12	125	415	1.18	0.16	0.53
P898	J053	J094	481	12	125	-724	2.05	0.72	1.50
P900	J_BRD	J_WRD	4236	12	125	767	2.18	7.07	1.67
P902	J_WRD	J054	904	12	125	767	2.18	1.51	1.67
P904	J_BRD	J076	985	12	125	1391	3.95	4.95	5.02
P906	J035	J96	992	8	125	-48	0.31	0.07	0.07
P908	J98	J018	1227	12	125	-304	0.86	0.37	0.30
P910	J98	J96	2720	8	125	234	1.50	3.63	1.34
P912	J100	J030	916	12	125	-562	1.59	0.86	0.94
P914	J052	J092	1314	12	125	150	0.42	0.11	0.08
P916	J092	J094	1456	12	125	194	0.55	0.19	0.13
P918	T010	T102	392	36	120	628	0.20	0.00	0.01
P920	T030	J020	696	12	120	439	1.25	0.45	0.64
P922	J046	J104	596	12	125	-458	1.30	0.38	0.64

APPENDIX D

ENGINEER'S OPINION OF COST TRANSMISSION PHASE 1 SCENARIO I

Prepared by: J Reed
Date: 8/3/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside Backbone Water System - Transmission - Phase 1

Summary

	Segment				Amount
	Bryte Bend Road				$0
	El Centro Road				$1,270,000
	Street H				$0
	Radio Road				$0
	San Juan Road (Water Tank)				$17,560,000
	Street 8				$0
	Farm Road				$0
	West El Camino				$0
	Street 2				$540,000
	Segment Construction Sub-Total:				$19,370,000
	Contingency Based upon Construction Hard Costs (20%):				$3,870,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$3,870,000
	Water Tank Land Acquisition (3 Acres)				$1,340,000
	Contingency Based upon LAND Acquisition Costs (10%):				$130,000
	BACKBONE WATER TOTAL:				**$28,580,000**

Prepared by: J Reed
Date: 8/3/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside Backbone Water System - Transmission - Phase 1

Segment: El Centro Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	0	$145	$0
2	16" PVC C-905 Water Line - w/ Fittings	LF	5,730	$190	$1,088,700
3	24" DI C151 Water Line - w/ Fittings	LF	420	$285	$119,700
4	16" Butterfly Valve	EA	4	$14,000	$56,000
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$12,000	$0
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Meter and Backflow in Vault at Connection to Exis	EA	0	$300,000	$0
10	Cathodic Protection	LF	420	$18	$7,600
11	Phase 1 Backflow Preventer w/Vault	EA	0	$250,000	$0
12	Phase 1 Booster Pump w/Bladder Tank	EA	0	$3,000,000	$0
13	Buildout Booster Pump Station	EA	0	$12,000,000	$0
	Segment Construction Sub-Total:				$1,272,000
	Contingency Based upon Construction Hard Costs (20%):				$254,400
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$254,400
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$1,780,000**

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside Backbone Water System - Transmission - Phase 1

Segment: San Juan Road (Water Tank)

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	0	$145	$0
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$12,000	$0
7	Water Tank and Site Development	LS	1	$5,000,000	$5,000,000
8	Transmission Main Connection to Existing	EA	1	$10,000	$10,000
9	Meter and Backflow in Vault at Connection to Exis	EA	1	$300,000	$300,000
10	Cathodic Protection	LF	0	$18	$0
11	Phase 1 Backflow Preventer w/Vault	EA	1	$250,000	$250,000
12	Phase 1 Booster Pump w/Bladder Tank	EA	0	$3,000,000	$0
13	Buildout Booster Pump Station	EA	1	$12,000,000	$12,000,000
	Segment Construction Sub-Total:				$17,560,000
	Contingency Based upon Construction Hard Costs (20%):				$3,512,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$3,512,000
LAND	Water Tank Land Acquisition (3 Acres)	SF	129,560	$10.33	$1,338,400
	Contingency Based upon LAND Acquisition Costs (10%):				$133,800
	SEGMENT TOTAL WATER:				**$26,060,000**

Prepared by: J Reed
Date: 8/3/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside - Backbone Water System - Transmission - Phase 1

Segment: Street 2

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	0	$145	$0
2	16" PVC C-905 Water Line - w/ Fittings	LF	2,700	$190	$513,000
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	2	$14,000	$28,000
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$12,000	$0
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Meter and Backflow in Vault at Connection to Exis	EA	0	$300,000	$0
10	Cathodic Protection	LF	0	$18	$0
11	Phase 1 Backflow Preventer w/Vault	EA	0	$250,000	$0
12	Phase 1 Booster Pump w/Bladder Tank	EA	0	$3,000,000	$0
13	Buildout Booster Pump Station	EA	0	$12,000,000	$0
	Segment Construction Sub-Total:				$541,000
	Contingency Based upon Construction Hard Costs (20%):				$108,200
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$108,200
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$760,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Transmission - Phase 1

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Water Tank and Site Development	LS	$5,000,000
8	Transmission Main Connection to Existing	EA	$10,000
9	Meter and Backflow in Vault at Connection to Exis	EA	$300,000
10	Cathodic Protection	LF	$18
11	Phase 1 Backflow Preventer w/Vault	EA	$250,000
12	Phase 1 Booster Pump w/Bladder Tank	EA	$3,000,000
13	Buildout Booster Pump Station	EA	$12,000,000
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX E
ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 1 SCENARIO I

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside Major Water Infrastructure Scenario I

Backbone Water System - Distribution - Phase 1

Summary

	Segment				Amount
	Bryte Bend Road				$720,000
	El Centro Road				$890,000
	Radio Road				$0
	San Juan Road				$0
	Farm Road				$220,000
	West El Camino				$0
	Street 2				$460,000
	Segment Construction Sub-Total:				$2,300,000
	Contingency Based upon Construction Hard Costs (20%):				$460,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$460,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE WATER TOTAL:				**$3,220,000**

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside Major Water Infrastructure Scenario I					
Backbone Water System - Distribution - Phase 1					
Segment:					**Bryte Bend Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	4,250	$145	$616,300
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	9	$12,000	$108,000
	Segment Construction Sub-Total:				$724,300
	Contingency Based upon Construction Hard Costs (20%):				$144,900
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$144,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$1,010,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside Major Water Infrastructure Scenario I

Backbone Water System - Distribution - Phase 1

Segment: El Centro Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	5,200	$145	$754,000
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	11	$12,000	$132,000
	Segment Construction Sub-Total:				$886,000
	Contingency Based upon Construction Hard Costs (20%):				$177,200
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$177,200
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$1,240,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside Major Water Infrastructure Scenario I					
Backbone Water System - Distribution - Phase 1					
Segment:					**Farm Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	1,300	$145	$188,500
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$12,000	$36,000
	Segment Construction Sub-Total:				$224,500
	Contingency Based upon Construction Hard Costs (20%):				$44,900
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$44,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$310,000**

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside Major Water Infrastructure Scenario I

Backbone Water System - Distribution - Phase 1

Segment: Street 2

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	2,700	$145	$391,500
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
	Segment Construction Sub-Total:				$463,500
	Contingency Based upon Construction Hard Costs (20%):				$92,700
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$92,700
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$650,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Distribution - Phase 1

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX F
ENGINEER'S OPINION OF COST TRANSMISSION PHASE 2 SCENARIO I

Prepared by: J Reed
Date: 8/3/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Transmission - Phase 2

Summary

	Segment				Amount
	A: Bryte Bend Road				$0
	B: El Centro Road				$0
	C: Radio Road				$0
	D: San Juan Road				$500,000
	E: Farm Road				$0
	F: West El Camino				$0
	G: Street 2				$0
	Segment Construction Sub-Total:				$500,000
	Contingency Based upon Construction Hard Costs (20%):				$100,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$100,000
	Water Tank Land Acquisition (3 Acres)				$1,340,000
	Contingency Based upon LAND Acquisition Costs (10%):				$130,000
	BACKBONE TRANSMISSION WATER TOTAL:				**$2,170,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Transmission - Phase 2

Segment: D: San Juan Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	0	$145	$0
2	16" PVC C-905 Water Line - w/ Fittings	LF	2,500	$190	$475,000
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	2	$14,000	$28,000
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$12,000	$0
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Meter and Backflow in Vault at Connection to Exis	EA	0	$300,000	$0
10	Cathodic Protection	LF	0	$18	$0
11	Phase 1 Backflow Preventer w/Vault	EA	0	$250,000	$0
12	Phase 1 Booster Pump w/Bladder Tank	EA	0	$3,000,000	$0
13	Buildout Booster Pump Station	EA	0	$12,000,000	$0
	Segment Construction Sub-Total:				$503,000
	Contingency Based upon Construction Hard Costs (20%):				$100,600
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$100,600
LAND	Water Tank Land Acquisition (3 Acres)	SF	129,560	$10.33	$1,338,400
	Contingency Based upon LAND Acquisition Costs (10%):				$133,800
	SEGMENT TOTAL WATER:				**$2,180,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Transmission - Phase 2

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Water Tank and Site Development	LS	$5,000,000
8	Transmission Main Connection to Existing	EA	$10,000
9	Meter and Backflow in Vault at Connection to Exis	EA	$300,000
10	Cathodic Protection	LF	$18
11	Phase 1 Backflow Preventer w/Vault	EA	$250,000
12	Phase 1 Booster Pump w/Bladder Tank	EA	$3,000,000
13	Buildout Booster Pump Station	EA	$12,000,000
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX G
ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 2 SCENARIO I

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Distribution - Phase 2

Summary

	Segment				Amount
	A: Bryte Bend Road				$670,000
	B: El Centro Road				$0
	C: Radio Road				$0
	D: San Juan Road				$310,000
	E: Farm Road				$0
	F: West El Camino				$100,000
	G: Street 2				$0
	Segment Construction Sub-Total:				$1,080,000
	Contingency Based upon Construction Hard Costs (20%):				$220,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$150,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE DISTRIBUTION WATER TOTAL:				**$1,450,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Distribution - Phase 2

Segment: A: Bryte Bend Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	3,950	$145	$572,800
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	8	$12,000	$96,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
	Segment Construction Sub-Total:				$668,800
	Contingency Based upon Construction Hard Costs (20%):				$133,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$133,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$940,000**

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)					
Backbone Water System - Distribution - Phase 2					
Segment:					**F: West El Camino**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	550	$145	$79,800
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$12,000	$24,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
	Segment Construction Sub-Total:				$103,800
	Contingency Based upon Construction Hard Costs (20%):				$20,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$20,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
				SEGMENT TOTAL WATER:	**$150,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)					
Backbone Water System - Distribution - Phase 2					
Segment:					**D: San Juan Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	1,780	$145	$258,100
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	4	$12,000	$48,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10	$0
	Segment Construction Sub-Total:				$306,100
				Contingency Based upon Construction Hard Costs (20%):	$61,200
				Soft Costs Budget Based upon Construction Hard Costs (20%):	$61,200
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
				Contingency Based upon LAND Acquisition Costs (10%):	$0
				SEGMENT TOTAL WATER:	**$430,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Distribution - Phase 2

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Water Tank and Site Development	LS	$5,000,000
8	Transmission Main Connection to Existing	EA	$10,000
9	Water Supply Meter at Connection to Existing	EA	$25,000
10	Buildout Booster Pump Station	EA	$12,000,000
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX H
ENGINEER'S OPINION OF COST TRANSMISSION PHASE 3 SCENARIO I

Prepared by: J Reed
Date: 3/31/2023

WOOD RODGERS

Engineer's Opinion of Costs

Upper West Side - Backbone Water System - Transmission - Phase 3 (Scenario I)

Summary

	Segment				Amount
	A: Bryte Bend Road				$0
	B: El Centro Road				$0
	C: Radio Road				$310,000
	D: San Juan Road				$0
	E: Farm Road				$0
	F: West El Camino				$0
	G: Street 2				$0
	Segment Construction Sub-Total:				$310,000
	Contingency Based upon Construction Hard Costs (20%):				$60,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$60,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE TRANSMISSION WATER TOTAL:				**$430,000**

WOOD RODGERS

Engineer's Opinion of Costs

Upper West Side - Backbone Water System - Transmission - Phase 3 (Scenario I)

Segment: C: Radio Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	0	$145	$0
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$12,000	$0
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	1	$10,000	$10,000
9	Meter and Backflow in Vault at Connection to Exis	EA	1	$300,000	$300,000
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$310,000
	Contingency Based upon Construction Hard Costs (20%):				$62,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$62,000
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$430,000**

Prepared by: J Reed
Date: 3/31/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper West Side

Backbone Water System - Transmission - Phase 3 (Scenario I)

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Water Tank and Site Development	LS	$5,000,000
8	Transmission Main Connection to Existing	EA	$10,000
9	Meter and Backflow in Vault at Connection to Exis	EA	$300,000
10	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX I

ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 3 SCENARIO I

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Phase 3

Summary

	Segment				Amount
	A: Bryte Bend Road				$470,000
	B: El Centro Road				$550,000
	C: Radio Road				$400,000
	D: San Juan Road				$400,000
	E: Farm Road				$460,000
	F: West El Camino				$140,000
	G: Street 2				$0
	Segment Construction Sub-Total:				$2,420,000
	Contingency Based upon Construction Hard Costs (20%):				$480,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$480,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE DISTRIBUTION WATER TOTAL:				**$3,380,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Phase 3

Segment: A: Bryte Bend Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	2,730	$145	$395,900
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$467,900
	Contingency Based upon Construction Hard Costs (20%):				$93,600
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$93,600
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$660,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)					
Backbone Water System - Phase 3					
Segment:					**B: El Centro Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	3,200	$145	$464,000
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	7	$12,000	$84,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$548,000
	Contingency Based upon Construction Hard Costs (20%):				$109,600
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$109,600
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$770,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Phase 3

Segment: C: Radio Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	2,350	$145	$340,800
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	5	$12,000	$60,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$400,800
	Contingency Based upon Construction Hard Costs (20%):				$80,200
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$80,200
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$560,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)					
Backbone Water System - Phase 3					
Segment:					**D: San Juan Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	2,350	$145	$340,800
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	5	$12,000	$60,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$400,800
	Contingency Based upon Construction Hard Costs (20%):				$80,200
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$80,200
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$560,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)					
Backbone Water System - Phase 3					
Segment:					**E: Farm Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	2,700	$145	$391,500
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$463,500
				Contingency Based upon Construction Hard Costs (20%):	$92,700
				Soft Costs Budget Based upon Construction Hard Costs (20%):	$92,700
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
				Contingency Based upon LAND Acquisition Costs (10%):	$0
				SEGMENT TOTAL WATER:	**$650,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)					
Backbone Water System - Phase 3					
Segment:					**F: West El Camino**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	790	$145	$114,600
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$12,000	$24,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$138,600
	Contingency Based upon Construction Hard Costs (20%):				$27,700
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$27,700
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$190,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Phase 3

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Water Tank and Site Development	LS	$5,000,000
8	Transmission Main Connection to Existing	EA	$10,000
9	Water Supply Meter at Connection to Existing	EA	$25,000
10	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX J
ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 4 SCENARIO I

Prepared by: J Reed
Date: 3/30/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside - Backbone Water System - Distribution - Phase 4

Summary

	Segment				Amount
	A: Bryte Bend Road				$0
	B: El Centro Road				$450,000
	C: Radio Road				$0
	D: San Juan Road				$0
	E: Farm Road				$230,000
	F: West El Camino				$230,000
	G: Street 2				$0
	Segment Construction Sub-Total:				$920,000
	Contingency Based upon Construction Hard Costs (20%):				$180,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$180,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE DISTRIBUTION WATER TOTAL:				**$1,280,000**

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside - Backbone Water System - Distribution - Phase 4

Segment: B: El Centro Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	2,600	$145	$377,000
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$449,000
	Contingency Based upon Construction Hard Costs (20%):				$89,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$89,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$630,000**

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I

Upper Westside - Backbone Water System - Distribution - Phase 4

Segment: E: Farm Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" PVC C-905 - w/ Fittings & Valves	LF	1,370	$145	$198,700
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$12,000	$36,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$234,700
	Contingency Based upon Construction Hard Costs (20%):				$46,900
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$46,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$330,000**

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario I					
Upper Westside - Backbone Water System - Distribution - Phase 4					
Segment:					**F: West El Camino**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" PVC C-905 - w/ Fittings & Valves	LF	1,370	$145	$198,700
2	16" PVC C-905 Water Line - w/ Fittings	LF	0	$190	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	16" Butterfly Valve	EA	0	$14,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$12,000	$36,000
7	Water Tank and Site Development	LS	0	$5,000,000	$0
8	Transmission Main Connection to Existing	EA	0	$10,000	$0
9	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
10	Cathodic Protection	LF	0	$18	$0
	Segment Construction Sub-Total:				$234,700
	Contingency Based upon Construction Hard Costs (20%):				$46,900
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$46,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$330,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario I)

Backbone Water System - Distribution - Phase 4

Unit Prices

Item	Description	Unit	Unit Price
1	12" PVC C-905 - w/ Fittings & Valves	LF	$145
2	16" PVC C-905 Water Line - w/ Fittings	LF	$190
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	16" Butterfly Valve	EA	$14,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Water Tank and Site Development	LS	$5,000,000
8	Transmission Main Connection to Existing	EA	$10,000
9	Water Supply Meter at Connection to Existing	EA	$25,000
10	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPDENIX K

ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 1 SCENARIO II

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure (Scenario II)

Upper Westside Backbone Water System - Distribution - Phase 1

Summary

	Segment				Amount
	Bryte Bend Road				$730,000
	El Centro Road				$190,000
	Radio Road				$0
	San Juan Road				$0
	Farm Road				$230,000
	West El Camino				$0
	Street 2				$460,000
	Segment Construction Sub-Total:				$1,610,000
	Contingency Based upon Construction Hard Costs (20%):				$320,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$320,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE WATER TOTAL:				**$2,250,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II					
Upper Westside Backbone Water System - Distribution - Phase 1					
Segment:					**Bryte Bend Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	4,250	$145	$616,300
2	18" DIP Water w/Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	9	$12,000	$108,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Offsite 12" Bore and Jack	LF	350	$250	$87,500
9	Cathodic Protection	LF	4,250	$18	$76,500
	Segment Construction Sub-Total:				$729,300
	Contingency Based upon Construction Hard Costs (20%):				$145,900
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$145,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$1,020,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II					
Upper Westside Backbone Water System - Distribution - Phase 1					
Segment:					**El Centro Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	200	$145	$29,000
2	18" DIP Water w/Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	12	$12,000	$144,000
7	Connect to Existing	EA	2	$5,000	$10,000
8	Offsite 12" Bore and Jack	LF	0	$250	$0
9	Cathodic Protection	LF	200	$18	$3,600
	Segment Construction Sub-Total:				$186,600
	Contingency Based upon Construction Hard Costs (20%):				$37,300
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$37,300
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$260,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II					
Upper Westside Backbone Water System - Distribution - Phase 1					
Segment:					**Farm Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	1,300	$145	$188,500
2	18" DIP Water w/Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$12,000	$36,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Offsite 12" Bore and Jack	LF	0	$250	$0
9	Cathodic Protection	LF	1,300	$18	$23,400
	Segment Construction Sub-Total:				$229,500
				Contingency Based upon Construction Hard Costs (20%):	$45,900
				Soft Costs Budget Based upon Construction Hard Costs (20%):	$45,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
				Contingency Based upon LAND Acquisition Costs (10%):	$0
				SEGMENT TOTAL WATER:	**$320,000**

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II

Upper Westside Backbone Water System - Distribution - Phase 1

Segment: Street 2

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" DIP Water Line - w/ Fittings & Valves	LF	2,700	$145	$391,500
2	18" DIP Water w/Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
7	Connect to Existing	EA	0	$5,000	$0
8	Offsite 12" Bore and Jack	LF	0	$250	$0
9	Cathodic Protection	LF	2,700	$18	$48,600
	Segment Construction Sub-Total:				$463,500
	Contingency Based upon Construction Hard Costs (20%):				$92,700
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$92,700
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$650,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Distribution - Phase 1

Unit Prices

Item	Description	Unit	Unit Price
1	12" DIP Water Line - w/ Fittings & Valves	LF	$145
2	18" DIP Water w/Fittings	LF	$200
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	18" Butterfly Valve	EA	$16,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Connect to Existing	EA	$5,000
8	Offsite 12" Bore and Jack	LF	$250
9	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX L

ENGINEER'S OPINION OF COST TRANSMISSION PHASE 2 SCENARIO II

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Transmission - Phase 2

Summary

	Segment				Amount
	A: Bryte Bend Road				$0
	B: El Centro Road				$0
	C: Radio Road				$0
	D: San Juan Road				$550,000
	E: Farm Road				$0
	F: West El Camino				$0
	G: Street 2				$0
	Segment Construction Sub-Total:				$550,000
	Contingency Based upon Construction Hard Costs (20%):				$110,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$110,000
	Water Tank Land Acquisition (3 Acres)				$1,340,000
	Contingency Based upon LAND Acquisition Costs (10%):				$130,000
	BACKBONE TRANSMISSION WATER TOTAL:				**$2,240,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Transmission - Phase 2					
Segment:					**D: San Juan Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	0	$145	$0
2	18" DIP Water Line - w/ Fittings	LF	2,350	$200	$470,000
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	2	$16,000	$32,000
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	0	$12,000	$0
7	Transmission Main Connection to Existing	EA	1	$10,000	$10,000
8	Water Supply Meter at Connection to Existing	EA	0	$25,000	$0
9	Cathodic Protection	LF	2,350	$18	$42,300
	Segment Construction Sub-Total:				$554,300
	Contingency Based upon Construction Hard Costs (20%):				$110,900
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$110,900
LAND	Water Tank Land Acquisition (3 Acres)	SF	129,560	$10.33	$1,338,400
	Contingency Based upon LAND Acquisition Costs (10%):				$133,800
	SEGMENT TOTAL WATER:				**$2,250,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Transmission - Phase 2

Unit Prices

Item	Description	Unit	Unit Price
1	12" DIP Water Line - w/ Fittings & Valves	LF	$145
2	18" DIP Water Line - w/ Fittings	LF	$200
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	18" Butterfly Valve	EA	$16,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Transmission Main Connection to Existing	EA	$10,000
8	Water Supply Meter at Connection to Existing	EA	$25,000
9	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX M

ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 2 SCENARIO II

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Distribution - Phase 2

Summary

	Segment				Amount
	A: Bryte Bend Road				$670,000
	B: El Centro Road				$0
	C: Radio Road				$0
	D: San Juan Road				$310,000
	E: Farm Road				$0
	F: West El Camino				$100,000
	G: Street 2				$0
	Segment Construction Sub-Total:				$1,080,000
	Contingency Based upon Construction Hard Costs (20%):				$220,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$220,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE DISTRIBUTION WATER TOTAL:				**$1,520,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Distribution - Phase 2					
Segment:					**A: Bryte Bend Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	3,950	$145	$572,800
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	8	$12,000	$96,000
7	Transmission Main Connection to Existing	EA	0	$10,000	$0
8	Connect to Existing	EA	1	$5,000	$5,000
9	Cathodic Protection	LF	3,950	$18	$71,100
	Segment Construction Sub-Total:				$668,800
	Contingency Based upon Construction Hard Costs (20%):				$133,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$133,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
				SEGMENT TOTAL WATER:	**$940,000**

WOOD RODGERS

Engineer's Opinion of Costs

Upper West Side - Backbone Water System - Distribution - Phase 2

Segment: D: San Juan Road

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" DIP Water Line - w/ Fittings & Valves	LF	1,800	$145	$261,000
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	4	$12,000	$48,000
7	Transmission Main Connection to Existing	EA	0	$10,000	$0
8	Connect to Existing	EA	1	$5,000	$5,000
9	Cathodic Protection	LF	1,800	$18	$32,400
	Segment Construction Sub-Total:				$309,000
	Contingency Based upon Construction Hard Costs (20%):				$61,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$61,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$430,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Distribution - Phase 2					
Segment:					**F: West El Camino**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	550	$145	$79,800
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$12,000	$24,000
7	Transmission Main Connection to Existing	EA	0	$10,000	$0
8	Connect to Existing	EA	1	$5,000	$5,000
9	Cathodic Protection	LF	550	$18	$9,900
	Segment Construction Sub-Total:				$103,800
	Contingency Based upon Construction Hard Costs (20%):				$20,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$20,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$150,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Distribution - Phase 2

Unit Prices

Item	Description	Unit	Unit Price
1	12" DIP Water Line - w/ Fittings & Valves	LF	$145
2	18" DIP Water Line - w/ Fittings	LF	$200
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	18" Butterfly Valve	EA	$16,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Transmission Main Connection to Existing	EA	$10,000
8	Connect to Existing	EA	$5,000
9	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX N
ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 3 SCENARIO II

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Phase 3

Summary

	Segment				Amount
	A: Bryte Bend Road				$470,000
	B: El Centro Road				$0
	C: Radio Road				$410,000
	D: San Juan Road				$130,000
	E: Farm Road				$470,000
	F: West El Camino				$160,000
	G: Street 2				$0
	Segment Construction Sub-Total:				$1,640,000
	Contingency Based upon Construction Hard Costs (20%):				$330,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$330,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE DISTRIBUTION WATER TOTAL:				**$2,300,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Phase 3					
Segment:					**A: Bryte Bend Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	2,730	$145	$395,900
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Cathodic Protection	LF	2,730	$18	$49,100
	Segment Construction Sub-Total:				$472,900
	Contingency Based upon Construction Hard Costs (20%):				$94,600
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$94,600
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$660,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Phase 3					
Segment:					**C: Radio Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	2,350	$145	$340,800
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	5	$12,000	$60,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Cathodic Protection	LF	2,350	$18	$42,300
	Segment Construction Sub-Total:				$405,800
	Contingency Based upon Construction Hard Costs (20%):				$81,200
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$81,200
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$570,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Phase 3					
Segment:					**D: San Juan Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	700	$145	$101,500
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$12,000	$24,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Cathodic Protection	LF	700	$18	$12,600
	Segment Construction Sub-Total:				$130,500
	Contingency Based upon Construction Hard Costs (20%):				$26,100
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$26,100
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$180,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)					
Backbone Water System - Phase 3					
Segment:					**E: Farm Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP Water Line - w/ Fittings & Valves	LF	2,715	$145	$393,700
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	6	$12,000	$72,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Cathodic Protection	LF	2,715	$18	$48,900
	Segment Construction Sub-Total:				$470,700
	Contingency Based upon Construction Hard Costs (20%):				$94,100
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$94,100
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$660,000**

WOOD RODGERS

Engineer's Opinion of Costs

Upper West Side - Backbone Water System - Phase 3

Segment: F: West El Camino

Item	Description	Unit	Quantity	Unit Price	Amount
1	12" DIP Water Line - w/ Fittings & Valves	LF	820	$145	$118,900
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	2	$12,000	$24,000
7	Connect to Existing	EA	1	$5,000	$5,000
8	Cathodic Protection	LF	820	$18	$14,800
	Segment Construction Sub-Total:				$162,700
	Contingency Based upon Construction Hard Costs (20%):				$32,500
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$32,500
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	SEGMENT TOTAL WATER:				**$230,000**

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Phase 3

Unit Prices

Item	Description	Unit	Unit Price
1	12" DIP Water Line - w/ Fittings & Valves	LF	$145
2	18" DIP Water Line - w/ Fittings	LF	$200
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	18" Butterfly Valve	EA	$16,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Connect to Existing	EA	$5,000
8	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX O

ENGINEER'S OPINION OF COST DISTRIBUTION PHASE 4 SCENARIO II

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II

Upper Westside - Backbone Water System - Distribution - Phase 4

Summary

	Segment				Amount
	A: Bryte Bend Road				$0
	B: El Centro Road				$0
	C: Radio Road				$0
	D: San Juan Road				$0
	E: Farm Road				$230,000
	F: West El Camino				$230,000
	G: Street 2				$0
	Segment Construction Sub-Total:				$460,000
	Contingency Based upon Construction Hard Costs (20%):				$90,000
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$90,000
	Water Tank Land Acquisition (3 Acres)				$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
	BACKBONE DISTRIBUTION WATER TOTAL:				**$640,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II					
Upper Westside - Backbone Water System - Distribution - Phase 4					
Segment:					**E: Farm Road**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP - w/ Fittings & Valves	LF	1,330	$145	$192,900
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$12,000	$36,000
7	Transmission Main Connection to Existing	EA	0	$10,000	$0
8	Connect to Existing	EA	2	$5,000	$10,000
9	Cathodic Protection	LF	1,330	$18	$23,900
	Segment Construction Sub-Total:				$228,900
	Contingency Based upon Construction Hard Costs (20%):				$45,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$45,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
				SEGMENT TOTAL WATER:	**$320,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Major Water Infrastructure Scenario II					
Upper Westside - Backbone Water System - Distribution - Phase 4					
Segment:					**F: West El Camino**
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Amount**
1	12" DIP - w/ Fittings & Valves	LF	1,365	$145	$197,900
2	18" DIP Water Line - w/ Fittings	LF	0	$200	$0
3	24" DI C151 Water Line - w/ Fittings	LF	0	$285	$0
4	18" Butterfly Valve	EA	0	$16,000	$0
5	24" Butterfly Valve	EA	0	$20,000	$0
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	3	$12,000	$36,000
7	Transmission Main Connection to Existing	EA	0	$10,000	$0
8	Connect to Existing	EA	2	$5,000	$10,000
9	Cathodic Protection	LF	1,365	$18	$24,600
	Segment Construction Sub-Total:				$233,900
	Contingency Based upon Construction Hard Costs (20%):				$46,800
	Soft Costs Budget Based upon Construction Hard Costs (20%):				$46,800
LAND	Water Tank Land Acquisition (3 Acres)	SF	0	$10.33	$0
	Contingency Based upon LAND Acquisition Costs (10%):				$0
				SEGMENT TOTAL WATER:	**$330,000**

Prepared by: J Reed
Date: 4/20/2023

WOOD RODGERS

Engineer's Opinion of Costs - Upper Westside (Scenario II)

Backbone Water System - Distribution - Phase 4

Unit Prices

Item	Description	Unit	Unit Price
1	12" DIP - w/ Fittings & Valves	LF	$145
2	18" DIP Water Line - w/ Fittings	LF	$200
3	24" DI C151 Water Line - w/ Fittings	LF	$285
4	18" Butterfly Valve	EA	$16,000
5	24" Butterfly Valve	EA	$20,000
6	Fire Hydrant w/Tee & Valves (FH / 500')	EA	$12,000
7	Transmission Main Connection to Existing	EA	$10,000
8	Connect to Existing	EA	$5,000
9	Cathodic Protection	LF	$18
LAND	Water Tank Land Acquisition (3 Acres)	SF	$10.33

APPENDIX ALT 5-3

COMMENTS ON THE PARTIALLY RECIRCULATED DRAFT EIR

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

YANA GARCIA
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

January 27, 2026

Julie Newton
Sacramento County
827 7th Street, Room 225
Sacramento, CA95814

SACRAMENTO COUNTY (COUNTY), PARTIALLY RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT (PRDEIR), FOR THE UPPER WESTSIDE SPECIFIC PLAN (PROJECT), STATE CLEARINGHOUSE #2020100069

Dear Ms. Julie Newton:

Thank you for the opportunity to review the PRDEIR for the proposed Project. The State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW), issues domestic water supply permits under the Safe Drinking Water Act. This Project falls under DDW's Sacramento District jurisdiction. The Sacramento District issues permit amendments according to the Title 22, California Code of Regulations (Cal. Code Regs.) chapter 16. Public water systems need a permit amendment for modification of the water supply including new sources, new reservoirs with 100,000-gallon capacity or greater, service area expansions of twenty percent or more, and treatment design capacity or process changes as per Cal. Code Regs. § 64556. 242-1

Please note: The existing County public water system that would oversee the proposed infrastructure for the Project is still unclear (e.g. Laguna / Vineyard [3410029], Mather-Sunrise [3410704], Arden Park Vista [3410002], Metro Air Park [3400473], Northgate 880 [3400173], Southwest Tract [3400156], Hood Water Maintenance District [3400101], or East Walnut Grove [3400106]).

If the County will instead create a new public water system, an application must be submitted, and a permit must be obtained from the DDW Sacramento District before water can be provided for human consumption. “Human consumption” means the use of water for drinking, bathing or showering, hand washing, oral hygiene, or cooking, including, but not limited to, preparing food and washing dishes.” Health & Saf. Code § 116275 subd. (e). 242-2

Health & Saf. Code § 116527 subd. (b) requires that any person submitting a permit application for a proposed new public water system must first submit a technical report at least six months before initiating construction of any drinking water-related 242-3

improvements. The technical report must include an examination of the possibility of connecting to or being annexed by an existing adjacent community water system. 242-3 cont

If Alternative 5 is implemented, the County will need to apply for a new public water system permit or water supply permit amendment for treatment changes and new storage reservoirs. 242-4

The State Water Board, DDW, as a responsible agency under the California Environmental Quality Act (CEQA), has the following comments on the PRDEIR:

- The August 2024 DEIR presented a Project water demand of 4,313 AFY, based on a 2022 City of Sacramento Water Supply Assessment (PDF page 837). The PRDEIR presents a Project water demand of 3,139 AFY based on a 2025 County Water Supply Assessment (PDF pages 102-103). What are the differences in these demand calculations? 242-5
- Alternative 5 allows for an optional domestic water supply wholesale source from Natomas Central Mutual Water Company (NCMWC) in the event the treated water from the City of Sacramento (City) is not available (PDF page 10). Explain the criteria that will be used to determine if the City water is available or not. Does the proposal allow for a combination of both City water and NCMWC water or, if needed, just MCMWC water? 242-6
- The Sacramento Valley-North American groundwater basin is designated as a high priority groundwater basin by the Department of Water Resources (Sustainable Groundwater Management Act Basin Prioritization Dashboard). The PRDEIR indicates that municipal and industrial demand will have priority in critical years and Drought Protection Program (DPP) years and that the NCMWC could experience a potential shortfall of 1,0007 AFY in DPP years (pdf pages 54-56). NCMWC has five wells (PDF page 254). The PRDEIR indicates Alternative 5 will not use NCMWC groundwater to serve the Project (PDF page 92). Please discuss: 242-7
    - If NCMWC will extract groundwater over their current baseline to serve existing non-priority users (e.g. agricultural users) in critical years and DPP years, to make up for NCMWC surface water supply shortfall.
    - If it is anticipated that nonpriority water users may use private or other non-NCMWC groundwater wells to fulfill lost supply for their existing demand. 242-8
    - Based on the discussions above, what direct or indirect impacts (positive or negative) Alternative 5 would have on the North American groundwater basin compared to the Project. 242-9

When the CEQA process is completed, please forward the following items with the permit application to the State Water Board, DDW Sacramento District at DWPDIST09@waterboards.ca.gov: 242-10

- The PRDEIR;
- The Resolution or Board Minutes certifying the PREIR, and approving the Project; and

- The Notice of Determination filed at the County Clerk's Office and the State Clearinghouse.

242-10 cont

Please contact Lori Schmitz of the State Water Board at (916) 449-5285 or Lori.Schmitz@waterboards.ca.gov, for questions regarding this comment letter.

Sincerely,

Lori Schmitz
Environmental Scientist
Division of Financial Assistance
Special Project Review Unit
1001 I Street, 16th floor
Sacramento, CA 95814

Cc:

State Clearinghouse

Austin Peterson
District Engineer
Sacramento District

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
916-358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
VALERIE TERMINI, Acting Director

January 13, 2026

Julie Newton
Environmental Coordinator
Sacramento County Planning and Environmental Review
827 7th Street, Room 225
Sacramento, CA 95814
CEQA@saccounty.gov

Subject: Upper Westside Specific Plan
PARTIALLY RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT (PRDEIR)
SCH No. 2020100069

Dear Julie Newton:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Availability of a PRDEIR from the County of Sacramento for the Upper Westside Specific Plan (Project) pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1] CDFW previously submitted comments in response to the originally circulated DEIR on October 30, 2024.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

CDFW ROLE

243-1

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code, § 1802.) Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

243-1 cont

PROJECT DESCRIPTION SUMMARY

The Project site is located is located in unincorporated Sacramento County adjacent to the existing City of Sacramento communities of North and South Natomas. The Upper Westside Specific Plan (UWSP) area is bounded by Fisherman's Lake Slough to the north, the West Drainage Canal (Witter Canal) to the east, I-80 to the south, and Garden Highway to the west.

The Project consists of construction of a new development on 2,066 acres of unincorporated land in northwestern Sacramento County. The UWSP would provide a mix of residential and non-residential land uses to accommodate 9,356 housing units with a mixture of densities that support all population segments, and over 3 million square feet of commercial, retail, and office uses that serve the community's needs. Key features of the UWSP would include a mixed-use Town Center, 10 active parks, and an extensive system of greenbelts and multi-use trails with linkages to downtown Sacramento. Development would be limited to a 1,532-acre Development Area while the remaining 534 acres would serve as an agricultural buffer (Ag Buffer) along the western edge of the UWSP area.

243-2

The PDEIR presents an analysis of a new Alternative 5: Revised Project Alternative which introduces Natomas Central Mutual Water Company (NCMWC) as a potential domestic water supply source and considers the removal of regular vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway, and implementation of traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the County of Sacramento in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, CDFW concludes that an Environmental Impact Report is appropriate for the Project.

243-3

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CDFW is primarily concerned with the project impacts to the water availability of the Sacramento River for fish species. 243-3 cont.

COMMENT 1: Cumulative Effects on the Sacramento River, Far-Field Impacts, pages 2-26 – 2-29

Issue: The Project's Alternative 5 aims to divert an additional 3,139 acre-feet per year from the Sacramento River using the nearby NCMWC's Riverside Pumping Plant with a majority of the diversion occurring during the months of September to March when a majority of fish species (e.g., Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha* pop. 7), Central Valley spring-run Chinook ESU (*Oncorhynchus tshawytscha* pop. 11), California Central Valley steelhead DPS (*Oncorhynchus mykiss irideus* pop. 11), Southern DPS of green sturgeon (*Acipenser medirostris* pop. 1), white sturgeon (*Acipenser transmontanus*), etc.) are more prevalent in the river due to their migration period. This additional diversion from the Sacramento River may compound other reasonably foreseeable major diversions on the Sacramento River, such as the Sites Reservoir Project, Water + Treatment Plants Resiliency and Improvements Project, the Delta Conveyance Project, and the RiverArc Project. With the potential for several significant and compounding new diversions along the Sacramento River, the PRDEIR does not analyze how the Project will add to the cumulative effects that these other diversions will have on fish species reliant on the Sacramento River. Low water levels in the Sacramento River create deadly conditions for fish species by increasing water temperatures, reducing habitat, stranding juveniles, blocking migration, and concentrating predators, leading to high egg/fry mortality and threatening fish species populations. The cold water needed for spawning becomes scarce, while shallow, clear, warm water increases native fish mortality. 243-4

In addition, NCMWC is also the water supplier for the Natomas Basin Conservancy's aquatic habitats (including aquatic agriculture) created under the NBHCP. CDFW is concerned that the additional water delivery to the Project would impact the delivery level of needed water to sustain the aquatic habitat mitigation during extreme drought years (water delivery may be reduced) and impact the viability of the giant garter snake (*Thamnophis gigas*) population within the Natomas Basin. 243-5

Recommendation or Recommended Mitigation Measure: CDFW suggests the PRDEIR evaluate the cumulative impacts the additional water diversion from the Sacramento River may have on fish and wildlife species and provide sufficient information for meaningful review based on contemporary, foreseeable, large-scale Sacramento River projects and operations. CDFW also suggests that the PRDEIR provides evaluation on whether the Project's need for water from the NCMWC alternative will deprive the Natomas Basin Conservancy of its ability to provide water to its aquatic habitat mitigation during extreme drought years and therefore negatively impact the giant garter snake population in the Natomas Basin. Further, CDFW recommends that the PRDEIR include minimization or mitigation measures that will reduce project impacts to fish and wildlife species due to the additional water diversion to a less than significant level. Mitigation may be in the form of providing for the acquisition, permanent protection, and perpetual management of off- 243-6

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channel rearing habitat and wetland bench habitat for the Chinook salmon and tidal habitat for steelhead, and/or providing spawning area supplementation of gravel to boulder sized substrate with the potential to improve egg survival in areas of known sturgeon spawning. 243-6 cont.

COMMENT 2: Continued Viability and Re-analysis of the Incidental Take Permits (ITPs) for Natomas Basin Habitat Conservation Plan (NBHCP) and the Metro Airpark Conservation Plan (MAP HCP), Comparative Analysis of Environmental Effects, pages 2-49 – 2-50

Issue: CDFW has concerns regarding the integrity and viability of NBHCP and MAP HCP and the biological viability of the HCPs being compromised by the failure of other Potential Permittees to participate in the NBHCP and execute the Implementation Agreement (IA). CDFW has expressed these concerns in past comment letters provided for the draft Environmental Impact Reports of Airport South Industrial Project and Upper Westside Specific Plan, and the Notice of Preparation for GrandPark Southwest Specific Plan. These concerns are of even greater importance in regard to the ongoing lawsuit *Advocates for the Environment v. Sacramento Local Agency Formation Commission, et al*. CDFW's concerns about the future development projects and their impacts are summarized below: 243-7

- Persistence of NBHCP and MAP HCP Covered Species in the Natomas Basin;
- Impacts to established reserve land managed by the Natomas Basin Conservancy (TNBC), specifically adding urban land uses adjacent to open space. These urban uses could introduce additional pesticides, trespass, vandalism, trash, noise, other pollutants, and excess light to existing reserves potentially reducing the reproductive success of Covered Species within the existing reserves; 243-8
- Reduction of available reserve land in the Natomas Basin under the NBHCP and MAP HCP (with appropriate buffers and setbacks as detailed in the NBHCP); 243-9
- Reduction of available agricultural land in the Natomas Basin that serves as buffers for habitat reserves and supporting ecological functions of the Covered Species that rely on agricultural resources (Natomas Basin Habitat Conservation Plan, Page IV-11 through Page IV-13); 243-10
- Reduction of ability for TNBC to establish or enhance Covered Species range and habitats in the southern Natomas Basin; 243-11
- Continued viability of the land uses in the Natomas Basin as detailed in the NBHCP and MAP HCP, specifically adding more urban development instead of habitat preserve or agricultural uses. This could result in increased disturbance, pollution, and/or disruption to ongoing habitat management and agricultural practices. In addition, existing habitat preserves and agricultural lands could be affected by additional pollution, trash, and other effects from developed lands; 243-12
- Financial impacts to TNBC and feepayers under the NBHCP and MAP HCP; and 243-13

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- Cumulative impacts of the projects, in combination with other development in the Natomas Basin approved since 2003 that are outside of the City of Sacramento (the City) and Sutter County's permitted area under the NBHCP (e.g., levee improvements by the Sacramento Area Flood Control Agency and the Greenbriar project).

243-14

Although not a Permittee, Sacramento County is the CEQA Lead Agency for projects carried out in the MAP HCP and as such, the County has vested interest in the success of the MAP HCP. The two plans are linked, such that MAP HCP cannot be implemented without the structure of the NBHCP. The MAP HCP and the related ITP authorization under CESA serve as a regulatory platform for development of 1,892 acres of mixed use and industrial uses directly adjacent to the Sacramento International Airport, with over 1,000 acres still to be built out under the MAP HCP, providing significant economic benefit to the County. The Project's potential effect on the continued success of the MAP HCP should be an important consideration for the County as it considers the proposed developments, and the MAP HCP's reliance on structure provided by the NBHCP.

The Natomas Basin continues to serve as an important habitat for many special-status species, which speaks to many documented successes of both HCPs in their over 20 years of implementation; however, those successes do not detract from the effort that is still needed over the next 20 years to ensure the HCPs and the associated Covered Species populations to remain viable. The County, while not signatory to either HCP, plays an integral role in ensuring that both the NBHCP and MAP HCP are successful for both the species and residents of the Sacramento Region.

Recommendation or Recommended Mitigation Measure: CDFW suggests the PRDEIR further evaluate the Project's impact to the viability of both the NBHCP and MAP HCP.

243-15

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

243-16

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

243-17

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CONCLUSION

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW appreciates the opportunity to comment on the PRDEIR for the Upper Westside Specific Plan to assist the County of Sacramento in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Harvey Tran, Senior Environmental Scientist (Specialist) at (916) 358-4035 or harvey.tran@wildlife.ca.gov.

243-18

Sincerely,

DocuSigned by:
Morgan Kilgour
C3A86764C0AD4F6...

Morgan Kilgour
Regional Manager

ec: Dylan Wood, Senior Environmental Scientist (Supervisory)
Harvey Tran, Senior Environmental Scientist (Specialist)
California Department of Fish and Wildlife

Office of Land Use and Climate Innovation, State Clearinghouse, Sacramento

Docusign Envelope ID: 83102B88-273A-4F30-9596-87314BD111F5

California
Department of Conservation
Geologic Energy Management Division

Gavin Newsom, Governor
Jennifer Lucchesi, Director
715 P Street, MS 1803
Sacramento, CA. 95814
T: (916) 445-5986

January 6, 2026

VIA EMAIL

Sacramento County
Julie Newton
827 7th Street Room 225, Sacramento, CA 95814
newtonj@saccounty.gov

Assessor Parcel Number(s): 225-0210-005-0000
Property Owner(s): *N/A*
Project Location Address: *Farm Rd & Bryte Rd*

PROJECT TITLE: *SCH2020100069 Upper Westside Specific Plan*

Public Resources Code (PRC) section 3208.1 establishes re-abandonment responsibility when previously plugged and abandoned oil, gas or geothermal wells will be impacted by planned property development or construction activities. Local permitting agencies, property owners, and/or developers should be aware of, and fully understand, that significant and potentially dangerous issues may be associated with development near previously abandoned oil, gas, and geothermal wells.

The California Geologic Energy Management Division (CalGEM) has received the above-referenced project dated <<*date*>>. To assist local permitting agencies, property owners, and developers in making safe and practical land use decisions regarding potential development near oil, gas, or geothermal wells, CalGEM provides a table in the attached enclosure of the wells within the parcel boundary or in its vicinity, based on CalGEM's Well Finder database (https://maps.conservation.ca.gov/doggr/wellfinder/).

244-1

CalGEM categorically advises against building over, or in any way impeding access to, oil, gas, or geothermal wells. Impeding access to a well could result in the need to remove any structure or obstacle that prevents or impedes access including, but not limited to, buildings, housing, fencing, landscaping, trees, pools, patios, sidewalks, roadways, and decking at the landowner's expense if there is a need to access a well. Maintaining sufficient access is considered the ability for a well servicing unit and associated necessary equipment (consisting of well servicing rig, pumping equipment, pipe trailer) to reach a well from a public street or access way, solely over the parcel on which the well is located. A well servicing unit, and any necessary equipment, should be able to pass unimpeded along and over the route, and should be able to access the well without disturbing the integrity of surrounding infrastructure. Impermeable barriers such as

244-2

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asphalt, concrete, and plastic may trap hazardous gases and liquids underneath and could create a safety hazard if built over a well that later develops a leak. 244-2 cont.

CalGEM recommends that any well for which access is impeded or built over, against CalGEM's advice, should be evaluated by a qualified petroleum professional for compliance with the statutory objectives of isolating all hydrocarbon-bearing strata; protecting underground and surface waters; prevention of subsequent damage to life, health, property, and other resources; and prevention of loss of oil, gas, or reservoir energy. CalGEM recommends that wells that do not meet these standards are abandoned or re-abandoned prior to construction. The well information can be accessed through CalGEM's Well Finder database mentioned above. PRC section 3208, subdivision (a), provides the primary statutory authority for CalGEM to oversee adequate abandonment of wells. Additionally, CalGEM has developed the regulatory guidance for operators to be followed during well abandonment, which are listed within California Code of Regulation, title 14 (CCR) section 1723 and associated sub-sections (for onshore wells), and section 1745 and associated sub-sections (for offshore wells). 244-3

There is no guarantee that a well abandoned in compliance with current Division requirements as prescribed by law will not start leaking in the future. Due to the inability to predict all subsurface conditions or changes, it always remains a possibility that any well may start to leak oil, gas, and/or water after abandonment, no matter how thoroughly the well was plugged and abandoned. CalGEM acknowledges wells plugged and abandoned to the most current Division requirements as prescribed by law have a lower probability of leaking in the future, however there is no guarantee that such abandoned wells will not leak. 244-4

CalGEM advises that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations in Latitude and Longitude, NAD 83 decimal format, and leak testing results should be provided to CalGEM. CalGEM expects any wells found leaking to be reported to CalGEM immediately. 244-5

PRC section 3208.1 gives CalGEM the authority to order or permit the re-abandonment of any well where it has reason to question the integrity of the previous abandonment. Responsibility for re-abandonment costs may be affected by the choices made by the local permitting agency, property owner, and/or developer in considering the general advice set forth in this letter. The PRC continues to define the person or entity responsible for re-abandonment as: 244-6

1. The property owner - If the well was plugged and abandoned in conformance with Division requirements at the time of abandonment, and in its current condition does not pose an immediate danger to life, health, and property, but requires additional work solely because the owner of the property on which the well is located proposes construction on the property that would prevent or impede access to the well for purposes of remedying a currently perceived future problem, then the owner of the property on which the well is located shall obtain all rights necessary to re-abandon the well and be responsible for the re-abandonment.

2. The person or entity causing construction over or near the well - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and the property owner, developer, or local agency permitting the construction failed either to obtain an opinion from the supervisor or district deputy as to whether the previously abandoned well is required to be re-abandoned, or to follow the advice of the supervisor or district deputy not to undertake construction that impedes access, then the person or entity causing the construction over or near the well shall obtain

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all rights necessary to re-abandon the well and be responsible for the re-abandonment.

3. The party or parties responsible for disturbing the integrity of the abandonment - If the well was plugged and abandoned in conformance with Division requirements at the time of plugging and abandonment, and after that time someone other than the operator or an affiliate of the operator disturbed the integrity of the abandonment in the course of developing the property, then the party or parties responsible for disturbing the integrity of the abandonment shall be responsible for the re-abandonment.

244-6 cont.

Should any wells require abandonment or re-abandonment, the responsible party must submit a Notice of Intention (NOI) to CalGEM through WellSTAR. The NOI form can be accessed in the 'Plugging and Abandonment' section of the following link: https://www.conservation.ca.gov/calgem/for_operators.

No well work may be performed on any oil, gas, or geothermal well without written approval from CalGEM. Well work requiring approval includes, but is not limited to, mitigating leaking gas or other fluids from abandoned wells, modifications to well casings, and/or any other re-abandonment work. CalGEM also regulates the top of a plugged and abandoned well's minimum and maximum depth below final grade. CCR section 1723.5 states well casings shall be cut off at least 5 feet but no more than 10 feet below the surface of the ground. If any well needs to be lowered or raised (i.e. casing cut down or casing riser added) to meet this regulation, a permit from CalGEM is required before work can start.

244-7

CalGEM makes the following additional recommendations to the local permitting agency, property owner, and developer:

1. To ensure that present and future property owners are aware of (a) the existence of all wells located on the property, and (b) potentially significant issues associated with any improvements near oil or gas wells, CalGEM recommends that information regarding the below identified well(s), and any other pertinent information obtained after the issuance of this letter, be communicated to the appropriate county recorder for inclusion in the title information of the subject real property.

2. CalGEM recommends that any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws. Please notify the appropriate authorities if soil containing significant amounts of hydrocarbons is discovered during development.

244-8

As indicated in PRC section 3106, CalGEM has statutory authority over the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to CalGEM's authority to order work on wells pursuant to PRC sections 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC sections 3236, 3236.5, and 3359 for violations within CalGEM's jurisdictional authority. CalGEM does not regulate grading, excavations, or other land use issues.

244-9

Should you have any questions, or if any wells are encountered that were not part of this letter, contact CalGEM at *916-322-1110* or via email at CalGemNorthern@conservation.ca.gov

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1/6/2026

Sincerely,

May Soe

May Soe
Supervising Oil & Gas Engineer – Northern District – Sacramento

Enclosure

Docusign Envelope ID: 83102B88-273A-4F30-9596-87314BD111F5

1/6/2026

Enclosure: The wells listed below are reported to be located within and nearby the parcel boundary and may have future access impeded.

API No.	Well Name
0406720111	Brazelton 1

SACRAMENTO LOCAL AGENCY FORMATION COMMISSION
1112 I Street, Suite 100 • Sacramento, CA 95814 • (916) 874-6458
www.saclafco.org

January 27, 2026

Julie Newton, Environmental Coordinator
Planning and Environmental Review
827 7th Street, Room 225
Sacramento, CA 958142

SUBJECT: Review of Partially Recirculated Draft EIR for the Upper Westside Specific Plan

Dear Ms. Newton,

Thank you for the opportunity to respond to the Partially Recirculated Draft Environmental Impact Report (PRDEIR) and appended evaluations of water supply for the Upper Westside Specific Plan (UWSP) project in an unincorporated area of Sacramento County.

Sacramento County, as lead agency for CEQA compliance for the UWSP project, has prepared and circulated both a Draft EIR and a Final EIR to evaluate the environmental effects of implementing the proposed project. As a responsible agency pursuant to CEQA, LAFCo has previously submitted comments on the Notice of Preparation of a Draft EIR and the Draft EIR itself prepared by the County.

As described in the Draft EIR, the proponents of the UWSP seek to obtain a Specific Plan as the overarching land use permit for a 2,066-acre project. Additionally, a number of County General Plan amendments are sought as well. The proposed Specific Plan would encompass a multi-use development located in the northwest portion of unincorporated Sacramento County outside of the County's Urban Policy Area (UPA) and Urban Services Boundary (USB). The site is bounded on three sides by the City of Sacramento, adjacent to the existing City of Sacramento communities of North and South Natomas.

Subsequent to completion and circulation of the FEIR for the project, the project applicants have sought to modify the proposed UWSP. These modifications consist of:

> *Additional New Water Supply Source:* This project modification introduces Natomas Central Mutual Water District (NCMWD) as a potential domestic water supply source, expanding the options for serving future development and potentially enhancing water supply reliability for the project area.

245-1

Commissioners
Rich Desmond, Patrick Hume County Members ■ Rosario Rodriguez, Alternate
Lisa Kaplan, Mat Pratton City Members ■ Dr. Jayna Karpinski-Costa, Alternate
Chris Little, Public Member ■ Timothy Murphy, Alternate
Vacant, Gay Jones, Special District Members ■ Charlea Moore, Alternate
Staff
José C. Henríquez, Executive Officer ■ Desirae Fox, Kristi Grabow, Policy Analysts
Nancy Miller, DeeAnne Gillick, Commission Counsel

The potential environmental effects of this modification has not been previously evaluated in the DEIR/FEIR, and therefore would require additional CEQA review. LAFCo's comment requests the discussion of the following to be included in the DEIR/FEIR:

- *Timely Supply of Water, Part 1:* Prior to serving the UWSP area with M&I water, NCMWC will need to apply for modifications to its State water rights permits and amend its USBR Settlement Agreement. This modification of rights is expected to take multiple years to complete. There should be a discussion on how this timeline would impact the project schedule as well as how it could impact the supply of water to homes.
- *Timely Supply of Water, Part 2:* NCMWC was subject to severe curtailment of water from the State during the last drought. There should be discussion on the impact to the future residents if the State implements similar supply cutbacks in future droughts.
- *Water Treatment Plant:* The UWSP would connect to a main crossing San Juan Road, approximately 600 feet east of Garden Highway, via a new 30-inch main that would extend east along San Juan Road to a proposed water treatment plant (WTP) located in the vicinity of San Juan Road and Bryte Bend Road. There should be a discussion on the financing plan for this proposed WTP.

245-1 cont.

245-2

245-3

Thank you for the opportunity to comment. Please contact me at 916-874-2937 or at henriquezj@saclafco.org if you have any questions.

Regards,

José C. Henríquez
Executive Officer

City of SACRAMENTO
Community Development

January 27, 2026

Letter submitted via e-mail at: CEQA@saccounty.gov.

Sacramento County,
Department of Community Development, Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Subject: COMMENTS ON THE PARTIAL RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE UPPER WESTSIDE SPECIFIC PLAN (PLNP2018-00284).

Dear Environmental Coordinator,

On December 10, 2025, Sacramento County provided notification of the released Partial Recirculated Draft Environmental Impact Report (PRDEIR) for the Upper Westside Specific Plan (UWSP). The PRDEIR presents an analysis limited to the following:

- Additional New Water Supply Source: Alternative 5 introduces Natomas Central Mutual Water District (NCMWD) as a potential domestic water supply source, expanding the options for serving future development and potentially enhancing water supply reliability for the project area.

- Revised Circulation Network: Alternative 5 considers the removal of regular vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway, and implementation of traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic. These revisions would be intended to reduce traffic volumes and related safety concerns associated with traffic levels along Garden Highway.

We have reviewed the topics analyzed in the PRDEIR and have the following comments:

246-1

Revised Circulation Network
The PRDEIR continues to rely on fair share contributions toward intersections within City limits that have increased traffic congestion due to Cumulative Plus Revised Project conditions. While the PRDEIR does acknowledge the City's current transportation policies and goals, and that the identified operational improvements reduce delay, the PRDEIR

acknowledges the proposed project's fair share contributions will still result in delayed LOS F operations where added project volumes exceed roadway capacities within the City limits. The City looks forward to working with the County collaboratively to ensure traffic congestion is adequately addressed as the project develops.

246-1 cont.

Additional New Water Supply Source

The City has reviewed the PRDEIR's revised Project Alternative 5, which includes an optional wholesale source for domestic water supply from Natomas Central Mutual Water Company (NCMWC) to serve the UWS project. Alternative 5 proposes to partially convert neighboring Natomas Central Mutual Water Company (NCMWC) federal water contract(s) from agricultural use to municipal and industrial (M&I) use. This proposal represents a further departure from the 2002 Joint Vision MOU approved by both Sacramento City Council and the Sacramento Board of Supervisors by proposing an overlapping M&I water entitlement for the Project area.

246-2

In preparing the PRDEIR, the County identifies that additional discretionary approvals are necessary to implement Alternative 5, including 1) change in water rights with State Water Rights Control Board (SWRCB), 2) changes in water contract with the United States Bureau of Reclamation (USBR) to supply surface water for municipal and industrial uses and modify its delivery schedule; and 3) negotiation of a wholesale agreement between NCMWC and Sacramento County Water Agency (SCWA) to allow priority service of M&I water to the proposed UWSP development. The City requests clarification of the timing of environmental review of the additional steps necessary to secure a reliable water supply and seeks clarity in understanding the applicability and timing of National Environmental Policy Act (NEPA) review to analyze the effect of the federal action.

246-3

The PRDEIR makes the following statement "NCMWC would have adequate planned water supply to serve development allowed under the proposed UWSP during normal, single dry, and multiple dry years as confirmed by the WSA prepared by SCWA for the proposed UWSP". This approach toward articulating a reliable water supply appears to the City to rest upon hypothetical decisions by Federal and State decision makers and is at risk of being perceived as predecisional.

246-4

The City suggests the PRDEIR clarify the status of Alternative 5 water supply as guided by CA Water Code §1091 and the principle of transparent decision making. If the County finalizes the CEQA process with its governing body before the steps to create a reliable water supply are taken, then the status of the water supply portfolio should be clear to all interested parties.

246-5

Conclusion

The City of Sacramento has provided comments throughout the UWSP planning process since the application was initiated with the County on February 26, 2019. The most recent City comment letters provided to the County in August 2025 are attached. The Board of Supervisors' hearing on August 20, 2025, to consider the UWSP was cancelled to allow County staff and the applicant additional time to review and consider public comments received which raised concerns about the project. Since that time, County staff have held several meetings with City staff about the concerns we've raised. We appreciate the meetings being held and the open dialogue. 246-6

Apart from PRDEIR analysis being limited to water supply and the revised transportation circulation, the PRDEIR notification states that all other aspects of the proposed Specific Plan would remain unchanged, including land uses, densities, and plans for infrastructure and service delivery. Regardless of the CEQA process and the PRDEIR limited analyses, it would be in the best interest of both the County and City to prioritize working together with a focus on mutually acceptable solutions as the project progresses. 246-7

If you have follow-up questions or seek clarifications on any of the above issues, please contact Cheryle Hodge at chodge@Cityofsacramento.org or 916-808-5971.

Sincerely,

Cheryle L. Hodge

Cheryle Hodge
New Growth Manager, Community Development Department

cc: Michael Jasso, Assistant City Manager, City of Sacramento
Ryan Moore, Assistant City Manager, City of Sacramento
Tom Pace, Director, Community Development Department
Matt Eierman, Director, Department of Public Works
Dahlia Fadl, Director, Department of Utilities
Jackie Beecham, Director, Youth, Parks & Community Enrichment Dept.
Kathy Lester, Police Chief, Sacramento Police Department
Chris Costamagna, Fire Chief, Sacramento Fire Department
Greg Sandlund, Planning Director, Community Development Department

Buchalter

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aguerra@buchalter.com

August 19, 2025

VIA E-MAIL (SMITHTODD@SACCOUNTY.GOV)

Todd Smith
Planning Director
Planning and Environmental Review
County of Sacramento
827 7th Street, Room 225
Sacramento, CA 95814

Re: Agenda Item 3. Upper Westside Specific Plan (PLNP2018-00284)

Dear Mr. Smith:

Buchalter, A Professional Corporation ("Buchalter") represents the City of Sacramento ("City") regarding legal matters concerning the Natomas Basin Habitat Conservation Plan ("NBHCP"). While the City Council remains committed to working with Sacramento County (the "County") staff and the Board of Supervisors, my client finds itself at a crossroads concerning the future of the Natomas Basin. Consequently, in the spirit of trying to work together to find a path forward to address future development in the Natomas Basin, the City Council requested that I summarize for the Board's consideration the potential legal issues associated with the County's approval of the Upper Westside Specific Plan ("UWSP") and potential consequences to the NBHCP.

We understand that at your meeting of August 20, 2025, the Board of Supervisors will consider adopting the Upper Westside Specific Plan and taking related actions, including certifying the Final UWSP Environmental Impact Report ("Final EIR"). Our client is concerned that this project and all the other urban development the County is considering in the Natomas Basin conflicts with the principles the County and City agreed to in the 2002 Natomas Joint Vision Memorandum of Understanding ("Joint Vision MOU"), and will significantly impact the NBHCP and the City's incidental take permits ("ITP's").

The County Planning Department's August 20, 2025, staff report for BDL-PLNP2018-00284 ("August 20th Staff Report"), itself, acknowledges that since 2011, the City has raised and continues to raise, numerous concerns about the UWSP and the County's plans to consider urban development in the Natomas Basin. Unfortunately, the deficiencies our client highlighted regarding the Draft EIR's failure to comply with the California Environmental Quality Act (Pub.

Buchalter

Resources Code Section 21000 *et seq.*) ("CEQA") and to fully evaluate the environmental consequences of this development remain in the Final EIR. As evidenced in the Final EIR, the County dismissed many of the City's concerns and failed to evaluate and disclose the actual project and cumulative impacts regarding water, biological resources, flooding, transportation, and utilities and public services, among other environmental concerns.

We refer you to our client's summary of the history of the Natomas Basin and the Joint Vision Memorandum of Understanding ("MOU") as described in the City's October 28, 2024 comments on the Draft UWSP environmental impact report ("Draft EIR") attached hereto as **Attachment A** to this letter, and incorporated herein by this reference. The purpose of this letter is to supplement our client's prior correspondence regarding the County's attempts to urbanize the Natomas Basin, including the Community Development Department's comment letters on the UWSP project submitted to the County since the Project was proposed in 2019. Our comments also incorporate by reference the comment letter from the California Department of Fish and Wildlife ("CDFW") on the Draft EIR.

The Upper Westside Project conflicts with the provisions of the adopted NBHCP.

CEQA provides that a project that conflicts with an adopted habitat conservation plan results in a significant impact. (CEQA Guidelines, Appendix G, IV(f)). That is the case here.

The City does not question that the Final EIR summarized the 2003 NBHCP and the adopted conservation strategy to minimize and mitigate impacts associated with the 17,500 acres of authorized development. The Final EIR recognizes that the City and Sutter County have been implementing the NBHCP to establish an 8,750-acre reserve system in the Natomas Basin. The Final EIR also indicates that the NBHCP conservation strategy has four main components described in Chapter IV of the NBHCP including a: 1. General Conservation Strategy 2. Guidelines for Reserve Acquisition 3. Conservation Strategy for Wetland Habitat, and 4. Conservation Strategy for Upland Habitat. The problem is that, even though the Final EIR concludes that the UWSP will not conflict with each of the four strategies, it never addresses whether the NBHCP's overall operating conservation strategy will remain effective in mitigating for the impacts of 17,500 acres of authorized development, once the County approves the UWSP and other cumulative development – i.e., development that was not contemplated by the NBHCP. The Final EIR never evaluates whether the NBHCP will still be able to satisfy the NBHCP's biological goals and objectives with additional development that was never contemplated in the plan.

The County has assumed that the 1,524 acres of development will be mitigated with the acquisition of mitigation lands at a 0.75:1 or 1:1 mitigation ratio at a location outside the Basin. As long as The Natomas Basin Conservancy ("TNBC") still has available lands to acquire in the Basin to meet its mitigation requirements for the 17,500 acres of authorized development, the Draft

EIR concludes that the impact of additional cumulative development is less than significant (see Draft EIR, pages 22-20 through 22-30). The County concludes that after Upper Westside, TNBC still has 84% of the undeveloped lands in the Basin available to acquire as mitigation. The problem with this analysis is that the Draft EIR did not disclose that a considerable portion of the land remaining in the Basin is considered airport lands and unavailable for conservation easements. Moreover, the County has not evaluated the cumulative effects of the additional urban development on the NBHCP's conservation plan as discussed further below. Substantial evidence does not support a finding that the UWSP's impact would be less than significant.

The Upper Westside Project is inconsistent with the County's General Plan land use, agricultural resources and conservation resources policies concerning the preservation of agricultural land and habitat in the Natomas Basin.

The County General Plan provided for the preservation of agricultural land and open space, not urban development, in the Natomas Basin when the County executed the 2002 Joint Vision MOU. In fact, the General Plan Map still designates Natomas Basin Agricultural Cropland (except for the airport area). Many of the County General Plan policies contemplate the preservation of agricultural land and open space in the Basin. For example, County General Plan Agricultural resource policies AG-10, AG-11, AG-14, AG-15 and AG-17 encourage that lands designated for agricultural use would be preserved in conjunction with habitat and open space. The County intended that the agricultural land designated in the County's General Plan remain agricultural land and open space. Approving urban development in the UWSP conflicts with these General Plan policies. Sacramento County General Plan policy LU-15 also states:

> "Planning and development of new growth areas should be consistent with Sacramento County-adopted Habitat Conservation Plans and/or other efforts to preserve and protect natural resources."

Even though the County chose not to adopt the 2003 NBHCP, the habitat conservation plan represents an effort by the City and Sutter County to preserve and protect natural resources in the 53,347-acre Natomas Basin. Integral to the NBHCP's conservation strategy is the notion that 8,750 acres of mitigation was adequate for 17,500 acres of urban development with the rest of the Natomas Basin as agricultural land and open space. The UWSP, however, proposes to convert 1,524 acres of agricultural land and open space to urban development in conflict with General Plan Policy LU-15.

The UWSP would result in the loss of GGS habitat in conflict with the NBHCP and the conservation strategy for the preservation of wetland habitat.

The Final EIR states that the UWSP will result in impacts to GGS habitat and impacts to connectivity. The Final EIR states that compensatory mitigation would consist of creation,

preservation, and management of suitable aquatic and associated upland habitat for GGS; and/or preservation and management of rice fields or other suitable aquatic habitat, as habitat for GGS, unless take authorizations from CDFW or the United States Fish and Wildlife Service ("USFWS") require compensatory mitigation of equal or greater ecological value to GGS. The UWSP proposes to acquire mitigation sites outside of the Natomas Basin and in the American Basin Recovery Unit as defined in the Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*) (USFWS 2017a). The Final EIR, however, does not identify the location of the GGS mitigation sites outside of the Basin. Although the UWSP proposes mitigation at 1:1 and 2:1 mitigation ratios based on the UWSP's direct impacts to GGS habitat, the Final EIR never addresses whether additional mitigation is necessary to compensate for the impacts of the UWSP on the effectiveness of the NBHCP conservation strategy to meet the NBHCP's biological goals and objectives with substantially less GGS habitat in the Basin.

The UWSP proposes urban development in the Swainson's Hawk Zone that would remove Swainson's Hawk habitat in conflict with the NBHCP and in violation of General Plan Policy CO-138.

The UWSP conflicts with the adopted NBHCP's Swainson Hawk Zone and impacts the effectiveness of the NBHCP operating conservation program with respect to the mitigation of Swainson's hawk impacts associated with authorized development in the City's permit area. The UWSP EIR acknowledges that 975 acres of the Swainson's Hawk Zone will be converted to urban development and will result in the loss of nesting habitat (see e.g., Master Response B-4,). Rather than evaluate the effect on the NBHCP operating conservation strategy, the Final EIR suggests that the developers can figure out later whether acquiring land within 10 miles of the UWSP area and outside of the Natomas Basin (as far as the Feather River in Butte County) will actually mitigate the impacts on the Swainson's Hawk Zone. There was no analysis of the effect of this proposal.

The NBHCP recognized that foraging opportunities could be converted to urban uses without adequate provisions to maintain foraging habitat. If that happened, the NBHCP indicated that the conversion of foraging habitat to urban uses could compromise the effectiveness of the NBHCP Operating Conservation Program (see NBHCP, p. IV-13). Rather than the UWSP project compensating for its effects on foraging habitat in the Natomas Basin, the Final EIR assumes without substantial evidence that TNBC can tinker with its existing reserve sites to offset the impacts caused by the UWSP on the NBHCP conservation strategy. Thus, the UWSP's direct loss of Swainson's Hawk habitat in the Swainson's Hawk Zone, without compensating for that loss of habitat in the Swainson's Hawk Zone is inconsistent with CEQA's requirements to mitigate for the project's impacts. In this regard, the UWSP conflicts with the NBHCP's operating conservation strategy that required protected habitat in the Swainson's Hawk Zone remain in the Swainson's Hawk Zone (see e.g., NBHCP page V-20-V-22). Secondly, the UWSP results in a significant unmitigated impact to Swainson's Hawk that the UWSP EIR never identified. The Final EIR does

not explain how the County intends to require the developer to mitigate for the UWSP's impact on the Swainson's Hawk Zone.

Substantial evidence does not support the UWSP EIR's conclusion that cumulative biological resources impacts will be less than significant with the conversion of over 7,600 acres of agricultural land to urban development.

CEQA requires that the County's Final EIR discuss the UWSP's cumulative impacts "when the project's incremental effect is cumulatively considerable, as defined in Section 15065(a)(3). (CEQA Guidelines § 15130). CEQA Guidelines section 15355 describes cumulative impacts as the condition when "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." "Cumulatively considerable" means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past project, the effects of other current projects, and the effects of probable future projects." (CEQA § 21083(b)(2); Guidelines § 15065(a)(3)). "The adequacy of an EIR's discussion of a project's cumulative impacts is determined by standards of practicability and reasonableness." (See e.g., *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260; *Environmental Protection Information Center v. California Dept. of Forestry & Fire Protection* (2008) 44 Cal. 4th 459, 525.)

The Final EIR analysis of biological resources impacts and Master Response BR-1 explain that the Draft EIR considered existing approved development, their mitigation strategies, and the regional conservation context in which the UWSP would be developed. Response to Comment 15-61 states that the Draft EIR included an analysis of cumulative biological resources impacts, including effects on special status wildlife and potential conflicts with the NBHCP and MAP HCP were discussed on pages 22-15 through 22-31. That analysis concluded all impacts would be mitigated to a less than significant level without substantial evidence.

Judge Levy's opinion in *National Wildlife Federation v. Norton* (CIV-S-04-0579 DFL JFM) (*Natomas II*) highlights the key issue regarding the County's actions in approving the UWSP. In *Natomas II*, one of the questions that Judge Levy addressed was whether the 2003 NBHCP and its associated EIS failed to evaluate cumulative impacts associated with the future planning and development of another 10,000 acres in the Natomas Basin under the Natomas Joint Vision MOU. Judge Levy found that the principles for future planning set forth in the Joint Vision MOU did not constitute actual reasonably foreseeable development projects warranting review and that it was reasonable for USFWS to rely on the County General Plan and other adopted land use plans which designated the land for agriculture and open space in the Basin. If the County (not the City) approves the pending urban development projects outside of the 17,500 acres today, the additional development is inconsistent with the adopted plans contemplating that the area will remain as agricultural use and open space. Now the development projects are reasonably foreseeable (i.e., it is no longer conceptual principles for how future development could occur but an actual project).

The County projects a total of 7,618.4 acres of additional cumulative development in the Basin. The Final EIR however, failed to evaluate the cumulative effects of this development on the effectiveness of the NBHCP's conservation plan in still mitigating for the impacts of the authorized development on GGS and Swainson's hawk. The Final EIR did not propose any mitigation to offset impacts associated with the UWSP causing the loss of existing SWH and GGS habitat that the NBHCP intended would remain as part of the baseline condition. In other words, the County has failed to provide substantial evidence that the NBHCP will still work with nearly 25,000 acres of combined development in a basin in which only 17,500 acres of development is authorized for the City, Sutter County and Metro Air Park.

Finally, as was the case in *King's County Farm Bureau v. Hanford* ((1990) 221Cal.App.3d 692)) ("*King's County Farm Bureau*") even though the Final EIR reached the questionable conclusion that incremental effects of the project studied by the Final EIR are not significant, the math demonstrates otherwise. Here, it seems the County made the same mistake the City of Hanford made in the *Kings County Farm Bureau* case by focusing on the individual UWSP's effects rather than the combined effects of all of the reasonably foreseeable development the County is now considering. Just as in the *King's County Farm Bureau* case, the actual results of the cumulative biological resources analysis (had the County conducted one) would have demonstrated that 7,600 acres of urban development instead of 7,600 acres of agricultural land compromises the baseline for the conservation strategy. This is a significant cumulative impact under CEQA that the County should have evaluated and mitigated in its EIR.

The Final EIR analysis of water supply impacts does not comply with SB 610 and violates CEQA.

The Final EIR assumes that the City will wholesale domestic water to the UWSP area without a commitment by the City to provide domestic water to the project. As the City's October 28, 2024 letter notes, the City has not committed to provide its surface water to the UWSP. At its August 12, 2025 City Council meeting, City Staff and members of the public reiterated this lack of commitment to supplying the UWSP with the City's surface water supply. This lack of commitment was reiterated again in the opposition letter that Mayor Kevin McCarty sent on behalf of the City to the County on August 19, 2025. Yet the County's August 20th Staff Report states on page 17 that,

> "Based on the City of Sacramento's water availability, there is an adequate supply of surface water to serve the planned urban uses in the development area while allowing agricultural uses to continue…Water supply is planned from these sources:
>
> 1. The City of Sacramento's Department of Utilities, which has existing infrastructure east of the UWSP and within the plan area, would be the water wholesaler.
> 2. The Sacramento County Water Agency (SCWA) is the water retailer and has plans to establish a water supply zone for the project."

Under CEQA, a water supply analysis is inadequate based on substantial evidence that the proposed water supply was not available. The seminal case in which an EIR was invalidated for failure to demonstrate that an adequate water supply would be available to the project without a commitment to the source of water is V*ineyard Area Citizens for Responsible Growth v. City of Rancho Cordova (2007) 40 Cal.4th 412.* As the court noted in the *Vineyard Area* decision, future water sources and impacts of "exploiting" those sources cannot be deferred for future analysis. (*Id.*) Future water supplies must "bear a likelihood of actually proving available." (*Id.* at p. 432.) Considering the City's opposition to the UWSP, the County cannot say there is a "likelihood" of City water actually proving available. See also, *Madera Oversight Coalition, Inc. v. County of Madera (2011) 199 Cal.App.4th 48,* where the court concluded that an EIR was deficient for its failure to evaluate the effects of the lack of an adequate water supply.

In response to the City's concerns, the County now proposes in its August 20th Staff Report, that if the City does not serve as the water supply wholesaler, SCWA would "partner" with the Natomas Central Mutual Water Company ("NCMWC") to convert NCMWC's water rights via State Water Resources Control Board ("SWRCB") approval (see e.g., pp. 17-18).[1] Just as the Draft EIR failed to demonstrate that the UWSP developers secured a commitment to a surface water supply from the City, the August 20th Staff Report does not provide any documentation confirming that NCMWC commits to providing groundwater to serve the UWSP. The County did not study the effects of the NCMWC supply option and associated essential infrastructure improvements. In fact, NCMWC declined to prepare a WSA, stating "Natomas Mutual Water Company won't be preparing a WSA for the Upper Westside Project. While we are not interested in being the public water supplier, we are open to and interested in supplying the raw water to this development." (Sacramento County Water Agency Water Supply Assessment for Upper West Side Specific Plan, attachment 2). Consequently, the County's deferral of the impacts of the NCMWC option and mitigation measures violates CEQA (see e.g., *Gray v. County of Madera* (2008) 167 Cal.App. 4th 1099 (EIR invalidated for improper deferral of mitigation measures associated with groundwater supply for project)).

Based on the *Madera Oversight Coalition* opinion's requirement for a "reasoned analysis," the County is unable to demonstrate that an adequate water supply will be available to serve the UWSP, whether it is based on the City's water supply or a "partnership" with NCMWC subject to the SWRCB's approval. Contrary to CEQA's requirements, the County has failed to adequately address the reasonably foreseeable impacts of supplying water to the project in light of the lack of a commitment, and it has failed to confidently identify a future water source or study the effects of either option and identify appropriate mitigation. For these reasons, the County must revise and recirculate the Draft EIR and adequately evaluate the UWSP water supply impacts associated with

[1] If the County approves the UWSP with this option, it will need to revise the finance plan because it presumes that the City will serve as the water supply wholesaler.

Buchalter

the City's decision to not commit to provide potable water to the UWSP, and address the direct and indirect impacts associated with NCMWC converting its water rights from agricultural uses to potable water for urban development.

Conclusion

When the 2003 NBHCP was approved, the effectiveness of the NBHCP as a viable mitigation and conservation strategy was based on 17,500 acres of authorized development and a baseline of 36,087 acres of open space and agricultural land within the 53,537-acre Natomas Basin. Today, it is the reverse. With the County's pending approval of the UWSP and other cumulative projects proposed in Sacramento County, the Basin could be developed with more than 25,000 acres of combined development or 70% in the Basin leaving 16,200 acres of undeveloped open space and agricultural land. The Final EIR does not include any analysis of what the effect of converting 25,000 acres of the Basin to urban development means to the survivability of Giant garter snake and Swainson's hawk. In other words, the UWSP EIR does not address whether the NBHCP conservation strategy is still effective in mitigating for the impacts of the 17,500 acres of authorized development with the addition of 7,600 acres of urban development.

Due to the UWSP's potential conflicts with the NBHCP conservation strategy, and the other concerns noted in this letter, the City respectfully requests that the Board of Supervisors delay its consideration of the UWSP. We ask that the County revise and recirculate the Draft EIR to address the UWSP's impacts outlined in the City's prior comments and highlighted in this letter. The City also respectfully requests that the County prepare a comprehensive effects analysis that addresses the cumulative effects of the UWSP and other County urban development projects in the Natomas Basin in accordance with the 2003 NBHCP.

Regards,

BUCHALTER
A Professional Corporation

Alicia Guerra

Attachment

cc: Clerk of the Board of Supervisors
Elizabeth Pollock, Deputy County Counsel
Susana Alcala Wood, City Attorney
Kourtney Burdick, Supervising Deputy City Attorney
Michael Sparks, Senior Deputy City Attorney

City of SACRAMENTO
Community Development

October 28, 2024

Letter submitted via e-mail at: CEQA@saccounty.gov.

Sacramento County,
Department of Community Development, Planning and Environmental Review Division
Attention: Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Subject: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE UPPER WESTSIDE SPECIFIC PLAN (PLNP2018-00284).

Dear Environmental Coordinator,

On August 30, 2024, Sacramento County released the Draft Environmental Impact Report (DEIR) for the Upper Westside Specific Plan (UWSP). The proposed UWSP would include development of approximately 1,532± acres within a 2,066 acres project area located north and west of Interstate 80 and north and east of Garden Highway. The proposal includes the addition of 9,356 dwelling units (25,460 population) and 3,106,700± square feet of commercial uses into the unincorporated Natomas area bounded by the City of Sacramento. The project plan includes development consisting of residential, neighborhood mixed-use, neighborhood commercial, community mixed-use, office mixed-use and health & hospitality mixed-use. The plan includes three K-8 school sites, one high school site, several parks, and a 10.0± acre urban farm site on property owned by the Los Rios Community College District that is envisioned to be part of a 16.0± acre vocational training campus.

The proposed UWSP borders the City of Sacramento on three sides. This area is located within the City's American River Place of Use (POU) for water rights and the Natomas Basin Habitat Conservation Plan (NBHCP). The Sacramento unincorporated area of Natomas Basin is designated as an Area of Concern and a Study Area per the City's 2040 General Plan. The UWSP is located in an area that is also known as the "Boot" per the Natomas Joint Vision Plan that was a joint planning effort undertaken years ago with a group of landowners, Sacramento County and the City of Sacramento.

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The magnitude of the project is significant in that the proposal consists of the development of 1,532 acres of the 2,066 acres of rural agricultural lands. This area along with other open space lands located in Natomas Basin has been mostly undeveloped primarily because the City of Sacramento has been committed to the implementation of the Natomas Basin Habitat Conservation Plan (NBHCP) for over 25 years while prioritizing infill development.

The DEIR comments presented in this letter address multiple topical areas. The following provides a brief listing of significant comment topic points that are later detailed further in this letter along with additional comments:

- **Prior NOP Comments Not Addressed** – City staff submitted comments in response to the Notice of Preparation (NOP) for the UWSP. These comments provided input on the scope of the EIR as requested by the County. However, the UWSP DEIR analysis does not properly address the issues raised in our NOP comment letter dated November 20, 2020. This letter documents the areas that are deficient in the DEIR.

- **NBHCP Conflict & Viability** – The UWSP is in direct conflict with the conservation strategy of the adopted NBHCP and Incidental Take Permits (ITPs) issued by the U.S. Fish and Wildlife Service (FWS) and California Department of Fish and Wildlife (CDFW) to the City of Sacramento. Specifically, the ITPs limit urban development in the "Basin" to 17,500 acres which is the total combined authorized development of the City of Sacramento, Sutter County and Metro Air Park. The limitation of 17,500 acres pertains to the "Basin" for the approved conservation strategy to be successfully completed. If Sacramento County approves any urbanization beyond the 17,500 acres authorized by the wildlife resources agencies doing so would be in direct violation of the existing ITPs that the wildlife resource agencies enforce. Sacramento County may recall being asked on to join the City of Sacramento and Sutter County to participate in the NBHCP (see Attachment A letter dated 11/28/2000). If Sacramento County is considering allowing further urbanization of the Basin that was not contemplated by the NBHCP how will the County provide assurances to the NBHCP signatory parties that the conservation strategy can still be successfully completed especially without the County's HCP participation?

  The following provides a partial listing of the issues that City staff has determined conflict with the NBHCP:
  - Proposed UWSP directly impacts the protected one-mile Swainson's Hawk buffer zone approved by the wildlife resource agencies.
  - Proposed UWSP would allow development of 1,532 acres of land that currently is rural agricultural lands beneficial to the NHBCP and that could potentially be acquired in the future for habitat lands.

- Proposed UWSP would decrease the remaining open space lands in Natomas Basin which directly impacts the viability of the NBHCP by jeopardizing the successful completion of the NBHCP and placing urbanization near protected areas such as Fisherman's Lake and existing Conservancy owned HCP mitigation lands.
- Future development of 1,532 acres of UWSP would place a greater burden on the existing planned growth authorized by the NBHCP which in turn will most likely cause HCP fee payers increased HCP fee rates and the inability to secure mitigation lands that meet all of the rigorous HCP mitigation land criteria.
- An Amendment to the NBHCP and obligations of the issued ITPs would be needed for any development to occur within the one-mile SWHZ and an in-depth effects analysis in relation to the existing adopted NBHCP conservation strategy including future viability to meet all requirements of the NBHCP considering the loss of 1,532 acres due to UWSP and cumulative impacts associated with the proposed Grandpark Specific Plan (approximately 5,400 acres) in process with the County. The County is essentially considering allowing roughly 7,000 acres of land located in the unincorporated Sacramento County portion of the Natomas Basin to be removed from benefiting and contribution to the completion of the NBHCP conservation strategy.
- Biological – the Draft EIR concludes that with mitigation the UWSP biological impacts can be mitigated to a less than significant level. City staff disagrees with this conclusion.

- **NBHCP Participation** – If the County intends to allow urbanization beyond its Urban Services Boundary (USB) and Urban Policy Boundary (UPB) why would the County not join the NBHCP as the City of Sacramento and Sutter County have done? Sacramento County may recall being asked to participate in the NBHCP (see Attachment A letter dated 11/28/2000). If Sacramento County is considering allowing further urbanization of the Basin that was not contemplated by the NBHCP how will the County provide assurances to the NBHCP signatory parties that the conservation strategy can still be successfully completed especially without the County's HCP participation? This has been an issue and concern expressed for over 25 years and to date has not been resolved.

- **Water** – During the County's preparation of the Draft EIR, the City in compliance with State law provided a water supply assessment as requested by the County. The water supply assessment is not an agreement nor commitment by the City to provide water for the future development of UWSP. The City has not entered into any agreement to provide water for the UWSP development. The Draft EIR incorrectly assumes and seems to have pre-determined that the City would provide water to UWSP per an agreement to do so with Sacramento County

Water Agency (SCWA). Page 2-24 of Section 2 Project Description of the UWSP Draft EIR states the following:

> *"WATER*
> *The City of Sacramento through an agreement with the SCWA would provide water service to land uses allowed under the proposed UWSP. The City of Sacramento obtains most of its water supply from surface water in the American and Sacramento rivers, while groundwater obtained from the North American and South American subbasins of the Sacramento Valley Groundwater Basin provides the remainder.*
>
> *As discussed above, the proposed UWSP would require SCWA annexation. Water supply would be delivered to the UWSP area through the City's water treatment and distribution system, which consists of two water treatment plants, eight pump stations, many storage reservoirs, 28 municipal wells, thousands of hydrants, and nearly 1,800 miles of pipeline."*

The DEIR conflicts with the City's 2040 General Plan policy that pertains to provisions of City services to new development in unincorporated areas. The specific policy is presented below:

> *"LUP-1.4 City Services Prior to Annexation. Prior to the provisions of City services to new development in unincorporated areas, the City shall require that the unincorporated properties be annexed into the City. Alternatively, the City may provide utility service to properties in advance of annexation only if the annexation process has been initiated and the landowner and City have executed a conditional agreement for services that stipulates minimum standards for the development of roads and urban infrastructure and criteria and conditions for annexation into the City."*

The Draft EIR page 14-29 lists future Service District Annexation requests to the Sacramento Local Agency Formation Commission (LAFCo). City staff opposes any filing of Service District Annexation requests including for example the listed annexation to Sacramento County Water Agency (SCWA) until to the satisfaction of the City of Sacramento pending concerns and issues are resolved such as water supply/service, Natomas Basin Habitat Conservation Plan conflicts, and provision of public services such as police and fire protection.

- **Transportation** – The UWSP has significant implications to the transportation network and facilities located with the City of Sacramento in addition to the nearby freeways and Garden Highway. These concerns are documented in further detail in this letter.

- **Public Services** – The Draft EIR does not adequately address the impacts of the UWSP on existing public services (police, fire, parks) nor details how these services would be provided considering the lack of current County services in the area due to the existing rural nature and that the UWSP is geographically removed from proximity to nearby County services.

ADDITIONAL DETAILED COMMENTS:

The City's comments below respond specifically to the information presented and analysis provided in the DEIR. The Planning Division of the Community Development Department presents the comments below as a single letter representing multiple City departments.

Memorandum of Understanding between City & County

On December 10, 2002, the City & County entered into a Memorandum of Understanding (MOU) (City Resolution 2002-830 and County Resolution 2002-1566) regarding Principles of Land Use and Revenue Sharing for the Natomas Area. The MOU (Attachment B) specifically calls for any future urbanization efforts in the Natomas Joint Vision Area (NJVA) to be processed through the City, with the County remaining a steward of agricultural lands and open spaces.

The DEIR inadequately addresses the implications of this MOU, particularly the agreement that future urbanization efforts in the NJVA would be processed through the City, with the County remaining a steward of agricultural lands and open spaces. Furthermore, the EIR does not acknowledge or analyze the City's intent to designate the Natomas Basin Study Area, which includes the project area, as an Area of Concern. The City's General Plan policy LUP-A.1 explicitly states the City's near-term goal (2024-2029) to work with LAFCo on this designation, which would give the City "greater influence on land use decisions and other governmental actions" in the area.

City staff does not support the proposed County General Plan Amendment for text amendments to align County policies in various General Plan Elements regarding development in the Natomas Joint Vision Area. There has been no coordination with City staff regarding proposed text amendments to the County’s General Plan that are relative to potential future development in the Natomas Joint Vision Area. Since this specifically pertains to potential development in Natomas Basin which the City has designated as an Area of Concern per the City’s 2040 General Plan and located within our designated Natomas Basin Study Area it would seem that the County would provide some coordination with the City prior to moving forward with changes that pertain to a subject that has been of interest to the City for more than 25 years.

Economic Impacts

Our concerns about the concentration of commercial development along the westerly extension of El Camino Avenue remain unaddressed. The DEIR does not sufficiently analyze the potential regional nature of this retail development and its implications for traffic patterns and associated environmental impacts. It fails to address the potential secondary physical and economic impacts within the City that may result from locating retail, hospitality, and other commercial uses adjacent to the City boundary.

The 2002 City/County MOU recognized mutual economic interests in the future of NJVA and outlined a revenue sharing framework. The DEIR does not address how the UWSP aligns with or impacts this framework. There is insufficient discussion of how the County plans to address these economic issues, especially considering the entitlements being sought by project proponents.

Growth Inducement

While the DEIR addresses some concerns raised in our NOP comment, particularly regarding the extension of urban infrastructure and potential growth-inducing effects, certain aspects of our request for analysis have not been adequately addressed, especially as they pertain to impacts on the City of Sacramento.

The DEIR acknowledges that the project would eliminate obstacles to growth by extending the Urban Services Boundary and Urban Policy Area. However, it does not sufficiently analyze the project's consistency with long-range plans, particularly its inclusion or absence from the Region's Sustainable Communities Strategy. This omission is significant, as it relates directly to the broader regional planning context and potential cumulative impacts on the City of Sacramento.

Furthermore, the DEIR lacks a comprehensive analysis of the project's growth-inducing effects on the City of Sacramento. While it mentions consistency with Sacramento County General Plan Policy LU-120, it fails to provide a detailed, quantitative examination of how the project's infrastructure extensions might stimulate additional development within our City limits. This analysis should include estimates of the scale, type, and timing of potential new development, as well as a thorough assessment of the resulting environmental impacts. The DEIR's current list of general impact categories is insufficient without a location-specific analysis of how these effects would manifest within Sacramento.

We request that these areas of analysis be expanded to fully address the growth-inducing impacts of the proposed project on the City of Sacramento, as originally outlined and requested in our NOP comment.

Habitat Conservation Plan

Hydrological connectivity

Our NOP comment requested an analysis of hydrological connectivity to existing preserves in Natomas Basin. The DEIR states that the UWSP "is not expected to significantly affect the connectivity of aquatic habitat for giant garter snake" and "would not affect the delivery of water to existing reserves." However, this brief statement lacks the detailed analysis we sought. We request a more thorough examination of potential impacts on existing preserves, particularly the adjacent Cummings Reserve.

Effects on land inventory and mitigation prices

We specifically asked for an analysis of the effects of reducing land available for mitigation while increasing demand, potentially driving up mitigation prices for existing permit holders. The DEIR does not directly address this issue. While it states that mitigation lands "would not unnecessarily directly compete with TNBC for habitat mitigation opportunities," this assertion lacks supporting evidence. We request a detailed analysis of how the UWSP might affect land availability and mitigation costs for existing NBHCP and Metro Air Park (MAP) HCP parties.

Land availability for HCP parties

We asked how and where HCP parties with authorized development would find land for mitigation given the cumulative impacts of proposed developments in the Natomas Basin Area. The DEIR's treatment of this issue is insufficient, stating only that mitigation measures BR-3 & BR-7b are "not expected to interfere with the ability of TNBC to satisfy its mitigation responsibilities." We request a more comprehensive analysis of cumulative impacts on mitigation land availability. Based on our direct experience implementing the NBHCP for over 25 years, we question if there is enough suitable land that would remain available to The Natomas Basin Conservancy to mitigate the already approved authorized development of 17,500 acres granted to the City, Sutter County and Metro Air Park if Sacramento County allows the UWSP and Grandpark Specific Plan projects to be approved. We request that Sacramento County evaluate the HCP mitigation land criteria requirements, total mitigation including size of habitat reserves that are required for completion of the HCP conservation strategy. The UWSP DEIR focuses on the impacts and mitigation of the UWSP project itself but does not address the existing HCP acreage requirements that must be completed in the Basin.

Prior to conducting any public hearings for potential action on the UWSP by the County Planning Commission and Board of Supervisors, we request Sacramento County provide the NBHCP signatory parties (City of Sacramento, Sutter County, FWS and CDFW) a

detailed accounting and graphics demonstrating of how HCP total acreage requirements could be accomplished with the potential approval and implementation of the UWSP and Grandpark Specific Plan projects. This information and data should also be included as part of the proposed Final EIR when it becomes available.

Consistency with NBHCP Conservation Strategies

We request further clarification on the adequacy of the proposed 250-foot open space buffer between planned development and the Cummings Reserve, compared to the NBHCP's 800-foot setback requirement. The DEIR notes that exceptions to the 800-foot setback have been made in the past. While this explanation is helpful, we request further analysis on whether this 250-foot buffer is sufficient to protect the Cummings Reserve from potential edge effects of urban development.

We urge the County to provide a more robust analysis of these issues in the Final EIR to ensure the UWSP does not compromise the NBHCP's conservation goals or the ability of existing HCP parties to meet their mitigation obligations.

One-Mile Buffer Swainson’s Hawk Zone

The City of Sacramento must express its opposition to the proposed Upper Westside Specific Plan (UWSP) due to its direct conflict with the Natomas Basin Habitat Conservation Plan (NBHCP).

The City of Sacramento, as a signatory to the NBHCP, has a legal obligation to ensure the continued integrity of this regional conservation strategy. Our analysis of the UWSP reveals that significant portions of the proposed development would encroach into the Swainson's Hawk Zone - a critical one-mile-wide buffer adjacent to the Sacramento River that was explicitly established in the NBHCP to protect essential Swainson's Hawk habitat and foraging areas. The NBHCP categorically prohibits development within this zone, with only a strictly limited exception of 252 acres granted to the City of Sacramento.

While Sacramento County is not a direct signatory to the NBHCP, both the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) are bound to the NBHCP as "Permitters" with mandatory obligations to enforce its provisions. These wildlife agencies would be required to issue permits for the UWSP, yet doing so would fundamentally conflict with their legal obligations under the NBHCP, which states that any additional urban development within the Swainson's Hawk Zone "would constitute a significant departure from the Plan's Operating Conservation Program."

The project's inadequate agricultural buffer of 534 acres, ranging from merely 700 to 2,700 feet in width, is insufficient compared to the one mile (5,280 feet) protective

buffer mandated by the NBHCP. This reduction in buffer width would severely compromise a core conservation measure that both wildlife agencies have previously determined to be essential for the protection of Swainson's Hawk habitat.

The NBHCP is explicit: development beyond the permitted activities necessitates a comprehensive reevaluation of the Plan, a new effects analysis, potential amendments to the Plan and/or permits, and a separate conservation strategy. For the wildlife agencies to issue permits for this project as currently designed would require the completion of all these actions - none of which have been undertaken.

We are particularly alarmed that approval of development within the Swainson's Hawk Zone would directly threaten the biological effectiveness of the NBHCP's conservation strategy, which both the City of Sacramento and Sutter County depend upon for our incidental take permits. The one-mile buffer zone was established through rigorous biological analysis and stands as an indispensable component of the plan's mitigation strategy for impacts to Swainson's Hawk.

The County must either:

- Substantially redesign the project to eliminate all development within the one-mile Swainson's Hawk Zone buffer; or

- Undertake the mandatory comprehensive reevaluation of the NBHCP required when proposing development within this zone, including preparation of a new effects analysis and development of a separate conservation strategy that definitively ensures no net loss of the effectiveness of this critical conservation measure. This reevaluation must be conducted under the strict oversight of USFWS and CDFW to ensure absolute compliance with their obligations as Permitters under the NBHCP.

- For any County approval of development that directly disturbs the one-mile Swainson’s Hawk Zone (SWZ), we request that the County first initiate an amendment to the NBHCP with the wildlife resource agencies to modify the requirements and obligations placed on the City of Sacramento and Sutter County that pertain to the one-mile SWZ. Any action by Sacramento County to approve and allow development within the SWZ is in direct conflict with the adopted NBHCP and enforceable requirements by the wildlife resource agencies including for example, the Incidental Take Permits issued by U.S. Fish and Wildlife Services (FWS) and the California Department of Fish and Wildlife (CDFW) to the City of Sacramento and Sutter County.

Agriculture

The Draft EIR falls short in addressing crucial concerns regarding the project's impact on agricultural resources and the Natomas Basin Habitat Conservation Plan (NBHCP). While the EIR quantifies the conversion of approximately 1,372 acres of farmland within the project area, it fails to provide a comprehensive analysis of how this loss might affect the NBHCP's requirement to maintain 4,375 acres in rice cultivation for Giant Garter Snake habitat. The EIR should evaluate not only the direct loss of farmland but also the potential indirect effect of increased development pressure on remaining agricultural lands in the Natomas Basin, which could make it more challenging to maintain the required acreage of rice cultivation.

Transportation

Roadway Widening and City Responsibility

The DEIR continues to rely on fair share contributions toward roadway widening projects within City limits without adequately addressing our concerns about implementation responsibility. For instance, Mitigation Measure TR-3b still assumes City involvement in implementing improvements at I-5 on-ramps, despite our previous statement that the City should not be assumed to have matching funds. The DEIR does not propose alternative mitigation approaches that avoid placing implementation responsibility on the City, nor does it explain how these projects would be fully funded and executed given the City's financial constraints.

TR-3a and TR-3b Impacts & Mitigations on Page ES-119 & ES-120: The City of Sacramento looks forward to working collaboratively with the County on the required I-80 West El Camino Avenue interchange improvements being triggered by the project's development. As specified in the Upper Westside Specific Plan Public Facilities Financing Plan on page 23, the traffic analysis estimated that approximately 90 percent of trips caused by new development in the County using this interchange would be caused by development in the UWSP. The City looks forward to seeing the UWSP project fulfills the required improvements and phasing to ensure the ultimate improvements are constructed when triggered by the UWSP project.

Conflict with City Transportation Policies

Our NOP comments highlighted the City's current focus on reducing lanes on City roadways to align with our Climate Change goals. However, the DEIR does not acknowledge or analyze how the proposed roadway widenings, such as those in Mitigation Measure TR-3a, align with or conflict with this policy direction. We request that the Final EIR include an analysis of how the proposed transportation improvements align with the City's current transportation policies and goals.

Regional Growth and VMT Impacts

The DEIR's VMT analysis remains narrowly focused on project-level impacts and does not address our request to examine how the UWSP may redistribute growth away from the City or impact the City's VMT relative to the regional average. We continue to be concerned about potential impacts on the City's growth patterns and overall regional VMT efficiency. We request that the Final EIR include modeling scenarios that evaluate these broader impacts as originally suggested in our NOP comments.

Ongoing Technical Coordination

While the DEIR mentions some collaboration with the City, it does not outline a specific process for ongoing coordination throughout project development and implementation as we had requested. Given the project's potential impacts on City infrastructure and services, we believe a more detailed plan for continued technical coordination is necessary.

Water

In our NOP comments, we identified three potential alternatives for providing domestic water to serve the proposed UWSP area. While the DEIR focuses on Alternative 3 - utilizing City of Sacramento water rights and infrastructure - it does not provide a comprehensive analysis or clear dismissal of Alternatives 1 and 2 involving Natomas Central Mutual Water Company (NCMWC) water rights. We request that the Final EIR include a thorough evaluation of all three alternatives to ensure a complete understanding of the project's water supply and water retailer options.

Furthermore, our NOP comments requested specific details regarding the water delivery system engineering, including the size of mains, distribution, volume, future capacity, system pressurization, storage capacity, and measures to protect the water supply and prevent contamination of the City's existing system. While the DEIR provides some information about the proposed water delivery system, including a water storage tank and transmission mains, it lacks the level of detail we requested. We urge the County to include more comprehensive information on these aspects in the Final EIR to fully assess the potential environmental impacts and ensure the adequacy of the proposed water infrastructure.

Sewer System

The City of Sacramento notes the EIR's discussion of new wastewater infrastructure needed to serve the Upper Westside Specific Plan area, including the proposed sewer pump station and force main. However, we note that our previous comment requesting

analysis of impacts to the Sacramento Regional County Sewer Interceptor has not been adequately addressed. Specifically, the EIR lacks a comprehensive evaluation of the interceptor system's capacity downstream of the New Natomas Pump Station to accommodate additional flows from this project in combination with buildout of the existing Natomas area and other proposed development in the Natomas Joint Vision area. We remain concerned about the potential cumulative impacts on this critical piece of regional infrastructure and whether it has sufficient capacity to serve all these areas without requiring significant upgrades. The City requests that the EIR be revised to include a thorough analysis of existing and projected flows in the interceptor system, an assessment of its available capacity at key points along its alignment, and an evaluation of whether system upgrades may be necessary to handle the increased wastewater volumes. If upgrades to the interceptor are required, the potential environmental impacts of such improvements should also be discussed.

Fire Protection

The City of Sacramento notes the acknowledgment in the DEIR that the City's Fire Department currently provides and will continue to provide fire protection and emergency medical services to the Upper Westside Specific Plan (UWSP) area under contract with the Natomas Fire Protection District. We also note the inclusion of a site for a new fire station within the proposed plan. However, we find that the DEIR does not adequately address several key concerns raised in our NOP comments.

The DEIR lacks a comprehensive analysis of fire protection services and facilities as requested. While it provides a basic assessment of increased demand and the need for a new station, it falls short of the in-depth analysis needed for a project of this scale. We request a more detailed evaluation of current service levels, response times, equipment needs, and long-term planning for fire protection services. Furthermore, the DEIR does not sufficiently address how the project proponent will mitigate service demand impacts and maintain current levels of service throughout the project's implementation. We request more specific information on phasing, funding mechanisms, and interim measures to ensure consistent service levels during development.

Given the City's extensive experience in providing municipal services, including over 100 years of fire protection services, we reiterate our position that the City is best equipped to provide a full range of municipal services to the UWSP area. We request that the EIR include a more robust discussion of the City's role in long-term service provision and planning for the area.

Law Enforcement

The DEIR fails to adequately address the concerns raised in our NOP comment regarding potential impacts to City of Sacramento police protection services. The DEIR focuses

exclusively on Sacramento County Sheriff's Office services without acknowledging or evaluating potential impacts to the City of Sacramento Police Department (SPD). This oversight is particularly concerning given the project's unique geographical context - adjacent to the City but isolated from developed County areas - which could potentially strain City services.

Furthermore, the DEIR does not provide the requested evaluation of how and when law enforcement services and facilities will be provided to ensure no impacts to the City of Sacramento. While plans for a new County sheriff's substation are discussed, this does not address the potential cross-jurisdictional impacts or need for coordinated services with the City.

The California Highway Patrol's role is only briefly mentioned, without fully addressing its responsibilities for state highways, state-owned buildings, and state property within the City, as noted in our NOP comment.

Given the project's location and potential to affect multiple jurisdictions, we reiterate our request for a more comprehensive analysis that considers impacts to both County and City services, as well as inter-agency coordination strategies. This analysis should evaluate how the proposed development's law enforcement needs will be met without adversely impacting existing City services or response times.

Schools

We appreciate that the DEIR identifies the existing schools that would serve different portions of the UWSP area, including Witter Ranch Elementary School, Two Rivers Elementary School, Natomas Middle School, Inderkum High School, and Natomas High School. This information adequately addresses which schools would serve residents both inside and outside the specific development plan areas within the UWSP.

However, the DEIR does not fully address our question regarding which schools would serve the area while the proposed schools are being built. While Table PS-2 provides helpful enrollment and capacity data for existing schools, the DEIR lacks a clear explanation of how school services will be provided during the interim period before new schools are operational. We request that the Final EIR include a phasing plan showing when the proposed schools would be constructed relative to residential development, an explicit discussion of which existing schools would absorb students during the construction phases, and an analysis of whether those existing schools have sufficient capacity to handle temporary increases in enrollment. This information is crucial for understanding the full impacts of the project on school services throughout its implementation.

Parks & Recreation Facilities

The Draft EIR for the UWSP analyzed the project's impact on the existing setting for Parks and Recreation Facilities by considering whether an increase in use of public parks and recreation facilities resulting from the UWSP would cause the substantial physical deterioration of those facilities (e.g., damage to vegetation, accelerated wear on sports facilities and fields, or erosion along trails) or in the need for new or expanded facilities, the construction or operation of which would result in substantial adverse physical effects. This analysis further considers whether implementation of the proposed UWSP would diminish or otherwise adversely affect recreational opportunities and existing facilities within the UWSP area based on facility capacity.

Within a 1-mile radius of the UWSP area, there are approximately 20 parks, most of which are within the City of Sacramento and comprising a total of 160 acres of parklands. The closest parks to the UWSP area include River Otter Park, located directly adjacent to the southeastern edge of the UWSP area across Interstate 80, Peregrine Park, located directly adjacent to the eastern edge of the area, and San Juan Reservoir Park, located directly adjacent to the northwestern edge of the area. The North Natomas Regional Park, at 212 acres, located 1.6 miles northwest of the UWSP serves the entire region.

As stated in the DEIR, the proposed UWSP would facilitate development of up to 9,356 housing units and yield 25,460 residents. The Sacramento County 2030 General Plan, Policy PF-123 requires 5.0 acres of parkland per 1,000 residents. As a result, approximately 127.9 acres of parkland is required to serve the needs of the proposed UWSP. As there are no parks currently located directly within the UWSP area, the 160 acres of nearby parks previously described could be adversely affected by the increase of residents generated by the proposed UWSP. The areas surrounding the UWSP area, in which the existing parks are located, are developed, and contain existing residents that utilize these facilities. Therefore, there is a need for new parks to serve the UWSP area and to alleviate pressure which would occur to nearby parks from increased residential uses in this area.

To accommodate the increase in residents resulting from the proposed UWSP, the plan includes a "parks program," which outlines the proposed parks and recreational facilities to be implemented in the UWSP area. The proposed UWSP parks program proposes a diverse mix of recreational amenities and public gathering spaces which are sized and distributed to serve the anticipated needs of the residents within the UWSP. A total of 146.6 acres of parks and amenities would be provided in the UWSP area, which accounts for 11 percent of the Development Area. Parks and amenities would include 76.5 of active parks and the 2.6-acre Town Center median park as well as the 15-acre Westside Canal, 34.1 acres of greenbelt space, a 10-acre urban farm, a 12.1-acre West Edge Buffer, and a 14.7-acre Basin Edge Parkways trail.

The UWSP concludes that these facilities would be sufficient to accommodate the 25,460 proposed residents and would meet the requirements for parkland under the Sacramento County 2030 General Plan. Therefore, no additional means would need to be utilized to meet any demands in the UWSP area for parks and recreation services. Objectives for parks and recreation in the UWSP area would be met under the proposed plan, and the impact would be less than significant.

The proposed project's "parks program" includes 76.5 – 79 acres of parkland which meets the minimum guidelines of 3 acres per 1,000 residents. The 76.5 acres of parkland are considered neighborhood/community serving parks, which will be programmed with active recreation uses. However, the DEIR analyzes the project at the minimum dedication requirement under the Quimby Act of 3 acres per 1,000 residents, less than the County's (and City's) policy requirement of 5 acres per 1,000. If the project were to dedicate neighborhood/community parkland at the County standard of 5 acres per 1,000 resident, the proposed project's parkland dedication requirement would total approximately 128 acres of neighborhood/community serving parks.

The proposed project's "parks program" supplements the 79 acres of parkland with an additional 86 acres of parkland. The 86 acres of parks and recreation facilities are identified has having permanent drainage facilities, a greenbelt without recreation amenities, urban farms that will likely be leased and operated by community based or non-profit organizations, agricultural buffers, and a median with a trail. These types of facilities do not take the pressure off adjacent neighborhood and community parks that do contain active recreation, which is in high demand in the City of Sacramento.

The proposed UWSP is located adjacent to communities of the City of Sacramento; South Natomas and North Natomas. Each community was established and planned to be well-served by neighborhood and community parks that are located within a 10-minute walk of almost all the residential areas. The proposed project's gap of 51.5 acres that are not identified as neighborhood/community parkland will likely result in an adverse physical effect on the nearby parks within the two adjacent communities. Additionally, the proposed 79 acres of parkland will likely be diminished or adversely affected at a quicker rate than industry standards. This would be a significant impact.

The City of Sacramento Youth, Parks, & Community Enrichment Department (YPCE) recommends the project reduce the impacts to existing City parks by adding, or converting, 51.5 acres of neighborhood/community serving parkland in order to meet the 5 acres per 1,000 resident standard. The proposed project should incorporate the City's standards and guidelines for neighborhood and community parks, as adopted by the Parks Plan 2040, a subsequent project of the 2040 General Plan Master EIR. The existing parks within the adjacent communities are well-used, and it can be expected that the UWSP parks will be as well. Additional recommendations for the UWSP's park program are to consider community input from residents within the adjacent communities. They want to see regular enhancements and to the parks, such as lighting,

restrooms, outdoor exercise equipment, an all-weather field, and an integrated bicycle network. Residents are also advocating for accessible parks for all ages, drought-tolerant landscaping, and the preservation of wildlife habitat.

The UWSP's investment of over $143 million into the acquisition and development of parks, trails, and open space converts to approximately $1 million per acre with an annual estimated cost of $3.5 million to maintain each park facility. These costs exceed the City of Sacramento's Park development impact fee credit limits set for turnkey parks, and the estimated annual maintenance costs currently funded by Community Facilities Districts and Landscape and Lighting Districts within North Natomas. The full development of the UWSP park program will likely result in amenities that are attractive to use, and likely a financial impact on Parks annual workplans to repair and replace in 20 years from development. The proposed project's Public Facilities Finance Plan includes a fee for the provision of repair and replacement of facilities (e.g. parks, pump stations) as well as infrastructure after their useful life. The County may consider funding the long-term repair and replacement costs through a combination of the proposed infrastructure CFDs and through the new services CFD that will fund the share of urban services not paid for by property taxes. The City encourages the County to include an infrastructure CFD to fund long term repair and replacement costs of park facilities. Additionally, the utilities costs to maintain the 146.6 acres of parkland should also be included in the infrastructure CFD.

The conversion of 51.5 acres to neighborhood/community parkland, incorporation of the parks Plan 2040 standards and guidelines for park and facility development, incorporation of the 2040 General Plan park access policies for South and North Natomas, and funding for long term repair and replacement of facilities will reduce impacts to the existing parks within the adjacent communities and proposed parks within the UWSP.

Land Use Planning (City's 2040 General Plan)

On February 27, 2024, the City of Sacramento adopted the new 2040 General Plan. The new General Plan identifies five Special Study Areas that are adjacent to existing City limits and are of interest to the City of Sacramento. Planning for the future of these unincorporated areas requires collaboration between the City and the County.

The proposed Upper Westside Specific Plan (UW SP) is located within the Natomas Basin Special Study Area which bears relation to the planning of the City of Sacramento. The City of Sacramento is projected to see significant growth by 2040 (69,000 new homes, and 76,000 new jobs), and with careful land use planning, new development can help make Sacramento a model of sustainable, equitable growth and community development.

Updating the 2040 General Plan was a major undertaking and a multi-year process in effort to develop a land use framework and policies which provide for strategic growth and change that seek to concentrate new growth within the existing City limits.

The City is concerned about how the UW SP could induce sprawl and redistribute growth away from the City especially if the proposed development does not comport with the City's new land use standards and innovative policies.

The intent of the City's General Plan land use vision is to promote greater integration of uses along the corridors and in centers to broaden the range of housing types in the City, support the vitality of local businesses, lay the foundation for high-frequency transit, and make it easier to provide electric vehicle charging infrastructure and also to get around without a car.

The building intensity standards are intended to provide more flexibility and innovation in building design. Minimum density standards apply in all areas where residential development is permitted and a primarily FAR-based system could incentivize the design and construction of smaller units, potentially resulting in units that are more affordable by design.

For your reference below is a link to the City of Sacramento's new 2040 General Plan. Building intensity standards are shown on **Maps LUP-6**, **LUP-7**, **LUP-8,** and **Figure LUP-5**.
https://www.Cityofsacramento.gov/content/dam/portal/cdd/Planning/General-Plan/2040-General-Plan/Adopted%202040%20General%20Plan_20240227.pdf

Additionally, below two key innovative policies that support our emission reduction and sustainability goals in the 2040 General Plan. Policy LUP-4.13 requires new or expanded gas stations provide EV charging infrastructure. Policy LUP-4.14 eliminates vehicle parking minimums Citywide.

- **LUP-4.13 Future-Ready Gas Stations.**
  The City shall prohibit the establishment of new gas stations or the expansion of new fossil fuel infrastructure at existing gas stations unless the project proponent provides 50kW or greater Direct Current Fast Charger (DCFC) electric vehicle charging stations on site at a ratio of at least 1 new charging station per 1 new gas fuel nozzle.

- **LUP-4.14 Elimination of Vehicle Parking Minimums.**
  The City shall not require new or existing development to provide off-street vehicle parking spaces.

Conclusion

As this project progresses through planning, environmental review, and engineering, we request the County's continued coordination and that we receive all project public notifications including those for any future public meetings and hearings. If you have follow-up questions or seek clarifications on any of the above issues, please contact Cheryle Hodge at chodge@Cityofsacramento.org or 808-5971.

Sincerely,

Cheryle L. Hodge

Cheryle Hodge
New Growth Manager, Community Development Department

cc: Michael Jasso, Assistant City Manager, City of Sacramento
Tom Pace, Director, Community Development Dept., City of Sacramento
Greg Sandlund, Planning Director, Community Development Dept.
Matt Eierman, Director, Department of Public Works
Lucinda Willcox, Assistant Director, Dept. of Public Works,
Jennifer Donlon Wyant, Transportation Planning Manager, Dept. of Public Works
Pravani Vandeyar, Director, Department of Utilities
Brett Ewart, Supervising Engineer, Department of Utilities
Pelle Clarke, Senior Engineer, Department of Public Works
Jackie Beecham, Director, Youth, Parks & Community Enrichment Dept.
Shannon Brown, Assistant Director, Youth, Parks & Community Enrichment Dept.
Chris Costamagna, Fire Chief, Sacramento Fire Department
King Tunson, Program Specialist, Sacramento Fire Department
Kathy Lester, Police Chief, Sacramento Police Department
Eddie Macaulay, Lieutenant, Sacramento Police Department
Tom Bufford, Principal Planner, Environmental Planning Services
Scott Johnson, Senior Planner, Environmental Planning Services
Remi Mendoza, Senior Planner, Long Range Planning

ATTACHMENT A

OFFICE OF THE
CITY MANAGER

CITY OF SACRAMENTO
CALIFORNIA

CITY HALL
ROOM 101
SACRAMENTO, CA
95814-2684

PH 916-264-5704
FAX 916-264-7618

November 28, 2000

Terry Schutten, County Executive
Sacramento County
700 H Street, Suite 7650
Sacramento, CA 95814

Dear Terry:

Subject: Natomas Basin Habitat Conservation Plan–Revisions to Plan and Preparation of Plan EIS/EIR.

The purpose of this letter is again to invite Sacramento County to partner with Sutter County, Reclamation District 1000, Natomas Central Mutual Water Company and the City of Sacramento in revising the Natomas Basin Habitat Conservation Plan (NBHCP) and preparing new NEPA and CEQA documents for the Plan.

As you are aware, United States District Judge David F. Levi has issued a Memorandum of Opinion and Order in the case National Wildlife Federation v. Bruce Babbit. In his Order, Judge Levi noted that while the NBHCP was designed to be a basin-wide plan, only the City of Sacramento of the five agencies, was participating as a permittee. Throughout his Order, Judge Levi questioned the viability of the NBHCP if only the City participated. The Court also found that the Fish and Wildlife Service should have prepared and EIS for the Plan and it's Incidental Take Permit(ITP).

The final drafting of the NBHCP was a cooperative effort by the three land use agencies coordinated by SAFCA and their consultant Thomas Reid Associates. Mr. Patrick Groff was the County's representative. As the final draft neared completion, and the SAFCA Board relinquished the document to the three land use agencies for ITP application, it became obvious that the agency applications were governed by different time lines. The City's need was immediate, while the two Counties preferred to proceed more cautiously. To this end the City applied for and received a ITP. It was always assumed the Counties would participate as their needs demanded. Likewise, RD1000 and NCMWC were proceeding independently to complete HCP's governing their maintenance practices. If not for the lawsuit and Court Order, this approach would have continued.

We now have an opportunity to once again partner to ensure the success of the NBHCP. Sutter County and the City have agreed to be the lead agencies for the revision of the NBHCP, and preparation of the new CEQA documentation. While FWS will be the lead agency for NEPA, both the EIR and EIS will be prepared by CH2MHill, under contract with the City. The CH2MHill contract costs will be borne by the City, Sutter County, RD1000 and NCMWC. Upon completion of the NBHCP revision and environmental process, all four agencies will apply for ITPs. We would like to invite Sacramento County to participate with Sutter County and the City as lead agencies, and to join us in applying for ITPs.

We realize the Board of Supervisors will need to take action on the proposed County participation. In the mean time, we would encourage assignment of senior County staff, to attend the team meetings and to speak to the issues of importance to the County.

Please contact me or Tom Lee if you have further questions regarding our proposal. Ms. Carol Shearly, Natomas Manager, of my staff, will be coordinating all team activities. She may be reached at 264-5893.

Sincerely,

Robert P. Thomas
City Manager

Attachment B

CERTIFIED AS TRUE COPY OF Resolution 2002-830 DATE CERTIFIED January 13, 2003 Alvin J. Bumpus CITY CLERK, CITY OF SACRAMENTO

RESOLUTION NO. 2002-830

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON THE DATE OF DEC 10 2002

A RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE A MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY AND COUNTY OF SACRAMENTO REGARDING PRINCIPLES OF LAND USE AND REVENUE SHARING FOR THE NATOMAS AREA (JOINT VISION). (M02-014)

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO THAT:

WHEREAS, the County and the City have mutual policy and economic interests in the long term development and permanent preservation of open space within that area of the County known as Natomas, which area is generally depicted on Exhibit A of the Memorandum of Understanding (MOU); and

WHEREAS, cooperation between the County and the City is an opportunity to develop a vision for Natomas which reflects areas of collective interest. This Shared Policy Vision is contained in Exhibit B to this memo; and

WHEREAS, the County and City desire to establish principles to form the parameters of a future agreement or agreements encompassing the manner in which the County and City share revenue and land use decisions within the Natomas area.

NOW THEREFORE, be it resolved by the City Council of the City of Sacramento, as follows:

The City Manager is authorized to execute on behalf of the City the Memorandum of Understanding between the City and County of Sacramento regarding principles of land use and revenue sharing for the Natomas area (Joint Vision) on file with the City Clerk.

HEATHER FARGO
MAYOR

ATTEST:

VALERIE BURROWES
CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2002-830
DATE ADOPTED: DEC 10 2002

RESOLUTION NO. 2002-1566

WHEREAS, the County and the City have mutual policy and economic interests in the long term development and permanent preservation of open space within that area of the County known as Natomas, which area is generally depicted on Exhibit A of the Memorandum of Understanding (MOU); and

WHEREAS, cooperation between the County and the City is an opportunity to develop a vision for Natomas which reflects areas of collective interest. This Shared Policy Vision is contained in Exhibit B to this memo; and

WHEREAS, the County and City desire to establish principles to form the parameters of a future agreement or agreements encompassing the manner in which the County and City share revenue and land use decisions within the Natomas area.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors

Authorizes the County Executive to execute on behalf of the County the Memorandum of Understanding between the City and County of Sacramento regarding principles of land use and revenue sharing for the Natomas area (Joint Vision) on file with the City Clerk.

On a motion by Supervisor Dickinson, Seconded by Supervisor Collin, the foregoing resolution was passed and adopted by the Board of Supervisors of the County of Sacramento, State of California, at a regular meeting thereof this 10th day of December, 2002 by the following vote, to wit:

AYES:	Supervisors:	Collin, Dickinson, Johnson, Niello, Nottoli
NOES:	Supervisors:	None
ABSENT:	Supervisors:	None
ABSTAIN:	Supervisors:	None

(SEAL)

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman of the Board of Supervisors, County of Sacramento on

By Kay F. Johnson
Deputy Clerk, Board of Supervisors

Don Nottoli
Chair, Board of Supervisors

FILED

DEC 10 2002

BOARD OF SUPERVISORS
CLERK OF THE BOARD

The foregoing is a correct copy of a resolution adopted by the Board of Supervisors, Sacramento County, California

on 12-10-2002

Dated 12-17-2002

Clerk of said Board of Supervisors

By Kay F. Johnson Deputy

ATTEST: Sandra Leahy
Deputy Clerk, Board Of Supervisors

**MEMORANDUM OF UNDERSTANDING BETWEEN
THE COUNTY OF SACRAMENTO AND
THE CITY OF SACRAMENTO
REGARDING PRINCIPLES OF LAND USE AND REVENUE SHARING
FOR NATOMAS AREA**

This Memorandum of Understanding (MOU) is entered into this 10th day of December 2002, by and between the County of Sacramento, a political subdivision of the State of California (hereinafter referred to as "County") and the City of Sacramento, a chartered, California municipal corporation (hereinafter referred to as "City");

WHEREAS, the intent of the MOU and Joint City and County Natomas Vision is to reach a formal conceptual agreement for broad collaboration between the City and County regarding principles for growth, revenue sharing, and permanent open space preservation in the unincorporated portion of the Natomas Basin within Sacramento County.

WHEREAS, the County and the City have mutual policy and economic interests in accommodating long term development while securing permanent preservation of open space within that area of the County known as Natomas, which area is generally depicted on Exhibit A to this MOU; and

WHEREAS, cooperation between the County and the City is an opportunity to develop a vision for Natomas which reflects areas of collective interest. Protecting and maximizing existing, and future, airport operations, open space preservation, and fair distribution of revenue are shared core values. There is a common stake in pro-actively influencing the emerging urban form, by guiding inevitable growth to provide for residential and employment opportunities close to the region's urban core. This promotes improved air quality through trip reductions, and distance traveled, and maximizes the return on existing and future public infrastructure investment in Natomas, this Shared Policy Vision is contained in Exhibit B to this memo; and

WHEREAS, together, the City and County can forge a leadership role on a regional scale for growth management. Such a cooperative effort can address land use, economic development, and environmental opportunities and challenges in Natomas. The result can be quality development balanced with permanent open space preservation systems; and

WHEREAS, Cities and counties are dependent upon tax revenues generated by continued commercial and industrial growth. The tax system creates intense competition between jurisdictions and can lead to economic development at the expense of good land use planning. Such competition between the City and County can be reduced or eliminated by establishing a revenue sharing agreement. In this way, each jurisdiction can benefit from economic development through cooperation rather than competition; and

WHEREAS, the County and City desire to establish principles to form the parameters of a future agreement or agreements encompassing the manner in which the County and City share revenue and land use decisions within the Natomas area; and

CITY
AGREEMENT NO. 2002-224

CITY
AGREEMENT NO. 2002-224

WHEREAS, the County and the City desire to pursue jointly proposed common principles to define the parameters of a future agreement or agreements encompassing the manner in which the County and City share revenue and land use decisions within the Natomas area; and

WHEREAS, should the County and the City wish to adopt and implement the proposed common principles set forth in the MOU, each will be required to undertake a series of discretionary legislative actions, including but not limited to amendments of their respective general plans and agreements concerning revenue sharing, all of which will require the exercise of legislative discretion, and all of which will require compliance with CEQA, notice and public hearings, and satisfaction of all other applicable requirements of federal, state and local law.

WHEREAS, the County and the City recognize that, pursuant to the California Environmental Quality Act (CEQA) and other state and federal statutes, additional environmental analysis will be required for any development beyond that contemplated by the current land use plans of the jurisdictions, including the current North Natomas Community Plan (NNCP) of the City of Sacramento; and

WHEREAS, the County and City recognize that, should the governmental entities interested in, or involved with, any further development of the North Natomas Basin wish to pursue such development, they will necessarily have to propose and consider a new, separate or enhanced Habitat Conservation Plan (HCP) to address development impacts to protected species under federal and state endangered species laws; and

WHEREAS, the County and City recognize that, the proposed HCP currently under consideration by the City, Sutter county and the relevant federal (U.S. Fish & Wildlife Service) and state (Department of Fish and Game) agencies deals solely with the mitigation requirements for development under the current land use plans for those jurisdictions, including the current NNCP of the City, and that any further Natomas Basin development plans for these jurisdictions and the County, including future development pursuant to the proposed principles set forth in this MOU, will require additional or alternative mitigation, and additional environmental analysis.

WHEREAS, the County and the City acknowledge that approval of this MOU changes no existing land uses approved by either the County or the City nor commits the County or the City to specific land uses or to agreement on any specific annexations to the City. Approvals necessary for such commitments have not been considered by either the County, the City or any other appropriate authority.

NOW, THEREFORE, the County and City agree as follows:

Purpose of MOU: The purpose of this MOU is to define a mutually acceptable set of proposed principles that the City and the County are prepared to consider when considering the future land use planning and revenue sharing in the Natomas area. This MOU reflects the parties' definition of a proposed set of principles to govern future development in the Natomas areas that they are interested in studying and analyzing for possible future adoption and implementation upon completion of all necessary studies and work, including but not limited to the completion of all necessary environmental analyses under CEQA and other federal and state statutes.

I. Land use and revenue sharing within the Natomas areas should be guided as follows:

A. Open Space.

(1) Open space planning will rely on, and coordinate with, existing open space programs, and will address linkage issues. Some specific areas will be designated for preservation as permanent open space to provide assurance that community separators are implemented. Other areas may not require active preservation.

(2) Open space mitigation may be in conjunction with or distinct from any applicable criteria of the Natomas Basin Habitat Conservation Plan (HCP) and may, depending upon circumstances, exceed that of the HCP. Any new development beyond that analyzed in the Natomas Basin HCP shall be required, subject to state and federal laws and regulations, adequate habitat and buffer areas sufficient to protect impacted endangered species. A joint funding mechanism will provide funding for land and easement acquisitions.

(3) Land to be preserved as farmland must not be restricted by nearby development and needs to have a secure supply of affordable water. Buffer areas will be derived from developing lands.

(4) An airport protection plan will protect the airport by preserving open space around it and keeping noise-sensitive development and waterfowl attractors in relatively distant areas. An emphasis on open space will also lend permanence to any buffers that are established. Such a plan may be achieved through a multi-jurisdictional agreement as to land uses designed to maximize airport protection.

B. Future Growth.

(1) Consideration of new growth should be done in partnership with the preservation of open space. The urban form should include a well integrated mixture of residential, employment, commercial, and civic uses, interdependent on quality transit service with connections linking activity centers with streets, transit routes, and linear parkways with ped/bike trails.

(2) The City, rather than the County, is the appropriate agent for planning new growth in Natomas and can better provide a full range of municipal services. The County is the appropriate agent for preserving open space, agricultural and rural land uses.

(3) The County will preserve its interest in the planning and development of Sacramento International Airport and Metro AirPark.

(4) New growth will be supportive of the City's Infill Strategy. It will contribute to the sustainability of established neighborhoods/ commercial corridors/business districts.

(5) Development in Natomas will build on the vision of the currently planned growth in North Natomas, including the application of the City Council adopted (Resolution No. 2001-805) Smart Growth Principles.

(6) Future Growth areas shall foster development patterns which achieve a whole and complete, mixed-use community.

(7) The City, as the agent of development, will apply the adopted Smart Growth Principles to any new development in Natomas. Smart Growth Principles emphasize pedestrian and

transit orientation by addressing density, efficient design, and urban open space to provide sustainable, livable communities with fewer impacts than standard development.

(8) The City and County will develop a joint planning process for major uses in Natomas that are likely to have important economic impacts to existing commercial facilities in the city or county. Among the goals of that process will be to avoid competition for tax revenues, in favor of balanced regional planning.

C. Economic Development.

(1) The area subject to revenue sharing between the County and the City shall include all that area depicted on Exhibit A except for those areas designated as Metro Air Park and the grounds of Sacramento International Airport, excepting those Airport properties currently used as buffer lands for Airport operations. If retail or commercial development other than Airport-related operations is permitted on such buffer lands, revenues derived from such development shall be subject to this MOU. For purposes of this section, airport-related operations are defined as airport support services such as terminal expansion, aviation fuel sales, aircraft maintenance and support; and hotel motel uses, to the extent such uses are existing or are relocated from existing premises.

(2) The one percent, general ad valorem tax levy on all property within defined area, which is annexed to the City, shall be distributed, from the effective date of annexation, equally between the County and the City prior to accounting for the impact of distribution of such taxes to the Education Revenue Augmentation Fund.

(3) It is generally intended that all other revenues from the area be shared as follows subject to an agreed upon projection of need for County or City services:

(a) Upon the effective date of the annexation of undeveloped property for single-purpose/regional tax generating land use the County and City will share the 1% Bradley-Burns sales tax and City General Fund share of transient occupancy tax equally.

(b) Upon issuance of certificates of occupancy, or their equivalent, property within the unincorporated area, except as excluded in Section C (1), which is approved for single-purpose/regional tax generating land use by County, the County and City will share the 1% Bradley-Burns sales tax and County General Fund share of transient occupancy tax equally.

(c) Upon the effective date of the annexation of undeveloped property for a Multi-Purpose/Master Planned Community Area but prior to commencement of development beginning, revenues (including the general ad valorem property tax but excluding special taxes, fees or assessments) shall be shared by comparing the projected City municipal revenues to projected City municipal expenses including capital/development costs funded by the City.

In the event of a projected City surplus (revenues exceed expenses), 50% of such surplus shall be allocated to the County by adjusting the County's property tax share for the area.

(d) Upon the effective date of Annexation of any area developed for urban purposes as of the date of this MOU, the County municipal revenues transferred with the area shall be calculated against the costs of municipal services being transferred. The County's property tax share will be increased in the case of a surplus (i.e. County revenues transferred exceed County expenses transferred), and the City's share will be increased in case of a deficit (i.e. County revenues transferred are less than County expenses transferred). The County will consider a one-time contribution to the City upon annexation of any such area calculated on the basis of avoided, near-term capital maintenance costs together with a one-time contribution for the costs of necessary, significant infrastructure repairs which are identified prior to completion of annexation.

(e) In the event either the County or the City approve development in a fashion which would require payment pursuant to Government Code Section 53084, the County or the City, as the case may be, should be entitled to the greater of the revenue calculated pursuant to either that section or the ultimate provisions of a revenue sharing agreement.

(f) Should legislation be enacted which alters the manner in which local agencies are allocated revenue derived from property or sales taxes, any agreement shall be subject to good faith renegotiations.

II. The principles set forth are intended to guide further discussions and the ultimate negotiation of an agreement between the County and the City. It is recognized that certain of the terms used are subject to further definition and refined during the process of negotiation. It is the intent of the County and the City to work cooperatively to establish a review process, by agreement, to evaluate the likely impacts of large-scale commercial uses in Natomas on competing uses in the County and City. The goals of such a process will be to avoid competition for tax revenues, in favor of balanced regional planning and to assure that proposed land uses conform to the principles articulated in this MOU. It is further the intent of the County and the City that the revenue sharing principles set forth in this MOU shall govern the adoption of a Master Tax Sharing and Land Use Agreement for annexations.

Nevertheless, this Memorandum of Understanding is a good faith expression of the intent of the County and the City to cooperatively approach development and revenue within the Natomas area of our regional community.

CITY OF SACRAMENTO
A Municipal Corporation

By _____ Thomas V. Lee
Deputy City Manager
For: Robert P. Thomas, City Manager

COUNTY OF SACRAMENTO

By _____
Terry Schutten, County Executive

APPROVED AS TO FORM:

Richard Archbold 12-23-02
City Attorney

APPROVED AS TO FORM:

County Counsel

ATTEST:

City Clerk

ATTEST:

Clerk of the Board

CITY
AGREEMENT NO. 2002-224

CITY
AGREEMENT NO. 2002-224

Sacramento City-County MOU for the Natomas Area on
Principles of Land Use and Revenue Sharing

Exhibit A

Natomas Area Map

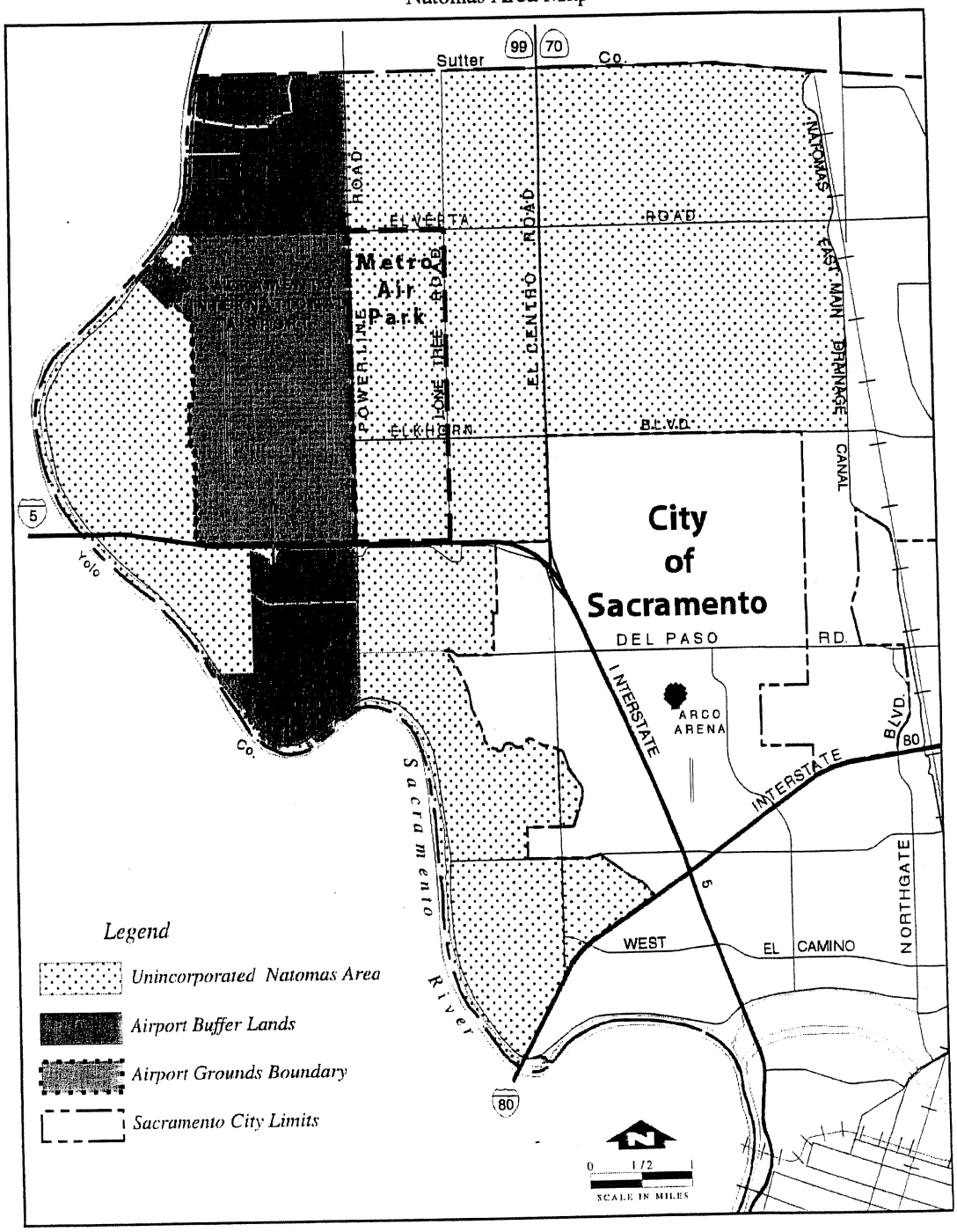


EXHIBIT B
Joint City-County Shared Policy Vision in Natomas

I. Statement of Intent

The intent of this joint City and County Planning exercise is that both the City Council and Board of Supervisors will reach a formal agreement regarding growth, economic development and permanent open space preservation in the unincorporated portion of the Natomas Basin within Sacramento County. The agreement will be adopted by Sacramento County and the City of Sacramento.

1. Introduction

A. Background

A preliminary set of planning principles for Natomas was presented to the Board of Supervisors at a public workshop in May 2001. Before that, in June 2000, the City Council held a public hearing to consider goals and policies to modify the City Sphere of Influence for several study areas, including Natomas.

Subsequent discussions among City and County management and staff have fostered a spirit of mutual gain. There is opportunity to develop a vision for Natomas, which reflects areas of collective interest. Protecting and maximizing existing, and future, airport operations, open space preservation, and fair distribution of revenue are shared core values. There is a common stake in pro-actively influencing the emerging urban form, by guiding inevitable growth to provide for residential and employment opportunities in close to the regions urban core. This promotes air quality measures through trip reductions, and distance traveled, and maximizes the return on existing and future public infrastructure investment.

Together, the City and County will forge a leadership role on a regional scale for growth management. The cooperative effort addresses land use, economic development, and environmental opportunities and challenges in Natomas. The result will be quality development balanced with permanent open space preservation systems.

B. Vision - Cooperative Land Use Planning

The best way to insure sustainable community building in Natomas is for the City and County to plan jointly. Such an effort will provide opportunity to focus more on sound long-term planning principles, and less on quick return revenue generation. Such a planning policy foundation may be without precedent, however, the highly regarded American River Parkway Plan (ARP) stands as an excellent result of City-County cooperation. That plan also provides an example of an administrative structure that involves third-party ratification of any amendments to the plan.

II. Basic Issues

There are three main areas where the City and County will come to agreement, each comprised of several sub-issues.

1. Open Space

The planning principles offer agreement regarding the size, location, and nature of open space preservation areas in the Natomas area. The location of open space areas will be based in part on the natural value of the land (e.g. habitat value, community separators), but also on constraints to development (e.g. airport protection or flood-prone areas). This agreement will ultimately designate the location of open space and provide principles for its permanent preservation. Ideally, the County will be the agent for maintaining rural and agricultural land uses, and permanent open space preservation.

Open Space systems provide multiple values/ benefits for human needs (health, public safety, cultural, recreational, economic prosperity, and civic identity), for wildlife, for productive agriculture, and for a healthy, sustainable built environment. Open Space also contributes to the provision of clean air and water for the region. Open Space systems must be of adequate size to support their intended purpose, e.g., agricultural areas must be large enough to maintain the agricultural economy; regional recreation facilities must be diverse enough to accommodate multiple passive and active uses; habitat areas must be large enough to support the requirements of native species; vistas/viewsheds should be sufficient to provide a sense of place. Open Space systems should be linked by trails, act as community separators, and accommodate habitat conservation plan requirements.

2. Economic Development

Cities and counties are dependent upon tax revenues generated by continued commercial and industrial growth. The tax system creates intense competition between jurisdictions and can lead to economic development at the expense of good land use planning. This joint agreement will lessen competition between the City and County by establishing a revenue sharing agreement. In this way, each jurisdiction stands to benefit from economic development, without becoming subject to the forces of competition.

New development will be consistent with the City's Smart Growth Principles, by supporting reinvestment in existing communities, particularly designated infill areas, as an alternative to greenfield development. New growth will not detract from the sustainability of established neighborhoods, commercial corridors, and business districts in the city and county.

Sacramento International Airport is recognized as a regional asset for economic development. The vision will incorporate effective measures for protection of airport operations and expansion, such as where residential development will not be considered.

The Natomas Mutual Water District and Rio Linda/Elverta Parks and Recreation District currently provide services to the Natomas area and are, therefore, stakeholders in the economic development of the area. The City and County will cooperate with the districts to address their unique circumstances prior to the LAFCo process. The LAFCo process required for consideration of amendments to spheres of influence and annexation proposals will determine the appropriate roles for these districts.

3. Future Growth

The vision will provide the acreage and location for future growth, and identify principles to define the nature of growth appropriate for Natomas. Constraints and opportunities inherent in the land (e.g. habitat values) or its location (e.g. proximity to existing urbanization) will help define where growth is desired. The City will be the agent for growth, by planning areas to be developed.

Conclusion. Now is the time to seize the opportunity to craft the common vision for Natomas. This is best addressed through a cooperative planning effort between Sacramento City and County. This will curb land speculation, competition between jurisdictions and establish planning principles to guide growth in concert with permanent open space preservation.

III. Planning Issues and Principles

The City and County discussions regarding Natomas identified seven primary issues areas related to possible development in Natomas. Those issues areas are listed below along with principles that address the general concerns of the City or County. These principles will constitute the basis of an agreement between the City and County for making decisions regarding land uses.

1. Open Space
    A. Open Space Preservation
    B. Farmland Preservation
    C. Airport Protection
2. Economic Development
    A. Fiscal Collaboration
3. Future Growth
    A. Jurisdictional Roles
    B. Infill Linkages

1. Open Space

A. Open Space Preservation

1. Permanent Protection of Open Space. Achieve a permanent open space by acquiring land or easements. A variety of funding sources will be used to make land and easement acquisitions. Open Space encompasses lands that essentially are unimproved and that have limited development potential due to the physical characteristics of the land, due to value as a drainage or habitat corridor, due to land being restricted to agricultural production, due to location of the land as a community separator/ buffer between developed areas, or due to the scenic value of the land and its role in maintaining a community's sense of place or heritage.

2. Community Separators. Provide community separators at the Sutter/ Sacramento County line, by using open space that defines urban shape by providing gateways, landscaped freeway corridors, defined edges and view sheds. The community separator is land designated as permanent open space, by both the City and County General Plans, in order to avoid an uninterrupted pattern of urbanization, and to retain the character f distinct communities.

3. Open Space Linkages. Coordinate and connect permanent open space in Natomas with the larger open space systems to provide linkages for trail extensions and biological connectivity.

4. Mitigation Ratio. Require development to provide permanent open space, preserved in the Natomas area, at a mitigation ratio of at least one-to-one.

Implementation. The agreement will establish a policy framework for open space planning in Natomas which will rely on, and coordinate with, existing open space programs, and will address linkage issues. Some specific areas will be designated for preservation as permanent open space to provide assurance that community separators are implemented. Other areas, such as west of Sacramento International Airport, may not require active preservation because of specific constraints related to inadequate infrastructure or public ownership.

This mitigation may be in conjunction with or distinct from any applicable criteria of the Natomas Basin Habitat Conservation Plan (HCP). A minimum one-to-one mitigation ratio within the Sacramento unincorporated area of Natomas will exceed that of the HCP by one-half acre of mitigation per acre of development. A joint funding mechanism will provide funding for land and easement acquisitions.

B. Farmland Preservation

1. Require Mitigation for Losses. Plan land use in Natomas in a manner that minimizes and mitigates loss of overall agricultural productivity.

Implementation. Identify areas of Natomas that are to be developed or remain in general agriculture. Land to be preserved as farmland must not be restricted by nearby development and needs to have a secure supply of affordable water. Buffer areas will be derived from developing lands. The City and County shall work jointly with agricultural interests to develop a comprehensive program to assist in farmland viability.

C. Airport Protection

1. Protect Future Airport Operations. Plan land use in Natomas in a manner that will protect Sacramento International Airport from complaints originating from encroaching uses that might eventually limit its operations or future expansion.

2. Coordinate long range land use planning. The various affected jurisdictions will coordinate planning efforts to ensure the continued viable operations and expansion of Sacramento International Airport

3. Maintain Airport Safety Related to Habitat. Avoid compromising airplane safety when establishing open space by keeping waterfowl habitat at safe distances from the airport.

Implementation. A multi-jurisdictional airport protection plan will protect the airport by preserving open space around it and keeping noise-sensitive development and waterfowl attractors in relatively distant areas. An emphasis on open space will also lend permanence to any buffers that are established.

2. Economic Development

A. Fiscal Collaboration

1. Revenue Agreement. Adopt a Revenue Exchange Agreement.

Implementation. The City and County will negotiate an agreement that defines, and provides for, revenue exchange for development that occurs within the agreement area.

3. Future Growth

A. Jurisdictional Roles

1. City and County Roles. The City is the appropriate agent for planning new growth in Natomas. The County is the appropriate agent for preserving open space, agricultural and rural land uses.

2. Maintain County Interests. The County will preserve its interest in the planning and development of Sacramento International Airport and Metro AirPark.

Implementation. Define the roles of each jurisdiction in the agreement.

B. Infill Linkage

1. Support City Infill Strategy. New growth will be supportive of the City's Infill Strategy. It will contribute to the sustainability of established neighborhoods/ commercial corridors/ business districts.

Implementation. Create a linkage program between new growth and the City's Infill Strategy, extension of the Downtown/Natomas/Airport transit line and implementation of the North Natomas Community Plan goals and objectives as a part of the General Plan amendment process.

4. Urban Growth Principles

1. Smart Growth. Development in Natomas will build on the vision of the currently planned growth in North Natomas, including the application of Smart Growth Principles.

2. Regionally Significant Land Uses. The City and County will develop a joint planning process for major uses in Natomas that are likely to have important economic impacts to existing commercial facilities in the city or county.

3. Balanced Communities. Undeveloped areas shall foster development patterns which achieve a whole and complete, mixed-use community.

Implementation. The City, as the agent of development, will apply Smart Growth Principles to any new development in Natomas. Smart Growth Principles emphasize pedestrian and transit orientation by addressing density, efficient design, and urban open space to provide sustainable, livable communities with fewer impacts than standard development.

Establish a review committee, by agreement, to evaluate the likely impacts of large scale commercial uses in Natomas on competing uses in the county and city. The committee's goal will be to avoid competition for tax revenues, in favor of balanced regional planning.

IV. Identify Areas for Growth and Permanent Open Space Preservation

Consideration of new growth should be done in partnership with the preservation of open space. The urban form should include a well integrated mixture of residential, employment, commercial, and civic uses, interdependent on quality transit service with connections linking activity centers with streets, transit routes, and linear parkways with ped/bike trails.

V. Plan Administration and Agreement

The agreement will be adopted by Sacramento County and the City of Sacramento. It may also be desirable to have the agreement adopted by an outside party, e.g. the State Legislature (similar to the American River Parkway Plan) to provide additional strength to the agreement, and to require inter-jurisdictional coordination on agreement implementation.

The means to implement this common vision is yet to be defined. There are various instruments available for the legislative bodies of the City and County, such as a Joint Resolution, or a Memorandum of Understanding.

The agreement will consist of:

- A map clearly delineating the areas for growth and for permanent open space and agricultural preservation.
- The Planning Principles.
- The implementation program including adoption of permanent open space and agricultural preservation strategies.

The implementation includes:

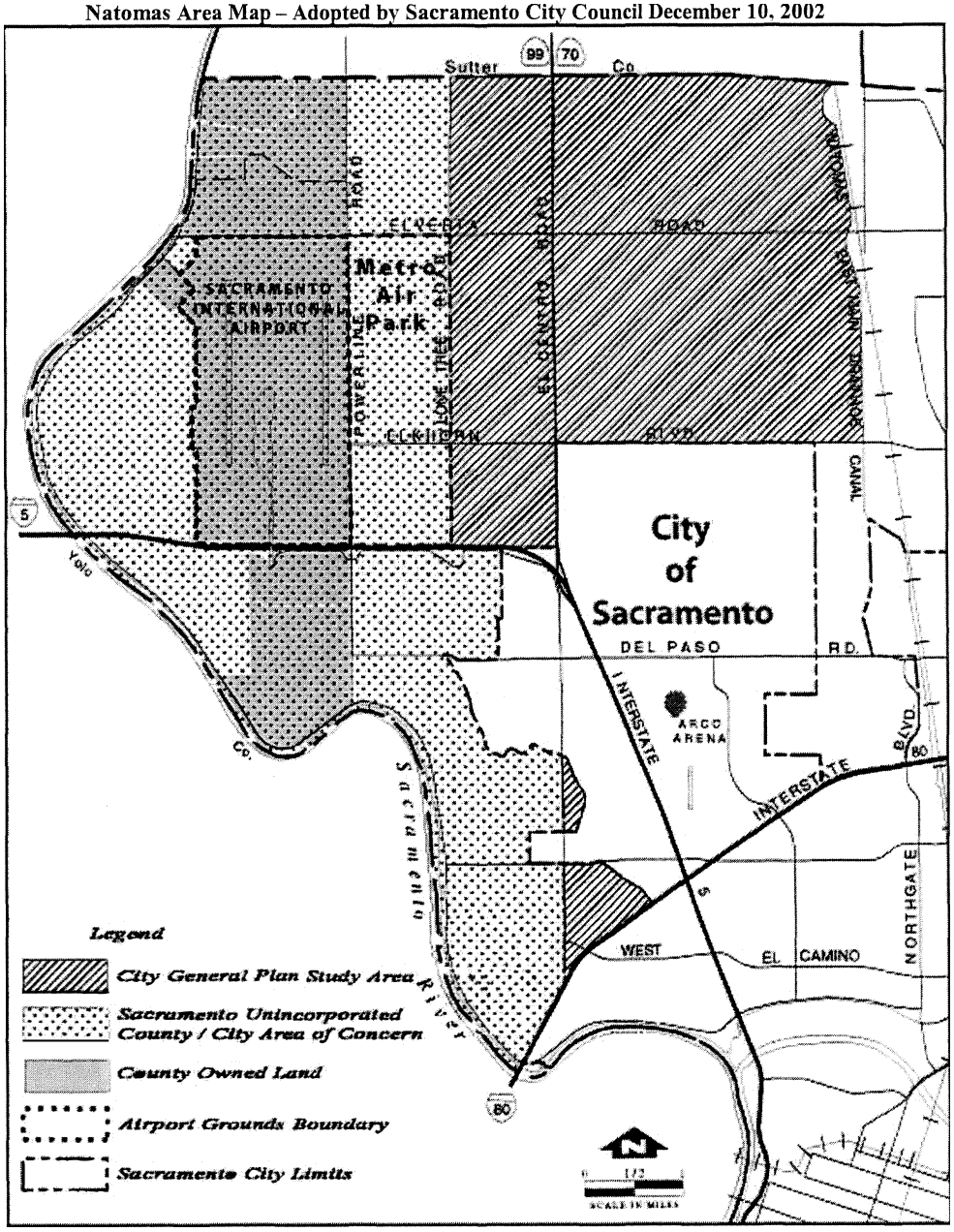
- A third party agreement
- Amendments to both General Plans to incorporate the common vision
- Adoption of a Revenue Sharing Agreement
- Define Goals, Roles and Responsibilities for the respective jurisdictions, and a mechanism for future, regional scale participation.

- Benchmarks for performance
- A funding program for permanent open space and agricultural preservation.

This cooperative planning effort is consistent with the Capitol Regional Compact, endorsed by both jurisdictions recently. Developed by Valley Vision, it promotes regional coordination, cooperation and collaboration. The compact defines four goals for future collaboration:

- Create Regional Growth and Development Patterns
- Coordinate Land Use, Infrastructure, Public Services and Transportation
- Reinforce our Community Identities and Sense of Place
- Protect and Enhance Open Space and Recreational Opportunities.

~~Sacramento City – County MOU for the Natomas Area on~~
Principles of Land Use and Revenue Sharing
Exhibit A
Natomas Area Map – Adopted by Sacramento City Council December 10, 2002



MOU map – 3.jpg December 18, 2002

OFFICE OF THE MAYOR

Kevin McCarty
Mayor

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CITY OF SACRAMENTO
CALIFORNIA

August 19, 2025

Honorable Members of the Board of Supervisors
County of Sacramento
700 H Street
Sacramento, CA 95814

RE: Upper Westside Specific Plan

Dear Supervisors:

The City Council remains opposed to the Upper Westside Project (UWP) due to unmet or unresolved issues. On August 12, 2025, the Council discussed UWP and voted to oppose the project as proposed. We are hopeful that the County will delay consideration of the project to provide our two agencies with time to work through the City's concerns.

The UWP proposes the development of 9,356 residential units with an estimated population of 25,460 residents and 3,106,700 square feet of commercial uses in a 2,066-acre area. The UWP is bounded on three sides by the City of Sacramento, Sacramento River to the west, and Garden Highway (a two-lane rural roadway and levee for the Basin).

For over 25 years, the City of Sacramento, Sutter County, The Natomas Basin Conservancy, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife have faithfully followed through with a commitment to protect the Natomas Basin through the implementation of the Natomas Basin Habitat Conservation Plan (HCP). The conservation strategy set forth in the HCP ensures the protection of 22 listed species and their habitats along with a one-mile Swainson's Hawk Zone along the Sacramento River. UWP threatens to unravel this plan and decades of investment in the protection of the basin.

When adopting the HCP in 2003, the City relied on an important commitment by the County set forth in the City/County 2002 Memorandum of Understanding (MOU), dated December 10, 2002, which stated the following:

> ***"The City, rather than the County, is the appropriate agent for planning new growth in Natomas and can better provide a full range of municipal services. The County is the appropriate agent for preserving open space, agricultural and rural land uses."***

The MOU concludes by stating that "this Memorandum of Understanding is a good faith expression of the intent of the County and the City to cooperatively approach development and revenue within the Natomas area of our regional community."

Over the past six years the City has tried to work with the County on this project including numerous meetings and letters to address the City concerns. Unfortunately, those concerns remain unresolved. For example, the City's October 28, 2024, letter is attached here for reference and provides detailed comments on UWP. The following are key concerns that City staff has raised in prior communications with the County over the past six years that remain unaddressed:

- **Conservation Conflict:** The UWP and additional County pending development proposals in Natomas would create nearly 25,000 acres of combined development in a basin in which only 17,500 acres of development is authorized for the City, Sutter County, and Metro Air Park. Additionally, the project encroaches into the 1-mile buffer zone along the Sacramento River, which is in direct conflict with the HCP.
- **Service Assumptions:** The County continues to proceed with development proposals in Natomas Basin without any resolution to concerns raised by the City regarding provision of municipal services, including City water and public safety, without agreements by the City to provide such services. The land use plan does not show a location for a sheriff substation nor do any of the UWP documents specifically state or require that the sheriff substation will be built.
- **Transportation:** The UWP has not guaranteed that road widening projects in the City will be fully funded or built on time. This lack of planning and funding will create traffic impacts on the City, as well as endanger evacuations from floods and fires. The Garden Highway will be directly impacted and has no ability for increased capacity. Additionally, 90% of traffic impacts to the I-80/West El Camino interchange come from the UWP alone yet there are no assurances that these improvements will happen when they are needed.
- **Parks Impacts:** The UWP "parks program" supplements parkland with an additional 86 acres of parkland but this supplemental acreage is identified as: permanent drainage facilities, a greenbelt without recreation amenities, urban farms that will likely be leased and operated by community based or non-profit organizations, agricultural buffers, and a median with a trail. These types of facilities do not take the pressure off adjacent neighborhood and community parks that do contain active recreation, which is in high

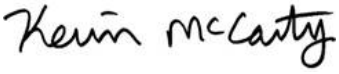
demand in the City of Sacramento. The City staff recommended that the project reduce the impacts to existing City parks by adding, or converting, 51.5 acres of neighborhood/community serving parkland to meet the 5 acres per 1,000 resident standard. To minimize the UWP impacts, and pressure placed on adjacent City parks, the UWP should incorporate the City's standards and guidelines for neighborhood and community parks, as adopted by the City's Parks Plan 2040 and the 2040 General Plan Master EIR.

- **Flooding:** Natomas Basin open space lands provide the ability to serve as temporary natural water reservoir areas during heavy rainfall storm events and high river levels. This in turn relieves strain on the levee. An extensive canal system and pumps help manage and direct water in Natomas Basin which supports reducing risks of inundation of the developed areas. The open space areas along Garden Highway have made it possible to implement the levee improvement projects that provide 200-year flood protection but also serve as a buffer between the existing developed areas of Natomas and the levee. The area of UWP that falls with the one-mile Swainson's Hawk Zone along Garden Highway would be better suited to remain in open space and rural uses for multiple reasons including for example the lands are within an existing floodplain, natural resources (one-mile Swainson's Hawk Zone), limited transportation options in the event of an evacuation, and airport operations.
- **Schools: The** Natomas School District continues to have unresolved issues. There needs to be a signed school mitigation agreement between the District and the developer.
- **Sewer:** The UWP does not address sewer capacity. How will upgrades to sewer infrastructure such as the pump station and force main be funded?
- **Airport Compatibility:** Flight paths are changed regularly. This project could add thousands of new residents that could complain about airport operations.
- **Economic Impacts:** Development on the periphery of the City threatens our infill development strategy and tax base.

As proposed, the UWP threatens to unravel decades of investment in the protection of the basin and the project appears to be in conflict with the 2002 MOU. Of further concern, the City has not committed to providing municipal services, such as water, for the project and no development should be approved without assurances of municipal services including a guaranteed water commitment.

On behalf of the City Council, I urge you to delay the hearing on the UWP currently scheduled on August 20, 2025, to provide time for our two agencies to work collaboratively on these unresolved issues.

Sincerely,



Mayor Kevin McCarty

City of SACRAMENTO
Community Development

October 28, 2024

Letter submitted via e-mail at: CEQA@saccounty.gov.

Sacramento County,
Department of Community Development, Planning and Environmental Review Division
Attention: Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Subject: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE UPPER WESTSIDE SPECIFIC PLAN (PLNP2018-00284).

Dear Environmental Coordinator,

On August 30, 2024, Sacramento County released the Draft Environmental Impact Report (DEIR) for the Upper Westside Specific Plan (UWSP). The proposed UWSP would include development of approximately 1,532± acres within a 2,066 acres project area located north and west of Interstate 80 and north and east of Garden Highway. The proposal includes the addition of 9,356 dwelling units (25,460 population) and 3,106,700± square feet of commercial uses into the unincorporated Natomas area bounded by the City of Sacramento. The project plan includes development consisting of residential, neighborhood mixed-use, neighborhood commercial, community mixed-use, office mixed-use and health & hospitality mixed-use. The plan includes three K-8 school sites, one high school site, several parks, and a 10.0± acre urban farm site on property owned by the Los Rios Community College District that is envisioned to be part of a 16.0± acre vocational training campus.

The proposed UWSP borders the City of Sacramento on three sides. This area is located within the City's American River Place of Use (POU) for water rights and the Natomas Basin Habitat Conservation Plan (NBHCP). The Sacramento unincorporated area of Natomas Basin is designated as an Area of Concern and a Study Area per the City's 2040 General Plan. The UWSP is located in an area that is also known as the "Boot" per the Natomas Joint Vision Plan that was a joint planning effort undertaken years ago with a group of landowners, Sacramento County and the City of Sacramento.

300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Help Line: 916-264-5011
CityofSacramento.org/cdd

The magnitude of the project is significant in that the proposal consists of the development of 1,532 acres of the 2,066 acres of rural agricultural lands. This area along with other open space lands located in Natomas Basin has been mostly undeveloped primarily because the City of Sacramento has been committed to the implementation of the Natomas Basin Habitat Conservation Plan (NBHCP) for over 25 years while prioritizing infill development.

The DEIR comments presented in this letter address multiple topical areas. The following provides a brief listing of significant comment topic points that are later detailed further in this letter along with additional comments:

- **Prior NOP Comments Not Addressed** – City staff submitted comments in response to the Notice of Preparation (NOP) for the UWSP. These comments provided input on the scope of the EIR as requested by the County. However, the UWSP DEIR analysis does not properly address the issues raised in our NOP comment letter dated November 20, 2020. This letter documents the areas that are deficient in the DEIR.

- **NBHCP Conflict & Viability** – The UWSP is in direct conflict with the conservation strategy of the adopted NBHCP and Incidental Take Permits (ITPs) issued by the U.S. Fish and Wildlife Service (FWS) and California Department of Fish and Wildlife (CDFW) to the City of Sacramento. Specifically, the ITPs limit urban development in the "Basin" to 17,500 acres which is the total combined authorized development of the City of Sacramento, Sutter County and Metro Air Park. The limitation of 17,500 acres pertains to the "Basin" for the approved conservation strategy to be successfully completed. If Sacramento County approves any urbanization beyond the 17,500 acres authorized by the wildlife resources agencies doing so would be in direct violation of the existing ITPs that the wildlife resource agencies enforce. Sacramento County may recall being asked on to join the City of Sacramento and Sutter County to participate in the NBHCP (see Attachment A letter dated 11/28/2000). If Sacramento County is considering allowing further urbanization of the Basin that was not contemplated by the NBHCP how will the County provide assurances to the NBHCP signatory parties that the conservation strategy can still be successfully completed especially without the County's HCP participation?

  The following provides a partial listing of the issues that City staff has determined conflict with the NBHCP:
  - Proposed UWSP directly impacts the protected one-mile Swainson's Hawk buffer zone approved by the wildlife resource agencies.
  - Proposed UWSP would allow development of 1,532 acres of land that currently is rural agricultural lands beneficial to the NHBCP and that could potentially be acquired in the future for habitat lands.

- Proposed UWSP would decrease the remaining open space lands in Natomas Basin which directly impacts the viability of the NBHCP by jeopardizing the successful completion of the NBHCP and placing urbanization near protected areas such as Fisherman's Lake and existing Conservancy owned HCP mitigation lands.
- Future development of 1,532 acres of UWSP would place a greater burden on the existing planned growth authorized by the NBHCP which in turn will most likely cause HCP fee payers increased HCP fee rates and the inability to secure mitigation lands that meet all of the rigorous HCP mitigation land criteria.
- An Amendment to the NBHCP and obligations of the issued ITPs would be needed for any development to occur within the one-mile SWHZ and an in-depth effects analysis in relation to the existing adopted NBHCP conservation strategy including future viability to meet all requirements of the NBHCP considering the loss of 1,532 acres due to UWSP and cumulative impacts associated with the proposed Grandpark Specific Plan (approximately 5,400 acres) in process with the County. The County is essentially considering allowing roughly 7,000 acres of land located in the unincorporated Sacramento County portion of the Natomas Basin to be removed from benefiting and contribution to the completion of the NBHCP conservation strategy.
- Biological – the Draft EIR concludes that with mitigation the UWSP biological impacts can be mitigated to a less than significant level. City staff disagrees with this conclusion.

- **NBHCP Participation** – If the County intends to allow urbanization beyond its Urban Services Boundary (USB) and Urban Policy Boundary (UPB) why would the County not join the NBHCP as the City of Sacramento and Sutter County have done? Sacramento County may recall being asked to participate in the NBHCP (see Attachment A letter dated 11/28/2000). If Sacramento County is considering allowing further urbanization of the Basin that was not contemplated by the NBHCP how will the County provide assurances to the NBHCP signatory parties that the conservation strategy can still be successfully completed especially without the County's HCP participation? This has been an issue and concern expressed for over 25 years and to date has not been resolved.

- **Water** – During the County's preparation of the Draft EIR, the City in compliance with State law provided a water supply assessment as requested by the County. The water supply assessment is not an agreement nor commitment by the City to provide water for the future development of UWSP. The City has not entered into any agreement to provide water for the UWSP development. The Draft EIR incorrectly assumes and seems to have pre-determined that the City would provide water to UWSP per an agreement to do so with Sacramento County

Water Agency (SCWA). Page 2-24 of Section 2 Project Description of the UWSP Draft EIR states the following:

> *"WATER*
> *The City of Sacramento through an agreement with the SCWA would provide water service to land uses allowed under the proposed UWSP. The City of Sacramento obtains most of its water supply from surface water in the American and Sacramento rivers, while groundwater obtained from the North American and South American subbasins of the Sacramento Valley Groundwater Basin provides the remainder.*
>
> *As discussed above, the proposed UWSP would require SCWA annexation. Water supply would be delivered to the UWSP area through the City's water treatment and distribution system, which consists of two water treatment plants, eight pump stations, many storage reservoirs, 28 municipal wells, thousands of hydrants, and nearly 1,800 miles of pipeline."*

The DEIR conflicts with the City's 2040 General Plan policy that pertains to provisions of City services to new development in unincorporated areas. The specific policy is presented below:

> *"LUP-1.4 City Services Prior to Annexation. Prior to the provisions of City services to new development in unincorporated areas, the City shall require that the unincorporated properties be annexed into the City. Alternatively, the City may provide utility service to properties in advance of annexation only if the annexation process has been initiated and the landowner and City have executed a conditional agreement for services that stipulates minimum standards for the development of roads and urban infrastructure and criteria and conditions for annexation into the City."*

The Draft EIR page 14-29 lists future Service District Annexation requests to the Sacramento Local Agency Formation Commission (LAFCo). City staff opposes any filing of Service District Annexation requests including for example the listed annexation to Sacramento County Water Agency (SCWA) until to the satisfaction of the City of Sacramento pending concerns and issues are resolved such as water supply/service, Natomas Basin Habitat Conservation Plan conflicts, and provision of public services such as police and fire protection.

- **Transportation** – The UWSP has significant implications to the transportation network and facilities located with the City of Sacramento in addition to the nearby freeways and Garden Highway. These concerns are documented in further detail in this letter.

- **Public Services** – The Draft EIR does not adequately address the impacts of the UWSP on existing public services (police, fire, parks) nor details how these services would be provided considering the lack of current County services in the area due to the existing rural nature and that the UWSP is geographically removed from proximity to nearby County services.

ADDITIONAL DETAILED COMMENTS:

The City's comments below respond specifically to the information presented and analysis provided in the DEIR. The Planning Division of the Community Development Department presents the comments below as a single letter representing multiple City departments.

Memorandum of Understanding between City & County

On December 10, 2002, the City & County entered into a Memorandum of Understanding (MOU) (City Resolution 2002-830 and County Resolution 2002-1566) regarding Principles of Land Use and Revenue Sharing for the Natomas Area. The MOU (Attachment B) specifically calls for any future urbanization efforts in the Natomas Joint Vision Area (NJVA) to be processed through the City, with the County remaining a steward of agricultural lands and open spaces.

The DEIR inadequately addresses the implications of this MOU, particularly the agreement that future urbanization efforts in the NJVA would be processed through the City, with the County remaining a steward of agricultural lands and open spaces. Furthermore, the EIR does not acknowledge or analyze the City's intent to designate the Natomas Basin Study Area, which includes the project area, as an Area of Concern. The City's General Plan policy LUP-A.1 explicitly states the City's near-term goal (2024-2029) to work with LAFCo on this designation, which would give the City "greater influence on land use decisions and other governmental actions" in the area.

City staff does not support the proposed County General Plan Amendment for text amendments to align County policies in various General Plan Elements regarding development in the Natomas Joint Vision Area. There has been no coordination with City staff regarding proposed text amendments to the County’s General Plan that are relative to potential future development in the Natomas Joint Vision Area. Since this specifically pertains to potential development in Natomas Basin which the City has designated as an Area of Concern per the City’s 2040 General Plan and located within our designated Natomas Basin Study Area it would seem that the County would provide some coordination with the City prior to moving forward with changes that pertain to a subject that has been of interest to the City for more than 25 years.

Economic Impacts

Our concerns about the concentration of commercial development along the westerly extension of El Camino Avenue remain unaddressed. The DEIR does not sufficiently analyze the potential regional nature of this retail development and its implications for traffic patterns and associated environmental impacts. It fails to address the potential secondary physical and economic impacts within the City that may result from locating retail, hospitality, and other commercial uses adjacent to the City boundary.

The 2002 City/County MOU recognized mutual economic interests in the future of NJVA and outlined a revenue sharing framework. The DEIR does not address how the UWSP aligns with or impacts this framework. There is insufficient discussion of how the County plans to address these economic issues, especially considering the entitlements being sought by project proponents.

Growth Inducement

While the DEIR addresses some concerns raised in our NOP comment, particularly regarding the extension of urban infrastructure and potential growth-inducing effects, certain aspects of our request for analysis have not been adequately addressed, especially as they pertain to impacts on the City of Sacramento.

The DEIR acknowledges that the project would eliminate obstacles to growth by extending the Urban Services Boundary and Urban Policy Area. However, it does not sufficiently analyze the project's consistency with long-range plans, particularly its inclusion or absence from the Region's Sustainable Communities Strategy. This omission is significant, as it relates directly to the broader regional planning context and potential cumulative impacts on the City of Sacramento.

Furthermore, the DEIR lacks a comprehensive analysis of the project's growth-inducing effects on the City of Sacramento. While it mentions consistency with Sacramento County General Plan Policy LU-120, it fails to provide a detailed, quantitative examination of how the project's infrastructure extensions might stimulate additional development within our City limits. This analysis should include estimates of the scale, type, and timing of potential new development, as well as a thorough assessment of the resulting environmental impacts. The DEIR's current list of general impact categories is insufficient without a location-specific analysis of how these effects would manifest within Sacramento.

We request that these areas of analysis be expanded to fully address the growth-inducing impacts of the proposed project on the City of Sacramento, as originally outlined and requested in our NOP comment.

Habitat Conservation Plan

Hydrological connectivity

Our NOP comment requested an analysis of hydrological connectivity to existing preserves in Natomas Basin. The DEIR states that the UWSP "is not expected to significantly affect the connectivity of aquatic habitat for giant garter snake" and "would not affect the delivery of water to existing reserves." However, this brief statement lacks the detailed analysis we sought. We request a more thorough examination of potential impacts on existing preserves, particularly the adjacent Cummings Reserve.

Effects on land inventory and mitigation prices

We specifically asked for an analysis of the effects of reducing land available for mitigation while increasing demand, potentially driving up mitigation prices for existing permit holders. The DEIR does not directly address this issue. While it states that mitigation lands "would not unnecessarily directly compete with TNBC for habitat mitigation opportunities," this assertion lacks supporting evidence. We request a detailed analysis of how the UWSP might affect land availability and mitigation costs for existing NBHCP and Metro Air Park (MAP) HCP parties.

Land availability for HCP parties

We asked how and where HCP parties with authorized development would find land for mitigation given the cumulative impacts of proposed developments in the Natomas Basin Area. The DEIR's treatment of this issue is insufficient, stating only that mitigation measures BR-3 & BR-7b are "not expected to interfere with the ability of TNBC to satisfy its mitigation responsibilities." We request a more comprehensive analysis of cumulative impacts on mitigation land availability. Based on our direct experience implementing the NBHCP for over 25 years, we question if there is enough suitable land that would remain available to The Natomas Basin Conservancy to mitigate the already approved authorized development of 17,500 acres granted to the City, Sutter County and Metro Air Park if Sacramento County allows the UWSP and Grandpark Specific Plan projects to be approved. We request that Sacramento County evaluate the HCP mitigation land criteria requirements, total mitigation including size of habitat reserves that are required for completion of the HCP conservation strategy. The UWSP DEIR focuses on the impacts and mitigation of the UWSP project itself but does not address the existing HCP acreage requirements that must be completed in the Basin.

Prior to conducting any public hearings for potential action on the UWSP by the County Planning Commission and Board of Supervisors, we request Sacramento County provide the NBHCP signatory parties (City of Sacramento, Sutter County, FWS and CDFW) a

detailed accounting and graphics demonstrating of how HCP total acreage requirements could be accomplished with the potential approval and implementation of the UWSP and Grandpark Specific Plan projects. This information and data should also be included as part of the proposed Final EIR when it becomes available.

Consistency with NBHCP Conservation Strategies

We request further clarification on the adequacy of the proposed 250-foot open space buffer between planned development and the Cummings Reserve, compared to the NBHCP's 800-foot setback requirement. The DEIR notes that exceptions to the 800-foot setback have been made in the past. While this explanation is helpful, we request further analysis on whether this 250-foot buffer is sufficient to protect the Cummings Reserve from potential edge effects of urban development.

We urge the County to provide a more robust analysis of these issues in the Final EIR to ensure the UWSP does not compromise the NBHCP's conservation goals or the ability of existing HCP parties to meet their mitigation obligations.

One-Mile Buffer Swainson’s Hawk Zone

The City of Sacramento must express its opposition to the proposed Upper Westside Specific Plan (UWSP) due to its direct conflict with the Natomas Basin Habitat Conservation Plan (NBHCP).

The City of Sacramento, as a signatory to the NBHCP, has a legal obligation to ensure the continued integrity of this regional conservation strategy. Our analysis of the UWSP reveals that significant portions of the proposed development would encroach into the Swainson's Hawk Zone - a critical one-mile-wide buffer adjacent to the Sacramento River that was explicitly established in the NBHCP to protect essential Swainson's Hawk habitat and foraging areas. The NBHCP categorically prohibits development within this zone, with only a strictly limited exception of 252 acres granted to the City of Sacramento.

While Sacramento County is not a direct signatory to the NBHCP, both the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) are bound to the NBHCP as "Permitters" with mandatory obligations to enforce its provisions. These wildlife agencies would be required to issue permits for the UWSP, yet doing so would fundamentally conflict with their legal obligations under the NBHCP, which states that any additional urban development within the Swainson's Hawk Zone "would constitute a significant departure from the Plan's Operating Conservation Program."

The project's inadequate agricultural buffer of 534 acres, ranging from merely 700 to 2,700 feet in width, is insufficient compared to the one mile (5,280 feet) protective

buffer mandated by the NBHCP. This reduction in buffer width would severely compromise a core conservation measure that both wildlife agencies have previously determined to be essential for the protection of Swainson's Hawk habitat.

The NBHCP is explicit: development beyond the permitted activities necessitates a comprehensive reevaluation of the Plan, a new effects analysis, potential amendments to the Plan and/or permits, and a separate conservation strategy. For the wildlife agencies to issue permits for this project as currently designed would require the completion of all these actions - none of which have been undertaken.

We are particularly alarmed that approval of development within the Swainson's Hawk Zone would directly threaten the biological effectiveness of the NBHCP's conservation strategy, which both the City of Sacramento and Sutter County depend upon for our incidental take permits. The one-mile buffer zone was established through rigorous biological analysis and stands as an indispensable component of the plan's mitigation strategy for impacts to Swainson's Hawk.

The County must either:

- Substantially redesign the project to eliminate all development within the one-mile Swainson's Hawk Zone buffer; or

- Undertake the mandatory comprehensive reevaluation of the NBHCP required when proposing development within this zone, including preparation of a new effects analysis and development of a separate conservation strategy that definitively ensures no net loss of the effectiveness of this critical conservation measure. This reevaluation must be conducted under the strict oversight of USFWS and CDFW to ensure absolute compliance with their obligations as Permitters under the NBHCP.

- For any County approval of development that directly disturbs the one-mile Swainson’s Hawk Zone (SWZ), we request that the County first initiate an amendment to the NBHCP with the wildlife resource agencies to modify the requirements and obligations placed on the City of Sacramento and Sutter County that pertain to the one-mile SWZ. Any action by Sacramento County to approve and allow development within the SWZ is in direct conflict with the adopted NBHCP and enforceable requirements by the wildlife resource agencies including for example, the Incidental Take Permits issued by U.S. Fish and Wildlife Services (FWS) and the California Department of Fish and Wildlife (CDFW) to the City of Sacramento and Sutter County.

Agriculture

The Draft EIR falls short in addressing crucial concerns regarding the project's impact on agricultural resources and the Natomas Basin Habitat Conservation Plan (NBHCP). While the EIR quantifies the conversion of approximately 1,372 acres of farmland within the project area, it fails to provide a comprehensive analysis of how this loss might affect the NBHCP's requirement to maintain 4,375 acres in rice cultivation for Giant Garter Snake habitat. The EIR should evaluate not only the direct loss of farmland but also the potential indirect effect of increased development pressure on remaining agricultural lands in the Natomas Basin, which could make it more challenging to maintain the required acreage of rice cultivation.

Transportation

Roadway Widening and City Responsibility

The DEIR continues to rely on fair share contributions toward roadway widening projects within City limits without adequately addressing our concerns about implementation responsibility. For instance, Mitigation Measure TR-3b still assumes City involvement in implementing improvements at I-5 on-ramps, despite our previous statement that the City should not be assumed to have matching funds. The DEIR does not propose alternative mitigation approaches that avoid placing implementation responsibility on the City, nor does it explain how these projects would be fully funded and executed given the City's financial constraints.

TR-3a and TR-3b Impacts & Mitigations on Page ES-119 & ES-120: The City of Sacramento looks forward to working collaboratively with the County on the required I-80 West El Camino Avenue interchange improvements being triggered by the project's development. As specified in the Upper Westside Specific Plan Public Facilities Financing Plan on page 23, the traffic analysis estimated that approximately 90 percent of trips caused by new development in the County using this interchange would be caused by development in the UWSP. The City looks forward to seeing the UWSP project fulfills the required improvements and phasing to ensure the ultimate improvements are constructed when triggered by the UWSP project.

Conflict with City Transportation Policies

Our NOP comments highlighted the City's current focus on reducing lanes on City roadways to align with our Climate Change goals. However, the DEIR does not acknowledge or analyze how the proposed roadway widenings, such as those in Mitigation Measure TR-3a, align with or conflict with this policy direction. We request that the Final EIR include an analysis of how the proposed transportation improvements align with the City's current transportation policies and goals.

Regional Growth and VMT Impacts

The DEIR's VMT analysis remains narrowly focused on project-level impacts and does not address our request to examine how the UWSP may redistribute growth away from the City or impact the City's VMT relative to the regional average. We continue to be concerned about potential impacts on the City's growth patterns and overall regional VMT efficiency. We request that the Final EIR include modeling scenarios that evaluate these broader impacts as originally suggested in our NOP comments.

Ongoing Technical Coordination

While the DEIR mentions some collaboration with the City, it does not outline a specific process for ongoing coordination throughout project development and implementation as we had requested. Given the project's potential impacts on City infrastructure and services, we believe a more detailed plan for continued technical coordination is necessary.

Water

In our NOP comments, we identified three potential alternatives for providing domestic water to serve the proposed UWSP area. While the DEIR focuses on Alternative 3 - utilizing City of Sacramento water rights and infrastructure - it does not provide a comprehensive analysis or clear dismissal of Alternatives 1 and 2 involving Natomas Central Mutual Water Company (NCMWC) water rights. We request that the Final EIR include a thorough evaluation of all three alternatives to ensure a complete understanding of the project's water supply and water retailer options.

Furthermore, our NOP comments requested specific details regarding the water delivery system engineering, including the size of mains, distribution, volume, future capacity, system pressurization, storage capacity, and measures to protect the water supply and prevent contamination of the City's existing system. While the DEIR provides some information about the proposed water delivery system, including a water storage tank and transmission mains, it lacks the level of detail we requested. We urge the County to include more comprehensive information on these aspects in the Final EIR to fully assess the potential environmental impacts and ensure the adequacy of the proposed water infrastructure.

Sewer System

The City of Sacramento notes the EIR's discussion of new wastewater infrastructure needed to serve the Upper Westside Specific Plan area, including the proposed sewer pump station and force main. However, we note that our previous comment requesting

analysis of impacts to the Sacramento Regional County Sewer Interceptor has not been adequately addressed. Specifically, the EIR lacks a comprehensive evaluation of the interceptor system's capacity downstream of the New Natomas Pump Station to accommodate additional flows from this project in combination with buildout of the existing Natomas area and other proposed development in the Natomas Joint Vision area. We remain concerned about the potential cumulative impacts on this critical piece of regional infrastructure and whether it has sufficient capacity to serve all these areas without requiring significant upgrades. The City requests that the EIR be revised to include a thorough analysis of existing and projected flows in the interceptor system, an assessment of its available capacity at key points along its alignment, and an evaluation of whether system upgrades may be necessary to handle the increased wastewater volumes. If upgrades to the interceptor are required, the potential environmental impacts of such improvements should also be discussed.

Fire Protection

The City of Sacramento notes the acknowledgment in the DEIR that the City's Fire Department currently provides and will continue to provide fire protection and emergency medical services to the Upper Westside Specific Plan (UWSP) area under contract with the Natomas Fire Protection District. We also note the inclusion of a site for a new fire station within the proposed plan. However, we find that the DEIR does not adequately address several key concerns raised in our NOP comments.

The DEIR lacks a comprehensive analysis of fire protection services and facilities as requested. While it provides a basic assessment of increased demand and the need for a new station, it falls short of the in-depth analysis needed for a project of this scale. We request a more detailed evaluation of current service levels, response times, equipment needs, and long-term planning for fire protection services. Furthermore, the DEIR does not sufficiently address how the project proponent will mitigate service demand impacts and maintain current levels of service throughout the project's implementation. We request more specific information on phasing, funding mechanisms, and interim measures to ensure consistent service levels during development.

Given the City's extensive experience in providing municipal services, including over 100 years of fire protection services, we reiterate our position that the City is best equipped to provide a full range of municipal services to the UWSP area. We request that the EIR include a more robust discussion of the City's role in long-term service provision and planning for the area.

Law Enforcement

The DEIR fails to adequately address the concerns raised in our NOP comment regarding potential impacts to City of Sacramento police protection services. The DEIR focuses

exclusively on Sacramento County Sheriff's Office services without acknowledging or evaluating potential impacts to the City of Sacramento Police Department (SPD). This oversight is particularly concerning given the project's unique geographical context - adjacent to the City but isolated from developed County areas - which could potentially strain City services.

Furthermore, the DEIR does not provide the requested evaluation of how and when law enforcement services and facilities will be provided to ensure no impacts to the City of Sacramento. While plans for a new County sheriff's substation are discussed, this does not address the potential cross-jurisdictional impacts or need for coordinated services with the City.

The California Highway Patrol's role is only briefly mentioned, without fully addressing its responsibilities for state highways, state-owned buildings, and state property within the City, as noted in our NOP comment.

Given the project's location and potential to affect multiple jurisdictions, we reiterate our request for a more comprehensive analysis that considers impacts to both County and City services, as well as inter-agency coordination strategies. This analysis should evaluate how the proposed development's law enforcement needs will be met without adversely impacting existing City services or response times.

Schools

We appreciate that the DEIR identifies the existing schools that would serve different portions of the UWSP area, including Witter Ranch Elementary School, Two Rivers Elementary School, Natomas Middle School, Inderkum High School, and Natomas High School. This information adequately addresses which schools would serve residents both inside and outside the specific development plan areas within the UWSP.

However, the DEIR does not fully address our question regarding which schools would serve the area while the proposed schools are being built. While Table PS-2 provides helpful enrollment and capacity data for existing schools, the DEIR lacks a clear explanation of how school services will be provided during the interim period before new schools are operational. We request that the Final EIR include a phasing plan showing when the proposed schools would be constructed relative to residential development, an explicit discussion of which existing schools would absorb students during the construction phases, and an analysis of whether those existing schools have sufficient capacity to handle temporary increases in enrollment. This information is crucial for understanding the full impacts of the project on school services throughout its implementation.

Parks & Recreation Facilities

The Draft EIR for the UWSP analyzed the project's impact on the existing setting for Parks and Recreation Facilities by considering whether an increase in use of public parks and recreation facilities resulting from the UWSP would cause the substantial physical deterioration of those facilities (e.g., damage to vegetation, accelerated wear on sports facilities and fields, or erosion along trails) or in the need for new or expanded facilities, the construction or operation of which would result in substantial adverse physical effects. This analysis further considers whether implementation of the proposed UWSP would diminish or otherwise adversely affect recreational opportunities and existing facilities within the UWSP area based on facility capacity.

Within a 1-mile radius of the UWSP area, there are approximately 20 parks, most of which are within the City of Sacramento and comprising a total of 160 acres of parklands. The closest parks to the UWSP area include River Otter Park, located directly adjacent to the southeastern edge of the UWSP area across Interstate 80, Peregrine Park, located directly adjacent to the eastern edge of the area, and San Juan Reservoir Park, located directly adjacent to the northwestern edge of the area. The North Natomas Regional Park, at 212 acres, located 1.6 miles northwest of the UWSP serves the entire region.

As stated in the DEIR, the proposed UWSP would facilitate development of up to 9,356 housing units and yield 25,460 residents. The Sacramento County 2030 General Plan, Policy PF-123 requires 5.0 acres of parkland per 1,000 residents. As a result, approximately 127.9 acres of parkland is required to serve the needs of the proposed UWSP. As there are no parks currently located directly within the UWSP area, the 160 acres of nearby parks previously described could be adversely affected by the increase of residents generated by the proposed UWSP. The areas surrounding the UWSP area, in which the existing parks are located, are developed, and contain existing residents that utilize these facilities. Therefore, there is a need for new parks to serve the UWSP area and to alleviate pressure which would occur to nearby parks from increased residential uses in this area.

To accommodate the increase in residents resulting from the proposed UWSP, the plan includes a "parks program," which outlines the proposed parks and recreational facilities to be implemented in the UWSP area. The proposed UWSP parks program proposes a diverse mix of recreational amenities and public gathering spaces which are sized and distributed to serve the anticipated needs of the residents within the UWSP. A total of 146.6 acres of parks and amenities would be provided in the UWSP area, which accounts for 11 percent of the Development Area. Parks and amenities would include 76.5 of active parks and the 2.6-acre Town Center median park as well as the 15-acre Westside Canal, 34.1 acres of greenbelt space, a 10-acre urban farm, a 12.1-acre West Edge Buffer, and a 14.7-acre Basin Edge Parkways trail.

The UWSP concludes that these facilities would be sufficient to accommodate the 25,460 proposed residents and would meet the requirements for parkland under the Sacramento County 2030 General Plan. Therefore, no additional means would need to be utilized to meet any demands in the UWSP area for parks and recreation services. Objectives for parks and recreation in the UWSP area would be met under the proposed plan, and the impact would be less than significant.

The proposed project's "parks program" includes 76.5 – 79 acres of parkland which meets the minimum guidelines of 3 acres per 1,000 residents. The 76.5 acres of parkland are considered neighborhood/community serving parks, which will be programmed with active recreation uses. However, the DEIR analyzes the project at the minimum dedication requirement under the Quimby Act of 3 acres per 1,000 residents, less than the County's (and City's) policy requirement of 5 acres per 1,000. If the project were to dedicate neighborhood/community parkland at the County standard of 5 acres per 1,000 resident, the proposed project's parkland dedication requirement would total approximately 128 acres of neighborhood/community serving parks.

The proposed project's "parks program" supplements the 79 acres of parkland with an additional 86 acres of parkland. The 86 acres of parks and recreation facilities are identified has having permanent drainage facilities, a greenbelt without recreation amenities, urban farms that will likely be leased and operated by community based or non-profit organizations, agricultural buffers, and a median with a trail. These types of facilities do not take the pressure off adjacent neighborhood and community parks that do contain active recreation, which is in high demand in the City of Sacramento.

The proposed UWSP is located adjacent to communities of the City of Sacramento; South Natomas and North Natomas. Each community was established and planned to be well-served by neighborhood and community parks that are located within a 10-minute walk of almost all the residential areas. The proposed project's gap of 51.5 acres that are not identified as neighborhood/community parkland will likely result in an adverse physical effect on the nearby parks within the two adjacent communities. Additionally, the proposed 79 acres of parkland will likely be diminished or adversely affected at a quicker rate than industry standards. This would be a significant impact.

The City of Sacramento Youth, Parks, & Community Enrichment Department (YPCE) recommends the project reduce the impacts to existing City parks by adding, or converting, 51.5 acres of neighborhood/community serving parkland in order to meet the 5 acres per 1,000 resident standard. The proposed project should incorporate the City's standards and guidelines for neighborhood and community parks, as adopted by the Parks Plan 2040, a subsequent project of the 2040 General Plan Master EIR. The existing parks within the adjacent communities are well-used, and it can be expected that the UWSP parks will be as well. Additional recommendations for the UWSP's park program are to consider community input from residents within the adjacent communities. They want to see regular enhancements and to the parks, such as lighting,

restrooms, outdoor exercise equipment, an all-weather field, and an integrated bicycle network. Residents are also advocating for accessible parks for all ages, drought-tolerant landscaping, and the preservation of wildlife habitat.

The UWSP's investment of over $143 million into the acquisition and development of parks, trails, and open space converts to approximately $1 million per acre with an annual estimated cost of $3.5 million to maintain each park facility. These costs exceed the City of Sacramento's Park development impact fee credit limits set for turnkey parks, and the estimated annual maintenance costs currently funded by Community Facilities Districts and Landscape and Lighting Districts within North Natomas. The full development of the UWSP park program will likely result in amenities that are attractive to use, and likely a financial impact on Parks annual workplans to repair and replace in 20 years from development. The proposed project's Public Facilities Finance Plan includes a fee for the provision of repair and replacement of facilities (e.g. parks, pump stations) as well as infrastructure after their useful life. The County may consider funding the long-term repair and replacement costs through a combination of the proposed infrastructure CFDs and through the new services CFD that will fund the share of urban services not paid for by property taxes. The City encourages the County to include an infrastructure CFD to fund long term repair and replacement costs of park facilities. Additionally, the utilities costs to maintain the 146.6 acres of parkland should also be included in the infrastructure CFD.

The conversion of 51.5 acres to neighborhood/community parkland, incorporation of the parks Plan 2040 standards and guidelines for park and facility development, incorporation of the 2040 General Plan park access policies for South and North Natomas, and funding for long term repair and replacement of facilities will reduce impacts to the existing parks within the adjacent communities and proposed parks within the UWSP.

Land Use Planning (City's 2040 General Plan)

On February 27, 2024, the City of Sacramento adopted the new 2040 General Plan. The new General Plan identifies five Special Study Areas that are adjacent to existing City limits and are of interest to the City of Sacramento. Planning for the future of these unincorporated areas requires collaboration between the City and the County.

The proposed Upper Westside Specific Plan (UW SP) is located within the Natomas Basin Special Study Area which bears relation to the planning of the City of Sacramento. The City of Sacramento is projected to see significant growth by 2040 (69,000 new homes, and 76,000 new jobs), and with careful land use planning, new development can help make Sacramento a model of sustainable, equitable growth and community development.

Updating the 2040 General Plan was a major undertaking and a multi-year process in effort to develop a land use framework and policies which provide for strategic growth and change that seek to concentrate new growth within the existing City limits.

The City is concerned about how the UW SP could induce sprawl and redistribute growth away from the City especially if the proposed development does not comport with the City's new land use standards and innovative policies.

The intent of the City's General Plan land use vision is to promote greater integration of uses along the corridors and in centers to broaden the range of housing types in the City, support the vitality of local businesses, lay the foundation for high-frequency transit, and make it easier to provide electric vehicle charging infrastructure and also to get around without a car.

The building intensity standards are intended to provide more flexibility and innovation in building design. Minimum density standards apply in all areas where residential development is permitted and a primarily FAR-based system could incentivize the design and construction of smaller units, potentially resulting in units that are more affordable by design.

For your reference below is a link to the City of Sacramento's new 2040 General Plan. Building intensity standards are shown on **Maps LUP-6**, **LUP-7**, **LUP-8,** and **Figure LUP-5**.
https://www.Cityofsacramento.gov/content/dam/portal/cdd/Planning/General-Plan/2040-General-Plan/Adopted%202040%20General%20Plan_20240227.pdf

Additionally, below two key innovative policies that support our emission reduction and sustainability goals in the 2040 General Plan. Policy LUP-4.13 requires new or expanded gas stations provide EV charging infrastructure. Policy LUP-4.14 eliminates vehicle parking minimums Citywide.

- **LUP-4.13 Future-Ready Gas Stations.**
  The City shall prohibit the establishment of new gas stations or the expansion of new fossil fuel infrastructure at existing gas stations unless the project proponent provides 50kW or greater Direct Current Fast Charger (DCFC) electric vehicle charging stations on site at a ratio of at least 1 new charging station per 1 new gas fuel nozzle.

- **LUP-4.14 Elimination of Vehicle Parking Minimums.**
  The City shall not require new or existing development to provide off-street vehicle parking spaces.

Conclusion

As this project progresses through planning, environmental review, and engineering, we request the County's continued coordination and that we receive all project public notifications including those for any future public meetings and hearings. If you have follow-up questions or seek clarifications on any of the above issues, please contact Cheryle Hodge at chodge@Cityofsacramento.org or 808-5971.

Sincerely,

Cheryle L. Hodge

Cheryle Hodge
New Growth Manager, Community Development Department

cc: Michael Jasso, Assistant City Manager, City of Sacramento
Tom Pace, Director, Community Development Dept., City of Sacramento
Greg Sandlund, Planning Director, Community Development Dept.
Matt Eierman, Director, Department of Public Works
Lucinda Willcox, Assistant Director, Dept. of Public Works,
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Chris Costamagna, Fire Chief, Sacramento Fire Department
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Kathy Lester, Police Chief, Sacramento Police Department
Eddie Macaulay, Lieutenant, Sacramento Police Department
Tom Bufford, Principal Planner, Environmental Planning Services
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Remi Mendoza, Senior Planner, Long Range Planning

Natomas Unified School District
Connecting students to their future

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January 26, 2026

Sacramento County Department of Community Development
Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Re: Partially Recirculated Draft Environmental Impact Report for the Upper Westside Specific Plan

Dear Ms. Newton:

Thank you very much for your ongoing collaboration with the Natomas Unified School District (NUSD) on the Public Facilities Financing Plan and the opportunity to provide comments on the Partially Recirculated Draft Environmental Impact Report (EIR). We appreciate the clarifying revisions included as a part of the Final EIR published in May of last year. However, we do have outstanding comments, which are detailed as follows. Some of these comments relate to topics we raised in our previous comment letter on the original Draft EIR, which we have attached.

Comment and Response to Comment 13-1. In this comment, NUSD summarized pertinent aspects of the County's policy framework, including the Policy PC-6 requirement for an Infrastructure Master Plan and Financing Plan that includes funding for schools and other public facilities and infrastructure and the Policy PF-29 requirement for schools as a focal point of neighborhood activity. The Final EIR Responses to Comments 13-1 and 13-10 characterize the NUSD comments as policy issues and economic effects that are not treated as significant effects on the environment. However, as detailed in our comment letter on the initial Draft EIR, the greenhouse gas emissions, transportation noise, and criteria air pollutant emissions impacts presented in the EIR are sensitive to, and reliant upon the placement of school sites near the students that would be served by these schools. Therefore, finding mutually agreeable language requiring adequate school funding *is not only* a policy consistency issue for Policy PC-6, Policy PF-29, and Policy PF-30, but also an environmental issue. As noted in our previous comments, the presence of neighborhood-serving school sites is identified in the EIR as a strategy to reduce vehicular travel demand and associated greenhouse gas emissions. As described in *Chawanakee Unified School Dist. v. County of Madera* (2011) 196 Cal.App.4th 1016, Government Code Section 65996, subdivision (a), as amended by Senate Bill 50 (SB 50) mitigates direct impacts on school facilities and buildings, but an EIR is required to disclose and mitigate a project's indirect impacts related to transportation, air quality, and noise levels associated with school attendance. Without the planned school sites, indirect effects would be higher than reported in the Draft EIR. 247-1

NATOMAS UNIFIED SCHOOL DISTRICT

Comment and Response to Comment 13-15: In this comment, NUSD noted that the placement of electric vehicle chargers, based on the California Air Resources Board Scoping Plan, can represent a greenhouse gas emissions mitigation strategy. The Final EIR response to this comment characterizes this comment as related to funding for electric vehicle charging infrastructure at school sites. The comment was a suggestion for feasible mitigation, *not* a reference to the need for funding for electric vehicle charging infrastructure at the proposed school sites. Since the school sites would be publicly accessible places, the Specific Plan could fund electric vehicle charging infrastructure at one or more of the school sites as an aspect of the Specific Plan's Greenhouse Gas Reduction Plan. 247-2

NUSD Comments on School Parking Lot, Playground, Stadium, and Sports Field Noise: NUSD provided several comments related to possible effects of noise generation at future school sites relative to planned noise-sensitive uses, seeking clarity on what parties would be responsible for mitigation. The Final EIR responses to comments explain that NUSD should prepare a future acoustical study and implement feasible mitigation, and that if buffers or noise barriers are required, NUSD should provide the land required for buffering and funding for noise barrier/s. The Final EIR references the County's Policy NO-7, which assigns responsibility to the "last use there." This policy seems to apply in the context of individual projects that may generate noise or may be noise sensitive, not to a Specific Plan for undeveloped property that is proposing both noise-generating and noise-sensitive uses. If a noise barrier is required to achieve noise levels consistent with the County's Noise Ordinance in areas adjacent to future school sites, additional funding for the schools may be required. If large areas of land are required within NUSD property to attenuate noise via distance, the school sites may need to be larger. It may not be possible in all cases to provide for a buffer on the school sites. It may or may not be feasible to use buildings or constructed barriers to attenuate noise. However, it *would* be feasible to consider site planning and design standards in the Specific Plan that apply to adjacent noise-sensitive land uses and would reduce noise exposure impacts, such as requirements that would apply to building orientation and the location of outdoor gathering spaces for future residential development in areas adjacent to school sites. 247-3

Again, NUSD is very appreciative of the County's collaborative approach on the Public Facilities Financing Plan, and we appreciate the opportunity to review the Recirculated Draft EIR. NUSD looks forward to continued collaboration with the County to find mutually agreeable language related to school funding for this ambitious and important development Plan. 247-4

Sincerely,

Doug Orr, Associate Superintendent
Facilities and Strategic Planning Department
Natomas Unified School District

Enclosure: Natomas Unified School District Comment Letter on Draft EIR for the Proposed Upper Westside Specific Plan

Natomas Unified School District
Connecting students to their future

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Emma Patten
Senior Planner
Planning and Environmental Review
827 7th Street
Sacramento, CA. 95814

Re: Draft EIR for the Proposed Upper Westside Specific Plan

Dear Mrs. Patten,

Thank you for your previous responses to the Natomas Unified School District (NUSD) comments on the last drafts and the opportunity to provide comments on the current drafts of the Upper Westside Facilities Financing Plan (3rd draft) and Urban Services Plan (2nd draft).

NUSD is very appreciative of the efforts to provide for adequate school sites, central to proposed residential areas, with a focus on convenient and safe active transportation routes between proposed residential development and the proposed school sites. We agree with the need for four schools, and believe that the DEIR fundamentally includes them and they are required. The district respectfully requests the County require the evidence of a satisfactory plan that will ensure adequate funding of the schools before approval of the EIR. NUSD wholeheartedly supports the intent of the General Plan and General Plan policies, and we believe that the County's policy framework provides clear guidance for this Specific Plan and implementing documents, including:

> **Land Use Element, page 43 (Intent):** "...Each residential development should have access to a variety of local destinations that provide for residents' daily needs, including retail, employment, recreational amenities, schools, and municipal and social services. The resulting non-automobile street activity will promote human contact and a sense of neighborhood, as well as reduce automobile traffic and the associated impacts."
>
> **Policy PC-6. Infrastructure Master Plan and Financing Plan** (Requirements for Amending the General Plan Land Use Diagram). Required: Inclusion of an Infrastructure Master Plan and Financing Plan that include the following:
> - The Infrastructure Master Plan shall identify required public facilities and infrastructure (including roads, transit, water, sewer, storm drainage, schools, fire, park, library, and

other needed community facilities) and associated costs for the development of the proposed UPA expansion/Master Plan;
- The Financing Plan shall:
  - ...Identify the phase or timing for when the facilities are needed;
  - Identify the funding mechanisms proposed to pay for the identified infrastructure and facilities...

Public Facilities Element, page 18 (Intent): "Schools are an important part of any neighborhood. In addition to their central educational role, they serve as a place for meetings, special programs, after-school play, soccer and little league games, and precinct voting. How well the school functions in these various roles depend very much on the school's location with respect to other community uses and how accessible it is... school siting and design should be a key element of a neighborhood planning effort. There remain many opportunities for design innovation and good, sensible planning to achieve neighborhoods which better integrate the school into the fabric of neighborhood life."

Policy PF-29. Schools shall be planned as a focal point of neighborhood activity and interrelated with neighborhood retail uses, churches, neighborhood and community parks, greenways and off-street paths whenever possible.

Policy PF-30. New elementary schools in the urban area should be planned whenever possible so that almost all residences will be within walking distance of the school (one mile or less) and all residences are within two miles of a school.

Policy PF-35. New schools should link with planned bikeways and pedestrian paths wherever possible.

Public Facilities Element, page 20 (Intent): ...from a school facilities perspective, school enrollment and the size of the school site are basic requirements... in growing districts the problems of timely school construction and, above all, funding new school facilities requires resolution in order to achieve this objective.

NUSD greatly appreciates the County's efforts to involve us in reviewing draft versions of the Public Facilities Financing Plan and also for the opportunity to review the Draft Specific Plan and Draft Environmental Impact Report (Draft EIR). As we move from draft to final versions of these documents, NUSD believes that the County's General Plan – particularly the direction related to identifying the cost of required public facilities, identifying when public facilities are required, and providing funding for such public facilities – will be very helpful.

NUSD applauds the County's planning efforts here – particularly the greenbelt system placement relative to school sites (summarized on Draft EIR page 2-23) and the strategic planning of school sites so that "over 90 percent of the proposed residential units would be within three-quarters of a mile of a K-8 school site" (Draft EIR, page 2-53).

In the Final EIR, Final Specific Plan, and Final Public Facilities Financing Plan, it will be important to arrive at mutually agreeable language that ensures funding in adequate amounts, and with the right timing such that school sites can be constructed within the Specific Plan Area when schools are needed by Specific Plan Area residents. This is important to meet expectations expressed in the aforementioned General Plan policies, but also because the analysis presented in the Draft EIR relies on the presence of school sites. For example, on page 8-41 of the Draft EIR is a description of the features of the Draft Specific Plan that would reduce vehicular travel demand and associated greenhouse gas emissions, including a note that "the proposed UWSP would include the development of commercial mixed use and employment/highway commercial uses, as well as schools… [and that]…[b]y providing a range of residential, commercial, and school uses within the UWSP area, approximately 22.9 percent of home-based trips associated with the proposed UWSP would be internal." The rate of internal trips used in the air quality, greenhouse gas emissions, transportation, and transportation noise analysis in the Draft EIR would need to be adjusted if school construction is ultimately not feasible as presented in the Draft Specific Plan and Draft EIR.

Specific Comments and Questions

Page ES-15: Toxic Air Contaminants (and page 24-4). On page ES-15, in the Executive Summary table, the toxic air contaminants impact notes that there is a significant impact for exposure of sensitive uses to substantial pollutant concentrations. School uses are identified as being within 1,000 feet of Interstate 80. From the Land Use Plan, it does appear that there is a proposed K-8 school site within approximately 1,000 feet of Interstate 80, though we only have a PDF version of the Land Use Plan and cannot create an accurate estimate of this distance. Would Mitigation Measure AQ-4c apply to this school site – the mitigation measure that requires installation of high-efficiency filtration systems – to this school site? How would the ongoing maintenance, repair, and replacement of such a system (as described in the second bullet of this mitigation measure) apply to this school site?

Page ES-64: Greenhouse Gas Reduction Plan. The strategy for reducing GHG emissions relies on the preparation of Greenhouse Gas Reduction Plans for future project tentative maps (Mitigation Measure CC-1b). The District is interested in how this may relate to school facilities master planning as well as more detailed transportation facilities planning and improvements that ensure safe walking and bicycling routes between homes and school sites within the Specific Plan Area.

Bullet 2 of Mitigation Measure CC-1b identifies a performance standard of 1.42 metric tons of carbon dioxide equivalent per thousand square feet, measured in a future year. Does the estimate proposed in the Draft EIR include non-residential development proposed for school uses? If so, how would the strategies related to a prohibition on natural gas, on-site renewable energy, purchase of zero GHG electricity, tree planting, etc. apply to the proposed school sites? On page ES-64, there is reference to a strategy to reduce vehicular travel demand and associated GHG emissions through an "increase access to common goods and services, such as groceries, schools, and daycare." Would this increase in access be achieved through augmenting the current active transportation plan to increase connectivity and ensure a very low stress active transportation network between proposed homes and school sites? The District is highly supportive of a transportation system that would distribute

traffic and provide very low stress and convenient pedestrian and bicycle routes to the school sites, but we are unclear how an increase would be pursued beyond the estimates presented in the Draft EIR.

Additionally, since the estimates of GHG emissions rely on the presence of the four proposed school sites, what mechanism would be most effective for ensuring adequate funding for these school sites for the Specific Plan and EIR? How would the future GHG Reduction Plans prepared at the tentative map level guarantee adequate funding to provide for school sites?

Page ES-98, Subsequent Review for School Parking Lot Noise (and page 15-46). On this page of the Executive Summary is an overview of an impact related to the placement of proposed noise-sensitive uses near proposed school sites that would have parking areas. Mitigation Measure NOI-4a (page 15-48) suggests that there would be a future acoustical study to evaluate parking lot-generated noise relative to the County's exterior noise performance standards with building placement, buffering through distance, or a sound wall to shield adjacent proposed noise-sensitive uses from parking lot-generated noise. NUSD supports strategies to avoid land use-noise compatibility issues in this Specific Plan – both issues that would affect educational activities at the proposed school sites and issues that could be caused by school-generated noise. However, NUSD is interested in clarifying that, if buffering is required in the future, that this buffer would be required outside of the proposed school sites, if a sound wall is proposed, that this would be constructed by others outside of school property, and that if a sound wall is constructed, that it not interrupt casual surveillance of the area and not interrupt pedestrian and bicycle connectivity in the vicinity of school sites. In addition, it may not be feasible to place buildings in locations that would break the line of site between future parking fields and adjacent noise-sensitive uses.

Page ES-108, Subsequent Review for School Parking Lot Noise (and pages 15-46 and 15-64). NUSD has the same questions about the school parking lot noise discussion and Mitigation Measure NOI-7h on page ES-108 as we have in relation to the discussion on page ES-98 and Mitigation Measure NOI-4a.

Page ES-108 and 109, Subsequent Review for School Playground Noise (and page 15-64). The Draft EIR includes an impact related to the placement of proposed residential uses near possible future playground areas within future school sites. NUSD strongly supports the County's goal to avoid land use-noise compatibility issues that could arise but we do feel that this should be balanced with a goal of making sure that school sites are fully integrated into planned residential areas in a way that supports safe and convenient walking and bicycling to school. Mitigation Measure NOI-7i recommends a minimum 90-foot setback between the center of play areas and adjacent "residential boundaries." NUSD assumes this setback would be from the center of future playground activity areas and outdoor gathering spaces associated with future residential developments, rather than 90 feet from the edge of adjacent residential property boundaries, but this clarification could be helpful. In addition, the proposed mitigation seems to suggest that the recommended buffer would be provided by future school site planning. While such a buffer may be feasible, NUSD must consider a broad range of criteria in site planning, and it may not be possible in all cases to ensure such a buffer on the school property. It may be necessary to relax the referenced exterior and interior

standards for residential dwellings adjacent to school sites or to consider building orientation and the location of outdoor gathering spaces for future residential development in areas adjacent to school sites.

Page ES-109, Subsequent Review for School Stadium and Sports Fields Noise (pages 15-64 and 15-65). On this page of the Executive Summary is an overview of an impact related to the placement of proposed noise-sensitive uses near proposed school sites that would have a stadium and sports fields. Mitigation Measure NOI-7j requires an acoustical study demonstrating compliance with County exterior noise performance standards prior to issuance of a building permit for proposed school uses. NUSD has a somewhat different process for school site planning and permitting that does not involve issuance of a building permit from the County. We are also interested in understanding who would prepare this acoustical study, and whether strategies to reduce noise exposure (distance, intervening structures, etc.) would be the responsibility of adjacent proposed residential tentative maps or other form of residential applications. NUSD absolutely supports the goal of avoiding adverse noise impacts associated with special events and use of sports fields. However, we do not believe that future residential sensitive outdoor areas near the proposed school sites have been identified, and NUSD has not done any programming or site planning for the school sites, either. Therefore, unless the site planning for proposed residential adjacent residential areas occurs in tandem with school site planning and there is flexibility on the placement and methods of noise attenuation, it may be necessary to relax the exterior noise standards for special events and school use of outdoor sports fields. In addition to "operational limits on amplified sound equipment," it may be possible to reduce noise exposure through design of public address systems, such as through the sizing and placement of loudspeakers, but this option involves additional expense, and NUSD is not in a position at this time to determine definitively whether such additional expense would be feasible for future school sites within the Upper Westside Specific Plan Area.

Page ES-113, School Impacts (and page 17-17). In this portion of the Executive Summary, the Draft EIR explains that "the NUSD has existing capacity for the elementary and middle school students generated by the proposed UWSP, it does not have existing capacity for the high school students generated by the proposed project." The Draft EIR goes on to explain that school facilities "impacts are included as part of the analysis of physical impacts to the environment." This is true so long as the school sites that are proposed are developed with school facilities as identified in the Draft Specific Plan and Draft EIR. The Draft EIR assumes the presence of these schools, and impact analysis related to criteria air pollutant emissions, greenhouse gas emissions, transportation noise, and other topics assumes that the proposed school sites are operational for K-8 and high schools. Since the analysis assumes the presence of the planned schools, and since NUSD has provided information on the current cost of school facilities and the need for additional funding to ensure that schools can be provided as identified in the Specific Plan and Draft EIR, it will be important to include language in the County's documents that ensures adequate funding and requires that adequate funding is available for construction of planned schools once they are needed to serve proposed residential development in the Specific Plan Area.

Also, in this part of the Executive Summary, the Draft EIR notes that, "compliance with mitigation measures... would reduce construction-related effects to the extent feasible." NUSD would typically

conduct environmental review for proposed school sites, and in the past, NUSD has coordinated this review with Sacramento County as a responsible agency. Assuming NUSD conducts environmental review of the planned school sites within the Specific Plan Area, this environmental review would require feasible mitigation for potentially significant impacts, including construction-related impacts. It may be helpful to understand which mitigation measures specifically are being referenced here for future school sites in the Draft EIR.

Page 2-59, Phasing. The text on page 2-59 suggests that, "non-residential development anticipated under Phase 1 includes 1.3 million square feet of office development, an elementary school, and a 33.5-acre community park." Certainly, the first phase of development will require school facilities, and the analysis in the Draft EIR relies on the presence of school facilities, but it appears that Plate PD-22 shows the southern half only of a proposed K through 8 site rather than a complete school site. Clarification here could be helpful regarding the details of the phasing (and funding) approach for school sites to serve proposed residential development.

Page 4-18, Lighting Impacts. The Draft EIR discusses the planned high school site and associated outdoor lighting impacts. The Draft EIR identifies that such lighting would be required to comply with "Countywide Design Guidelines and Commercial Lot and Commercial and Institutional Project Development Standards in Chapter 5 of the Zoning Code." NUSD would typically conduct environmental review for proposed school sites, and would include feasible mitigation to address potentially significant impacts. If the future high school site includes outdoor sports lighting standards, and if there could be a potentially significant impact associated with this component of a future high school project, NUSD may indeed require that sports lighting include certain design components to avoid light spillage and glare. However, it would be helpful to have more clarity about any mechanism that would require school sites to comply with the County's Zoning Code.

Page 5-12, Pesticides. The Draft EIR includes a reference to a requirement for agricultural operators to notify schools if their agricultural operation is within a quarter mile from the school boundary and identify all pesticides to be used during the school year. What pesticides are currently applied during the school year in areas near planned school sites? Please provide documentation that sites designated AG-Cropland near the planned school sites will not use pesticides during the school year once these schools are operational.

Page 8-40, Greenhouse Gas Reduction Actions in the 2022 Scoping Plan Update. Appendix D of the 2022 Scoping Plan identifies local actions that can be taken to reduce greenhouse gas emissions, including off-site mitigation (California Air Resources Board 2022 Scoping Plan, Appendix ED, page 30). Among off-site mitigation options is:

> "Off-site EV chargers can increase access to EV charging throughout a community. Some examples could include EV chargers in multi-unit dwellings in disadvantaged or low-income areas, public locations (schools, libraries, city centers), workplaces, key destinations (e.g., parks, recreation areas, sports arenas)."

It may be worth considering identifying the funding of EV chargers within the proposed school sites as an additional greenhouse gas emissions mitigation strategy.

Page 15-49, Sound Generation Area of the Pavilion. There is discussion here of a plan for amplified music events at "the pavilion," but NUSD is unable to find a discussion of this element in the Draft Specific Plan. It may be helpful to understand the location of this planned facility vis-à-vis planned school sites. On page 24-6 of the Draft EIR, there is a discussion of an outdoor pavilion in a proposed 25.8-acre park in the west-central portion of the Specific Plan Area, but NUSD is unable to find any park site of this land area on the Land Use Plan.

Page 17-8, School Downsizing. The Draft EIR includes a statement here that NUSD would like to have clarified: "[t]hrough careful planning, a reduced Plan Area school site could follow the recent trend of school downsizing and meet the Department's criteria."

Page 22-63, Construction of K-8 and High Schools. Here, the Draft EIR includes a statement that "[t]he proposed UWSP would construct K-8 schools and a high school to serve the needs of students generated in the UWSP area." It is our understanding that NUSD would be responsible for construction and operation of the proposed school sites, though it is important to clarify the funding mechanisms for the construction of school sites and to include language requiring that such funding is available in amounts and with the right timing to ensure NUSD schools can serve students in the Specific Plan Area once dwelling units are occupied.

Again, NUSD is very appreciative of the County's collaborative approach on the Public Facilities Financing Plan. We appreciate the opportunity to review the Draft Specific Plan and Draft Environmental Impact Report (Draft EIR). NUSD looks forward to continued collaboration with the County to find mutually agreeable language related to school funding for this ambitious and important development Plan.

Sincerely,

Lalanya Rothenberger

Lalanya Rothenberger
Executive Director, Facilities and Strategic Planning
Natomas Unified School District

ECOS
ENVIRONMENTAL
COUNCIL
OF SACRAMENTO

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January 27, 2026

Julie Newton, Environmental Coordinator
Department of Community Development
Division of Planning and Environmental Review
827 7th Street, Room 225, Sacramento, CA 95814
Sent via email: CEQA@saccounty.net

Emma Patten, Senior Planner
Sacramento County Planning and Environmental Review
700 H St, Sacramento, CA 95814

Sent via email:
pattene@saccounty.gov (Letter and Attachments via Google Drive); CEQA@saccounty.gov (Letter only)

SUBJECT: Review/Comment on Upper Westside Specific Plan Draft Partially Recirculated Draft Environmental Impact Report (PRDEIR)

Dear Ms. Newton and Ms. Patten:

The Environmental Council of Sacramento (ECOS) is a 501 (c) (3) nonprofit corporation, a coalition of community-based organizations and individuals from throughout the Sacramento region that helps drive conversation and action for good planning.

Please accept our comments on the Upper Westside Project Partially Recirculated Draft Environmental Impact Report (PRDEIR), addressing the following:

1. Traffic
2. Water
3. Persisting Inadequacies and Conflicts
4. Conclusion
5. List of Attachments

1. Traffic

The PRDEIR shifts responsibility to the City for road widening to accommodate additional traffic from the UWSP.

In spite of the population increase of UWSP, with its 9,356 housing units, the PRDEIR notes that El Centro Road is already at the maximum number of lanes states that it won't need to be increased

248-1

because the main capacity constraint (at the El Centro Road/Arena Blvd intersection) is within the City of Sacramento's limits(2-31 and 2-32, PRDEIR).

How the project will address the addition of 2,000 additional cars to already congested roads (El Centro and Arena) is not clear. Rather than outlining a feasible plan to address the traffic impacts that would result from the County project, the UWSP PRDEIR states that the responsibility would be deferred to the City, with no indication of collaboration or County involvement. **The EIR should include details of any joint plans created between the County and the City to address traffic constraints in the areas impacted by the UWSP. Such plans should also state who will provide the funding for infrastructure changes.**

248-1 cont.

The PRDEIR does not address concerns regarding emergency access and services.

"While Radio Road would be closed to regular vehicular use under Alternative 5, emergency vehicle access would still be provided along this roadway. As a result, impacts under Alternative 5 regarding emergency access would be less than significant, like those under the proposed UWSP" (2-32).

Members of the communities surrounding the proposed UWSP have expressed concern regarding current access to emergency services and the significant delays that the increased traffic associated with the UWSP would likely cause. However, the UWSP and PRDEIR assert that impacts related to emergency access would be less than significant. Several critical points have been left out of the discussion, such as a description of the access routes to UWSP and the existing neighborhoods for both City-provided and County-provided emergency services. In addition, there is no discussion of whether roads are sufficient for the emergency evacuation of the combined traffic of UWSP and existing communities. **The EIR thus lacks the evidence necessary to conclude that the UWSP would have less than significant impact on emergency access in the proposed area.**

248-2

2. Water

Under Alternative 5, the PRDEIR identifies the Natomas Central Mutual Water Company (NCMWC) as the water source for UWSP (e.g., 2-33-2-53, PRDEIR). The NCMWC is primarily an agricultural water supplier. The Settlement Agreement between the NCMWC and the US Bureau of Reclamation (USBR) provides the NCMWC with water when supplies allow for the typical valley growing season – April to October. This water is strictly provided for agricultural use. The NCMWC also maintains permits with the State Water Resources Control Board (SWRCB), only one of which extends through the winter months (Permit 19400, Table ALT 5-6, 2-35, PRDEIR). All water rights are subject to curtailment when "natural flows in the Sacramento River are insufficient to meet the various water quality and water flow requirements in the Delta" (2-36, PRDEIR).

Alternative 5 proposes that the NCMWC provide year-round, Municipal & Industrial-use (M&I) water services to the UWSP. This arrangement would require that the NCMWC request the amendment of its Settlement Agreement with the USBR and its permits with the SWRCB to allow year-round diversions for M&I use. Additionally, Alternative 5 proposes to address potential curtailments under Term 91 during winter months by seeking an amendment to its USBR Settlement Agreement that "would allow for year-round diversions by reallocating some summer diversions to the winter period" (2-37, PRDEIR).

248-3

The Water Plan conflicts with the General Plan and Water Forum discussions for regional water use.

The UWSP lies outside regional water supply plans for the urban area. Sacramento region water supply planning focuses on long-term reliability through integrated strategies like the Regional Water Reliability Plan[1], emphasizing conjunctive use (the coordinated use of surface water and groundwater; e.g., storing water underground in wet years for dry years) via programs like the Sacramento Regional Water Bank[2], and collaborative efforts such as the Water Forum 2.0[3], all aimed at balancing supply, environmental needs (like lower American River flows), and climate change impacts. Key projects include the Water Bank for groundwater storage, RiverArc[4], and the Harvest Water recycling project, supported by state funding and Department of Water Resources initiatives. The multi-government and multi-level planning effort does not support the PRDEIR proposed water plan.

Regional water supply planning has focused on providing water supplies to existing planned growth areas both within Sacramento and Placer Counties. Water Forum agreements have not included unplanned growth outside of the Urban Services Boundary and a similar planning boundary in Placer County. Because the UWSP is not in the approved planning area for urban development, it has not been considered as a part of regional water demand planning. For the project impact to be less than significant in all water years, it must be consistent with regional water demand planning. For example, a restriction on development to a project of a like size elsewhere in the City or County's 2030 General Plan would be needed. This is obviously not practical. **The EIR must acknowledge the significant impact on regional water planning and identify an unavoidable impact or explain how the project's impacts on regional water planning could be mitigated to "less than significant."**

248-4

Additionally, the PRDEIR does not acknowledge the cost of updating regional water plans to include the proposed alternative and does not identify a mitigation measure to offset that cost to various public water agencies participating in regional water planning. **The EIR must outline the costs associated with updating regional water plans to include Alternative 5, and it must explain how those costs would be paid.**

248-5

Inadequate information regarding the required contractual amendments and water supply impacts.

Alternative 5 requires the modification of existing agricultural water supply contracts to include a year-round M&I water supply. The PRDEIR does not disclose the full process required to amend existing contracts and acquire additional permits, as would be necessary to allow year-round delivery of water for M&I use. Expecting these regulatory and contractual changes to be negotiated and approved by regulatory agencies within two years is not a prudent assumption and calls into question the viability of this alternative.

248-6

[1] Sacramento Regional Water Authority, "Regional Water Reliability and Drought Contingency Plan." https://rwah2o.org/regional-water-reliability-and-drought-contingency-plan/#:~:text=The%20Regional%20Water%20Reliability%20Plan,the%20agency%2C%20sub%2Dregional%2C
[2] https://sacwaterbank.com/
[3] https://waterforum.org/water-forum-2-0-process/
[4] RiverArc

In addition to the unrealistic timeline for contractual amendments, the PRDEIR includes a risky estimate for NCMWC water supply and demand. The PRDEIR states that NCMWC would be able to meet existing and projected demand in normal, critical, and drought protection years (2-45 to 2-47, PRDEIR). Although Table ALT 5-14 (2-46, PRDEIR) indicates that there would be a surplus in acre-feet per year (AFY) in all conditions, the surplus noted in drought years (with 50% curtailment) would be 1 AFY. This surplus provides a very narrow buffer between the estimated water demand and the water rights available to serve all NCMWC users. A note in Table ALT 5-11 (2-39 and 2-40, PRDEIR), stating that estimated "demands may vary slightly due to land use plan modifications," casts further uncertainty as to the NCMWC's ability to provide water for all of its users, through all conditions. On a regional basis, there is an increasing need for water management to adapt to climate change-precipitated drought and the associated uncertainty of water availability. **The EIR must address the impact the project would have on other NCMWC users, should the UWSP's actual demands push the NCMWC's total water demand past the 1 AFY surplus buffer.**

248-7

Inadequate analysis regarding impact to the NCMWC agricultural users.

The NCMWC is a private non-profit corporation, established in 1921, representing the interests of 280 member/shareholders who hold water rights in the Basin. It provides agricultural water services to 33,223 acres. The 1964 Sacramento River Settlement Agreement with the USBR requires NCMWC to limit its annual diversions from the Sacramento River to 120,000 AFY. Actual water deliveries have ranged from 29,012 AFY (drought) during 2022 to 81,580 AFY in 2016.

Severe droughts, like the conditions experienced in 2022, cause major reductions in the water available for agriculture. New climate assessment data from the State of California projects more frequent and potentially severe climate changes that may be more severe than those faced in 2022 and may occur with more frequency. And, while the project's M&I water customers continued water supply (during severe droughts) seems to hang on a brief letter from the NCMWC, stating its intent to maintain M&I water supplies at the expense of agricultural users, the PRDEIR fails to disclose the impact on agricultural users if this approach is implemented during a drought. Should the NCMWC receive less than 50% of a full supply, the agricultural users will suffer a loss due to the prioritization of the UWSP. This threat to agricultural users is real, as a Sacramento Bee article released in 2025 (Attachment 1) reveals that the NCMWC supply was slashed by 82% in the last drought (2022). Table ALT 5-8: Annual Surface Water Use (2-37, PRDEIR) details the impact of drought on water deliveries by the NCMWC in 2022. As extreme conditions and droughts become more frequent and severe, the likelihood that agricultural users – including signatories of the NBHCP – will suffer a loss due to the prioritization of the UWSP only grows. **The FEIR must acknowledge the impact that the water supply plan would have on other NCMWC water recipients in the case of a drought.**

248-8

PRDEIR fails to acknowledge and mitigate to less than significant impacts on the Natomas Basin Habitat Conservation Plan, the Metro Airpark Habitat Conservation Plan, and the Natomas Basin Conservancy operations.

We have reviewed and incorporate by reference the content of the comment letter submitted on January 23, 2026, by attorneys Best, Best, and Kreiger (signed by Ethan Walsh) on behalf of the Natomas Basin Conservancy (NBC). We also incorporate by reference the letter of the Natomas Basin Conservancy, dated April 10, 2025, which was submitted to the County and signed by its Board Chair,

248-9

Chandra Chilmakuri. These letters make clear that the Upper Westside Project would substantially harm the NBC preserves and the conservation strategy of the NBHCP, adopted to comply with The Endangered Species Act and the California Endangered Species Act.

248-9 cont.

i. **City development in the Swainson's Hawk Zone would conflict with the 2035 City General Plan and violate the City's obligations to the NBHCP.**
The original UWSP identifies the City of Sacramento as the water source to serve the UWSP. Although Alternative 5 adds the NCMWC as a potential water source for the project, the City of Sacramento has not been removed from the UWSP as a potential source. Comment letters submitted by and on behalf of the City of Sacramento (October, 2024, and August, 2025) in response to the original UWSP express that the City of Sacramento opposes the Upper Westside Project and will not make City water available for the project on unincorporated farmland in Sacramento County due to various conflicts. The 2035 City General Plan, ER 4.2.2, requires that the City work with the County, NBC, and other entities to protect and permanently preserve a one-mile buffer alongside the Sacramento River to preserve agricultural activities. The 2003 NBHCP prohibits the City from expanding urban development within one mile east of the toe of the levee alongside the Sacramento River levee designated as the Swainson's Hawk Zone (NBHCP pp D-9, IV-28). The great majority of the project site is within the one-mile zone, and development by the City – including placement of a water treatment plant, which is urban infrastructure – would place the City in violation of its obligations under the NBHCP.

248-10

ii. **Inadequate compatibility analysis with permitted and proposed development in the Natomas Basin**
The PRDEIR fails to disclose that 7,467 acres of farmland in Sutter County's part of Natomas Basin is permitted for urban development by the NBHCP, that the entire 7,467 acres is approved by Sutter County for development as the Sutter Pointe Specific Plan, and that an ADDITIONAL ~7,418 acres in unincorporated Sacramento County's part of the Basin – all outside of the NBHCP Permit Areas and assumed by the NBHCP to provide additional species habitat – is being processed for urban development entitlement. These projects, Grand Park Trails, Grand Park Southwest, and Upper West Side, currently plan to use M&I surface water, to be provided by NCMWC. The PRDEIR does not acknowledge the development of the UWSP and the prioritized use of NCMWC water in the context of surrounding development. Without evaluating the UWSP in this context, the development and prioritization of service to the UWSP may undermine the NBHCP's permits and Sutter County's development plans.

248-11

iii. **Significant development of agricultural lands in the Natomas Basin would threaten the viability of the NBHCP.**
The NBHCP relies upon the existence of over 15,000 acres of agriculture (excluding the mitigation lands managed by the NBC) continuing in the Basin in perpetuity to support threatened species. This includes the UWSP area, which is core to the NBHCP's strategy to maintain the Swainson's Hawks in the Basin. The UWSP, along with other permitted and proposed development, would urbanize these agricultural lands and thus threaten the viability of the NBHCP.

248-12

iv. **Significant development of agricultural lands in the Natomas Basin would threaten the viability of the MAPHCP.**
Like the NBHCP, MAPHCP requires that over 15,000 acres of agricultural land remain in the Basin, in addition to the NBC and MAP preserves. The UWSP, along with other permitted and proposed development, would urbanize these agricultural lands and thus threaten the viability of the NBHCP. 248-13

The PRDEIR fails to adequately assess the cumulative impacts that the UWSP and all proposed and permitted developments in the Basin would have on agriculture and its critical role in the NBHCP. We have attached the US Fish and Wildlife Service, US Department of the Interior, June 24, 2003, "Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to the City of Sacramento and Sutter County for Urban Development in the Natomas Basin, Sacramento and Sutter Counties, California" (Attachment 2). This document explains the scientific and legal basis for preserving existing agricultural uses in the Basin. 248-14

In summary, the UWSP would threaten both the viability of agriculture and the habitat conservation plans in the Natomas Basin. The prioritization of water deliveries to the UWSP over agricultural users would undermine multiple habitat conservation properties and plans in the County. The impacts would include and extend beyond the irredeemable degradation of the agricultural lands and protected habitat immediately surrounding the UWSP. The impact to the immediate Fisherman's Lake preserve of the NBC and SAFCA's mitigation properties within the UWSP by adjacent urbanization would diminish their value as habitat mitigation for already permitted projects in the Basin. Approval of the UWSP would create a cumulative, precedent-setting, and growth-inducing impact to further conversion of the remaining open space in the Natomas Basin to non-agricultural uses. 248-15

Treatment Plant Siting

The treatment plant is proposed to be sited on land owned by the Los Rios Community College District (LRCCD) (Parcel APN 22501900220000). This land was acquired with public funds that were intended for provision of educational facilities. The proposed use conflicts with the authority underlying the land ownership. Does this landowner agree that the treatment plant can be sited there? Is this government agency authorized to allow urban services on its property to serve a project that is inconsistent with air quality, habitat, transportation and water regional planning? 248-16

The PRDEIR must acknowledge the land ownership and provide information on the LRCCD's authority to make the site available for water treatment to serve urbanization that conflicts with the State adopted habitat conservation plan, as well as the air quality, transportation and water planning documents adopted by the State. The feasibility of this water option is belied by the network of local, state, and federal agreements and plans for this area to continue in agricultural use. 248-17

Infrastructural costs should be borne by the beneficiaries.

One major project in the planning process (RiverArc) envisions a large diversion of Sacramento River Water (replacing upstream diversion of American River water), transmission pipelines, and water treatment facilities that will service existing and planned growth areas in both counties. The cost of these additional water facilities will be borne throughout the region by those who will benefit from them. 248-18

Likewise, the expense and need for the additional infrastructure envisioned for the UWSP should only be borne by the residents and commercial/industrial businesses that are a part of and will reside within this project. This should be stated in the FEIR.

248-19

Flood Risk and Climate Readiness

2025 is reported by the World Meteorological Organization as either the second or third warmest year globally, following 2024 and 2023, which were the warmest years recorded.[5] A January, 2026, article in the Sacramento Bee (Attachment 3) notes that higher temperatures and early snow melt will continue to lead to increased winter flooding and low water supply in the spring and summer for our region. This temporal shift in water supply emphasizes the need for greater water storage, flood protection, and strategic water delivery services. However, the UWSP would reduce natural water storage and create flood-vulnerable communities by paving over farmland, which naturally captures and stores water, and developing housing in a known floodplain. **The EIR should prepare a climate readiness strategy and flood-impact analysis, as well as include details around flood protection plans and affordability for future residents.**

248-20

Water efficiency and landscaping

The state of California has promulgated water use standards for residential water use and commercial/residential landscape use to name a few. Regional water purveyors are moving to develop and enhance programs to achieve or exceed these standards. It is not clear that the use of local native plants in landscaping and common areas as well as other water efficiency measures are being utilized in the project to ensure efficient water use. **Requirements for water efficient landscaping and other demand management programs should be included as mitigation measures for water supply impacts to less than significant.**

248-21

3. Persisting Inadequacies and Conflicts

The PRDEIR, consisting of Alternative 5, focuses on addressing concerns that were raised in response to the original UWSP's water supply plan and traffic impacts. Beyond the viability and significant impacts of the proposed alternative, there remain outstanding issues that must be resolved for the project to be considered for approval.

The City of Sacramento submitted multiple letters expressing their concerns about, and opposition to, the UWSP. The letter submitted by Buchalter on August 19, 2025, on behalf of the City of Sacramento, raised the following concerns regarding the UWSP, particularly as it would impact the City of Sacramento:

- "The Upper Westside Project conflicts with the provisions of the adopted NBHCP."
- "The Upper Westside Project is inconsistent with the County's General Plan land use, agricultural resources and conservation resources policies concerning the preservation of agricultural land and habitat in the Natomas Basin."

248-22

[5] World Meteorological Organization, "2025 set to be second or third warmest year on record, continuing exceptionally high warming trend." November 6, 2025, https://wmo.int/news/media-centre/2025-set-be-second-or-third-warmest-year-record-continuing-exceptionally-high-warming-trend

- "The UWSP would result in the loss of GGS habitat in conflict with the NBHCP and the conservation strategy for the preservation of wetland habitat."
- "The UWSP proposes urban development in the Swainson's Hawk Zone that would remove Swainson's Hawk habitat in conflict with the NBHCP and in violation of General Plan Policy CO-138."
- "Substantial evidence does not support the UWSP EIR's conclusion that cumulative biological resources impacts will be less than significant with the conversion of over 7,600 acres of agricultural land to urban development."
- "The Final EIR analysis of water supply impacts does not comply with SB 610 and violates CEQA."

248-22 cont.

The City of Sacramento's October 2024 comments on the UWSP DEIR, as well as the City Council's August 2025 letter to the Sacramento County Board of Supervisors, cite the following additional concerns:

- The EIR assumes City responsibility for mitigation relating to UWSP traffic impacts and does not provide a financial plan to implement necessary traffic mitigation.
- The EIR does not sufficiently evaluate the potential environmental, economic, physical, and traffic-related impacts of the UWSP's proposed commercial development along the westerly extension of El Camino Avenue, nor its alignment with the 2002 City/County MOU.
- The EIR is inconsistent with long-range plans (e.g., the Region's Sustainable Communities Strategy) related to urban infrastructure and potential growth-inducing effects and fails to provide quantitative analyses regarding the positive growth and benefits that would extend beyond the project to the City of Sacramento.
- The EIR contains no evaluation of impact on public services (police, fire, parks) and it does not provide a plan outlining how the County would provide those services.
- The UWSP would remove natural water reservoir areas that are important for flood protection.
- Plans to develop schools remain inadequate. A signed school mitigation agreement must be signed between the Natomas Unified School District and the developer.
- The EIR does not address concerns related to sewer capacity, nor does it include financing plans for infrastructural improvements.
- The EIR does not address the project's potential conflicts with the airport.
- Sprawl development on the edge of the City would threaten the City's infill development strategy and tax base.

248-23

The City has thus raised issues that extend far beyond the traffic and water concerns that Alternative 5 attempts to address. **Until all of these issues are resolved, the EIR remains inadequate and in conflict with regional planning goals.**

4. Conclusion

In summary, the PRDEIR does not address or rectify critical inadequacies raised by ECOS and others to the Draft EIR or Final EIR. This proposal continues to conflict with all known local and regional plans. The proposal continues to ignore the requirements of CEQA and of the NBHCP. While all these environmental concerns and requirements were previously raised by the community and the City of

248-24

Sacramento, they continue to be ignored. Further, the PRDEIR omits crucial details that would be necessary to ensure the viability of Alternative 5.

The very siting of the UWSP conflicts with various regional plans, as well as the County's own General Plan. Finally, the approval of this project would threaten the viability of agriculture in the Natomas Basin and the viability of the NBC and NBCHCP. The PRDEIR must be rejected as inadequate.

248-24 cont.

Thank you for considering our comments. We appreciate the opportunity to engage in planning for our community.

Sincerely,

Heather Fargo

Heather Fargo
President of the Board of Directors

5. LIST OF ATTACHMENTS

1. Tom Philp, December 177, 2025, “Sacramento County still lacks reliable water as Serna loves a bad project.” The Sacramento Bee.

2. United States Fish and Wildlife Service, United States Department of the Interior, June 24, 2003, "Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to the City of Sacramento and Sutter County for Urban Development in the Natomas Basin, Sacramento and Sutter Counties, California.”

3. Chaewon Chung, January 15, 2026, “New research warns of major threats to Sacramento’s water supply.” The Sacramento Bee.

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OPINION

Sacramento County still lacks reliable water as Serna loves a bad project | Opinion

By **Tom Philp**

Updated December 17, 2025 8:30 AM | Gift Article

More than 100 Natomas-area residents hold a rally and press conference on Aug. 19, 2025, at Westlake Community Park, urging the Sacramento County Board of Supervisors to reject the proposed Upper Westside development project. By JOSÉ LUIS VILLEGAS

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For months, Sacramento County has been advancing a 25,000-resident community north of downtown in Natomas without a confirmed water supply. Its new solution is a supply that was slashed by 82% in the last drought, yet the county is assuming that the ugly effects of modern-day climate change will never happen again.

The latest version of the so-called Upper Westside Project near the Sacramento River adjacent to Garden Highway is even worse than the previous one. Not only does it have a dubious water supply, it would include an ugly new water treatment plant about a half-mile from the river that residents would have to pay for in their monthly water bills.

This is a bucolic part of northern Sacramento County that was intended to remain so in a 50-year city habitat conservation plan that paved the way for development in recent decades. But the county continues to defy city opposition, this habitat plan, and the reality that severe droughts and modern-day water politics imperil this supply when things turn dry.

“Development should be happening in the city and not the county,” said Sacramento City Councilmember Lisa Kaplan, who represents neighbors of this project in North Natomas. In fact, that was the years-long plan by county supervisors and the city, thanks to a 2002 agreement known as the Joint Vision.

But then, led by outgoing Supervisor Phil Serna, the county decided to violate its own agreement. It decided to open the door to 8,000 acres of urban expansion into unincorporated Natomas with massive new residential projects such as Upper Westside that are outside the county’s existing urban services boundary.

This is urban planning at its very worst. It is ironic that it is being championed by Serna, a politician with a Master of City and Regional Planning degree from Cal Poly San Luis Obispo.

Most of Upper Westside, which borders the Garden Highway to the west and Interstate 80 to the south, is within a mile of the Sacramento River. The city, along with Sutter County and state and federal wildlife agencies, agreed in 2003 to preserve this land for 50 years as part of that habitat conservation plan that opened the door to 17,500 acres of development in this region.

Serna and the county are ignoring that this plan and this commitment exists, and have they none of the necessary state and federal environmental permits to build this project. And they have ignored opposition from the Sacramento City Council.

What they could not ignore, however, was a letter from a city law firm advising them to look for a new water supply. In an exhibition of extraordinary political chutzpah, the county had assumed in its environmental analysis that the city would provide this project with all the water that it needs. City lawyers formally reminded the county that the assumption was incorrect. With a blatantly faulty environmental document, the county has had no choice but to regroup.

Instead of a water supply controlled by the city of Sacramento, the county and Upper Westside have opted for one controlled by President Donald Trump. And therein lies the problem.

How the county ignores water history

Upper Westside's new proposed water supplier is the Natomas Central Mutual Water Company, a long-time provider of untreated Sacramento River water to Natomas farmers. The company gets its water from Shasta Dam and the Central Valley Project (CVP), run by the federal Bureau of Reclamation.

This federal agency drains much of Shasta annually to provide water to Natomas Central and local districts throughout the Central Valley and hopes for sufficient rain come winter. But then in 2020, California began to descend into what would be a three-year drought. And by 2022, Shasta was so low that Natomas Central only received 18% of a full supply, the lowest in company history and an ominous sign of things to come. This is the water source the Phil Serna is proposing, one that is unreliable and would probably be expensive for users.

Sacramento County, once again, is ignoring reality. In the county's new water supply assessment, it is assuming that Natomas Central will never receive less than 50% of a full supply.

This is where Trump (and future presidents with similar California water politics) comes in. Trump has vowed to provide more "beautiful" water to Central Valley water. That's impossible to do without aggressively operating Shasta. This isn't some theoretical worry. In fact, Natomas Central wrote to the Trump administration this July, worried about how rapidly Shasta was draining, seeking to "avoid devastating impacts associated with previous CVP drought operations.)

No water provider with any degree of professionalism would ever plan for a huge residential development without proper water planning. It is only common sense, and the law, to prepare for consecutive critically dry years. And it makes even more sense to assume that what happened in the last drought could happen again.

Instead, the county is running from sound water planning. It is assuming some rosy assumptions about the future of CVP water on the Sacramento River when its new analysis is completed some time next year, setting the stage for supervisors to approve or reject this project.

Serna's ugly legacy of wretched urban planning and betraying his own city is sealed with Upper Westside as a political career capstone. He's a lame duck politician who is not seeking re-election last year yet is pushing a project that would be a blight on Sacramento long after he is gone.

The real political test falls to Sacramento Mayor Kevin McCarty and the rest of the City Council to oppose this project until it dies any number of possible deaths, its horrible environmental analysis just one of them.

"There has been no change in the position of where the city is," Kaplan said.

The county is setting the stage for the ugliest land use fight this region has likely ever seen, and for the emptiest of reasons.

This story was originally published December 15, 2025 at 5:00 AM.

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Tom Philp is a Pulitzer Prize-winning editorial writer and columnist who returned to The Sacramento Bee in 2023 after working in government for 16 years. Philp had previously written for The Bee from 1991 to 2007. He is a native Californian and a graduate of the Medill School of Journalism at Northwestern University.

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IN REPLY REFER TO:
1-1-03-F-0225

June 24, 2003

Memorandum

To: Regional Director, Fish and Wildlife Service, Region 1, Portland Oregon

From: Field Office Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to the City of Sacramento and Sutter County for Urban Development in the Natomas Basin, Sacramento and Sutter Counties, California.

This document transmits the biological/conference opinion of the U.S. Fish and Wildlife Service (Service), Sacramento Fish and Wildlife Office (SFWO), regarding the issuance of incidental take permits (ITP) to the City of Sacramento (City)(Applicant), Sutter County (Sutter) (Applicants or Proposed Permittees), and the Natomas Basin Conservancy (Conservancy) (Applicant) for implementation of the Natomas Basin Habitat Conservation Plan (NBHCP) pursuant to section 10(a)(1)(B) and section 10(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.)(Act), and in accordance with section 7 of the Act and their implementing regulations (50 CFR §402). The Service proposes to issue the ITPs to the City, Sutter, and the Conservancy for a period of 50 years.

The Applicants are requesting coverage under the ITPs for a total of twenty-two species (Covered Species). The ITPs would cover incidental take for one endangered animal species [vernal pool tadpole shrimp (*Lepidurus packardi*)], and three threatened animal species [giant garter snake (*Thamnophis gigas*)(snake), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)(beetle), and vernal pool fairy shrimp (*Branchinecta lynchi*)]. The ITPs would also authorize the incidental take of one animal species formerly listed as threatened [Aleutian Canada goose (*Branta canadensis leucopareia*)(goose)], which was de-listed on March 20, 2001, one proposed species [California tiger salamander (*Ambystoma californiense*)(salamander)], and nine currently unlisted animal species - Swainson's hawk (*Buteo swainsoni*)(hawk), white-faced ibis (*Plegadis chihi*)(ibis), bank swallow (*Riparia*

riparia)(swallow), tricolored blackbird (*Agelaius tricolor*)(blackbird), northwestern pond turtle (*Clemmys marmorata marmorata*) (turtle), loggerhead shrike (*Lanius ludovicianus*)(shrike), burrowing owl (*Athene cunicularia*)(owl), western spadefoot toad (*Spea hammondii*)(toad), and midvalley fairy shrimp (*Branchinecta mesovallensis*)-, should they become listed in the future during the term of the permits. The permits would become effective to authorize take of the currently unlisted Covered animal Species concurrent with their listing under the Act. One endangered plant species [Sacramento Orcutt grass (*Orcuttia viscida*)], two threatened plant species [Colusa grass (*Neostapfia colusana*) and slender Orcutt grass (*Orcuttia tenuis*)] and four currently unlisted plants [Boggs Lake hedge-hyssop (*Gratiola heterosepala*), delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), legenere (*Legenere limosa*), and Sanford's arrowhead (*Sagittaria sanfordii*)] would also be considered Covered Species and included on the Permits. Although take of plant species is not prohibited under the Act and therefore cannot be authorized under an incidental take permit, the plant species would be included on the permits in recognition of the conservation benefits provided to the species under the NBHCP. Assurances provided under the "No Surprises" rule at 50 C.F.R. 17.3, 17.22(b)(5) and 17.32(b)(5) would extend to all Covered Species.

The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, or possessing of migratory birds. The MBTA identifies a variety of prohibited actions including the taking of individual birds, young, feathers, eggs, nests, etc. Actions conducted under the NBHCP and NBHCP Implementation Agreement (NBHCP IA) will comply with the provisions of the MBTA with strict avoidance measures for actions affecting MBTA-Covered Species such as the goose, hawk, ibis, swallow, blackbird, shrike, and owl. There are currently no MBTA Covered Species that are listed under the Act and subject to a special purpose permit at this time. Should any of the MBTA Covered Species become listed under the Act during the life of the Permits, the incidental take permits would also constitute an MBTA special purpose permit for that species for a three year term as specified under 50 C.F.R. 13 and 50 C.F.R. 21 for MBTA special purpose permits subject to renewal by the City and Sutter County.

This biological opinion is based on information provided in the following documents: (1) the July 2002, draft NBHCP; (2) the August 2002, draft Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) and supporting technical analyses and reports; (3) the July 2002, draft NBHCP IA; (4) the *Site Specific Management Plans for the Natomas Basin Conservancy's Mitigation Lands*; (5) the April 2003, Final NBHCP, NBHCP IA, and EIR/EIS; (6) the November 1997, NBHCP; (7) the Natomas Basin Conservancy's Implementation Annual Reports; (8) the February 2000, lawsuit *(National Wildlife Federation, et al. v. Babbitt,* S-99-274 (E.D.Cal.) [*NWF v. Babbitt*]) filed against the Service's issuance of an Incidental Take Permit to the City for the 1997 NBHCP; (9) the August 15, 2000, Memorandum of Opinion and Order for *NWF v. Babbitt*; (10) the January 26, 2001, judgement declaring the City's ITP for the 1997 NBHCP invalid; (11) the May 10, 2001, Settlement Agreement for *NWF v. Babbitt*; (12) the May 13, 2003, resolutions adopted by the City (Resolution Numbers 2003- 289 and 290) and Sutter (Resolution Number 03-30) approving the NBHCP; (13) the June 10, 2003, resolution (Resolution Number 03-039) approved by Sutter making three changes to the NBHCP; (14) the

June 2003, Errata to the NBHCP; and (15) various other published and unpublished agency and academic literature and information in the Service's files.

CONSULTATION HISTORY

In 1994, the Sacramento Area Flood Control Agency (SAFCA) proposed a flood control project for the Natomas Basin (Basin) that required a Section 404 Clean Water Act permit from the U.S. Army Corps of Engineers (Corps). In order to comply with its responsibilities under the Act, the Corps consulted with the Service. In its March 11, 1994, biological opinion (Service File # 1-1-94-F-0013) for the project, the Service determined that the project would remove an obstacle to urbanization in the Basin and that such development would result in the take of federally-listed species. The Corps issued a Section 404 Permit for SAFCA's flood control project, conditional on the preparation of a habitat conservation plan (HCP) for the Basin. Following the Corps' action, the local land use agencies (City, Sutter, and Sacramento County), with additional participation by the water agencies (Reclamation District Number 1000 [RD 1000] and Natomas Central Mutual Water Company [Natomas Mutual]), began preparing an HCP. In 1997, the City submitted its application to the Service for an incidental take permit to authorize take of 26 Covered Species within its portion of the Natomas Basin based on the 1997 basin-wide Natomas Basin HCP. The other land use agencies did not apply for incidental take permits based on the NBHCP at that time.

The Service issued an ITP to the City in December 1997 based on the final NBHCP. Environmental review of the City's 1997 HCP under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) consisted of an Environmental Assessment/Finding of No Significant Impact prepared by the Service (Service, 1997a) and an Initial Study/Negative Declaration prepared by the City (City of Sacramento, 1996), respectively. In April 1998, the City began collecting habitat mitigation fees and issuing urban development permits under the 1997 NBHCP. These fees were transferred to the Conservancy, which was created by the City in October 1994 to serve as the Plan Operator.

The Conservancy is a private, not-for-profit public benefit corporation that acquires and manages the system of habitat reserves created under the 1997 NBHCP. In addition, it will acquire and manage the system of habitat reserves created under the proposed NBHCP, if approved. The Conservancy's efforts are guided by a Board of Directors, with members of the Board appointed by agencies receiving Permits under the NBHCP. The Conservancy's Board of Directors was appointed by the City's City Council in December 1998. The Board is assisted in its efforts by the Technical Advisory Committee (TAC), a group of experts representing the Service, California Department of Fish and Game (CDFG), and the Permittees. Habitat mitigation fees and mitigation lands have been/will be collected by the Permittee(s) and transferred to the Conservancy.

Sutter and Sacramento County informally submitted separate HCPs to the Service in October 1998. The Service suspended review of their HCPs because a lawsuit, discussed below, was

filed challenging the City's HCP and ITP. As of June 2003, Sacramento County has not submitted an HCP for unincorporated lands in the Basin.

Although Sacramento County is not one of the NBHCP's applicants, the Metro Air Park Property Owners Association (MAPPOA), a group of landowners, submitted a separate HCP designed to be compatible with the 1997 NBHCP for the Metro Air Park (MAP) in July 1999. MAP is a special planning area adjacent to Sacramento International Airport (Airport) in Sacramento County which has been approved by the County for industrial and commercial development. Metro Air Park comprises 1,983 acres of the 17,500 acres of planned urban development described in the NBHCP. The Service issued an ITP to MAPPOA on February 21, 2002.

RD 1000 and Natomas Mutual (Water Agencies) also participated in basin-wide habitat conservation planning efforts. On September 8, 1998, the Water Agencies submitted an incidental take permit application and draft implementation agreement based on the 1997 City of Sacramento implementation agreement. They also proposed to use the November 1997 NBHCP with additional revisions suggested by the Water Agencies. In November 2000, the Water Agencies submitted a revised HCP and IA to the Service and CDFG. In early 2001, they re-joined the City, Sutter, and the Conservancy in developing the draft revised NBHCP. The Water Agencies identified general conservation measures for operations, maintenance, and minor construction activities. A revised NOP/NOI noticing the involvement of the Water Agencies in the HCP process was published in local newspapers and in the *Federal Register* on August 18, 2001. Discussions among the Water Agencies, the other permit applicants and the Wildlife Agencies continued throughout 2001 and early 2002 regarding Water Agencies proposed conservation measures.

The Water Agencies provided additional detail regarding their covered activities, including a request for coverage for use of pesticides (e.g., aquatic herbicides, rodenticides) in accordance with label instructions, to the Service and CDFG. In late January and February 2002, the Service determined that it would take a substantial length of time to prepare and process adequate scientific information necessary to analyze the biological effects of each chemical on the Covered Species. Thus, the Land Use Agencies recommended that the NBHCP exclude chemical coverage for the Water Agencies but that the Water Agencies continue to be included in the NBHCP for the other covered activities (e.g., mechanical activities such as mowing and nonchemical channel maintenance activities). In February 2002, the Boards of Directors of both Water Agencies directed their staff and counsel to remain involved in the NBHCP and to seek 100 percent pesticide coverage within the NBHCP. The Water Agencies continue to be represented in the NBHCP as potential permittees in the event they chose at a future date to apply for ITPs for the activities (excluding pesticides) covered by the 2003 NBHCP and evaluated in its associated EIR/EIS.

In late May 2002, the Land Use Agencies contacted the Water Agencies to determine if RD 1000 would continue to serve as a lead agency for the EIR. On May 31, 2002, the Water Agencies

stated that they would not serve as a co-lead agency on the EIR because pesticide coverage was not addressed in the NBHCP and its associated EIR/EIS.

On June 5, 2002, the Water Agencies presented information to the Service on nine pesticides for which they had requested coverage. Given the Water Agencies decision in March 2002 to pursue 100 percent pesticide coverage, and because of the substantial period of time that would be required to analyze the impacts of various pesticides and rodenticides on the Covered Species proposed by the Water Agencies in their June 5, 2002, letter, these activities are not analyzed in the EIR/EIS for the proposed project. The EIR/EIS does analyze other covered activities requested by the Water Agencies prior to December 2001 (i.e., the activities presented in the NBHCP). Applications for incidental take permits were filed by the City, Sutter, and the Conservancy on August 1, 2002.

On August 26, 2002, the Service published a notice in the **Federal Register** (67 FR 54819) announcing the agency's receipt of applications for ITPs from the City, Sutter, and the Conservancy based on the NBHCP and the availability of a draft EIR/EIS for the applications. Comments were received from the public through December 5, 2002. On April 28, 2003, the Service announced the availability of the Final EIR/EIS and NBHCP in the **Federal Register** (68 FR 22410). The U.S. Environmental Protection Agency followed suit on May 2, 2003 (68 FR 23457).

On May 13, 2003, the City approved the Final NBHCP (Resolution Number 2003-290) and Final EIR (Resolution Number 2003-289), with three changes to the NBHCP and associated documents that will improve protections for Covered Species. Changes include:

1. No mitigation lands will be acquired in Area B. All NBHCP mitigation lands must be acquired in the Natomas Basin;

2. The City may exercise its discretion to require developer/land owners to dedicate mitigation land in lieu of the land acquisition component of the mitigation fees prior to issuance of an Urban Development Permit; and

3. Land owners within the Sutter's Permit Area will be notified annually if they have a Swainson's nest tree on their property. The notice will identify the nest tree and alert the owner to the specific mitigation measures prohibiting the owner from removing the nest tree. This measure requires the City to inform land owners of the NBHCP's avoidance, minimization, and mitigation measures regarding the removal of Swainson's Hawk nest trees (see Section V.A.5.b of the NBHCP).

Sutter approved the Final NBHCP (Resolution Number 03-030) on May 13, 2003. On June 10, 2003, Sutter approved a second resolution (Resolution Number 03-039) to modify the NBHCP and associated documents in order to establish consistency between Sutter's obligations and those of the City. Changes included in the second ordinance include:

1. No mitigation lands will be acquired in Area B. All NBHCP mitigation lands must be acquired in the Natomas Basin;

2. Sutter may exercise its discretion to require developer/land owners to dedicate mitigation land in lieu of the land acquisition component of the mitigation fees prior to issuance of an Urban Development Permit; and

3. Land owners within the Sutter's Permit Area will be notified annually if they have a Swainson's nest tree on their property. The notice will identify the nest tree and alert the owner to the specific mitigation measures prohibiting the owner from removing the nest tree. This measure requires Sutter to inform land owners of the NBHCP's avoidance, minimization, and mitigation measures regarding the removal of Swainson's Hawk nest trees (see Section V.A.5.b of the NBHCP).

Court Opinion

As mentioned above, the City received incidental take authorization from the Service in December 1997 based on the 1997 NBHCP. In February 2000, the National Wildlife Federation and other plaintiffs filed suit against the Service's issuance of the ITP to the City (*National Wildlife Federation, et al. v. Babbitt,* S-99-274 (E.D.Cal.) (*NWF v. Babbitt*). The lawsuit alleged issuance of the ITP violated Sections 7 and 10 of the Act. In addition, the plaintiffs asserted that the Service violated NEPA by preparing an Environmental Assessment rather than an EIS and had violated the Administrative Procedures Act.

On August 15, 2000, Judge David F. Levi issued a Memorandum of Opinion and Order. The Court held that the 1997 NBHCP in most respects satisfied the substantive requirements of the Act as set forth in Section 10(a)(2)(a). The Court also held that, with one exception, relative to whether the Plan "minimizes and mitigates" expected impacts to the maximum extent, the Findings and the Biological Opinion were adequate with respect to the 1997 NBHCP as a whole. The Court also rejected the plaintiff's claims that biological uncertainties associated with, among other things, the NBHCP's adaptive management provisions undermined the legal adequacy of the Plan as a whole and found that the Service's decisions were based upon the best available scientific and commercial evidence.

The Judge's Order found four deficiencies with respect to issuance of the City's Section 10(a)(1)(B) Incidental Take Permit: (1) the record did not support the Service's findings in support of the NBHCP and the Section 10(a)(1)(B) ITP that the NBHCP would minimize and mitigate impacts on Covered Species to the "maximum extent practicable"; (2) the record did not support the "No Jeopardy" findings contained in the Biological Opinion as it applied to issuance of the Section 10(a)(1)(B) ITP to the City; (3) the record did not support the Service's finding that the City would ensure adequate funding for the NBHCP as it applied to issuance of the Section 10(a)(1)(B) ITP; and (4) the Service's decision to not prepare an EIS for the NBHCP and Section 10(a)(1)(B) ITP was arbitrary and capricious.

Pursuant to a Settlement Agreement executed by the parties in the lawsuit (effective May 10, 2001), the Order was modified to allow incidental take protection for limited land development within the City, with the provision of specific mitigation requirements. Following the court's decision, the City, Sutter County and the Conservancy, initiated preparation of a revised NBHCP. That effort culminated in the 2003 NBHCP.

The issuance of ITPs to the City, Sutter, and the Conservancy, in conjunction with implementation of the revised NBHCP, is the subject of this biological opinion.

BIOLOGICAL OPINION

Description of the Proposed Action

Introduction

The NBHCP is a multi-jurisdictional, multi-species, 50-year plan intended to protect and conserve 22 "Covered Species" and other biological resources within the Natomas Basin in Sacramento and Sutter Counties. It is the conservation plan designed to support applications for federal ITPs under Section 10(a)(1)(B) of the Act, as well as applications for ITPs under State law pursuant to Section 2081(b) of the California Fish and Game Code. The NBHCP relies on total development in the Basin being limited to 17,500 acres (including the Metro Air Park development in Sacramento County ("MAP")). Its basic mitigation strategy is to protect and manage in perpetuity 0.5 acre of habitat for every one acre of development in the Natomas Basin allowed under adopted land use plans (Authorized Development). This is accomplished through payment of a mitigation fee by developers and land owners prior to issuance of urban development permits from the City, Sutter, or Sacramento County. Fees are required for development, regardless of the habitat quality of the land being developed. The NBHCP is described in greater detail below.

This NBHCP builds on the 1997 NBHCP, which was the basis for issuance of an ITP to the City of Sacramento. The 1997 NBHCP was updated and modified to address the deficiencies cited by the court in *NWF v. Babbitt*. The revised NBHCP also reflects participation by Sutter and the Conservancy, with possible participation by Natomas Mutual and RD 1000.

The purpose of the NBHCP is to promote biological conservation in conjunction with economic and urban development within the areas covered by the ITPs (Permit Areas). The NBHCP establishes a multi-species conservation program to minimize and mitigate the expected loss of habitat values and incidental take[1] of Covered Species that could result from urban development

[1]"Incidental take" as used in this opinion in reference to the Covered Species refers solely to covered animal species. Plant species are "covered" by the permits in recognition of the conservation measures incorporated into the NBHCP for them and, like covered animal species, receive assurances under the Service's "No Surprises" rule.

and certain activities associated with the Conservancy's management of its system of reserves established under the NBHCP. The intent of the NBHCP is to minimize incidental take of the Covered Species in the Permit Areas and to provide avoidance, minimization, and mitigation measures for the impacts of Covered Activities on the Covered Species and their habitat.

The NBHCP applies to the 53,537-acre area interior to the toes of the levees surrounding the Natomas Basin, located in the northern portion of Sacramento County and the southern portion of Sutter County (Figure 1). The Basin is bounded on the west by the Sacramento River levee, on the north by the Natomas Cross canal, on the east by the Natomas East Main Drainage Canal, and on the south by the American River levee (Figure 2). The Basin contains incorporated and unincorporated areas within the jurisdictions of the City, Sacramento County, and Sutter. The Sacramento International Airport is located in the Basin. The southern portion of the Basin is urbanized, but most of the Basin is used for agriculture. Certain conservation measures proposed by the applicants would apply outside the Basin. For example, measures proposed to minimize Swainson's hawk nest disturbance include all hawk nests within ½ mile of development; not just those nests located interior to the toes of the levees of the Basin.

The NBHCP serves as the operating conservation plan (OCP) for three proposed ITPs from the Service, pursuant to Section 10(a)(1)(B) of the Act. The three proposed permittees are: (1) the City; (2) Sutter; and (3) the Conservancy. The ITPs would cover 22 species. Such authorization is needed because the City and Sutter have approved land use plans which designate areas of the Basin which may provide for urban development. Urban development will impact Covered Species and the habitat which supports those species. Additionally, the Conservancy is seeking take authorization related to the acquisition, restoration, and management of a system of habitat reserves on behalf of the City and Sutter.

Overall biological goals and objectives of the NBHCP include:

1. Establish and manage in perpetuity a biologically sound and interconnected habitat reserve system that mitigates impacts on Covered Species resulting from Covered Activities and provides habitat for existing, and new viable populations of Covered Species.

2. Implement an adaptive management program that responds to changing circumstances affecting Covered Species and their habitats.

3. Maintain and operate flood control, irrigation and drainage facilities in a manner that minimizes take of Covered Species and promotes vegetative cover that enhances habitat values for Covered Species, consistent with the Water Agencies' legal obligations.

4. Preserve open space and habitat that may also benefit local, non-listed and transitory wildlife species not identified within the NBHCP.

5. Ensure that direct impacts of Authorized Development upon Covered Species are avoided or minimized to the maximum extent practicable.

6. Minimize conflicts between wildlife and human activities, including conflicts resulting from airplane traffic, roads and automobile traffic, predation by domestic animals, and harassment by people.

7. Ensure connectivity between Conservancy reserves to minimize habitat fragmentation and species isolation. Connections between reserves will generally take the form of common property boundaries between reserves, waterways (primarily irrigation and drainage channels) passing between reserves and/or an interlinking network of water supply channels or canals.

8. Within individual Conservancy reserves, provide a mosaic of habitats that support both wetland and upland species, and that are configured to support species that utilize both types of habitat. The Conservancy will develop each monitoring plan and will submit the plan for review by NBHCP TAC and approval by the Wildlife Agencies prior to implementation.

9. Implement monitoring programs with qualitative and/or quantitative monitoring methods to evaluate management objectives and strategies for the reserve system.

10. Increase the diversity and abundance of Covered Species on reserve lands.

11. Revise the reserve design and management based on the most current biological data.

In addition to the overall biological goals and objectives, the following wetland species habitat goals and objectives have been proposed:

1. Acquire, enhance and create a mosaic of wetland habitats with adjacent uplands and connecting corridors to provide breeding, wintering, foraging, and cover areas for wetland species in the Plan Area.

2. Provide habitat to maintain, attract and sustain viable populations of the Covered Species. The habitat areas should be configured to encompass natural species migration areas, minimize species isolation, and prevent future habitat fragmentation.

3. Document population trends of Covered Species through monitoring.

In addition to the overall biological goals and objectives, the following upland species habitat goals and objectives have been proposed:

1. Acquire, enhance and create a mosaic of upland habitat types for breeding, foraging, and cover for species dependent on upland habitats.

2. Ensure reserve land connectivity with travel corridors for upland-dependent species. The habitat areas should encompass grasslands, agricultural croplands, riparian habitats, and shelter and nesting habitat areas (fence rows, clusters of shrubs and small trees), as well as wetland areas to provide a year-round source of water for upland species. The upland areas should be configured to enhance natural species migration, minimize species isolation, and prevent future habitat fragmentation.

The City is seeking take coverage for impacts to Covered Species associated with a total of 8,050 acres of authorized development located within the City's proposed Permit Area (Figure 2). Approximately ten acres of the total 8,050 acres covered by the City's ITP are for drainage improvements to widen the West Drain outside of the City limits, in Sacramento County. The ten-acre area has already been disturbed in compliance with the 1997 HCP. The proposed ITP would extend take coverage for Covered Species within the City's Permit Area and would cover urban development, public projects and associated infrastructure.

Sutter's proposed ITP would authorize incidental take of Covered Species associated with urban development, public projects and associated infrastructure on 7,467 acres of land within Sutter's Industrial/Commercial Reserve area, which is located in the southeast portion of Sutter County within the Basin (Figure 2). Sutter County's authorized development would be located within the proposed Sutter Permit Area, except for infrastructure improvements in northern Sacramento County. There is currently one proposed Sutter County public facility project: drainage channel improvements to support the South Sutter County Specific Plan area. The proposed drainage improvements are located on land in Sacramento County outside the Sutter County Industrial/Commercial Reserve and involve expanding two existing RD 1000 drainage channels (East Drainage Canal and the Montna Drain) to accommodate additional storm water flows. These channels are located within Sacramento County immediately south of the Sutter-Sacramento County boundary (Figures 2 and 3). To the extent that these channels and their associated levees and access roads are expanded beyond the footprint of the existing facilities, Sutter will consider the expansion of these facilities as urban development subject to the provisions of the NBHCP. Such increases in the footprint of the drainage channels are considered part of Sutter's 7,467 acres of authorized development.

The ITP that the Conservancy is seeking is to cover activities related to the acquisition, establishment and management of the system of habitat reserves that will be created throughout the Natomas Basin, including the land bounding the Natomas Basin and extending to the edge of the water (i.e., Natomas Cross Canal, Natomas East Main Drain, and American River) immediately outside the Natomas Basin levees, and Area B (Figure 4). However, because the City and Sutter will not acquire NBHCP mitigation lands in Area B, the Conservancy will not acquire NBHCP mitigation lands in Area B and any permit issued to the Conservancy would be restricted to lands within the Natomas Basin. Within its Permit Area, the Conservancy is seeking incidental take coverage for managing reserves; preservation, creation, restoration, and enhancement activities; and monitoring the HCP's success in meeting its biological goals.

The City and Sutter will each be required to mitigate the impacts of their own Covered Activities. Therefore, because they have separate permits and are mitigating their impacts separately, if either one of the permits is revoked, other than the Permit issued to the Conservancy, the other Permits would remain in effect. This is consistent with the design of the NBHCP as a mitigation tool which can be used by the various Permittees to obtain the necessary ITPs needed to conduct otherwise lawful activities within each entity's respective jurisdictional boundaries. Although the mitigation strategy provided for under the NBHCP would mitigate for effects resulting from the Land Use Agencies' Covered Activities, because the percentage of uplands to wetlands differs between their respective Permit Areas, the NBHCP allows for the mitigation strategy provided for under the NBHCP to be reevaluated in the event either the City's or Sutter's Permits are terminated or revoked. The mitigation strategy would be reevaluated to ensure that the configuration of Conservancy reserves provided for under the NBHCP continues to adequately mitigate for the impacts of authorized development in the remaining jurisdiction(s) participating in the NBHCP. In the event that the Service determines pursuant to Section 7.6.1 of the NBHCP IA that the Conservancy has violated the terms of the NBHCP, the Permits or the NBHCP IA, such violation would be considered a failure by City and Sutter to implement their obligations of the Operating Conservation Program under the NBHCP. In the event the Service or CDFG make the determination set forth in Section 3.1.11(a) of the NBHCP IA, the City and Sutter's Permits would not be revoked or suspended, provided the City and/or Sutter implement corrective measures, within the period specified by the Service and/or CDFG, to remedy Conservancy's violation. Among the corrective measures the Service may require are: (1) replacing the Conservancy with another conservation entity qualified to serve as a Plan Operator; (2) transferring the Mitigation Lands to CDFG in accordance with Section 3.2.12 of this NBHCP IA; (3) implementation by the Conservancy of measures specified by the Service and/or CDFG as necessary to remediate the violation unless the Service or CDFG determine that continuation of the Permits would appreciably reduce the likelihood of the survival and recovery of a Covered Species in the wild or the Service or CDFG determine that the violation renders the City or Sutter unable to implement successfully the NBHCP; or (4) implementation by the City and/or Sutter of measures necessary to remediate the violation. Should the Service or CDFG determine that the City or Sutter has violated their separate obligations under the NBHCP, the Permits or this Agreement, such violation would not be attributed to the Conservancy nor would the Conservancy's Permits be affected, so long as the Conservancy continues to properly implement its obligations under the NBHCP with respect to the Mitigation Lands, including its obligations as the Plan Operator.

The effectiveness of the NBHCP's OCP to adequately minimize and mitigate the effects of take of the Covered Species due to authorized development depends on the City and Sutter confining development to their respective permit areas and limiting their combined total development to 15,517 acres. The OCP and the NBHCP's effects analysis account for a combined total of 17,500 acres of Planned Development occurring in the Basin (i.e., 15,517 acres within the City and Sutter County's Permit Areas and 1,983 acres of Metro Air Park development in Sacramento County). Because the NBHCP's OCP is based upon the City limiting total development to 8,050 acres within the City's Permit Area, approval by the City of future urban development beyond the 8,050 acres or outside of its Permit Area would constitute a significant departure from the

NBHCP's OCP and would trigger a reevaluation of the NBHCP, a new effects analysis, potential amendments and/or revisions to the NBHCP and ITPs, a separate conservation strategy and the need to obtain a new ITP by the Permittee for that additional development, and/or possible suspension or revocation of the City's ITP in the event the City were to violate such limitations without having completed the required reevaluation, amendments or revisions, or obtained a new permit. Similarly, approval by Sutter of development within the Basin beyond the authorized 7,467 acres or outside of the Sutter Permit Area would constitute a significant departure from the NBHCP's OCP and would trigger a reevaluation of the NBHCP, a new effects analysis, potential amendments and/or revisions to the NBHCP and ITP, a separate conservation strategy and the need to obtain a new ITP by the permittee for that additional development, and/or possible suspension or revocation of the Sutter's ITP in the event Sutter were to violate such limitations without having completed the required reevaluation, amendments or revisions, or obtained a new permit. Any additional urban development within the Basin that occurs outside of the City's and Sutter's Permit Areas, with the exception of the MAP development, also would constitute a significant departure from the NBHCP's OCP and would trigger a new effects analysis, a new conservation strategy, and require the issuance of a new ITP to the party proposing that additional urban development. So long as the City and Sutter limit urban development to their respective Permit Areas and continue to meet their respective obligations under the NBHCP, the OCP and associated Permits would remain valid for each Permittee's Covered Activities.

In February 2002, the Service and CDFG issued ITPs to MAPPOA for the MAP project. The MAP Permit covers 1,983 acres[2] of development in Sacramento County within the NBHCP Area. The effects of that biological opinion are incorporated into the effects analysis of this biological opinion. The MAP HCP and its IA provide for automatic revision of the MAP HCP to incorporate applicable provisions of the revised NBHCP upon approval of the NBHCP by Wildlife Agencies. Extension of applicable NBHCP provisions to MAP will be treated as a revision of the Plan and will not require a permit amendment.

Covered Species

Twenty-two species of plants and animals are addressed by the NBHCP (Table 1). Of those, seven are currently federally-listed as either threatened or endangered. They are: (1) vernal pool tadpole shrimp (endangered); (2) giant garter snake (threatened); (3) valley elderberry longhorn beetle (threatened); (4) vernal pool fairy shrimp (threatened); (5) Sacramento Orcutt grass (endangered); (6) Colusa grass (threatened); and (7) slender Orcutt grass (threatened). The Aleutian Canada goose was formerly listed as a federally-threatened species. Species addressed by the NBHCP that are not or have not been previously federally-listed include: (1) bank swallow; (2) burrowing owl; (3) loggerhead shrike; (4) Swainson's hawk; (5) tricolored blackbird; (6) white-faced ibis; (7) northwestern pond turtle; (8) California tiger salamander;

[2]The MAP Permit covers a total of 2,011 acres of development, including offsite improvements. Twenty-eight acres are located within the City's proposed Permit Area. Therefore, the net impacts attributed to MAP include 1,983 acres.

(9) western spadefoot toad; (10) midvalley fairy shrimp; (11) Boggs Lake hedge-hyssop; (12) delta tule pea; (13) legenere; and (14) Sanford's arrowhead.

Action Area Description

Action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate areas involved in the action (50 CFR 402.02). The proposed action's action area is located in the southern portion of the American Basin and covers the 53,537-acre Natomas Basin (Sacramento County = 36,656 acres, Sutter County = 16,881 acres). It is bounded on the north by the Natomas Cross Canal, on the west by the Sacramento River, on the south by the American River, and on the east by the Natomas East Main Drainage Canal (Figure 2). The Natomas Basin comprises the action area because it encompasses the proposed Permit Areas where the proposed action's effects on Covered Species will occur.

The Natomas Basin is currently divided into three major areas relative to the movement of obligate wetland and aquatic species: a northwestern zone situated north of Interstate 5 and west of Highways 70 and 99, a southwestern zone situated south of Interstate 5 and west of Highways 70 and 99, and an eastern zone located east of the Highways 70 and 99 (Brode and Hansen 1992) (see Figure 5). These roadways are effective barriers to the movements of aquatic species such as the snake. Hydrologic connections are incomplete at best, often consisting of lengthy culverts with little freeboard. These culverts, although not ideal, likely provide the only hydrologic connectivity between the Basin's three geographic areas. The western edge of the northwestern and southwestern zones is bordered by the Sacramento River, likely itself a barrier to the snake and other wetland dependent terrestrial species. The eastern zone is bordered on the east by the Natomas East Main Drainage Canal (a.k.a. Steelhead Creek) and further east, by increasingly less-suitable (upland and higher-gradient stream) habitat for the snake.

Prior to modern reclamation efforts, drainage off the western slopes of the Sierra Nevada Range produced regular flooding and created the Basin as an area of highly fertile, alluvial soils. This early condition was in the form of the large American Lakes, a large expanse of riparian scrub-shrub, and a large expanse of dry farmed open plain. Since, 1914 land reclamation and reclamation facilities, canals, levees, and pumping stations have caused over 80 percent of the Basin to be converted to agricultural production. A high proportion of the Natomas Basin's soils are underlain by impervious clay, which creates poor drainage conditions. These poor drainage conditions favor irrigated rice farming, which became prevalent in the 1900s.

The predominant crops presently produced in the Natomas Basin are rice, corn, sugar beets, grain, tomatoes, and pasture lands. The drainage pattern of the Basin has been altered so that runoff is pumped into the surrounding canals and the Sacramento River at several places. Even with pumping, portions of the Basin are subject to shallow flooding from rainfall that cannot be conveyed quickly enough to external drainage systems.

Natural and uncultivated vegetation types are interspersed throughout the agricultural areas of the Natomas Basin. Natural vegetation is found primarily along irrigation canals, drainage

ditches, pastures, and uncultivated fields. Borders of canals and ditches often have narrow strips of emergent vegetation or wooded riparian areas. Operated by Natomas Mutual and RD 1000, the presence of these water conveyance systems among the mosaic of agricultural fields and riparian areas provide nesting and feeding habitat and migration corridors for a variety of wildlife species inhabiting the Basin.

Implementation of the Proposed NBHCP

Funding

Funding for the acquisition, restoration and management of habitat reserves in perpetuity will be financed through the collection of mitigation fees for authorized development (in acres), as described in Chapter VI of the NBHCP. The number of acres of the authorized development site will be described in the Urban development permit (i.e., a grading permit, notice to proceed, or authorization to commence grading). The Urban development permit will delineate the boundary identifying the parcels or portions thereof to be disturbed by the authorized development project. A mitigation fee will be paid the developer of a particular development project to fund a half acre of mitigation land acquisition and associated habitat enhancement, management, endowment, administration, monitoring, etc. for each gross acre of authorized development. Lands developed prior to the 1997 NBHCP are not covered by the proposed permits or subject to the mitigation fee. The NBHCP Implementation Agreement (IA) for the City and Sutter include detailed maps (see section 4.3 and Exhibits B and C of the NBHCP IA) showing which land parcels are subject to the fee and which parcels are exempt from the fee due to prior development.

Open space remaining within the City's Permit Area such as schools, parks, etc. will count as areas requiring mitigation, unless the Service and CDFG approve the use of such areas as suitable for mitigation and such land is transferred in fee to the Conservancy or is encumbered by a conservation easement in favor of the Conservancy. Any open space land within the developed areas that is counted as mitigation land because the Service and CDFG approved it as mitigation land would be purchased for the Conservancy through the North Natomas Financing Plan - Land Acquisition Program (i.e., development impact fees will be increased to fund acquisition of the buffer area)(Land Acquisition Program). Fees in the Land Acquisition Program are separate from the NBHCP mitigation fee. The Land Acquisition Program funds public land (i.e., community centers, fire station sites, agricultural buffers, freeway buffer land, etc.) in the community plan area. The remaining components of the NBHCP mitigation fee (minus the land acquisition component) will be paid by the party (land owner, developer, etc.) proposing the land as mitigation. The Conservancy is not responsible for paying mitigation fees for enhancement and restoration activities on any of its reserve lands. Sutter has not designated any open space within its Permit Area and therefore, has not established a mechanism for acquiring open space as areas as mitigation.

Individual landowners may donate land to the Conservancy in lieu of payment of some or all of the acquisition component of the mitigation fee. Additionally, the City and Sutter may exercise

their discretion through resolutions approved by City Council (May 13, 2003, resolution number 2003-290) and Sutter Board of Supervisors (June 10, 2003, resolution number 03-039) to require developer/landowners to dedicate Mitigation Land in lieu of payment of the Land Acquisition Component of the Mitigation Fee prior to issuance of an Urban Development Permit. In such cases, the Conservancy, Service and CDFG will determine which lands are acceptable, considering location, proximity to urban uses and roads, and current condition. All land proposed to be transferred in lieu of payment of the land acquisition component of the mitigation fee must be approved by the Wildlife Agencies prior to acceptance by the Conservancy. The project proponent would be responsible for payment of the other components of the mitigation fee.

The Mitigation Fee is composed of the Land Acquisition Fee, Restoration and Enhancement Fee, Administration and Operations & Maintenance, Operations and Maintenance Endowment Fund, and Supplemental Endowment fund. The Land Acquisition Fee Component provides funding for habitat Mitigation Lands acquired by the Conservancy. The costs associated with land acquisition are the costs to acquire the land and transaction costs including legal costs. The fund also provides for a contingency in case land costs spike in any given year prior to updating the fee. Once all land is acquired in order to meet mitigation requirements, this fund will no longer be necessary. The Restoration and Enhancement Fee Component provides funding for restoring and enhancing Mitigation Lands acquired by the Conservancy. For example, the creation of managed marsh would be provided for by the revenues generated in the Restoration and Enhancement Fund. Once all land is acquired and subsequent restoration and enhancement occurs, this fund will no longer be necessary. The Administration and Operations & Maintenance Fund provides for the on-going operation and maintenance of the Mitigation Lands, including the costs to administer the funds collected from the Mitigation Fees. Revenues for this fund are comprised of Mitigation Fees (until all grading permits are issued), farming income, and hunting revenues. This fund is projected to exist in perpetuity. After year 45, as the finance model is currently structured, the Administration and Operations & Maintenance revenues are supplemented by interest earnings from the Operations & Maintenance Endowment Fund. The Operations & Maintenance Endowment Fund is structured as an endowment, such that fee revenue is accumulated as principal that will earn interest income over time. Under the most recent finance model, interest income would be utilized to subsidize funding for the Administration and Operations and Maintenance account after year 45. The Supplemental Endowment Fund was established to accumulate revenue to allow the Conservancy to purchase up to 200 acres of land in advance of all fees being paid or to supplement annual purchases in the case that land prices spike dramatically in any given year. A catch-up fee ordinance enacted by the City on April 3, 2001, (Ord. No. 2001-013) and to be enacted by Sutter will include this fee component. Additional information regarding funding for the NBHCP's conservation strategy is located in Chapter VI of the NBHCP.

The mitigation fee will be reviewed at least annually on or before March 1 of each calendar year the NBHCP is in effect. The mitigation fee shall be adjusted as necessary by the Land Use Agency Permittees to account for inflation or deflation using the Consumer Price Index (CPI) or another suitable index. The mitigation fee also will be reviewed at least annually on or before

March 1 of each calendar year the NBHCP is in effect and adjusted as necessary to reflect actual operation and land costs in the Basin. Fee adjustments will typically originate with a recommendation from the Conservancy to the Land Use Permittees, although any party may recommend such an adjustment. All adjustments to the mitigation fee within a particular local jurisdiction or jurisdictions must be approved by that affected jurisdiction or jurisdictions. Adjustments to the mitigation fee to account for inflation or deflation, or as necessary to maintain the 0.5-to-1 mitigation ratio and to meet ongoing management and monitoring costs, are provided for as part of the Plan's OCP and therefore, do not require amendment of the NBHCP or Permits.

The Conservancy will acquire and manage mitigation lands using the fees collected based on the number of acres approved for authorized development by both Land Use Agency Permittees. The failure of either jurisdiction to raise the mitigation fee in a timely manner and in an amount sufficient to fully implement the NBHCP could potentially compromise the ability of the Conservancy to carry out its responsibilities under the NBHCP. In that event, any shortfall in acquisition of mitigation lands or shortfall in funds available to cover the management and other plan implementation costs, shall be attributed solely to the Land Use Agency Permittee which has failed to adjust its mitigation fee as necessary to fully implement the NBHCP and may result in suspension or revocation of that jurisdiction's permits. However, because the NBHCP requires that a 200 acre cushion of mitigation lands be maintained prior to issuance of urban development permits by the City or Sutter for new authorized development, failure of either the City or Sutter to raise fees to a level adequate to fully fund the plan should never result in a deficit of mitigation lands (see "Phasing of Mitigation Land with Respect to Development" below). Should either the City's or Sutter's permits be terminated or revoked for failure to meet its funding or other obligations under the permits, each would remain obligated pursuant to 50 C.F.R. 17.22(b)(8) and 17.32(b)(8) to complete its mitigation obligations with respect to all authorized development approved by the jurisdiction prior to the revocation or other termination of its permits.

The mitigation fee is based, in part, on the funds necessary to assure the establishment of reserve blocks with 25 percent managed marsh habitat (described below). The Mitigation Fee may also be adjusted periodically at the request of the Service, CDFG or the Conservancy to account for NBHCP revisions, including revisions that: (1) increase up to a total of 75 percent, the percentage of Mitigation Lands converted to managed marsh, or (2) result from ongoing monitoring program results in the Plan Area, determined at the Mid-Point and Overall Program Reviews, or any future Service Giant Garter Snake Recovery Plan or CDFG Swainson's Hawk Recovery Plan (see Section VI.H of the NBHCP), or (3) based upon peer-reviewed scientific information provided such adjustments meet the requirements of Sections VI.E., Section VI.F. and Section VI.H of the NBHCP. The fee may also be increased as necessary to maintain land acquisitions at the 0.5-to-1 mitigation ratio and implement associated management (including restoration and enhancement), including changes identified through the Plan's adaptive management program, as appropriate to ensure the effectiveness of the OCP. Because the mitigation fee consists of individual components (e.g., land acquisition, restoration/ enhancement/monitoring, etc.), the fee may need to be raised with respect to specific fee

components periodically found to be deficient over the term of the permits. In other words, all components of the mitigation fee are subject to fee increases as necessary to ensure that the requirements of each individual component of the NBHCP are met. The Land Use Agencies have committed to adjust the fee as necessary for all additional monetary obligations that may be required to fully implement the land acquisition, ongoing or permanent management (including restoration and enhancement), monitoring, database maintenance, adaptive management, recovery plans, changed circumstances and any other requirements of the NBHCP and NBHCP IA, subject to the limitations described in Sections VI.E, VI.F, VI.H, and VI.K.1 of the NBHCP. Such fee increases are provided for under the Plan's OCP and therefore, do not trigger amendment of the Plan or Permits.

Phasing of Mitigation with Respect to Development

In order to help assure that adequate funding exists for implementation of the NBHCP, the Conservancy will establish and maintain a 200-acre cushion of mitigation lands prior to the approval of any new authorized development by the City of Sutter County. In order to accomplish this, no Urban Development Permits for Authorized Development shall be issued by the City or Sutter after September 30 of each calendar year until the Conservancy notifies the City and Sutter that it has acquired Mitigation Lands which equal the number of acres necessary to meet the mitigation requirement attached to all prior Urban Development Permits issued by the City and Sutter plus an additional 200 acres of Mitigation Land. Furthermore, no new Urban Development Permits will be issued the next calendar year until after the Conservancy notifies the City and Sutter that it has acquired Mitigation Lands which equal the number of acres necessary to meet the mitigation requirement attached to all prior Urban Development Permits issued by the City and Sutter plus an additional 200 acres of Mitigation Land.

Accounting of Mitigation Land

Each Land Use Agency shall collect the mitigation fee prior to issuance of an urban development permit (i.e., grading permit or notice to proceed) and promptly transfer the fees to the Conservancy, identifying by name, location and acreage, each project for which fees have been collected. The Conservancy shall record collection of fees from Land Use Agencies in chronological order, crediting the oldest project to have paid all required components of the mitigation fee with the mitigation lands the Conservancy acquired. Compliance with phasing of mitigation with respect to development must be satisfied with respect to the entire NBHCP Plan Area and not for individual Land Use Agency's Permit Areas. No Urban Development Permits for Authorized Development shall be issued after September 30 of each calendar year until the Conservancy has acquired Mitigation Lands which equal the number of acres necessary to cover the mitigation obligation attached to all prior Authorized Development under the NBHCP plus an additional 200 acres of Mitigation Lands. If the Conservancy falls behind on acquiring mitigation land (i.e., does not maintain the required 200-acre cushion, see above), then the Conservancy must notify all Land Use Agencies and the Conservancy may not accept additional mitigation fees until acquisition of mitigation land is in compliance with Section VI.C of the NBHCP. In addition, the Land Use Agencies shall not allow any development project to proceed

under the ITPs where the Conservancy has not accepted mitigation fees or mitigation lands for that development project. Development of lands for which mitigation fees have been accepted by the Conservancy, and which has met all other requirements of the NBHCP would be allowed to proceed under the ITPs.

The NBHCP requires that at least 25 percent of habitat mitigation lands be established as managed marsh. Therefore, the Conservancy will specify the acreage, location, and type of reserve land (i.e., rice land versus marsh), and the percentage of each with respect to the total lands acquired to date in its annual report. The 25% managed marsh requirement applies to the entire Natomas Basin collectively (i.e., to all Land Use Agency jurisdictions and Permit Areas), not to each Permit Area individually.

The Final NBHCP has been revised to eliminate a provision which would have allowed up to 20% of the mitigation lands to be acquired in Area B under certain conditions. However, as stated earlier, both the City and Sutter have decided (Sutter Resolution Number 03-039, City Resolution Number 2003-289) to not allow mitigation lands to be acquired in Area B; therefore, no mitigation lands may be acquired in Area B, and the NBHCP has been updated to reflect that modification.

The MAPHCP states that MAP will utilize the Conservancy for acquisition and management of habitat reserves. MAP will rely on the County of Sacramento to collect mitigation fees, and the County of Sacramento will convey these fees to the Conservancy. Additionally, the Conservancy will include information on MAP's urban development and associated habitat mitigation within its annual report. Fees collected by the Conservancy on behalf of Planned Development in the MAPHCP Permit Area shall be credited along with fees collected by both Land Use Permittees in chronological order, with the first project among MAP or either Land Use Permittee to have paid the mitigation fee credited with the habitat mitigation lands acquired by the Conservancy and credited to MAP's mitigation obligation.

As stated above, project proponents may elect to transfer mitigation lands in lieu of the mitigation land acquisition fee component of the mitigation fee or may be required to do so by the City and Sutter. In such cases, once the Conservancy, Service, and CDFG have approved transfer of the lands, and the other non-land acquisition portion of the mitigation fee has been paid by the project proponent, the project may proceed. The Conservancy will keep a record of the name, location, and acreage of the project and the mitigation lands transferred to the Conservancy on behalf of the project and include the information in its annual report.

Monitoring under the NBHCP

Two related but separate types of monitoring programs will be required under the NBHCP. First, Compliance Monitoring will document Permittee activities and ensure that NBHCP Permittees complete obligations as specified within the NBHCP. These obligations vary between Permittees, based upon their specific obligations. Second, a Biological Effectiveness Monitoring Plan will be implemented to measure the biological success of the NBHCP

Operating Conservation Program. The Biological Effectiveness Monitoring Plan will provide the biological data necessary to guide and direct the NBHCP OCP. Monitoring shall be performed for the duration of the Permit and in perpetuity per the terms of the Plan.

Compliance Monitoring

Compliance monitoring is verifying that the Permittees are carrying out the terms of the NBHCP, the NBHCP IA and the associated ITPs. The Conservancy will be the primary entity responsible for compiling, retaining, and making available to the Wildlife Agencies data on compliance with the provisions and obligations contained within the NBHCP and the associated NBHCP IA. The Land Use Agencies shall conduct compliance monitoring and report to the Conservancy on their compliance and the compliance of third parties operating under their control and their Permits with regard to their obligations under the NBHCP, including implementation of the NBHCP take avoidance, minimization, and mitigation measures. Compliance Monitoring will include the status of the implementation of the NBHCP terms and conditions (e.g., financial responsibilities and obligations, management responsibilities, and other aspects of the ITPs, NBHCP and NBHCP IA). At each Implementation Annual Meeting, the Conservancy will report to the other Permittees and Wildlife Agencies on the progress of the HCP conservation strategy. The Permittees' compliance with the NBHCP obligations will be reported within the Conservancy's annual report. Additional detail regarding Compliance Monitoring is located in Chapter VI of the NBHCP.

Biological Effectiveness Monitoring

Biological Effectiveness Monitoring will evaluate the effects of authorized development and other Covered Activities and will determine whether the effectiveness of the NBHCP's OCP is consistent with the assumptions and predictions made when the NBHCP was developed and approved. In other words, Biological Effectiveness Monitoring will evaluate if the NBHCP is achieving its biological goals and objectives. The Conservancy will be responsible for completing the Biological Effectiveness Monitoring and will publish the results in its annual report. In order to ensure consistent application of monitoring techniques both upon Conservancy reserves and throughout the Natomas Basin, the Conservancy shall prepare a comprehensive Biological Effectiveness Monitoring Plan (see Section VI.E.2 of the NBHCP for detailed information regarding the Biological Effectiveness Monitoring Plan).

In order to measure the effectiveness of meeting the biological goals and objectives, the Biological Effectiveness Monitoring Plan shall be designed to track population trends of the Covered Species and to evaluate the effectiveness of the mitigation land design, restoration and management in providing habitat and supporting the Covered Species. The monitoring plan shall track population trends on Conservancy reserves as well as at selected non-reserve sites within the Natomas Basin. Non-reserve sites will serve as controls to determine success of mitigation land design and management in supporting and increasing the abundance of Covered Species. Monitoring of non-reserve sites also may provide information to guide future acquisitions and to determine presence and/or use of corridors between reserves. Selection of

non-reserve sites to be monitored will be determined during preparation of the monitoring plan and may differ for the various Covered Species, depending on the management and information needs for those species.
The Biological Effectiveness Monitoring Plan is divided into two primary components: (1) a Basin-wide Biological Effectiveness Monitoring Program designed to evaluate the overall success of Covered Species within the Natomas Basin; and (2) Site Specific Biological Monitoring Programs designed to evaluate the success of Covered Species within Conservancy reserves. The Basin-wide Biological Effectiveness Monitoring Program will include limited monitoring of Covered Species at locations outside of Conservancy reserves, as well as periodic evaluations of Covered Species within the reserves. Site Specific Biological Monitoring Programs will be developed for each block of contiguous Conservancy reserves. The Site Specific Biological Monitoring Programs will be developed in conjunction with, and included within, the Site Specific Management Plans (SSMP) (discussed below) developed for each reserve. In combination, the Basin-wide Biological Effectiveness Monitoring Program and the Site Specific Biological Monitoring Programs constitute the Biological Effectiveness Monitoring Plan. Additional detail regarding Biological Effectiveness Monitoring is located in Chapter VI of the NBHCP.

The Conservancy, in consultation with the Technical Advisory Committee (TAC) and qualified species experts, will design or coordinate the design of Biological Effectiveness Monitoring Programs, both Basin-wide and Site Specific. The TAC is a group of experts representing the Wild life Agencies (CDFG and Service) and Permittees who provides advice and guidance to the Conservancy.

Management objectives for the reserve system, as described in detail in Sections I.C and VI.E.2-VI.E.4 of the NBHCP, will be used to determine whether qualitative or quantitative monitoring methods will be employed and what level of confidence in the results is required. All Biological Effectiveness Monitoring Programs will include thresholds, at which mitigation land management must be modified through the adaptive management process to assure success of the OCP. Preliminary management thresholds are provided in Section VI.F.1 of the NBHCP. Revised management thresholds will be incorporated within two years of issuance of the proposed Permits as part of the Biological Monitoring Programs. The NBHCP does not identify the specific activities to be conducted within the Biological Effectiveness Monitoring Programs. However, it does provide detailed direction for developing suitable Biological Effectiveness Monitoring Programs (see Section VI.E of the NBHCP). For example, the NBHCP Biological Effectiveness Monitoring Program shall include, but is not limited to, the following components and guidelines for monitoring activities:

1. Annual surveys of the Conservancy Permit Area (including Conservancy reserves and selected nonreserve area accessible to the Conservancy) to determine the status of the Swainson's hawk, including presence, density, and reproductive success.

2. Annual assessment of the status of giant garter snake populations within the Natomas Basin. Annual updates of information of locations of giant garter snakes within the Basin as well as other Covered Species.

3. Density and distribution sampling of Covered Species on Conservancy reserve lands every five years. The first five year sampling of Covered Species shall be completed within one year of issuance of Permits under the NBHCP, and subsequently every five years thereafter. Once a Covered Species is found to occupy a Conservancy reserve, yearly monitoring of that Covered Species on the reserve it occupies and any adjacent reserves, as appropriate, will be implemented.

4. The NBHCP Biological Monitoring Program shall specify the number of control locations within the Basin but outside of NBHCP Mitigation Lands that shall be monitored. These sites shall be monitored every year for Swainson's hawk and giant garter snake, and every five years to satisfy monitoring of species throughout the Conservancy's Permit Area other than Swainson's hawk and giant garter snake. Such sites shall be limited to a set of locations that, to the extent that such sites exist in the Basin and are physically accessible, collectively provide suitable habitat to support all Covered Species and shall allow the following:

    a. Determination of the comparative success of Covered Species on non-reserve sites versus on reserve sites.

    b. General documentation of Covered Species presence.

    c. Determination of whether the Mitigation Lands are supporting the general populations of Covered Species found within the Basin.

5. Annual assessment and identification of canals and ditches which provide snake habitat connectivity within and between reserves. This assessment shall be coordinated with the Water Agencies and the Wildlife Agencies. Additionally, the Wildlife Agencies and the Land Use Agencies will notify the Conservancy of any known applications under the Act or Section 404 of the Clean Water Act affecting canals.

6. Evaluations of the Operating Conservation Program and its progress toward its intended biological goals.

7. The Monitoring Program shall provide specific details on the following subjects:

    a. Monitoring methodologies and protocols to be implemented.

    b. Timing of monitoring efforts, including frequency and duration of monitoring efforts.

c. Locations of monitoring, and methodology used to select locations.

d. Personnel required.

e. Effort required and methods of documenting and determining monitoring effort.

f. Methods of analyses of monitoring data.

g. Information expected to be gained from monitoring.

h. Thresholds at which management must be modified to assure success of the conservation plan.

8. The Biological Effectiveness Monitoring Program shall establish a standardized format for annual monitoring and five-year monitoring conducted on behalf of the Conservancy.

Additional detail is provided for the formulation of site-specific management plans.

The Biological Effectiveness Monitoring Programs may require periodic revisions as new methods become available or if monitoring methods are not yielding the expected information. Therefore, the Biological Effectiveness Monitoring Programs and their effectiveness in measuring the success of the NBHCP's OCP will be reviewed at each Midpoint Review (discussed below). In addition, the Biological Effectiveness Monitoring Programs may be reviewed and changed in accordance with the NBHCP's Adaptive Management provisions (see Section VI.F of the NBHCP). In summary, the Conservancy will revise the Biological Effectiveness Monitoring Programs whenever review indicates revision is necessary to effectively monitor success in achieving the NBHCP's biological goals and objectives.

Adaptive Management

Adaptive management is a process that allows the NBHCP's OCP to be adjusted during the life of the Plan to ensure that the most up-to-date information is being utilized, and that the Plan's biological goals and objectives are being achieved. The strategy will define the feedback process and incorporate feedback loops that link implementation and monitoring to a decision-making process. Incorporating new monitoring information is necessary to effect changes in management to achieve the Plan's biological goals and objectives. As identified in the NBHCP, and as is common for a regional plan of long duration and covering multiple species, uncertainties regarding the NBHCP's OCP exist. Adaptive management will allow the OCP to respond to these uncertainties. For the purposes of the NBHCP, the following three adaptive management approaches will be used:

1. Regularly scheduled periodic evaluations of the NBHCP monitoring data, other new scientific information or future recovery plan recommendations by the Conservancy and/or the TAC and a determination linking the information to the Plan's success in implementation and achieving the biological goals and objectives

2. Identifying significant measurable threshold limits (discussed above) for each of the adaptive management objectives that will trigger proposals and solutions requiring a management change. And

3. Conducting a review at the Independent Mid-Point Reviews for Land Use Agencies (discussed below) and the Overall Program Review at 9,000 acres of development (discussed below).

These approaches will be used to evaluate the effectiveness of the established habitats on reserve lands and to implement adjustments to the OCP, as necessary, in order to achieve the biological goals and objectives of the Plan.

The Conservancy will use the annual reporting process to review the compliance and effectiveness monitoring in the adaptive management process. The Conservancy's report will include a summary of findings with specific management recommendations and direction, if applicable.

Adaptive management revisions will be made consistent with the NBHCP's *Amendments and Revision* section (see Section VI.F of the NBHCP). Changes to the NBHCP that are substantial in scope, and are beyond the scope of the adaptive management Program will require the amendment of the ITPs, and additional review and approval under the Act, California Endangered Species Act (CESA), CEQA and NEPA. A more thorough discussion is provided in the "Enforcement, Amendments and HCP Requirements" section below. The Conservancy shall keep a complete administrative record of all NBHCP revisions resulting from the Plan's adaptive management program.

The Conservancy will serve as the database manager for the NBHCP and shall be the central data repository of all scientific data collected through the NBHCP for the life of the permits. In this role, the Conservancy will be responsible for maintenance, management, analysis and distribution of data collected through NBHCP monitoring efforts, as well as serving as a repository for related work conducted by other entities within the Basin. In addition to monitoring data collected by the Conservancy and the other NBHCP Permittees, the database will include documents and reports on new species occurrence records from environmental documents, California Natural Diversity Database (CNDDB) entries and other sources as provided to the Conservancy. The Conservancy shall maintain the database in a form that allows the determination of success of the NBHCP in achieving the biological goals and objectives of the OCP. At a minimum, the database will document in tabular form in a standard spreadsheet program the following data: the numbers and specific locations of each species occurrence within each contiguous block of mitigation land; basinwide data documented on Swainson's hawk and giant garter snake such as population densities, reproductive successes, etc. collected through annual surveys, 5-year surveys, and other observational data; and, Covered Species data for each identified monitoring control site located outside of the mitigation lands. Exact data needs of the Biological Effectiveness Monitoring Program required to evaluate the success of the operating conservation plan in meeting the NBHCP biological goals and objectives will be decided by the Conservancy in consultation with the Service, CDFG, and the TAC. Maps identifying monitoring sites and the specific locations of species occurrences shall be maintained to document the locations of monitoring efforts and the locations for data collected through the NBHCP monitoring efforts. Mapping of monitoring data shall be of adequate detail to evaluate the success of restoration efforts within Conservancy reserves and shall allow comparison of year-to-year monitoring results and five-year monitoring results. Additionally, the Conservancy shall retain mapped information identifying the locations of all mitigation lands and all data reported by the Land Use Agency Permittees related to the location of development authorized under the NBHCP, thereby documenting development lands for which NBHCP fees and other mitigation measures have been satisfied.

Annual Report

The Conservancy shall compile and submit an annual report to the Service and CDFG detailing authorized development activities, habitat acquisition, management, and compliance and effectiveness monitoring activities throughout the Plan Area for the preceding year. The report will be due 120 calendar days from the last day of each calendar year, or portion of a calendar year, during which the Permit is in effect. Each Permittee will be responsible for providing the Conservancy with information in their possession necessary for compiling the annual report.

Program Adaptation for Recovery Plans

The NBHCP's adaptive management provisions allow for revisions to management strategies to incorporate new or modified management strategies, such as those which may be included in recovery plans or in response to monitoring results in the Plan Area or to new scientific information. The NBHCP will incorporate recommendations made pursuant to future recovery

plans where such changes are supported by monitoring results from the Plan Area or new scientific information and when such recommendations:

1. Relate to the physical management of mitigation lands.

2. Would improve the effectiveness of the NBHCP's OCP by identifying relevant new information, approaches, techniques, or species protection needs.

3. Can be implemented within the NBHCP Plan Area.

4. Fit within the overall intent, framework, are consistent with the NBHCP's biological goals and objectives and would not exceed the established mitigation ratio of the Plan. And

5. Will not substantially sacrifice habitat values for Covered Species that are not addressed by the Recovery Plan.

The greatest potential shift in conservation strategies anticipated to result from a future snake recovery plan is a transition from rice cultivation to managed marsh. The NBHCP establishes an initial habitat enhancement obligation for the snake (see snake conservation measures below) and allows adjustments to be made based on the adopted final snake recovery plan, monitoring conducted in the Plan Area, or in response to new scientific information. Any modifications to the NBHCP necessitated by a future snake recovery plan or by other future recovery plans approved for listed Covered Species, are considered a part of the Plan's adaptive management program and will not trigger an amendment to the Permits.

Results of any future CDFG Swainson's Hawk Recovery Plan may also suggest or result in the need for NBHCP modifications to management practices upon mitigation lands. Any changes to the NBHCP resulting from a Swainson's Hawk Recovery Plan are considered a part of the Plan's adaptive management program and will not trigger an amendment to the Permits.

NBHCP Overall Program Review at 9,000 acres of Development

The NBHCP establishes a comprehensive overall program review designed to evaluate the performance and effectiveness of the Plan, to be conducted when and if authorized development within the Basin allowed by the ITPs for the City, Sutter and MAP reaches a total of 9,000 acres (the "Overall Program Review"). This Overall Program Review will be triggered at the point urban development permits covering a total of 9,000 acres of development in the Natomas Basin have been issued by the Land Use Permittees and by Sacramento County for the Metro Air Park. During the review, up to, but not more than, an additional 3,000 acres of additional urban development may be approved. In other words, no more than a total of 12,000 acres of urban development shall be approved prior to completion of the Overall Program Review.

The Overall Program Review shall specifically address the following factors: (1) status and

population trends of the snake, hawk, and all other Covered Species within the NBHCP area, especially with respect to those biological factors that are directly affected by Covered Activities under the Plan; (2) status and effectiveness of the Plan's habitat reserve system, including its buffer and setback requirements; (3) the Plan's success in meeting the 2,500-acre and 400-acre minimum habitat block size requirements; (4) the status and effectiveness of the Plan's funding mechanisms; (5) the relative status and distribution of developed lands and reserve lands within each of the Land Use Agency jurisdictions (the City, Sutter, and MAP); (6) the success of the 25% managed marsh/50% rice/25% upland reserve system for supporting the Covered Species, and (7) compliance of the Water Agencies (RD1000 and Natomas Mutual) with approved canal and ditch maintenance practices (not covered under the ITPs).

The review shall be conducted through consultation among all affected Permittees, the Conservancy, the Service, and the CDFG, which shall be known collectively as the NBHCP Review Board. The Conservancy shall inform the other parties, in writing, when the 9,000-acre trigger for the overall program review has been reached and shall initiate and coordinate the review.

Results of the review shall consist of a written report presenting the conclusions of the Review Board. These conclusions shall address each of the factors described above. The report shall also present recommendations consisting of the following or of a combination thereof: (1) a recommendation that the NBHCP is functioning as intended and that no revisions to the Plan's measures, in addition to those originally set forth, are necessary; (2) a recommendation that the NBHCP is significantly in need of correction and the specific corrective measures that are needed; and (3) a recommendation as to whether such corrections should be treated as an NBHCP revision under the Plan's adaptive management provisions, or whether the corrections exceed the scope or intent of the adaptive management process and should be treated as an amendment of the Plan's associated Section 10(a)(1)(B) and Section 2081 Permits. Upon completion of the review, the Service and CDFG shall, depending on the results, either document in writing that the NBHCP is functioning as intended and that no Plan revisions or Permit amendments are necessary, or assist the Permittees in revising the NBHCP and, if necessary, amending their respective Permits, as needed. The Review Board's report shall be made available to the public for review and comment before written findings are made by the Service and CDFG. If it is determined that substantial revisions to the NBHCP need to be made through amendment of the Permits, all statutory and regulatory requirements including those regarding public notice and review under the Act, NEPA and CEQA shall be completed.

If the findings of an adopted final snake recovery plan and Overall Program Review, monitoring results from the Plan Area, or new scientific data indicate, the managed marsh component of mitigation lands may be increased to 75% within sites acquired subsequent to such review, results, determination or Recovery Plan adoption. Such increase would only be made following written notice from the Service, supported by documentation and technical analysis, demonstrating the need for an increased percentage of managed marsh.

Independent Mid-Point Reviews for Land Use Agencies

In addition to the NBHCP Overall Program Review, both the City and Sutter will conduct Independent Mid-Point Reviews as development occurs within each Land Use Agency's Permit Area. Thus, up to three program reviews (one overall and two independent reviews) may be completed, depending on the timing of development within the City and Sutter. The Independent Mid-Point Reviews conducted by the City of Sacramento and Sutter County shall address each of the factors noted for the 9,000 acre overall program review above, as well as the expanded evaluation of progress on the 2,500 acre preserve, and minimum preserve size (discussed below).

If the findings of any of the Independent Mid-Point Reviews, ongoing monitoring results from the Plan Area, new scientific data or an adopted final snake recovery plan so dictate, the managed marsh component of mitigation lands may be increased to 75% within sites acquired subsequent to such review, results, determination or Recovery Plan adoption. Such an increase would only be made following written notice from the Service, supported by documentation and technical analysis, documenting the need for an increased percentage of managed marsh.

The City's independent Mid-Point Review will begin once urban development permits for 4,000 acres of authorized development have been approved within the City's Permit Area and the review will be completed before the City has approved urban development permits for 5,500 acres of development under the NBHCP. As of December 31, 2003 the City had approved 4,324.1 acres of development within their Permit Area (City 2003a). On June 19, 2003, the City notified the Service that it would commence its Independent Mid-Point Review upon approval of the proposed ITP by the Service (if approved) and that it would complete the review before it issues a total of 5,500 acres of Urban Development Permits (City 2003b). Sutter will begin its Independent Mid-Point Review once Sutter has approved urban development permits for 3,500 acres of authorized development permits and will complete the Independent Mid-Point Review before Sutter approves urban development permits for 5,000 acres of development under the NBHCP.

Should the timing of the City of Sacramento's Independent Mid-Point Review, Sutter's Independent Mid-Point Review and/or the overall 9,000 acre program review coincide, then the affected Land Use Permittee(s) may request the program reviews be combined under a single evaluation. Such request shall be made to the Service and CDFG and may be granted at the discretion of the Service and CDFG. Any revisions to the NBHCP made as a result of either Independent Mid-Point Review shall apply to both Land Use Agencies (and MAPPOA), unless the change affects only a particular Permittee.

Unforeseen Circumstances/"No Surprises"/Changed Circumstances

"Unforeseen circumstances" is defined as changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the NBHCP's negotiation and development, and that result in a substantial and adverse change in the status of the Covered Species (50 C.F.R. 17.3).

The “No Surprises” Rule states, in part, that when negotiating unforeseen circumstances, the Service will not require the commitment of additional land, water or financial compensation or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan without the consent of the Permittee (63 FR 8859).

The assurances contained in the No Surprises rule apply only “where the conservation plan is being properly implemented, and apply only with respect to species adequately covered by the conservation plan.” For purposes of the No Surprises assurances, the term “operating conservation program” shall mean the specific conservation, mitigation, and management measures provided under the NBHCP to minimize and mitigate the impacts of incidental take of the Covered Species.

The NBHCP’s adaptive management provisions allow the NBHCP to be revised as a result of new recovery plans, new research into the Covered Species, and ongoing monitoring programs in the Plan Area. As a result, revisions may be made to the NBHCP's OCP, including reserve land management and enhancement, and monitoring of the Covered Species pursuant to the Plan’s adaptive management provisions, that may result in additional mitigation and costs, provided such revisions meet the requirements of Sections VI.E and VI.F of the NBHCP. Because such revisions and changes are provided for under the Plan, they are not subject to the restrictions on additional mitigation contained in the No Surprises Rule. The following elements of the plan are not subject to revision as part of the NBHCP’s adaptive management provisions or as a result of the overall or individual jurisdiction reviews: (1) the 0.5-to-1 mitigation ratio; (2) the 75% limit on the amount of reserve lands to be converted to managed marsh; and (3) any other change not currently described in or provided for under the adaptive management program, changed circumstances, or other elements of the NBHCP’s OCP that would increase the Plan's costs or restrictions on land otherwise available, including any such changes resulting from the 9,000-acre review Overall Review process or Independent Mid-Point Reviews.

Another category of circumstances under the federal "No Surprises" rule is "changed circumstances." This term is defined under the rule as "changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (e.g., the listing of a new species, or a fire or other natural catastrophic event in areas prone to such events)" (50 C.F.R. 17.3). A number of possible changed circumstances are addressed in Chapter VI of the NBHCP. Examples include, but are not limited to: (1) listing of new species; (2) availability of new scientific information; (3) approval of new recovery plans; (4) problems in implementing the NBHCP; (5) fire or flood; (6) invasive species; (7) changes in water availability; and (8) non-participation by a Land Use Agency in the NBHCP.

Enforcement, Amendments, and HCP Requirements

The Service may suspend the ITP of a Permittee if that Permittee fails to implement the NBHCP in accordance with the terms and conditions of the ITP and as provided for under applicable regulations. Suspension or revocation of a Section 10(a)(1)(B) permit, in whole or in part, by the Service shall be in accordance with 50 CFR 13.27-29 and the NBHCP IA.

If one of the Land Use Agencies fails to obtain its Permits or has its Permits revoked for failure to comply with the NBHCP, the essential effect to the implementation of the NBHCP is that less authorized development is covered by the NBHCP. With regard to funding adequacy, the reduction in authorized development would result in a similar reduction in acres of mitigation land to be acquired, restored, managed, enhanced and administered as reserve lands in perpetuity. Therefore, the Conservancy would have to continue to implement the NBHCP as it applies to the reduced authorized development and the Covered Activities within the participating Land Use Permittees' Permit Areas. The NBHCP provides for adjustments to the mitigation fee to fund the acquisition, restoration, creation, enhancement and management of reserves on a 0.5 to 1.0 mitigation basis.

There are two types of changes which may be made to the NBHCP and/or the NBHCP Permits and/or its associated documents: (1) revisions; and (2) amendments. Any revisions or amendments shall be in accordance with all applicable legal requirements, including but not limited to the Act, NEPA, CESA, CEQA, and any other applicable state and federal laws and regulations. The Conservancy shall process all amendments and revisions to the NBHCP, circulating proposed changes to all parties and, if appropriate, approving the amendment or revision by action of the Conservancy's Board.

Revisions to the NBHCP are changes to the Plan provided for under the OCP, including adaptive management changes and mitigation fee adjustments. These revisions would not result in operations under the NBHCP that are significantly different from those analyzed in connection with the NBHCP as approved, or result in adverse impacts on the environment that are new or significantly different from those analyzed in connection with the NBHCP as approved. Revisions to the NBHCP may include, but are not limited to: (1) updating construction "windows" for the NBHCP Covered Species; (2) correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the ITPs or NBHCP; (3) establishing and amending preconstruction survey methodologies, including modifying timing of NBHCP preconstruction survey methodologies; (4) modifying existing or establishing new incidental take avoidance measures; (5) modifying reporting protocols for annual report s; (6) minor changes to survey, monitoring or reporting protocols; (7) revising reserve enhancement and management techniques; (8) establishing new reserve design criteria; (9) revising reserve enhancement or management practices in conjunction with SSMPs; (10) approving recreational or income-generating uses for the NBHCP reserves that are consistent with the biological goals and objectives of the NBHCP's OCP; (11) making annual adjustments to the NBHCP mitigation fee to keep pace with inflation, or as necessary to fully implement the NBHCP's OCP, including its adaptive management provisions and responses to changed

circumstances; (12) changes to the membership of the TAC which retains representation from the Wildlife Agencies; and (13) any other modifications to the NBHCP that are consistent with the biological goals of the NBHCP that the Service and CDFG have analyzed and agreed to and will not result in operations under the NBHCP that are significantly different from those analyzed in connection with the NBHCP, will not result in adverse impacts on the environment that are new or significantly different from those analyzed in connection with the NBHCP, or result in take not analyzed in connection with the NBHCP.

The party proposing a revision to the NBHCP shall circulate to the Conservancy, and the members of the TAC, the proposed revision along with an explanation of why the revision is necessary or desirable; and a description of why the party believes the effects of the proposed revision are more beneficial than or are not significantly different from those described in the NBHCP as originally adopted. The Conservancy shall be responsible for circulating all proposed revisions to the other Permittees for review, as appropriate. If the Conservancy, and the Service and CDFG representatives to the TAC agree to the proposed revision, and no other Permittee objects within the period prescribed by the Conservancy, the Conservancy shall process the revisions to the NBHCP, including, if appropriate, approving the revision by action of the Conservancy's Board. All adjustments to the mitigation fee shall also require approval by the City and Sutter prior to becoming effective within their respective jurisdictions.

If the Service or CDFG representative to the TAC objects that the proposed revision should be processed as an amendment to the NBHCP, the Conservancy may choose to submit the proposed revision to the Service and CDFG for review. If this happens, the Service and CDFG shall each respond in writing to a proposed revision within 60 calendar days of receipt of the request, provided that sufficient supporting documentation is included with the request. The responses shall either concur with the proposed revision or require that the proposed revision by processed as an amendment to the Plan and ITPs. If either the Service or CDFG require the proposed revision to be processed as an amendment, the agency shall include in their written response an explanation for its determination. If approved by the Service and CDFG, the revision shall become effective upon the Conservancy's receipt of the Service's and/or CDFG's approval.

Amendments to the NBHCP will require amendment of Section 10(a)(1)(B) Permits and /or the Section 2081(b) Permits, and may require amendment of the Implementation Agreement. Amendments may include any of the following types of changes to the NBHCP:

1. Proposed revisions required to be treated as Amendments.

2. The listing of a new species within the Plan Area which is not an NBHCP Covered Species but which may be affected by NBHCP Covered Activities and for which a Permittee seeks coverage under the Plan and ITPs.

3. Significant changes to the NBHCP which were not addressed in the NBHCP including, but not limited to:

a. Changes to the method for calculating compensation for incidental take, which would increase the levels of incidental take permitted for the NBHCP.

b. Changes to the mitigation fee, except as otherwise provided for in the NBHCP.

4. Changes to the Covered Activities which were not addressed in the NBHCP as originally adopted, and which otherwise do not meet the Revision provisions above.

5. Extending the term of the NBHCP Permits past the 50-year term.

6. Extension of the NBHCP Permit Area boundaries to allow development under the NBHCP within the City's or Sutter's portion of the Swainson's Hawk Zone beyond the City's designated 252 acres.

7. A proposal to increase the total authorized development permitted under the NBHCP beyond 15,517 acres (17,500 acres including MAP).

Following receipt of a complete application package for a proposed amendment to a Section 10(a)(1)(B) Permit, the Service shall publish a notice of the proposed amendment to the Section 10 (a) Permit in the Federal Register as required by the Act. The Service shall use its reasonable efforts to process the proposed amendment within 180 calendar days of publication, except where longer periods are required by law. The amendment of a Section 10(a) Permit shall be treated as an original permit application. Such applications typically will require submittal of a revised habitat conservation plan, a completed permit application form with appropriate fees, a revised Implementation Agreement, and preparation of an environmental review document prepared in accordance with NEPA.

Conservation Program of the Proposed NBHCP

Introduction

The NBHCP includes several tiers of conservation measures including: (1) creation of a system of habitat reserves as mitigation for the impacts of take of the Covered Species; (2) reserve restoration, enhancement and management measures to support each habitat type and Covered Species; (3) take avoidance and minimization measures to be implemented by the Land Use Agencies and the Conservancy for each species; and (4) an extensive compliance and effectiveness monitoring program to evaluate whether the plan is being implemented as approved and its biological goals and objectives are being met.

Overview of the Habitat Reserve System

The NBHCP includes the acquisition and creation of habitat reserves at a ratio 0.5 to 1. For each acre of land developed within the Plan Area, 0.5 acres of habitat will be restored/enhanced, and protected and managed. The 0.5:1 ratio is constant, regardless of habitat value of the lands lost to development. Therefore, a total of 8,750 acres of habitat will be protected if all of the 17,500 acres of land described in the NBHCP are developed. In addition to mitigation lands provided from the 0.5:1 mitigation ratio, 200 acres of uplands to be managed exclusively for the Swainson's hawk are being provided to mitigate for the loss of Swainson's hawk nest tree and foraging habitat as a result of the MAP project.

The NBHCP requires that habitat reserves include a variety of habitat types to support the various needs of the Covered Species. The initial requirement is for the reserve system to be comprised of 50% managed rice, 25% managed marsh habitat, and 25% upland habitat (Table 2). The NBHCP includes adaptive management provisions. If the Service determines that the 50% rice / 25% managed marsh habitat /25% upland habitat ratio does not adequately protect the snake, then the Service may require that the ratio be changed up to a total of 75% managed marsh habitat / 25% upland habitat in specific circumstances. In order to change the ratio, the Service must provide justification in the form of a written analysis based upon scientific evidence, monitoring results, or a snake recovery plan (when adopted) and meet the NBHCP's requirements. The analysis must illustrate that additional managed marsh is required to support the continuation of the snake in the Basin. The revised ratio would apply to reserves acquired and developed following issuance of the revised ratio. In other words, the revised ratio would not be retroactive.

The NBHCP also allows changing the habitat ratios (i.e., 25% marsh, 50% rice, 25% uplands) if it is determined insufficient Swainson's' foraging habitat is available. Such modifications would be applied prospectively to future Conservancy acquisitions and would not affect existing, improved Conservancy reserves (see NBHCP, Section IV.C.1.e).

As of December 4, 2002, the Conservancy had acquired approximately 2,803 acres. Of that acreage, the Conservancy planned to manage approximately 716 acres (25.5 percent) as marsh, 1,404 acres (50.0 percent) as rice, and 682.8 acres (24.4 percent) as uplands.

General Reserve System Policies

Buffers within the reserve lands. Buffers shall be established so that they are inside the reserve system (i.e., the buffers shall be part of, not outside of reserve lands) and shall count as mitigation land. Buffers between improved wetlands and surrounding land uses will extend from the outside edge of the reserve (i.e., levee toe or maintenance road) to the boundary edge of the improved wetland area. The width of the buffer and the management/uses of the buffer area shall be established at the time a Site Specific Management Plan (SSMP) is prepared for the particular reserve site. Typically, buffers will consist of native or ruderal vegetation and will vary between 9 and 23 m (30 and 75 ft.) in width, based on the compatibility of adjacent land uses. When

agricultural uses are incorporated within a reserve site, such agricultural uses (with appropriate production practices to protect wildlife) may serve as the buffer area. Other uses that may be appropriate within the buffer area include Conservancy access roads. Most buffer areas will provide suitable upland for species. For example, uplands bordering managed marsh reserves would serve as upland habitat for the snake, turtle, or other aquatic species whose habitat requirements include associated uplands. These uplands will also provide value to upland species such as the hawk.

The Conservancy may include buffers measuring less than 9.1 m (30 ft.) in width on reserve lands. In these instances, the decreased buffer widths must be specified in SSMPs, reviewed by the TAC, and approved by the Service and CDFG. Reduction of buffers may occur only where: (1) there is clear evidence that the buffer is unnecessary (e.g., the reserve site is adjacent to another reserve or similar natural habitat); (2) it is determined that buffers are not the best use of reserve land; and (3) the lack of buffers will not create conflicts with adjacent property owners (e.g., issues of vector control or other nuisance). Decisions about the need for buffers and buffer widths shall be included in the SSMPs for habitat reserves.

Connectivity. One of the primary goals of the NBHCP is to ensure connectivity between individual reserves, and connectivity between reserves and surrounding agricultural lands. Connections can be provided along land, through water and through air to enable the necessary mobility of species within their ranges. One primary means of connection between water areas will be the drainage/irrigation canals within the Basin. The primary opportunity for connectivity between reserves is the system of channels maintained and operated by RD 1000 and Natomas Mutual.

The success of the snake in the Basin is dependent, in part, upon the maintenance of some of RD 1000's and Natomas Mutual's channels. Although the NBHCP anticipates that some of RD 1000's and Natomas Mutual's canals will be closed during the life of the ITPs, it also relies on the persistence of other canals to ensure the viability of some Covered Species in the Basin (see giant garter snake effects discussion below). Once Conservancy reserves have been acquired and key connectivity corridors identified, changes in water delivery and drainage operations affecting key channels must be considered by the Conservancy and appropriate actions taken to ensure connectivity is maintained between reserves. One of the mechanisms identified in the NBHCP to ensure viability of the reserve system is through moving reserve components. Other options, which may be used, if necessary, to maintain integrity of existing reserves, include memorandums of agreement, easements, and outright purchases of land, which would be designed to ensure connectivity for the snake between Conservancy reserves.

The NBHCP's Biological Monitoring Program (see NBHCP, Chapter VI) requires that an annual assessment be conducted to determine if connectivity exists within and between reserves. If it is determined that connectivity is being compromised, the Conservancy may use the above methods to reestablish connectivity. If this connectivity is not reestablished, the Wildlife Agencies may determine that the Conservancy is out of compliance with the terms and conditions of its Permits. Because the Conservancy is the Plan Operator, the consequence of this

may be that the City and/or Sutter are out of compliance with the terms and conditions of their Permits, which may lead to suspension or revocation of their Permits.

2,500-Acre/400-Acre minimum habitat block size requirements. The Conservancy will consolidate reserve acquisitions throughout the life of the Permits in order to build larger blocks of habitat reserve lands. Minimum requirements for reserve sizes are discussed below. The connectivity promoted through the required configurations of Conservancy acquisitions should reduce fragmentation and isolation of habitat reserves, thereby increasing the long-term viability of wildlife populations within the Basin.

In order to ensure adequately sized reserves that will support long-term viability of Covered Species, the NBHCP requires that by the end of the 50-year Permits, at least one habitat block within the reserve system will be a minimum of 2,500 acres. The remaining reserve lands must be in habitat blocks that are at least 400 acres in size. However, the Conservancy may acquire properties smaller than 400 acres in size in instances where the TAC determines that the biological resources merit such acquisitions. The basis for the 400-acre minimum block size and 2,500 acre reserve block size is: (1) large blocks minimize the "perimeter effect;" (2) large blocks promote biodiversity by allowing multiple species and niches to occupy the site; and (3) the 400 acre reserve size is considered in the NBHCP the minimum size necessary to allow the persistence of Covered Species.

Setbacks adjacent to reserve lands. Setback zones shall be considered by the Conservancy prior to the acquisition of reserve lands. The purpose of the setback requirement is to minimize the impacts between reserve lands and existing development or lands that are designated for urban development by one of the Land Use Agencies. The setback zone functions as a limitation on where reserve lands can be located. However, the reserve land setback zone does not affect the ability of each of the Land Use Agencies to approve development within the setback zone and adjacent to the boundaries of reserve lands. The setback criteria requires that mitigation lands acquired by the Conservancy or for which conservation easements are obtained shall, at the time of acquisition, be situated at least 244 m (800 ft.) from existing urban lands or lands that are designated for urban uses in an adopted general plan within the City or Sutter Permit Areas. Lands that are located within either the City or Sutter's Permit Area shall not be acquired or accepted as Conservancy Mitigation Lands without the prior review and approval by the decision making body of the Land Use Agency Permittee within which the proposed Mitigation Land is located, as well as Wildlife Agency approval. The NBHCP allows exceptions to the setback width requirement if: (1) the TAC, including its Service and CDFG representatives, concur unanimously in a decision to reduce the setback distance; or (2) if not unanimous, the Service and CDFG concur in writing that a reduction in the setback distance is necessary or appropriate.

Lands in the 800 foot setback zone between urban development and reserve areas will probably be in agriculture or another open-space or non-urban use. However, such lands will likely not be under the control of the Conservancy and will not count as mitigation land. The NBHCP specifically states that the setback standard is not intended to impose an obligation on the

Conservancy or the owners of the setback lands to manage those setback lands in any particular fashion.

Reserve Site Acquisition Criteria

Overall acquisition criteria. The Conservancy proposes to apply the following criteria when evaluating potential reserve acquisitions (see Section IV.C.2 of the NBHCP).

1. Habitat types within Conservancy reserves will generally be as follows: 25 percent managed marsh; 50 percent rice production; and, 25 percent upland habitat. These percentages apply on a Basin-wide basis and percentages within individual reserves may vary from the percentages described above.

2. Land must have legal water rights to an adequate water supply to serve the anticipated uses (wetland or upland) of the proposed reserve. This would normally mean rights to water from the Natomas Mutual (or its equivalent supplier if outside the Basin), but may solely include groundwater if a groundwater well or wells exist on the property and that such the well(s) can meet acceptable water quantity and quality needs.

3. Land must be capable of supporting appropriate agricultural cultivation in conjunction with either wetland or upland habitat reserve.

4. Land must be capable of either supporting or being improved to support various Covered Species associated with the anticipated type of habitat (wetland or upland) proposed for the potential reserve.

5. Upland- or wetland-specific criteria, as described in the following sections, must be applied as determined appropriate by the Conservancy and the TAC.

6. Land must be adequately removed from incompatible urban development or uses.

7. Habitat reserves will be established by the Conservancy in consultation with the TAC. Prior to purchase, all lands being considered for acquisition will be submitted to the Service and CDFG for review and concurrence. Such concurrence will be required before any land acquisitions are completed. However, formal Service and CDFG concurrence may be waived if: (a) the TAC, including the Service and CDFG representatives, unanimously concur with the proposed acquisition and if documentation of such concurrence is placed into the Conservancy's administrative record; or (b) the Conservancy's Board of Directors approves an action pursuant to this section in a regular, noticed meeting of the Board. In the latter example, following approval of the Conservancy's Board of Directors, the acquisition will be approved, unless the Service and CDFG deny the acquisition within 60 days of being notified in writing of the acquisition by the Conservancy.

Additional criteria for wetland and upland reserves are as follows:

Additional acquisition criteria specific to wetland habitat areas. The Conservancy proposes to use the following guidelines to identify lands for wetland reserve area (see Section IV.C.3 of the NBHCP):

1. Land has existing or potential wetland habitat values that currently support or can support, with necessary enhancement and restoration, the snake and other wetland associated Covered Species.

2. Land contains soils that can support rice farming or the type of managed marsh wetlands proposed in the NBHCP.

3. Blocks of reserve lands must be hydrologically connected to other blocks through irrigation and drainage systems or other systems to ensure connectivity and opportunity for travel by snakes between sections of the reserve system. To the extent practicable, reserve lands will also be near or adjacent to other protected habitat lands in order to increase the overall effectiveness and size of protected lands in the Basin for Covered Species.

4. Lands selected to provide for the NBHCP wetland habitat system shall be situated outside areas known to regularly receive deep flood waters (e.g., the Yolo and Sutter Bypasses). They shall also be situated so that they do not directly receive runoff from paved surfaces or inflow from urban storm water drainage systems.

Additional acquisition criteria specific to upland areas (see Section IV.C.4 of the NBHCP). The NBHCP's primary strategy to mitigate impacts to the hawk is to avoid development in the Swainson's Hawk Zone and to acquire upland habitat as mitigation lands inside the Swainson's Hawk Zone. The Swainson's Hawk Zone is an area of the Basin one mile in width that borders the Sacramento River. In order to maintain and promote hawk habitat values, Sutter will not obtain coverage under the NBHCP and ITPs, or grant urban development permit approvals for development on land within the Swainson's Hawk Zone. The City has limited its Permit Area within the Swainson's Hawk Zone to approximately 252 acres located within the North Natomas Community Plan that was designated for urban development in 1994 and will not grant development approvals within the Swainson's Hawk Zone beyond the previously designated 252 acres. Should either the City or Sutter seek to expand NBHCP coverage for development within the Swainson's Hawk Zone beyond that described above, granting of such coverage would require an amendment to the NBHCP and ITPs and would be subject to review and approval by the Service and CDFG in accordance with all applicable statutory and regulatory requirements.

In addition to lands located in the Swainson's Hawk Zone, land outside the zone can be made attractive for the hawk through appropriate habitat design, as specified in Sections IV.C.1.e, IV.C.4, and V.B.4 of the NBHCP and in consultation with the Conservancy's TAC. The goal of these strategies is to maintain optimum nesting and foraging habitat for the hawks nesting in the

zone by providing an abundant and available prey source. In order to optimize the use of the entire Basin by the hawk, the NBHCP also includes maintenance of nesting and foraging habitat for hawks nesting elsewhere in the Basin, as well as acquisition of reserve lands that benefit the other upland-associated species. Upland reserve acquisition criteria include (see Section IV.C.4 of the NBHCP):

1. The land contains known or potential hawk nest trees, or includes or is adjacent to suitable foraging habitat (e.g., agricultural croplands and grasslands).

2. The land is comprised of agricultural croplands or grasslands that, based on crop type or surveys, is expected to have a suitable hawk prey base and, preferably, have historically been used by hawks (as determined by the CNDDB or CDFG data and reports).

3. The land is or can be used to grow crops conducive to hawk foraging, including alfalfa and other hay crops, lightly grazed pasture, fallow fields, or summer harvested row crops. Cotton and other late harvest crops may not be grown.

4. If possible, the land contains appropriate areas for the establishment of riparian woodland habitat, or isolated groves in agricultural fields, for future use by the hawk. Trees which may be planted include valley oaks (*Quercus lobata*), cottonwoods (*Populus fremontii*), willows (*Salix goodingii*), sycamores (*Platanus* sp.), and California walnut (*Juglans californica*).

5. Contiguity of upland reserve sites will be maximized. The hawk conservation objectives in Chapter I of the NBHCP direct the Conservancy to focus acquisition of upland reserves in the Swainson's Hawk Zone. That objective, together with this provision, is intended to ensure that hawk habitat protected in reserves will not be excessively fragmented, either inside or outside of the Swainson's Hawk Zone, and that habitat contiguity will be a primary criteria under which upland reserve sites will be selected. However, the value of edge habitat with wetlands will be considered in reserve design.

6. The land supports or has the potential to support other Covered Species which utilize upland habitat.

Generally, priority for acquiring upland habitat is as follows (in descending priority order): (1) sites located within the Swainson's Hawk Zone; (2) sites that, in the judgement of the Conservancy and the TAC, would provide specific, important benefits to other upland-associated Covered Species (e.g., tricolored blackbird nesting colonies); (3) sites supporting hawk nests or foraging habitat outside the Swainson's Hawk Zone; (4) sites that would provide a good potential for enhancement of upland habitat values; and (5) any other site that would result in a benefit to any upland Covered Species.

Habitat Reserve Restoration and/or Enhancement Conservation Strategies

Preparation of Site Specific Management Plans for Each Reserve. The Conservancy will improve and manage reserves in a manner that will, to the maximum extent practicable, benefit all Covered Species. This shall be accomplished through preparation and implementation of SSMPs. The TAC will participate in the review of the management plans, and shall ensure that the management guidelines are incorporated into each management plan. The Wildlife Agencies (Service and CDFG) will approve all SSMPs. Each SSMP will specify: (1) management policies not otherwise prescribed by the NBHCP; (2) specific management activities, including establishment of suitable monitoring programs; (3) restoration and enhancement needs; and (4) reserve water management. The following design and management criteria shall be considered during the preparation, review and approval of SSMPs for Conservancy reserves:

1. Identification of Covered Species present/habitat requirements determination. An existing Conditions Biological Assessment of newly acquired Conservancy reserves will be conducted to determine the specific Covered Species the parcel currently supports or could potentially support. The results of this survey will be included in the SSMP for the subject Mitigation Land. The habitat type present or desired (e.g., wetlands or uplands) will also be a critical determination in establishing management policies. Management policies and activities will be oriented toward the species and habitats indicated or selected, and specific management policies established will be consistent with the needs of those species or habitats. Land parcels that are unsuitable for or are not expected to support any of the Covered Species will be eliminated from consideration through use of the mitigation site selection criteria described in Sections IV.C.2, C.3.b, and C.4.b of the NBHCP.

2. Access. The Conservancy will protect the Covered Species and their habitat by limiting and regulating public assess to Conservancy reserves. Reserves shall be patrolled to control prohibited and incompatible activities, including, but not limited to, dumping, off-road vehicle activity and trespass.

3. Appropriateness of hunting. Management plans will identify the level of hunting allowed, if any, and will include parcel-specific restrictions to protect the Covered Species during any hunting activities. No take of Covered Species as result of hunting will be covered under the permits.

4. Controlled/prohibited activities. Activities that would potentially conflict with mitigation goals or would endanger habitat resources will be described and controlled or prohibited as necessary. Examples of activities that will typically be prohibited include dumping, vandalism, unauthorized hunting and fishing, collection of plants or animals, and off-road vehicle use.

5. Avoidance of conflicts with the Sacramento International Airport. It is imperative that reserve lands in the vicinity of the Airport be managed to avoid the potential for aircraft/bird collisions and other potential conflicts with Airport operations. Reserve management plans will therefore be developed with these issues in mind. Draft

management plans for reserve lands in the vicinity of the Airport will be submitted to the Airport Facilities Manager to provide a reasonable opportunity for review and comment prior to approval by the Conservancy, Service, and CDFG.

6. Take avoidance. The Conservancy will implement take avoidance measures to minimize potential take that may occur during habitat creation, restoration, preservation, enhancement and management activities on reserve lands. To accomplish this, the Conservancy shall, where applicable, ensure that all take avoidance measures described in Chapter V of the NBHCP are implemented during preservation, restoration, creation, enhancement, management, and use of reserve lands. The Conservancy shall include all take avoidance and minimization measures it deems necessary and appropriate in SSMPs.

7. Habitat enhancements. Water bodies within habitat reserve units shall vary in size, depth and edge planting to provide varied habitat opportunities. Plantings of native trees, including valley oak, cottonwood, and willow shall generally be incorporated within each habitat reserve unit as determined feasible by the Conservancy and the TAC. Additional restoration activities that may be implemented on reserve lands include, but are not limited to, the following: (1) restoring natural drainage patterns/erosion control; (2) exotic/invasive plant control; and (3) domestic/feral animal control.

Habitat Management Conservation Strategies.

General Management Strategies: Consistent with the SSMP prepared for each reserve, management activities can include: (1) control of water supply and availability; (2) suitable agricultural practices (e.g., rice growing for the snake and production of other crops for the hawk); (3) grazing or mowing programs to eliminate weeds or control vegetation; (4) exotic species control; (5) erosion control; (6) enhancement of native plant communities; (7) habitat enhancement activities for the Covered Species (e.g., construction of artificial burrows for the owl; (8) predator control; (9) enhanced ditch and drain management for the ditches owned by the Conservancy on reserve lands; and (10) coordination of any research conducted within reserves with outside species experts and other individuals or groups. Management activities deemed beneficial for some Covered Species will be conducted so that they have a minimal adverse affect on other Covered Species.

Wetland Habitat Management Conservation Strategies: The following strategies are included in the NBHCP regarding conservation practices on wetland preserves:

1. Protection from flooding. The drainage regime for managed wetlands and rice fields in the reserve system will be designed to ensure that snake retreats are not inundated when water is drained from ditches, fields, canals or wetland areas. It is also desirable to locate upland habitats inside the wetland reserve system to avoid flooding of winter retreats.

2. Managed marsh design/management. Managed marsh wetlands, together with associated uplands, rice fields, and water conveyance ditches and canals, are expected to

form a mosaic of diverse wetland habitats in the wetland portion of the reserve system that will support giant garter snakes and other wetland associated species. Embedded within an agricultural landscape dominated by rice farming, managed marsh wetlands based on such biological principles should support the snake as well as many other Covered Species (e.g., white-faced ibis, tricolored blackbird, and northwestern pond turtle). Marsh design and management shall be developed by qualified restoration biologists as part of the SSMP development process. The SSMP will consider, but is not limited to: (1) summer dry-down of seasonal marsh; (2) availability of summer water either as pockets of deeper water that persist in the seasonal marsh or as permanent marsh, located near or adjacent to vegetated banks or suitable upland habitat; (3) open water channels in marsh habitat to provide movement corridors and foraging edge; (4) availability of abundant emergent vegetation and near shore habitat; (5) a good food supply; and (6) availability of diverse habitat elements.

3. Water regime. Seasonal managed marshes will be flooded by mid-April (if not flooded during the winter) so that water and prey are available when the snake emerges from winter retreats. Water will be maintained within the managed marsh through the period when rice fields dry down (approximately mid-August). This irrigation regime is intended to provide alternative habitat to the snake as rice fields are drained and concentrate prey species from rice fields into canals and managed marshes. It is considered advantageous to include within the NBHCP's wetland reserve system some areas of permanent marshes and sloughs interspersed with the seasonal marshes, rice fields, and uplands. This will increase the overall habitat diversity of the reserves for the snake as well as other Covered Species.

4. Upland component of managed marsh. While a portion of the terrestrial component of the managed marsh system will be designed to meet the buffer requirements of the NBHCP, the rest will be designed and managed to meet the needs of the snake and upland Covered Species. The typical proportion of upland habitats within the reserve system will be approximately 20 to 30 percent. Upland areas provide basking and resting sites, escape cover and winter retreats for the snake, as well as foraging and nesting areas for other Covered Species (e.g., loggerhead shrike, tricolored blackbird, burrowing owl, and hawk). Upland areas intended to provide upland habitat for the snake under the NBHCP may consist of dryland pasture, grasslands, levees, and any other land use approved by the TAC.

5. Water conveyance structures/edge. Marsh design should include edge habitat to provide foraging and movement corridors for the snake and other Covered Species. Edge can be created by providing open water channels within marsh to provide open water/emergent vegetation interface. Upland/aquatic habitat interface may also provide edge habitat where sufficient vegetation is present to provide cover for the snake.

6. Vegetation/cover. Vegetation in a managed marsh should support a diversity of wildlife. Plant species that currently occur in the emergent marsh habitat found in the Basin will

be included in the NBHCP's managed marsh wetlands. These include cattails (*Typha latifolia)*, tules (*Scirpus acutus),* rushes (*Juncus* sp.*)*, river bulrush (*S. fluvialtilis*), sedges (*Carex* spp.*, Cyperus* spp.*),* and vervain (*Verbena hastata).* Marsh edges and "islands" will be well-vegetated with plants that discourage the movement of the snake's predators (e.g., herons, egrets, rats, and domestic animals). Plant species such as wildrose (*Rosa* spp.) and thimbleberry (*Rubus parviflorus*) are relatively impenetrable to many predator species but not to the snake and serve as basking sites for the snake. The snake utilizes a variety of sites for escape cover and winter retreats, including small mammal burrows, thick vegetation such as wildrose and thimbleberry, and areas of jumbled rock such as rip rap, chunks of rock, or broken concrete. Management of wetland reserves under the NBHCP shall therefore include protection and/or construction of such types of snake cover and retreats as deemed appropriate by the TAC.

7. Access. Road kills are believed to be a significant snake mortality factor, especially for males (see Chapter II of the NBHCP). Consequently, new roads within reserve lands will be constructed to the minimum extent necessary to provide for the adequate maintenance of the marshes and other reserve lands. If roads already exist in an area acquired as a reserve, access to these roads will be restricted as necessary to protect the reserves from unnecessary disturbance, and as described in the SSMPs.

8. Water control structures. Managed marshes require a controlled source of good quality water at suitable depths, usually less than 0.9 m (3 ft.) (water depth is important to the establishment of appropriate vegetation). Management and enhancement of a managed marsh can be maximized through water control. A variety of water manipulation approaches will be utilized, including levees, stoplog and screwgate water control structures to regulate water flows and depths, and dewatering systems.

9. Mosquito control. Mosquito control programs operate throughout Natomas Basin. Generally, conventional mosquito control methods are compatible with garter snake habitat. Use of mosquito fish and low intensity pesticide applications would not directly threaten garter snakes or their habitat, and mosquito fish may actually serve as garter snake prey. However, mosquito control programs are more focused near urban areas, and the more intensive control methods there could harm giant garter snakes. If necessary, the Conservancy should work directly with Mosquito Abatement Districts to determine suitable methods to resolve mosquito problems near urban areas in a manner consistent with the management of giant garter snake wetland habitats established under the NBHCP. The Site Specific Management Plans prepared for each wetland site shall identify appropriate types of mosquito control and shall also be coordinated as necessary with the Mosquito Abatement Districts. Pesticide use is not a covered activity under the NBHCP and therefore, any mosquito control activities using pesticides would have to be constructed in a manner that does not result in take of Covered Species.

10. Other factors. Managed marshes must be kept clear of winter storm runoff coming directly from urban areas. In addition, preserves cannot be used for any additional

purposes such as flood control or directly receive storm water or other off-site drainage from urban development. Water quality must also be maintained in order to maintain wildlife productivity and preclude the outbreak of wildlife diseases.

Management of reserve rice lands for the snake. The NBHCP recognizes that continued rice farming in the Basin supports the snake and that maintaining rice farming on a significant portion of Conservancy reserve lands is an integral component of the overall conservation strategy. With respect to the selection of rice fields for inclusion in the reserve system and their subsequent management, the following criteria shall be applied:

1. Rice fields will generally be selected in areas that are either within or have connectivity to known snake populations or known occupied snake habitat.

2. Rice fields located in areas designated to receive winter flood waters will be avoided (e.g., the Yolo and Sutter Bypasses).

3. Rice fields in the reserve system will be managed to maximize snake compatibility. This includes maintenance of rice checks, berms, and other water control structures in as natural a state as practicable, maintenance of snake prey species (e.g., mosquito fish) in or near the rice fields through appropriate management, and other measures as appropriate. Management will also, to the extent compatible with snake conservation, be compatible with the needs of commercial rice production. Specific measures for managing rice fields will be determined by the Conservancy in consultation with the TAC and in the SSMPs.

Upland reserve management and conservation strategies. The upland habitat conservation strategy is intended to provide for the long-term protection of existing and potential upland habitat in the Basin that currently supports or could support the hawk and other upland Covered Species. In most cases, upland reserves established and managed for the hawk will also benefit other upland-associated Covered Species (e.g., the loggerhead shrike and burrowing owl). Consequently, selection of upland reserve sites will usually focus on the needs of the hawk, except in cases where, in the judgement of the Conservancy and the TAC, specific or important needs of other upland-associated species can be met at sites not selected primarily for hawks.

General Avoidance, Mitigation And Minimization Measures

Land Use Agencies' Conservation Measures. The Land Use Agencies have proposed to use the following conservation measures:

1. Pre-Construction Surveys. Not less than 30 days or more than six months prior to commencement of construction activities on a specific authorized development site in the NBHCP Area, a pre-construction survey of the site shall be conducted to determine the status and presence of, and likely impacts to, all Covered Species on the site. However, if the sole period for reliable detection of that species is between May 1 and December

31, pre-construction surveys for an individual species may be completed up to one year in advance. The applicant seeking to develop land will be responsible for contracting with Wildlife Agency-approved biological consultants to carry out the pre-construction surveys, and as necessary, to implement specific take minimization, and other conservation measures set forth in the NBHCP and approved by the Service and CDFG. The results of the pre-construction surveys and recommended take minimization measures shall be documented in a report and submitted to the Land Use Agency, Service, CDFG and the Conservancy. Based upon the survey results, the Land Use Agencies will identify applicable take avoidance and other site-specific conservation measures, consistent with the NBHCP, required to be carried out on the site. The approved pre-construction survey documents and list of conservation measures will be submitted by the developer of the authorized development project to the applicable Land Use Agency to demonstrate compliance with the NBHCP. Reconnaissance-level surveys should be conducted prior to species specific surveys to determine what habitats are present on a specific development site and what, if any, more intensive survey activities should be conducted to accurately determine the status of the Covered Species on the site. It shall be the obligation of the developer/landowner to complete such surveys and the Land Use Agency's responsibility to ensure the surveys are properly completed prior to disturbance of habitat. Surveys shall be conducted by Wildlife Agency-approved biologists (e.g., persons with suitable biological, botanical, or related expertise). Note: negative species-specific survey results generally do not obviate the requirement to implement minimization measures prescribed in the revised NBHCP where a pre-construction survey indicates that habitat for a particular listed species exists onsite.

2. Preservation of the area adjacent to Fisherman's Lake. According to the City's North Natomas Community Plan, there is a buffer area along Fisherman's Lake from Del Paso Road to El Centro Road on the City side of Fisherman's Lake, a portion of the West Drain. The exact width of the buffer area has not yet been determined but it will be at least 250 feet (from the City limits), based upon a June 2002, amendment to the North Natomas Financing Plan (C. Shearly, pers. Comm.). The east side of Fisherman's Lake is in the City and the west side is in the unincorporated portion of Sacramento County. Pursuant to the Settlement Agreement, the City has agreed to initiate a North Natomas Community Plan amendment to potentially widen the agricultural buffer along the City side of Fisherman's lake to 244 m (800 ft.).

   Fisherman's Lake, and the immediately adjacent areas are, and will continue to be, owned and managed by RD 1000. The City is creating a buffer along the east side of Fisherman's Lake and has amended the North Natomas Financing Plan to include the buffer area along Fisherman's Lake in the Land Acquisition Program. In the case of acquiring the buffer, the development impact fee is a public land acquisition program fee charged to all developers to fund the acquisition of public lands (i.e., land for community centers, fire stations, etc.). The Fisherman's Lake buffer is part of the public land acquisition program (C. Shearly, pers. comm.). The buffer area will likely be managed by the Conservancy.

3. General Measures to Minimize Take. In order to generally minimize the impacts of development on Covered Species, the City and Sutter shall impose the following requirements on authorized development when approving urban development permits within the Basin:

    a. Tree preservation. Valley oaks and other large trees should be preserved whenever possible. Stands of riparian trees used by hawks and other animals for nesting, particularly adjacent to Fisherman's Lake, will be preserved and restored.

    b. Native plants. The wildlife value of landscaped parks, buffers, and developed areas will be improved by planting trees and shrubs which are native to the Basin.

    c. Protect raptor nests. The raptor nesting season will be avoided when scheduling construction near nests. Specific avoidance criteria are set forth in the species-specific measures (discussed below).

    d. Protected plant/animal species, also referred to as "Special Status Species". Surveys for Covered Species will be conducted during the appropriate season.

Species-Specific Conservation Measures

Avoidance, Minimization, and Mitigation Measures for the Threatened Vernal Pool Fairy Shrimp, Endangered Vernal Pool Tadpole Shrimp, Threatened Colusa grass, Endangered Sacramento Orcutt grass, Threatened slender Orcutt grass, Midvalley Fairy Shrimp, Legenere, and Bogg's Lake Hedge-Hyssop.

Ten species associated with vernal pools or other seasonal wetlands are proposed for coverage under the NBHCP's ITPs, including three shrimp species, five plant species, and two amphibians. Only two of the ten vernal pool species covered by the NBHCP (vernal pool tadpole shrimp and vernal pool fairy shrimp) have been confirmed within the Basin.

Undisturbed areas of vernal pools within the Basin are few and relatively small. The primary purpose of including the vernal pool associated species within the NBHCP is to provide protection to the Conservancy with regard to the management of future wildlife reserves. The complex of wetland/upland habitat to be developed by the Conservancy may provide enhanced opportunities for the establishment and proliferation of vernal pool species. In the event vernal pool species do benefit from the Conservancy's efforts, it will be necessary to provide coverage to the Conservancy for activities that could result in incidental take of them. However, the Land Use Agencies (except MAPPOA) are also seeking coverage because suitable habitat for these species likely exists in their Permit Areas (except MAP).

The Land Use Agencies will employ the following measures to reduce take of the vernal pool fairy shrimp, vernal pool tadpole shrimp, and midvalley fairy shrimp, and to minimize and mitigate for the loss of Colusa grass, Sacramento Orcutt grass, slender Orcutt grass, legenere, and Bogg's Lake hedge-hyssop:

1. Prior to approval of an urban development permit, the involved Land Use Agency will require Wildlife Agency-approved pre-construction surveys. If the surveys determine that Covered vernal pool species are present, the Land Use Agency will require the developer to consult with the Service to determine appropriate measures to avoid and minimize take/loss of individuals. Procedures for reviewing projects that could affect vernal pools and vernal pool species are discussed below.

    a. General biological survey and information required. In the event a biological reconnaissance survey or the pre-construction survey identifies that vernal pool resources are on-site, a vernal pool species-specific biological assessment must be provided by the developer to the Land Use Agency to determine the type and abundance of species present. The species-specific biological assessment must address covered vernal pool plants (i.e., Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, legenere, and Bogg's lake hedge-hyssop), crustaceans (i.e., vernal pool tadpole shrimp, vernal pool fairy shrimp, and midvalley fairy shrimp), and amphibians (i.e., California tiger salamander and western spadefoot toad). The vernal pool plant survey must be a Service-approved plant survey prepared by a Service-approved qualified field biologist and will list the methods of field analysis, condition of habitat, size and acreage of direct and indirect impact (as defined by seasonal inundation and hydric soils and other appropriate characteristics), and species present. The vernal pool crustacean survey will be in accordance with the Service's *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (April 19, 1996) or the most recent Service-approved survey guidelines for vernal pool species (see Appendix L of the NBHCP). The biological assessment must be submitted with the Urban Development Permit application and prior to approval of an Urban Development Permit by the Land Use Agency. If it is determined that wetland and/or vernal pool resources would be disturbed by a project, then take of vernal pool-associated Covered Species would be covered under the NBHCP, subject to the following limitation and guidelines:

        i. Where site investigations indicate vernal pool species may occur, the developer will notify the Land Use Agency regarding the potential for impacts to vernal pool species. Such notification will include biological data (see Section (a) above regarding biological information required) adequate to allow the Land Use Agency, and the Service and CDFG to determine the potential for impacts to vernal pool species resulting from the proposed development.

ii. Following notification by the Land Use Agency, the Service and CDFG will identify specific measures required to avoid, minimize and mitigate impacts to vernal pool species to be implemented prior to disturbance and in accordance with adopted standards or established guidelines (e.g., the Service's programmatic biological opinion for vernal pool species attached as Appendix G to the NBHCP). In some cases, the Service and CDFG may require complete avoidance of vernal pool species, such as where Covered Species such as slender Orcutt grass, Sacramento Orcutt grass, Colusa grass and/or vernal pool tadpole shrimp are found to be present. Such measures will be identified by the Service and CDFG within 30 days or as soon as possible thereafter of notification and submittal of biological data to the Wildlife Agencies by the Land Use Agency.

iii. The requirement by the Service to preserve a vernal pool within development would be based on identification of an intact vernal pool with minimal disturbance where the presence of one or more of the following species is recorded: slender Orcutt grass, Sacramento Orcutt grass, Colusa grass, or vernal pool tadpole shrimp. Prior to requiring on-site preservation of a vernal pool area, the Service will consider the suitability of the vernal pool as Conservancy Mitigation Lands. The Service will not require the vernal pool to be preserved unless it is appropriate as Conservancy mitigation lands. Such vernal pool areas, including any required buffer land dedication, will apply toward the Land Acquisition Fee component of the development project's NBHCP mitigation obligation.

b. Mitigation Strategies. Vernal pool resources (i.e., vernal pool fairy shrimp, vernal pool tadpole shrimp, midvalley fairy shrimp, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, legenere, and Bogg's Lake hedge-hyssop) identified through site specific investigations will be mitigated in one of three general approaches as described below. Strategies to minimize and mitigate the take of the California tiger salamander and western spadefoot toad will be conducted according to Sections V.A.5 and V.B.4 of the NBHCP.

i. Avoidance and preservation on-site as a means to minimize impacts. In the event the Service requires on-site preservation in accordance with Section a.3 of the NBHCP, on-site mitigation will be required. In the event the Service does not require on-site mitigation, a developer or private land owner may still propose to dedicate fee title or conservation easement for that portion of the property with vernal pool resources and an associated 250-foot buffer surrounding the vernal pool resource to the Conservancy. Acceptance of the offer to dedicate will be subject to review and approval by the Land Use Agency, the Conservancy's Board and the

Wildlife Agencies. The Conservancy's Board of Directors and the Wildlife Agencies will consider the location, connections, species present, condition of the proposed site to be dedicated, and may decide to accept the dedication in lieu of payment of the Land Acquisition Fee portion of the NBHCP Mitigation Fee for the affected acreage. The Conservancy's Board of Directors may accept or decline the offer based on the balance of habitat needs and the biological goals of the NBHCP. If the dedication is accepted, a reduction in the Land Acquisition Fee portion of the habitat Mitigation Fee will be granted the developer for the portion (calculated on an acreage basis) of the site permanently preserved by easement or dedication. However, habitat Mitigation Fees must be paid on the remaining developable acreage on the site, and all fees other than Land Acquisition Fees will be paid for all acres on the site. Additional conditions to preserve the biological integrity of the site (such as reasonable drainage conditions) may be imposed by the Land Use Agency in consultation with the Conservancy and the Conservancy's TAC. In the event the developer does not support on-site preservation or the Conservancy does not accept the offer to dedicate, then one of the following mitigation approaches will be employed.

ii. Construction period avoidance and relocation of vernal pool resources. No grading, development or modification of the vernal pool site or the buffer area extending 76.2 m (250 ft.) around the perimeter of the vernal pool site may occur during the vernal pool "wet" season, as determined by the Service. Protective fencing will be established around the perimeter of the vernal pool site and the buffer area during the vernal pool wet season. In consultation with Conservancy and the TAC, soils and cysts from the vernal pool may be relocated as soon as practicable during the dry season to a suitable Conservancy reserve or other reserve site, provided the relocation/recreation site is approved by Conservancy, TAC and the Service. If it is not practicable to relocate vernal pool resources, and/or the Conservancy and the TAC determine that the Conservancy does not have a suitable reserve site for relocation of resources, then the applicant will follow the mitigation approach outlined in Section (iii) below.

iii. Payment into a Service approved conservation bank. In the event all of the above approaches are not appropriate for the site, the Land Use Agency will require the developer to purchase credits from a Service-approved mitigation bank in accordance with the standards set forth in Table 3. The Service will determine the type and amount of credits to be purchased based on the impacts associated with the development.

In order to ensure that vernal pools and their associated species are adequately protected on reserve lands, the Conservancy will consult with the TAC and vernal pool crustacean experts

periodically during implementation of the NBHCP to determine what, if any, additional conservation opportunities for vernal pool fairy shrimp, vernal pool tadpole shrimp, midvalley fairy shrimp, Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, Boggs Lake hedge-hyssop, and legenere might exist within the proposed reserve system. Any conservation measures identified through this process will be incorporated, as appropriate, into the NBHCP's conservation program through its adaptive management provisions.

Threatened Giant Garter Snake Avoidance and Minimization Measures. The Land Use Agencies have proposed to employ or ensure that the following measures are followed to minimize and avoid the effects of the proposed action on the snake:

1. Within the Basin, all construction activity involving disturbance of habitat, such as site preparation and initial grading, will be restricted to the snake's active period (May 1 - September 30).

2. Pre-construction surveys for the snake, as well as other Covered Species, will be completed for all development projects by a qualified biologist who has been approved by the Service. If snake habitat is found within a specific site, the following additional measures will be implemented to minimize disturbance of habitat and harassment of the snake, unless that project is specifically exempted by the Service:

    a. Between April 15 and September 30, all irrigation ditches, canals, or other aquatic habitat will be completely dewatered, with no puddled water remaining, for at least 15 consecutive days prior to the excavation or filling in of the dewatered habitat. The dewatered habitat will be observed to ensure that it does not continue to support snake prey, which could attract snakes to the project site. If a site cannot be completely dewatered, snake prey items will be removed using netting or other salvage methods.

    b. No more than 24-hours prior to the start of construction activities (site preparation and/or grading), the project area will be surveyed for snakes. If construction activities stop on the project site for a period of two weeks or more, a new snake survey will be completed no more than 24-hours prior to the re-start of construction activities.

    c. Clearing will be confined to the minimal area necessary to facilitate construction activities. Giant garter snake habitat within or adjacent to the project as will be flagged as Environmentally Sensitive Areas and designated as avoided. This area will be avoided by all construction personnel.

    d. Construction personnel completing site preparation and grading operations will receive Service-approved environmental awareness training. This training instructs workers on how to identify the snake and its habitats and what to do if a

snake is encountered during construction activities. An on-site biological monitor will be designated during the training.

e. If a live snake is found during construction activities, the Service and the project's biological monitor will be immediately notified. The biological monitor, or his/her assignee, will halt construction in the vicinity of the snake. The snake will be monitored and allowed to leave the area on its own. The monitor will remain in the area for the remainder of the work day to make sure the snake is not harmed or, if it leaves the site, does not return. Escape routes for the snake should be determined in advance of construction and snakes should always be allowed to leave on their own. If a snake does not leave on its own within one working day, further consultation with the Service will be conducted.

f. Upon locating dead, injured or sick Covered Species, the Permittees or their designated agents will notify, within one working day, the Service's Division of Law Enforcement (2800 Cottage Way, Sacramento CA 95825) or the Sacramento Fish and Wildlife Office (2800 Cottage Way, Room W-2605, Sacramento, CA 95825, telephone 916 414-6600). Written notification to both offices will be made within three calendar days and will include the date, time, and location of the finding of a specimen and any other pertinent information.

g. Fill or construction debris may be used by the snake as an over-wintering site. Therefore, upon completion of construction activities, any temporary fill and/or construction debris will be removed from the site. If the material is located near undisturbed snake habitat and will be removed between October 1 and April 30, it will be inspected by a Wildlife Agency-approved biologist to ensure that snakes are not using it as hibernaculae.

h. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes will be placed on the project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutes include coconut coir matting, tackified hydroseeding compounds, or other materials approved by the Wildlife Agencies.

i. Fences will be constructed along the shared boundary of urban development and the North Drainage Canal and the East Drainage Canal within Sutter's Permit Area, subject to the following guidelines:

    1. A minimum of 30.5 m (100 ft.) will be provided from fence-to-fence and access to the canals will be limited by gates.

    2. A snake deterrent will be placed along the fences on the North Drainage Canal and the East Drainage Canal (i.e., fence construction that restricts snake movement or an appropriate vegetative barrier either inside or

outside of the boundary fence). The design of the deterrent will be subject to approval by the Wildlife Agencies.

3. The specific fence/snake barrier design adjacent to a given development will be determined within Sutter County's review of the proposed development and the fence/barrier will be installed immediately after site grading is completed.

i. At the time of urban development along the North and East Drainage Canals, Sutter will consult with the Wildlife Agencies to determine design strategies that would enhance conditions for giant garter snake movement through the North and East Drainage Canals. Possible strategies may include expanded buffer areas and modified canal cross sections if such measures are, in the determination of Sutter and the Water Agencies, found to be feasible.

The Conservancy has proposed to employ the following measures to minimize and avoid the effects of the proposed action on the snake:

1. All construction activity involving disturbance of habitat, such as site preparation and initial grading, will be restricted to the snake's active period (May 1 - September 30).

2. Pre-construction surveys for the snake, as well as other Covered Species, will be completed for all development projects by a qualified biologist who has been approved by the Service. If snake habitat is found within a specific site, the following additional measures will be implemented to minimize disturbance of habitat and harassment of the snake, unless that project is specifically exempted by the Service:

a. Between April 15 and September 30, all irrigation ditches, canals, or other aquatic habitat will be completely dewatered, with no puddled water remaining, for at least 15 consecutive days prior to the excavation or filling in of the dewatered habitat. The dewatered habitat will be observed to ensure that it does not continue to support snake prey, which could attract snakes to the project site. If a site cannot be completely dewatered, snake prey items will be removed using netting or other salvage methods.

b. Construction activities within 200 feet from banks of giant garter snake aquatic habitat will be avoided to the extent feasible. Movement of heavy equipment will be confined to existing roadways to minimize habitat disturbance to the extent feasible.

c. No more than 24-hours prior to the start of construction activities (site preparation and/or grading), the project area will be surveyed for snakes. If construction activities stop on the project site for a period of two weeks or more, a new snake

survey will be completed no more than 24-hours prior to the re-start of construction activities.

d. Clearing will be confined to the minimal area necessary to facilitate construction activities. Snake habitat within or adjacent to the project will be flagged for avoidance. The avoidance area will be avoided by all construction personnel.

e. Construction personnel completing site preparation and grading operations will receive Service-approved environmental awareness training. This training instructs workers on how to identify the snake and its habitats and what to do if a snake is encountered during construction activities. An on-site biological monitor will be designated during the training.

f. If a live snake is found during construction activities, the Service and the project's biological monitor will be immediately notified. The biological monitor, or his/her assignee, will halt construction in the vicinity of the snake. The snake will be monitored and allowed to leave the area on its own. The monitor will remain in the area for the remainder of the work day to make sure the snake is not harmed or, if it leaves the site, does not return. Escape routes for the snake should be determined in advance of construction and snakes should always be allowed to leave on their own. If a snake does not leave on its own within one working day, further consultation with the Service will be conducted.

g. Upon locating dead, injured or sick Covered Species, the Conservancy or its designated agents will notify, within one working day, the Service's Division of Law Enforcement (2800 Cottage Way, Sacramento CA 95825) or the Sacramento Fish and Wildlife Office (2800 Cottage Way, Room W-2605, Sacramento, CA 95825, telephone 916 414-6600). Written notification to both offices will be made within three calendar days and will include the date, time, and location of the finding of a specimen and any other pertinent information.

h. Fill or construction debris may be used by the snake as an over-wintering site. Therefore, upon completion of construction activities, any temporary fill and/or construction debris will be removed from the site. If the material is located near undisturbed snake habitat and will be removed between October 1 and April 30, it will be inspected by a Wildlife Agency-approved biologist to ensure that snakes are not using it as hibernaculae.

i. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes will be placed on the project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutes include coconut coir matting, tackified hydroseeding compounds, or other materials approved by the Wildlife Agencies.

Threatened Valley Elderberry Longhorn Beetle Avoidance and Minimization Measures.

The Land Use Agencies will require private developers and public infrastructure projects to comply with conservation practices for the beetle set forth in the Service's July 9, 1999, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Beetle Guidelines)(enclosed), which may be updated in the future. In addition, the Conservancy will follow the Beetle Guidelines. Any destruction or loss of elderberry shrub habitat will be mitigated according to the Beetle Guidelines. The Beetle Guidelines, or any revision or successor to the Beetle Guidelines approved by the Service, are incorporated as terms and conditions of the NBHCP.

Swainson's Hawk Avoidance and Minimization Measures.

In order to minimize the cumulative effects of the proposed action on the Swainson's hawk's foraging habitat, Sutter will not obtain coverage under the NBHCP and ITPs, nor will Sutter grant urban development permit approvals, for development on land within the one-mile wide Swainson's Hawk Zone. The City has limited its Permit Area within the Swainson's Hawk Zone to approximately 252 acres in the North Natomas Community Plan that was designated for urban development in 1994 and, likewise, will not grant development approvals within the Swainson's Hawk Zone beyond this designated 252 acres. Should either the City or Sutter seek to expand NBHCP coverage for development within the Swainson's Hawk Zone beyond that described above, granting of such coverage would require an amendment to the NBHCP and ITPs, which would be subject to review and approval by the Service and the CDFG in accordance with all applicable statutory and regulatory requirements. Approval of any Urban Development within the Swainson's Hawk Zone beyond that described above would constitute a significant departure from the Plan's OCP and would trigger a reevaluation of the City's and/or Sutter's ITPs and possible suspension or revocation of the City's and/or County's ITPs.

The Land Use Agencies will employ the following measures to minimize disturbance of the Swainson's hawk's nesting habitat:

1. Prior to the commencement of activities at any development site within the NBHCP area, a pre-construction survey will be completed by the site's developer to determine: (1) whether any hawk nest trees will be removed on-site; or (2) whether any active hawk nest sites occur on or within ½ mile of the development site. These surveys will be conducted by experienced hawk surveyors and according to the Swainson's Hawk Technical Advisory Committee's (May 31, 2000, enclosed) methodology or updated methodologies, as approved by the Service and CDFG.

2. If breeding hawks are identified, no new disturbances will occur within ½ mile of the active nest between March 15 and September 15, or until a Wildlife Agency-approved biologist, with concurrence by CDFG, has determined that the young have fledged or that the nest is no longer occupied. If the active nest site is located within 1/4 mile of existing urban development, the no new disturbance zone can be limited to 1/4 mile. Routine

disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within ½ mile of an active nest will not be restricted.

3. Where disturbance of a hawk nest cannot be avoided, such disturbance will be deferred until after the nesting season (March 15 - September 15). If a nest tree must be removed, tree removal will only occur between September 15 and February 1.

4. If a Swainson's hawk nest tree must be removed and fledglings are present, the tree may not be removed until September 15 or until CDFG has determined that the young have fledged and are no longer dependent upon the nest tree.

5. If construction or other project related activities which may cause nest abandonment or forced fledgling are proposed within the 1/4 mile buffer zone, intensive monitoring (funded by the project sponsor) by a CDFG-approved raptor biologist will be required. Exact implementation of this measure will be based on specific information at the project site.

The Land Use Agencies will employ the following measures to prevent the loss of Swainson's hawk nest trees:

1. Valley oaks, tree groves, riparian habitat and other large trees will be preserved wherever possible. The City and Sutter will preserve and restore stands of riparian trees used by the hawk and other animals, particularly near Fisherman's Lake and elsewhere in the NBHCP Plan Area where large oak groves, tree groves and riparian habitat have been identified.

2. The raptor nesting season will be avoided when scheduling construction near nests in accordance with guidelines applicable guidelines published by the Wildlife Agencies or through consultation with the Wild life Agencies.

3. Annually, prior to the Swainson's hawk nesting season (March 15 to September 15) and until build out of their Authorized Development has occurred, the City and Sutter will notify each landowner of any property within the permit area(s) on which a Swainson's hawk nest tree is present, and will identify the nest tree, and alert the owner to the specific mitigation measures prohibiting the owner from removing the nest tree.

The Land Use Agencies will employ the following measures to mitigate the loss of Swainson's hawk nest trees:

1. The NBHCP will require 15 trees to be planted (5 gallon container size) within the habitat reserves for every hawk nesting tree anticipated to be impacted by authorized development. It will be the responsibility of each Land Use Agency approving development that will impact hawk nest trees to provide funding from the applicable developer for the purchase, planting, maintenance and monitoring of trees at the time of

approval of each authorized development project. The Conservancy will determine the appropriate cost for planting, maintenance and monitoring of trees.

2. The Land Use Agency approving a project that impacts an existing hawk nest tree will provide funding sufficient for monitoring survival of replacement trees (as described in item 1 above) for a period of five years. For every tree lost during the five-year monitoring period, a replacement tree will be planted immediately upon the detection of failure. Trees planted to replace trees lost will be monitored for an additional five-year period to ensure survival until the end of the monitoring period. A 100 percent success rate will be achieved. All necessary planting requirements and maintenance (i.e., fertilizing , irrigation) to ensure success will be provided. Trees must be irrigated for a minimum of the first five years after planting, and then gradually weaned off the irrigation in an approximate two-year period. If larger stock is planted, the number of years of irrigation must be increased accordingly. In addition, ten years after planting, a survey of the trees will be completed to assure 100 percent establishment success.

3. Of the replacement trees planted, a variety of native tree species will be planted to provide trees with differing growth rates, maturation, and life span. This will ensure that nesting habitat will be available quickly (5-10 years in the case of cottonwoods and willows), and in the long term (i.e., valley oaks, black walnut and sycamores), and minimize the temporal losses from impacts to trees within areas scheduled for development within the 50-year ITP life. Trees will be sited on reserves in proximity to hawk foraging areas and planted in clumps of three trees each. Planting stock will be at a minimum 5-gallon container stock for oak and walnut species.

4. In order to reduce temporal effects resulting from the loss of mature nest trees, mitigation planting will occur within 14 months of approval of the NBHCP and ITPs. The July 2002 draft NBHCP estimated that four nesting trees within the City are most likely to be affected by authorized development in the near term. Therefore, in order to reduce temporal impacts, the City will advance funding for 60 sapling trees of diverse, suitable species (different growing rates) to the Conservancy within the above referenced 14 months.

5. For each additional nesting tree removed by Land Use Agencies' Covered Activities, the Land Use Agency will fund and provide for the planting of 15 native sapling trees of suitable species with differing growth rates at suitable locations on Conservancy reserves. Funding for such plantings will be provided by the applicable Land Use Agency within 30 days of approving a Covered Activity that will impact a hawk nesting tree.

In the event that foraging opportunities, as identified in Table IV-2 of the NBHCP (i.e., foraging opportunities within Sutter and Sacramento County), are converted to urban uses without adequate provisions to maintain foraging habitat, such that the effectiveness of the NBHCP's OCP is potentially compromised, the City and Sutter would consider and the Conservancy, on behalf of the City and Sutter, would implement appropriate actions, including the following or

similar measures:

1. Modification of acquisition criteria (as defined in Sections IV.C.2.d and IV.C.4.b) to adjust for impacts to foraging habitat outside of reserves. This could include changes to increase the value of future upland reserve habitat acquisitions for the hawk. For example, the criteria could be changed to further maximize the acquisition of habitat reserves in close proximity to suitable foraging habitat while avoiding the habitat areas that have recently been converted to non-compatible uses.

2. Substitution of reserve sites that have not been restored and are impacted by substantial land use changes, with replacement reserve sites that would provide improved foraging habitat opportunities.

3. Modification of the percentages of the habitat types comprising Conservancy reserve sites. For example, the percentage of uplands in reserve sites could be increased. Such modifications would be applied prospectively to future Conservancy acquisitions and would not affect existing, improved Conservancy reserves.

4. Pursuit of outside funding sources, including private, state and Federal grants, to acquire, improve and manage additional Conservancy reserves that would maintain Basin foraging lands. The Conservancy would be responsible for preparing grant applications or undertaking other actions, as necessary, to secure these funds. Such programs would supplement the mitigation fee required by the NBHCP and would not be used to fund NBHCP mitigation obligations. Lack of outside funding would not preclude the City and Sutter County's obligation to implement appropriate action consistent with this provision and their respective obligations under the NBHCP.

The Conservancy will implement the following measures to further enhance habitat and to reduce the potential for take of upland Covered Species during improvement, operation and maintenance of Conservancy reserves:

1. The Conservancy, in conjunction with the Land Use Agencies, will monitor proposed development in the Swainson's Hawk Zone, where the majority of known hawk nest sites are currently located and, hence, much of the hawk nesting and foraging in the Basin occurs. Based upon existing general plans and the City's and Sutter's NBHCP Permit Areas, development in this zone is expected to be limited over the life of the NBHCP. However, if the NBHCP is amended and such development does occur, mitigation lands established for such development will, likewise, be located within the Swainson's Hawk Zone. In addition, the Conservancy will set as a top priority the acquisition of upland reserve sites in the Swainson's Hawk Zone. Further, any upland reserve lands established in the Swainson's Hawk Zone will, to the maximum extent possible, be managed to benefit all upland-associated Covered Species, though any management in this zone will be fully consistent with Swainson's hawk biology and needs.

2. To enhance the success of upland species, Conservancy reserves will include tree plantings of valley oaks, cottonwoods, various willow (including black willow), or other suitable species to recreate suitable nesting sites for the hawk over the life of the NBHCP. Such tree planting will be in reasonable proximity to upland foraging areas covered by the NBHCP, including agricultural areas managed by the Conservancy.

3. For rice fields operated by the Conservancy, production practices will be incorporated that increase habitat for Swainson's hawk. This includes allowing at least 10 percent of rice fields to fallow each year as well as allowing foraging before and after rice flooding.

4. Where possible, upland components of wetland reserves will be developed or restored such that upland Covered Species, including the hawk, also benefit from the habitat.

5. Best management practices to ensure availability of food sources for the hawk [including meadow voles (*Microtus californicus*) and insects] will be utilized. It is expected that improved agricultural practices, timing of water management (floodup and drawdown) on reserve lands, and the increase in edge or ecotone between upland and wetland habitats will greatly enhance upland habitat values for the hawk.

6. The Conservancy, in consultation with the TAC, will formulate specific plans for the acquisition of upland habitat reserve lands by applying the objectives and criteria described above, and consistent with the requirements described in Chapter IV of the NBHCP. Site-specific management plans for reserve sites providing hawk habitat will be developed as described in Chapter IV of the NBHCP.

7. Upland reserves will initially be designed to maintain existing hawk populations and, where possible, to increase such populations through the tree planting program. However, such reserves will be re-designed, as necessary, to meet hawk recovery plan goals, once a Swainson's Hawk recovery plan has been prepared and approved by CDFG.

8. Reserve design will use wildlife-friendly agricultural practices. For health and safety reasons, rodent control measures will be limited to that necessary to maintain structurally sound flood control levees within the Basin.

The Conservancy will implement the following measures to avoid, minimize, and mitigate Swainson's hawk nest disturbance:

1. Prior to the commencement of development activities at any reserve sites, a pre-construction survey will be completed by the Conservancy to determine whether any hawk nest trees will be removed on-site or whether active hawk nest sites occur on or within ½ mile of the development site. These surveys will be conducted according to the Swainson's Hawk Technical Advisory Committee's (May 31, 2000) methodology or updated methodologies, as approved by the SSMP, for the reserve site.

2. If an active hawk nest is identified, no new disturbances (e.g., heavy equipment operation associated with construction) will occur within ½ mile of the active nest site between March 15 and September 15. If the active site is located within 1/4 mile of existing urban development, the no new disturbance zone can be limited to 1/4 mile. Routine disturbances such as agricultural activities, commuter traffic and routine facility maintenance activities within ½ mile of an active nest site will not be restricted.

3. If practicable, disturbance or destruction of hawk nest sites will be entirely avoided by designing the project (including construction activities) to maintain the year-round integrity of the nest site.

4. If practicable, disturbance or destruction of the hawk's nest site will be avoided during the active nesting season through seasonal use or other restrictions that apply annually or as needed.

5. Where disturbance of a hawk nest cannot be avoided, such disturbance will be deferred until after the hawk's nesting season (March 15 - September 15). If any tree must be removed that has an active nest in the year the impact is to occur, the tree removal should

only occur between September 15 and February 1.

6. Disturbance should be avoided within ½ mile of an active nest between March 15 and August 15, or until fledglings are no longer dependent on nest tree habitat (which could be as late as September 15).

7. If a hawk nest tree is to be removed and fledglings are present, the tree may not be removed until September 15 or until CDFG has determined that the young have fledged and are no longer dependent upon the nest tree.

The Conservancy will plant replacement trees in upland reserve areas and where appropriate on the edges of wetland reserves. These trees may be contributed to the reserve as part of the Land Use Agencies' tree mitigation program or may be determined to be important to the habitat enhancement of objectives of the site. The replacement mitigation trees shall include a variety of native tree species with differing growth rates, maturation and life span. This will ensure that nesting habitat will be available quickly (5 to 10 years in the case of cottonwoods and willows) and in the long term (i.e., valley oaks, black walnut and sycamores). Trees shall be sited on reserves in proximity to hawk foraging areas.

Tricolored Blackbird Avoidance and Minimization Measures.

The Land Use Agencies will employ the following conservation measures to avoid, minimize, and mitigate the effects of the proposed action on the blackbird:

1. Prior to approval of an urban development permit, the involved Land Use Agency will require a pre-construction survey of potential breeding and nesting habitat for presence of breeding and nesting tricolored blackbirds.

2. If surveys determine tricolored blackbirds are present, the following measures will be implemented in accordance with the MBTA to avoid disturbance to active (occupied) nesting colonies during the nesting season: (1) a boundary will be marked by brightly colored construction fencing that establishes a boundary 152.4 m (500 ft.) from the active nest site; (2) no disturbance associated with authorized development will occur within the fenced area during the nesting season (April 1 - July 1); and (3) a Wildlife Agency-approved biologist, with concurrence of the Service, must determine young have fledged and nest sites are no longer active before the nest site may be disturbed.

The Conservancy will employ the following conservation measures on reserve lands to minimize the effects of the proposed action on the blackbird:

1. Foraging.

    a. As part of baseline species survey for each reserve and as part of the annual survey of reserves, any colonization by tricolored blackbirds will be recorded by location and if possible, with a population estimate and activity description.

    b. Where tricolored blackbirds have been observed in colonies (active nesting and foraging), the nesting area and a reasonable foraging area adjacent to the nesting area within the reserve will be identified and incorporated into the SSMP, or if necessary, accommodated through adaptive management of an existing developed reserve.

    c. In order to enhance wetland to upland edges of reserves to attract tricolored blackbirds, plantings of wild rose, tule and cattails will be incorporated in habitat reserve units where biologically appropriate.

    d. During the nesting season, disturbance of foraging areas adjacent to active nest sites or previously active nest sites on reserve lands will be avoided to the maximum extent possible. If nests are occupied, a reasonable buffer of foraging lands adjacent to the nest will be marked and protected on reserve lands.

2. Nesting

    a. Disturbance to tricolored blackbird nesting colonies will be strictly avoided within the nesting season (April 1 to July 1 or while birds are present) during Conservancy development and management activities undertaken on Conservancy property in wetland and upland reserve areas unless approved by the Service and CDFG. In accordance with the MBTA, disturbance to active (occupied) nesting colonies will be avoided during the nesting season. A boundary will be established (through a method determined by the Conservancy and in consultation with the TAC) to establish a boundary 152.4 m (500 ft.) from the active nest site on reserve lands. No disturbance associated with Conservancy reserve construction, such as major grading operations will occur within the designated 500 foot buffer of the reserve during the nesting season of April 1 to July 1 or while birds are present, unless a Wildlife Agency-approved biologist, with concurrence of the Service and CDFG, determines young have fledged and nest sites are no longer active. Routine disturbances such as agricultural activities and Conservancy reserve management within 152.4 m (500 ft.) of an active nest site are not restricted so long as no physical disturbance to the nest site occurs.

    b. During the nesting season, disturbance of foraging areas adjacent to active nest sites or previously active nest sites on reserve lands will be avoided to the maximum extent possible. If nests are occupied, a reasonable buffer of foraging

lands adjacent to the nest will be marked and protected on reserve lands if construction or major grading operations are occurring on the Reserve.

c. Plantings of wild rose, tule and cattails will be incorporated in habitat reserve units where biologically appropriate to enhance tricolored blackbird nesting habitat.

The NBHCP includes measures to avoid, minimize, and mitigate take of the snake. Because the tricolored blackbird shares some habitat similarities with the snake, these measures may also benefit the blackbird. Specific measures include: (1) timing restrictions; (2) dewatering requirements; and (3) and vegetation control management.

Aleutian Canada Goose Avoidance and Minimization Measures.

In order to avoid, minimize, and mitigate take of the proposed action on the goose, prior to approval of an urban development permit, the applicable Land Use Agency will require a pre-construction survey. If the survey determines geese are present, the Land Use Agency will require the developer to consult with the Service and CDFG to determine appropriate measures to avoid and minimize take of individuals. Such measures will be appropriate for the use (e.g., foraging, roosting, etc.) and activity of the species, since the goose is only seasonally present in the Basin.

In order to minimize the effects of the proposed action on the goose, the Conservancy will utilize applicable Service-approved goose recovery or management plans and the adaptive management provisions described in the NBHCP to implement any additional conservation measures deemed appropriate should use of the NBHCP Area by the goose appreciably increase at any time in the future.

White-faced Ibis Avoidance and Minimization Measures.

The following measures have been proposed by the Land Use Agencies to avoid, minimize, and mitigate take of the white-faced ibis:

1. Prior to approval of an urban development permit, the involved Land Use Agency will require a pre-construction survey.

2. If surveys determine the presence of active nest sites of white-faced ibis, disturbance by authorized development within 1/4 mile of nests will be avoided within the nesting season of May 15 through August 31, or until a Wildlife Agency-approved biologist, with concurrence of the Service, has determined that young have fledged or that the nest is no longer occupied.

In order to minimize the effects of the proposed action on the ibis, the Conservancy proposes to:

1. Utilize applicable Service-approved white-faced ibis recovery or management plans, and the adaptive management provisions described in the NBHCP to implement any additional conservation measures deemed appropriate should use of the Plan Area by the ibis appreciably increase at any time in the future.

2. Disturbance to white-faced ibis nesting colonies by Conservancy reserve construction activities will be strictly avoided within the nesting season (May 15 to August 31 or while birds are present, or until a Wildlife Agency-approved biologist, with concurrence of the Service and CDFG, has determined that young have fledged or that the nest is no longer occupied). During the nesting season, a foraging buffer 1/4 mile in width will be identified around any active nest site to ensure minimal disturbance to the nest and nearby foraging areas on reserve lands.

Loggerhead Shrike Avoidance and Minimization Measures.

The Land Use Agencies have proposed the following measures to avoid, minimize, and mitigate take of the loggerhead shrike:

1. Prior to approval of an urban development permit, the involved Land Use Agency will require a pre-construction survey.

2. If surveys identify an active loggerhead shrike nest that will be impacted by authorized development, the developer will install brightly colored construction fencing that establishes a boundary 30.5 m (100 ft.) from the active nest. No disturbance associated with authorized development will occur within the 100 foot fenced area during the nesting season (March 1 - July 31). A Wildlife Agency-approved biologist, with concurrence of the Service, must determine young have fledged or that the nest is no longer occupied prior to disturbance of the nest site.

The Conservancy has proposed the following measures to avoid, minimize, and mitigate take of loggerhead shrike:

1. The Conservancy will encourage and maintain loggerhead shrike perching and nesting sites to the maximum extent practicable on all Conservancy lands.

2. The Conservancy will avoid disturbance to loggerhead shrike nest sites and disturbance of the loggerhead shrike during nesting season during reserve management and enhancement activities to the maximum extent practicable, unless otherwise approved by the Conservancy and the TAC.

3. If the loggerhead shrike nests on a Conservancy reserve, the Conservancy will establish, identify and mark (through a method determined appropriate by the Conservancy and in consultation with the TAC) a buffer extending 30.5 m (100 ft.) from the active nest on reserve lands. No disturbance associated with Conservancy reserve construction, such as major grading activities, will occur within the 100 ft. marked area during the nesting season of March 1 through July 31, unless a Wildlife Agency-approved biologist, with concurrence of the Service and CDFG, determines young have fledged or that the nest is no longer occupied. Routine disturbances such as agricultural activities and Conservancy reserve management within 30.5 m (100 ft.) of an active nest site are not restricted so long as no physical disturbance to the nest site occurs.

Burrowing Owl Avoidance and Minimization Measures.

The Land Use Agencies have proposed the following measures to avoid, minimize, and mitigate take of the burrowing owl:

1. Prior to the initiation of grading or earth disturbing activities, the applicant/developer will hire a CDFG-approved biologist to perform a pre-construction survey of the site to determine if any burrowing owls are using the site for foraging or nesting. The pre-construction survey will be submitted to the Land Use Agency with jurisdiction over the site prior to the developer's commencement of construction activities and a mitigation program will be developed and agreed to by the Land Use Agency and developer prior to initiation of any physical disturbance on the site.

2. Occupied burrows will not be disturbed during nesting season (February 1 - August 31) unless a Wildlife Agency-approved biologist approved by CDFG verifies through non-invasive measures that either: (1) birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

3. If nest sites are found, the Service and CDFG will be contacted regarding suitable mitigation measures, which may include a 300 ft. buffer from the nest site during the breeding season (February 1 - August 31), or a relocation effort for the burrowing owls if the birds have not begun egg-laying and incubation, or the juveniles from the occupied burrows are foraging independently and are capable of independent survival. If on-site avoidance is required, the location of the buffer zone will be determined by a Wildlife Agency-approved biologist. The developer will mark the limit of the buffer zone with yellow caution tape, stakes, or temporary fencing. The buffer will be maintained throughout the construction period.

4. If relocation of the owls is approved for the site by the Service and CDFG, the developer will hire a Wildlife Agency-approved biologist to prepare a plan for relocating the owls to a suitable site. The relocation plan must include: (1) the location of the nest and owls

proposed for relocation; (2) the location of the proposed relocation site; (3) the number of owls involved and the time of year when the relocation is proposed to take place; (4) the name and credentials of the biologist who will be retained to supervise the relocation; (5) the proposed method of capture and transport for the owls to the new site; (6) a description of the site preparations at the relocation site (e.g., enhancement of existing burrows, creation of artificial burrows, one-time or long-term vegetation control, etc...); and (7) a description of efforts and funding support proposed to monitor the relocation.

Relocation options may include passive relocation to another area of the site not subject to disturbance through one way doors on burrow openings, or construction of artificial burrows in accordance with CDFG's October 17, 1995, *Staff Report on Burrowing Owl Mitigation* (Burrowing Owl Report) (attached as Appendix D to the NBHCP).

5. Where on-site avoidance is not possible, disturbance and/or destruction of burrows will be offset through development of suitable habitat on Conservancy upland reserves. Such habitat will include creation of new burrows with adequate foraging area (a minimum of 6.5 acres) or 300 ft. radii around the newly created burrows. Additional habitat design and mitigation measures are described in the Burrowing Owl Report.

The Conservancy has proposed the following measures to avoid, minimize, and mitigate take of the burrowing owl:

1. The Conservancy will avoid disturbance to active nest burrows during reserve management activities to the maximum extent practicable. Disturbance to nesting burrowing owl colonies will be strictly avoided within the nesting season or while birds are present, unless otherwise approved by the TAC. The Burrowing Owl Report will be utilized to the extent practicable to avoid active nests during reserve construction and management activities

2. The Conservancy will utilize applicable Service or CDFG-approved burrowing owl recovery or management plans, and the adaptive management provisions described in the NBHCP to implement any additional conservation measures deemed appropriate ,should use of the NBHCP Area by this species appreciably increase at any time in the future.

3. The Conservancy may be asked to create new burrowing owl habitat in upland reserve areas by creating new burrows or restoring old burrows in upland reserve areas, based on avoidance, minimization and mitigation measures applied by the Land Use Agency Permittees to proponents of authorized development (see NBHCP, Section V.A.5.h). New habitat will include adequate foraging area around the burrow and burrow design will be done in consultation with Wildlife Agency-approved biologists. Additional habitat design and mitigation measures are described in the Burrowing Owl Report.

Bank Swallow Avoidance and Minimization Measures.

The Land Use Agencies have proposed the following measures to avoid, minimize, and mitigate take of the bank swallow:

1. Disturbance to bank swallow nesting colonies will be avoided within the nesting season of May 1 through August 31 (or until a Wildlife Agency-approved biologist, with concurrence of the Service and CDFG, has determined that young have fledged or that the nest is no longer occupied) during all authorized development activities conducted in the Permit Areas.

2. If surveys identify an active bank swallow nesting colony that will be impacted by authorized development, the developer will install brightly colored construction fencing that establishes a boundary 76.2 m (250 ft.) from the active nesting colony. No disturbance associated with authorized development will occur within the fenced area during the nesting season. Additionally, disturbance within ½ mile upstream or downstream of the colony will be avoided if the colony is located upon a natural waterway.

The Conservancy has proposed the following measures to avoid, minimize, and mitigate take of the bank swallow:

1. The Conservancy will avoid disturbing active bank swallow nests during reserve management activities to the maximum extent practicable.

2. The Conservancy will utilize applicable Service or CDFG-approved bank swallow recovery or management plans and the adaptive management provisions described in the NBHCP to implement any additional conservation measures deemed appropriate, should use of the NBHCP Area by the species appreciably increase at any time in the future.

3. Disturbance to bank swallow nesting colonies will be strictly avoided within the nesting season (May 1 through August 31, or until a Wildlife Agency-approved biologist, with concurrence of the Service and CDFG, has determined that young have fledged or that the nest is no longer occupied) during Conservancy reserve development and management activities unless otherwise approved by the TAC.

4. If surveys identify an active bank swallow nesting colony that will be impacted by Conservancy activities, the Conservancy will identify and mark (through a method to be determined by the Conservancy in consultation with the TAC) a boundary 76.2 m (250 ft.) from the active nesting colony on reserve lands. No disturbance associated with Conservancy activities will occur within the 250 ft. marked area of the reserve during the nesting season of May 1 through August 31. Additionally, disturbance within ½ mile upstream or downstream of the colony on reserve lands will be avoided if the colony is located upon a natural waterway. Routine disturbances such as agricultural activities and Conservancy reserve management within 76.2 m (250 ft.) of an active nesting colony or within ½ mile upstream or downstream of an active nesting colony are not restricted so

long as no physical disturbance to the nest site occurs.

Northwestern Pond Turtle Avoidance and Minimization Measures.

In order to avoid, minimize, and mitigate take of the northwestern pond turtle by the proposed action, the Land Use Agencies have proposed to dewater suitable habitat, as described in the conservation measures for the snake.

In order to avoid, minimize, and mitigate take of the northwestern pond turtle by the proposed action, the Conservancy has proposed to consult with northwestern pond turtle researchers and experts periodically during implementation of the NBHCP to determine what, if any, conservation opportunities for the species exists within the Conservancy's reserve system. The Conservancy will implement such conservation measures through the NBHCP's adaptive management provisions as appropriate. Such opportunities might include, but are not limited to, provision of suitable upland habitat for nesting (e.g., unshaded slopes), plentiful basking sites (e.g., floating snags), and shallow water with dense emergent and submergent vegetation for juveniles.

California Tiger Salamander Avoidance and Minimization Measures.

In order to avoid, minimize, and mitigate take of the California tiger salamander by the proposed action, the Land Use Agencies have proposed to require a pre-construction survey prior to approval of an urban development permit. If the survey determines the presence of California tiger salamander, the Land Use Agency will require the developer to consult with the Service and CDFG to determine appropriate measures to avoid and minimize take of individuals. Examples include, but are not limited to: (1) developing specific measures to retain pools, hydrology, suitable estivation sites, open habitat between breeding and estivation sites; (2) replacing wetland within 1.5 miles of known breeding sites; (3) providing species and habitat training to construction personnel; (4) recording setbacks on maps; and (5) prohibiting the following: alteration of topography, structures, dumping, burning, impacting native vegetation, storm drains, fire protection, pesticides and chemicals.

The Conservancy will consult with the TAC and California tiger salamander experts periodically during implementation of the Plan to determine what, if any, additional conservation opportunities for this species might exist within the Plan's proposed reserve system. The Conservancy will implement such conservation measures through the Plan's Adaptive Management and the Site Specific Management Plans prepared for reserve sites as appropriate. In the event preconstruction surveys or other scientific evidence show that the salamander is impacted by authorized development, the Conservancy will create habitat within reserve sites that is conducive to California tiger salamanders, such as stock ponds or "artificial" vernal pools with nearby natural materials for cover such as logs or large rocks). Possible relocation from the site to be impacted or elsewhere in the Basin of tiger salamanders into the Conservancy's reserve system may be considered if preconstruction surveys or other NBHCP monitoring show the species is impacted by Authorized Development.

Western Spadefoot Toad Avoidance and Minimization Measures.

In order to avoid, minimize, and mitigate take of the western spadefoot toad by the proposed action, the Land Use Agencies have proposed to require a pre-construction survey prior to approval of an urban development permit. If the survey determines the toad is present, the Land Use Agency will require the developer to consult with CDFG and the Service to determine appropriate measures to avoid and minimize take of individuals. Examples include, but are not limited to: (1) timing restrictions (i.e., limiting time when pool can be filled to when it is not occupies by toads); and (2) avoidance of the pool.

In order to avoid, minimize, and mitigate take of the western spadefoot toad by the proposed action, the Conservancy has proposed to consult with the TAC and western spadefoot toad experts periodically during implementation of the NBHCP to determine what, if any, additional conservation opportunities for this species exist within the NBHCP's proposed reserve system. The Conservancy will implement such conservation measures through the NBHCP's adaptive management provisions as appropriate. Within reserve sites, the Conservancy will consider creating habitat that is conducive to western spadefoot toads such as areas of slow-moving waters (i.e., pools and plunge pools of small creeks), short grasses with sandy or gravelly soils, and other grassy areas.

Delta Tule Pea Avoidance and Minimization Measures.

In order to avoid, minimize, and mitigate loss of the Delta tule pea by the proposed action, the Land Use Agencies have proposed to require a pre-construction survey. If Delta tule pea plants are identified through a pre-construction survey, the involved Land Use Agency will provide notice to the Service, CDFG and the California Native Plan Society. The development proponent will allow the transplantation of the pea plants prior to site disturbance.

In order to avoid, minimize, and mitigate loss of the Delta tule pea by the proposed action, the Conservancy has proposed:

1. The Conservancy will evaluate the potential for, and as appropriate, implement measures to further the conservation of Delta tule pea within the NBHCP's reserve system through appropriate means. The Conservancy will implement such conservation measures through the NBHCP's adaptive management provisions as appropriate. In the event preconstruction surveys or other scientific documentation indicate impacts to the Delta tule pea as a result of authorized development, the Conservancy's adaptive management program and Site Specific Management Plan process will be used to further the conservation of the species including but not limited to, relocation of the impacted individuals of the into suitable locations on the Conservancy's reserve sites.

2. The Conservancy will monitor any known populations of the pea within the NBHCP Area.

Sanford's Arrowhead Avoidance and Minimization Measures.

In order to avoid, minimize, and mitigate the effects of the proposed action on Sanford's arrowhead, the Land Use Agencies have proposed to conduct a pre-construction survey. If Sanford's arrowhead plants are identified, the involved Land Use Agency will: (1) provide notice to the Service, CDFG and the California Native Plant Society; and (2) allow the development proponent to transplant the plants prior to site disturbance.

In order to avoid, minimize, and mitigate the effects of the proposed action on Sanford's arrowhead, the Conservancy has proposed to:

1. Evaluate the potential for, and as appropriate, implement measures to further the conservation of Sanford's arrowhead within the NBHCP's reserve system through appropriate means. In the event preconstruction surveys or other scientific documentation indicate impacts to the Sanford's arrowhead as a result of authorized development, the Conservancy's adaptive management program and Site Specific Management Plan process will be used to further the conservation of the species including but not limited to, relocation of the impacted individuals of the into suitable locations on the Conservancy's reserve sites.

2. Monitor any known populations of Sanford's arrowhead within the NBHCP Area.

Status of the Species and Environmental Baseline

Threatened Vernal Pool Fairy Shrimp and Endangered Vernal Pool Tadpole Shrimp

The vernal pool fairy shrimp and vernal pool tadpole shrimp were federally-listed as threatened and endangered, respectively, on September 19, 1994 (59 **FR** 48136). Neither species has been designated any special status by the State. The vernal pool fairy shrimp inhabits vernal pools, swales, and other seasonal wetlands in California and southern Oregon. The vernal pool tadpole shrimp lives in similar habitats in California's Central Valley and San Francisco Bay area. Additional information on the life history and ecology of these species may be found in the final rule, Eng *et al*. (1990), Simovich *et al*. (1992), Helm (1998), and Witham *et al.* (1998).

Description, Reproductive Ecology

The vernal pool fairy shrimp has a delicate, elongate body; large, stalked, compound eyes; 11 pairs of swimming legs; a length typically less than 2.5 cm; and no carapace. It swims or glides gracefully upside-down by means of complex, wavelike beating movements as it feeds upon algae, bacteria, protozoa, rotifers, and detritus. Females carry their eggs in pear-shaped, ventral brood sacs until the eggs are either dropped or sink to the pool bottom with the female as she dies. "Resting" or summer eggs are known as cysts. These cysts are able to withstand heat, cold, and prolonged desiccation. When pools refill in the same or subsequent seasons, some, but not all, of the cysts may hatch, resulting in a cyst bank in the soil that may include cysts from several breeding seasons (Donald 1983). Young develop rapidly and may become sexually mature as soon as two weeks after hatching (Gallagher 1996, Helm 1998). This quick maturation permits populations to persist in short-lived, shallow bodies of water (Simovich *et al*. 1992).

The vernal pool tadpole shrimp has a large, shield-like carapace typically measuring less than 2.5 cm in length that covers most of its body; dorsal, compound eyes; and a pair of long cercopods, one on each side of a flat caudal plate, at the end of the last abdominal segment. It is primarily bottom-dwelling and moves with its legs down as it feeds on detritus and living organisms, including fairy shrimp and other invertebrates (Pennak 1989). Females deposit their eggs on vegetation or other objects on the pool bottom. Although some eggs may hatch quickly, others remain dormant as cysts to hatch during later rainy seasons (Ahl 1991). When winter rains refill inhabited wetlands, the species reestablishes from dormant cysts. Individuals may become sexually mature within three to four weeks of hatching (Ahl 1991, Helm 1998) and reproductively mature adults may be present in pools until the habitats dry up in the spring (Ahl 1991, Simovich *et al*. 1992, Gallagher 1996).

Essential Habitat Components, Range

The vernal pool fairy shrimp inhabits alkaline pools, ephemeral drainages, rock outcrop pools, ditches, stream oxbows, stock ponds, vernal pools, vernal swales, and other seasonal wetlands (Helm 1998). Occupied habitats range in size from rock outcrop pools as small as one square meter to large vernal pools up to 4.5 hectares. Potential ponding depth of occupied habitat ranges from 3 cm to 1.2 m. The species has been collected from early December to early May. Known populations in California extend from Stillwater Plain in Shasta County through most of the length of the Central Valley to Pixley in Tulare County and along the central coast range from northern Solano County to Pinnacles National Monument in San Benito County. Several additional, disjunct populations exist: one near Soda Lake in San Luis Obispo County, one in the mountain grasslands of northern Santa Barbara County, one on the Santa Rosa Plateau in Riverside County, and one near Rancho California in Riverside County. Additional populations occur in southern Oregon (59 **FR** 48136).

The tadpole shrimp inhabits alkaline pools, clay flats, ditches, freshwater marshes, stream oxbows, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands (Helm 1998).

Occupied habitats range in size from vernal pools as small as two square meters to large vernal lakes up to 36 hectares. The potential ponding depth of occupied habitat ranges from 4 cm to 1.5 m (59 **FR** 48136). Vernal pool tadpole shrimp populations occur in the Central Valley in California, ranging from east of Redding in Shasta County south to Tulare County. One occupied vernal pool complex is located on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County (59 **FR** 48136).

The vernal pool fairy shrimp and vernal pool tadpole shrimp are ecologically dependent on seasonal fluctuations in their habitat such as presence or absence of water, duration and timing of inundation, and other abiotic factors such as temperature, salinity, conductivity, dissolved solids, and pH. Water chemistry is one of the most important factors affecting their distribution (Belk 1977, Simovich *et al.* 1992). For example, Helm (1998) found that water temperatures in excess of 24 degrees Celsius killed vernal pool fairy shrimp. This change in water temperature could be caused by placing fill in a portion of the pool. The resulting decrease in the size of the pool would change the period of inundation, thereby decreasing the capacity of the pool to buffer potential changes in water temperature caused by solar radiation.

The genetic characteristics of the fairy shrimp and tadpole shrimp, and ecological conditions, such as watershed continuity, indicate that populations of these animals are defined by pool complexes rather than by individual vernal pools (Fugate 1992). Therefore, the most accurate indication of the distribution and abundance of these species is the number of inhabited vernal pool complexes. Individual vernal pools occupied by these species are most appropriately referred to as subpopulations. The pools and, in some cases, pool complexes supporting these species are usually small. Man-caused and unforeseen natural catastrophic events such as long-term drought, non-native predators, off-road vehicles, pollution, berming, and urban development, threaten their extirpation at some sites.

Dispersal

The primary historical dispersal method for the vernal pool tadpole shrimp and vernal pool fairy shrimp may have been large-scale flooding resulting from winter and spring rains which allowed the animals to colonize different individual vernal pools and other vernal pool complexes. This dispersal mechanism may no longer function in some areas due to the construction of dams, levees, and other flood control measures, and widespread urbanization within significant portions of the range of this species. Waterfowl and shorebirds are now considered the primary dispersal agents for vernal pool tadpole shrimp and vernal pool fairy shrimp (Brusca and Brusca 1992, Simovich *et al.* 1992). The eggs of these crustaceans are ingested (Krapu 1974, Swanson 1974, Driver 1981, Ahl 1991) and/or adhere to the legs and feathers where they are transported to new habitats.

Reasons for Decline and Threats to Survival

The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agricultural and urban uses. This highly disturbed remnant habitat is imperiled by a variety of human-caused activities, primarily urban development, water supply/flood control projects and conversion of land to agricultural use.

Holland (1978) estimated that between 60 and 85 percent of the habitat that once supported vernal pools, had been destroyed by 1973. Since 1973, a substantial amount of remaining habitat has been converted for human uses. The rate of loss of vernal pool habitat in the state has been estimated at two to three percent per year (Holland and Jain 1988).

Conversion of natural habitat for urban and agricultural uses has highly fragmented the habitat of the listed vernal pool crustaceans throughout their ranges. Fragmentation such as this results in small isolated fairy shrimp populations. Ecological theory predicts that such populations will be highly susceptible to extinction due to chance events, inbreeding depression, or additional environmental disturbance. If an extinction event occurs in a population that has been fragmented, the opportunities for recolonization are thought to be greatly reduced due to physical (geographical) isolation from other (source) populations (Gilpin and Soule 1986; Goodman 1987a, b).

Environmental Baseline and Status within the Action Area

The proposed action is located on the western extremity of the Southeastern Sacramento Valley Vernal Pool Region, one of 17 vernal pool regions defined by the CDFG in the State of California. Regions were identified according to biological, geomorphological, and soils information. According to the report, "One of the primary assumptions is that these regions are ecologically distinct and that they encompass the full range of variability of vernal pools and species in the State" (Keeler-Wolf *et al.* 1998). Of the seventeen defined regions, the Southeastern Sacramento Valley Vernal Pool Region is most threatened by development.

The Southeastern Sacramento Valley Vernal Pool Region contains almost 15 percent of the remaining vernal pool grasslands in the State of California, and supports 35 percent of the known occurrences of the vernal pool fairy shrimp documented in the California Natural Diversity Database.

Developments within Sacramento County have resulted in both direct and indirect impacts to vernal pools, and have contributed to the loss of vernal pool fairy shrimp and vernal pool tadpole shrimp populations. Although the reduction of federally-listed vernal pool crustacean populations has not been quantified, the acreage of lost habitat continues to increase. General and specific plans for the Sacramento area have identified significant, unavoidable impacts to biological communities, including elimination of vernal pools, intermittent drainages and other seasonal wetlands. Despite these impacts, many government entities continue to implement

development projects within the area. However, this is not the case in Natomas, where the City and Sutter County have engaged in regional habitat conservation planning efforts.

There are 314 reported occurrences of vernal pool fairy shrimp in California, 52 of which are reported from Sacramento County and one of which is reported from Sutter County (CNDDB 2002). However, there is only one vernal pool fairy shrimp occurrence known in the Basin; it is located in the eastern portion of Sutter's Permit Area. Additionally, there are several occurrences east of the Natomas Basin in Elverta and Rio Linda (CNDDB, 2002). Potential vernal pool fairy shrimp habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat per acre of grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat per acre of grassland in the Basin (K. Fuller, pers. comm. to C. Aubrey, 2003). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. Once again, this estimate greatly overestimates the amount of potential vernal pool habitat in the Basin, as most of the ponds and seasonally wet areas do not have the hydrology sufficient to support vernal pool crustaceans. No potential vernal pool fairy shrimp habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities.

There are 160 reported occurrences of vernal pool tadpole shrimp in California, 55 of which are reported from Sacramento County, and four of which are reported from Sutter County. There is only one vernal pool tadpole shrimp occurrence known in the Basin; it is located in the eastern portion of Sutter's Permit Area (CNDDB 2002). Potential vernal pool tadpole shrimp habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat in grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat in the Basin (K. Fuller, pers. comm.). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. Once again, this estimate greatly overestimates the amount of potential vernal pool habitat in the Basin, as most of the ponds and seasonally wet areas do not have the hydrology sufficient to support vernal pool crustaceans. No potential vernal pool tadpole shrimp habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities.

Threatened Giant Garter Snake

The Service published a proposal to list the giant garter snake as an endangered species on December 27, 1991 (56 **FR** 67046). The Service reevaluated the status of the snake before adopting the final rule. The snake was listed as a threatened species on October 20, 1993 (58 **FR** 54053). The *Draft Recovery Plan for the Giant Garter Snake* was published by the Service in July 1999. Additional information on the species' biology may be found in those documents.

Description

The giant garter snake is one of the largest garter snakes and may reach a total length of at least 160 centimeters (cm)(64 inches [in.]). Females tend to be slightly longer and proportionately heavier than males. The weight of adult female snakes is typically 500-700 grams (g)(1.1-1.5 pounds). Dorsal background coloration varies from brownish to olive with a checkered pattern of black spots, separated by a yellow dorsal stripe and two light-colored lateral stripes. Background coloration and prominence of a black-checkered pattern and the three yellow stripes are geographically and individually variable (Hansen 1980). The ventral surface is cream to olive or brown and sometimes infused with orange, especially in northern populations.

Historical and Current Range

This species formerly occurred throughout the wetlands that were extensive and widely distributed in the Central Valley. Fitch (1941) described the historical range of the snake as extending from the vicinity of Sacramento and Contra Costa Counties southward to Buena Vista Lake, near Bakersfield, in Kern County. Prior to 1970, the snake was recorded historically from 17 localities (Hansen and Brode 1980). Five of these localities were clustered in and around Los Banos, Merced County. The paucity of information makes it difficult to determine precisely the species' former range. Nonetheless, these records coincide with the historical distribution of large flood basins, fresh water marshes, and tributary streams. Destruction of wetlands for agriculture and other purposes apparently extirpated the species from the southern one-third of its range by the 1940s -1950s, including the former Buena Vista Lake and Kern Lake in Kern County, and the historic Tulare Lake and other wetlands in Kings and Tulare Counties (Hansen and Brode 1980, Hansen 1980). Surveys over the last two decades have found the snake as far north as the Butte Basin in the Sacramento Valley. As recently as the 1970s, the range of the snake extended from near Burrell, Fresno County (Hansen and Brode 1980), northward to the vicinity of Chico, Butte County (Rossman and Stewart 1987).

Essential Habitat Components

Endemic to wetlands in the Sacramento and San Joaquin valleys, the snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands. The snake feeds on small fishes, tadpoles, and frogs (Fitch 1941, Hansen 1980, Hansen 1988). Essential habitat components consist of: (1) wetlands with adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) upland habitat with grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for escape cover (vegetation, burrows) and underground refugia (crevices and small mammal burrows) (Hansen 1980).

Reproductive Ecology

The breeding season extends through March and April, and females give birth to live young from late July through early September (Hansen and Hansen 1990). Brood size is variable, ranging from 10 to 46 young, with a mean of 23 (Hansen and Hansen 1990). At birth, young average about 20.6 cm (8.1 in.) snout-vent length and 3-5 g (0.10-0.18 ounces). Young immediately scatter into dense cover and absorb their yolk sacs, after which they begin feeding on their own. Although growth rates are variable, young typically more than double in size by one year of age, and sexual maturity averages three years in males and five years for females (58 **FR** 54053).

Movements and Habitat Use

The snake typically inhabits small mammal burrows and other soil crevices throughout its winter dormancy period (November to mid-March). The snake also uses burrows as refuge from extreme heat during their active period. While the snakes usually remain in close proximity to wetland habitats, the Biological Research Division (BRD) of the U.S. Geological Service has documented snakes using burrows as much as 50 m (165 ft.) away from the marsh edge to escape extreme heat (Wylie *et al.* 1997). Overwintering snakes have been documented to use burrows as far as 250 m (820 ft.) from the edge of marsh habitat. Snakes typically select south- and west-facing burrows as hibernacula (58 **FR** 54053).

In studies of marked snakes in the Natomas Basin, snakes moved about 0.40-0.80 kilometers (km)(0.25-0.5 mile) per day (Hansen and Brode 1993). However, total activity varies widely between individuals, and individual snakes have been documented moving up to 8 km (5 miles) over the period of a few days in response to dewatering of habitat (Wylie *et al.* 1997). In agricultural areas, snakes were documented using rice fields in 19-20 percent of the observations, marsh habitat in 20-23 percent of observations, and canal and agricultural waterway habitats in 50-56 percent of the observations (Wylie 1999). Telemetry studies have also shown that active snakes use uplands extensively–more than 31 percent of observations were in uplands (Wylie 1999). Almost all snakes observed in uplands during the active season were near vegetative cover, where cover exceeded 50 percent in the area within 0.5 m (1.6 ft) of the snake; less than 1 percent of observations were of snakes in uplands with less than 50 percent cover nearby (Wylie 1999).

Reasons for Decline and Threats to Survival

Ongoing maintenance of aquatic habitats for flood control and agricultural purposes eliminate or prevent the establishment of habitat characteristics required by snakes and can fragment and isolate available habitat, prevent dispersal of snakes among habitat units, and adversely affect the availability of the garter snake's food items (Hansen 1988, Brode and Hansen 1992). In many areas, the restriction of suitable habitat to water canals bordered by roadways and levee tops renders snakes vulnerable to vehicular mortality. Fluctuation in rice and agricultural production affects stability and availability of habitat. Recreational activities, such as fishing, may disturb snakes and disrupt basking and foraging activities. Nonnative predators, including introduced

predatory gamefish, bullfrogs (*Rana catesbeiana*), and domestic cats (*Felis catus*) also threaten snake populations. While large areas of seemingly suitable snake habitat exist in the form of duck clubs and waterfowl management areas, water management of these areas typically does not provide the summer water needed by snakes. Although snakes on national wildlife refuges are relatively protected from many of the threats to the species, degraded water quality continues to be a threat to the species both on and off refuges. A number of land use practices and other human activities currently threaten the survival of the snake throughout the remainder of its range. Although some snake populations have persisted at low levels in artificial wetlands associated with agricultural and flood control activities, many of these altered wetlands are now threatened with urban development.

Status with Respect to Recovery

The draft recovery plan for the snake subdivided its historic range into four recovery units (Service 1999). These are: (1) the Sacramento Valley unit, extending from the vicinity of Red Bluff south to the confluence of the Sacramento and Feather Rivers; (2) the Mid-Valley unit, extending from the American and Yolo Basins south to Duck Creek near the City of Stockton; (3) the San Joaquin Valley unit, extending south from Duck Creek to the Kings River; and (4) the South Valley unit, extending south of the Kings River to the Kern River Basin. Portions of Mid-Valley recovery unit are within the action area.

The Sacramento Valley Recovery Unit at the northern end of the species' range is known to support relatively large, stable populations of the snake. This unit contains three populations (Butte Basin, Colusa Basin, and Sutter Basin) and a large amount of suitable habitat, in protected areas on state refuges and refuges of the Sacramento NWR Complex in the Colusa and Sutter Basins, and along waterways associated with rice farming (Service 1999).

The Mid-Valley Recovery Unit, directly to the south of the Sacramento Valley Recovery Unit, includes seven populations: American Basin, Yolo Basin–Willow Slough, Yolo Basin–Liberty Farms, Sacramento Area, Badger Creek/Willow Creek, Caldoni Marsh, and East Stockton. The status of the seven snake populations in the Mid-Valley Recovery Unit is uncertain. The East Stockton population may be extirpated, and is not considered recoverable as a result of urban encroachment into habitat (Service 1999). Five of the remaining six populations within the recovery unit are small, highly fragmented and isolated, and, except for the Badger Creek/Willow Slough population, are also threatened by urbanization. This latter population is within a small isolated area. Within the Mid-Valley unit, only the American Basin population supports a sizeable snake population which is dependent largely upon rice lands.

The remaining two recovery units are located to the south in the San Joaquin Valley, where the best available data indicate that the snake's status is precarious. The San Joaquin Valley Recovery Unit contains three historic snake populations: North and South Grasslands; Mendota Area; and Burrel/Lanare Area (Service 1999). This recovery unit formerly supported large snake populations, but numbers have declined severely in recent decades, and recent survey efforts indicate numbers are very low compared to Sacramento Valley populations.

No surviving snake populations are known from the fourth recovery unit, the South Valley Recovery Unit, at the southern end of the snake's historic range; this unit includes only extirpated populations, including the historic but lost Tulare and Buena Visa lakes.

The draft recovery criteria require multiple, stable populations within each of the four recovery units, with subpopulations well-connected by corridors of suitable habitat. Currently, only the Sacramento Valley Recovery Unit, at the northern end of the species' range, is known to support relatively large, stable populations. Habitat corridors connecting populations or subpopulations, even for the Sacramento Valley Recovery Unit, are not present and/or protected.

In 1994, the BRD (then the National Biological Survey) began a study of the life history and habitat requirements of the snake in response to an interagency request from the Service. Since April of 1995, the BRD has further documented occurrences of snakes within some of the known populations. The BRD has studied snake subpopulations at the Sacramento and Colusa NWRs within the Colusa Basin, at Gilsizer Slough within the Sutter Basin, the Badger Creek area of the Cosumnes River Preserve within the Badger Creek-Willow Creek area, and the Natomas area within the American Basin (Wylie *et al.* 1997, Wylie 1999). These subpopulations represent the largest known extant subpopulations. With the exception of the American Basin, these subpopulations are largely protected from many of the threats to the species. Outside of these protected areas, snakes in these populations are still subject to all the threats identified in the final listing rule. The remaining nine populations identified in the final rule are distributed discontinuously in small isolated patches and are vulnerable to extirpation by stochastic environmental, demographic, and genetic processes. The 13 extant populations are largely isolated from each other, with any dispersal corridors between them limited and not protected. When small populations are extirpated, the recolonization is unlikely in most cases, given the isolation from larger populations and the lack of dispersal corridors between them.

Environmental Baseline

Surveys over the last two decades have located the giant garter snake as far north as the Butte Basin in the Sacramento Valley. Currently, the Service recognizes 13 separate populations of the snake, with each population representing a cluster of discrete locality records (Service 1993). The 13 extant population clusters largely coincide with historical riverine flood basins and tributary streams throughout the Central Valley (Hansen 1980, Brode and Hansen 1992): (1) Butte Basin, (2) Colusa Basin, (3) Sutter Basin, (4) American Basin, (5) Yolo Basin-Willow Slough, (6) Yolo Basin-Liberty Farms, (7) Sacramento Basin, (8) Badger Creek-Willow Creek, (9) Caldoni Marsh, (10) East Stockton-Diverting Canal and Duck Creek, (11) North and South Grasslands, (12) Mendota, and (13) Burrell-Lanare. These populations span the Central Valley from just southwest of Fresno (Burrell-Lanare) north to Chico (Hamilton Slough).

Since April of 1995, the Biological Resources Division (BRD) of U.S. Geological Survey has further documented occurrences of giant garter snakes at the Sacramento, Delevan, and Colusa National Wildlife Refuges within the Colusa Basin, at Gilsizer Slough within the Sutter Basin, at the Badger Creek area of the Consumnes River Preserve within the Badger Creek-Willow Creek

area, and in the Natomas Basin within the American Basin (Wylie 1999; 2001: Wylie *et al.* 1997; 2000a,b; 2002). These populations of giant garter snakes represent the largest extant populations. With the exception of the American Basin, these areas are largely protected from many of the threats to the species. Outside of protected areas, giant garter snakes in these population clusters are still subject to all threats identified in the final rule. The remaining nine population clusters identified in the final rule are distributed discontinuously in small isolated patches and are vulnerable to extirpation by random environmental, demographic, and genetic processes. Until recently, there were no post-1980 sightings of snakes from Stockton and southward, and surveys of historic localities conducted in 1986 did not detect any snakes (Service 1999). Since 1995, however, surveys conducted by CDFG in cooperation with BRD in the Grasslands Area in the San Joaquin Valley have detected snakes, but in numbers much lower than those found in the Sacramento Valley populations. These observations indicate that snakes are still extant in at least three locations in the San Joaquin Valley, but probably in extremely low numbers (Service 1999). All 13 population clusters are isolated from each other with no protected dispersal corridors. Opportunities for recolonization of small populations which may become extirpated is unlikely given the isolation from larger populations and lack of dispersal corridors between them.

The proposed action occurs within the Natomas Basin portion of the American Basin population of giant garter snakes, within the Mid-Valley Recovery Unit identified by the giant garter snake recovery team (Service 1999). Scattered natural habitats comprise a small component of this larger, 53,000-acre agricultural habitat Natomas Basin complex. Numerous California Natural Diversity Database (CNDDB 2002) locality records for giant garter snakes are known from the Natomas Basin portion of the American Basin and are distributed throughout most of the Natomas Basin. Additionally, the snake has been documented in Area B (Hansen 2002). Because the Natomas Cross Canal may pose a barrier to the snake's movement, snakes in Area B and the Basin may now represent two distinct populations.

Brode and Hansen (1992) evaluated the status and future management of the snake within the Natomas Basin. They stated that the Basin provides the most important habitat remaining for the snake and observed that snake habitat within the Basin occurs in three large areas that are separated by major highways (Figure 5). Area 1 is defined as lands north of Interstate 5 (I-5) and west of State Route 99/70 (SR-99/70). Important habitat areas include Prichard Lake, the North Drain Canal, and its associated rice fields. Area 2 is defined as the lands south and west of I-5. The most important habitat area is Fisherman's Lake. Area 3 is defined as the lands east of I-5 and SR-99/70. Within Area 3, the most important habitat area is "Snake Alley," an area comprised of the North Main Canal and its associated rice fields and irrigation ditches on the east side of SR-99/70. The authors hypothesized that snakes could move between the three geographic areas through large box culverts under the major highways. Brode and Hansen (1992) attributed the snake's continued success in the Basin to the numerous irrigation ditches, rice fields, and especially the extensive network of irrigation canals, feeder canals, and drains. The authors concluded by presenting a conceptual conservation plan for the snake in the Basin. This plan was based upon a minimum of one core habitat in each of the geographic areas with connecting canal to ensure snake's could move between each of the three areas. The proposed

action includes effects to snake habitat within all three of the geographic areas.

Recent research efforts by BRD to collect demographic and habitat use data during from 1998 through 2002, have further documented occurrences of giant garter snakes within the Natomas Basin (Wylie *et al.* 2000b, Wylie and Cassaza 2002, Wylie and Martin 2002). BRD surveys have provided significant recent information on the distribution of giant garter snakes within the Natomas Basin, and supplement previous research on the snake within the Natomas Basin (e.g. Brode and Hansen 1992, Hansen and Brode 1993). BRD capture data and CNDDB records indicate giant garter snakes are distributed throughout the Natomas Basin, but the relative abundance varies. Wylie *et al.* (2000b) concluded that habitat within the Natomas Basin has apparently degraded over time, as compared to previous accounts of habitat in the Natomas Basin. They also concluded that the quality of habitat within the Natomas Basin is poorer than that at other geographic locations where giant garter snakes are found. The other localities studied by BRD included more extensive areas of native or restored and/or protected habitat as compared with the Natomas Basin. Results of the most recent snake surveys in the Natomas Basin indicated that habitat quality is decreasing near Fisherman's Lake and in the area addressed in the MAP biological opinion (Wylie and Cassaza 2002). This decrease in habitat quality is likely due to the fallowing of rice fields and encroaching development. Major areas classified as having good habitat quality are located in the northwest portion of the Basin (in the vicinity of the Conservancy's Lucich North, Lucich South, and Bennett South sites) and in the unincorporated area of Sacramento County between Elverta Road and the Sacramento-Sutter County line. Of those areas of the Basin sampled, snake densities were greatest at Bennett South, Lucich North, Lucich South, and Snake Alley.

A number of State, local, private, and unrelated Federal actions have occurred within the action area and adjacent region affecting the environmental baseline of the species. Some of these projects have been subject to prior section 7 consultation. These actions have resulted in both direct and indirect impacts to snake habitat within the region.

Several flood control programs are completed or ongoing within the action area, within the range of the species, and within the Natomas Basin. Completed projects include the Natomas Area Flood Control Project that provided flood protection necessary for development in the Natomas Basin to move forward. On-going projects associated with the common features of the American River Watershed Investigation administered by the Corps of Engineers will affect giant garter snakes within the Natomas and American Basins. Activities that are either on-going or in various stages of planning include levee raising along the Natomas Cross Canal, American River, and Sacramento River; modification of the Natomas East Main Drainage Canal levee; and relocation of canals and construction of stability/seepage berms along the levees.

Ongoing agricultural activities also affect the environmental baseline for the snake, and are largely not subject to section 7 consultation. Some agriculture, such as rice farming, can provide valuable seasonal foraging and upland habitat for the snake. Although rice fields and agricultural waterways can provide habitat for the snake, agricultural activities such as waterway maintenance, weed abatement, rodent control, and discharge of contaminants into wetlands and

waterways can degrade snake habitat and increase the risk of snake mortality (Service 1999). Ongoing maintenance of agricultural waterways can also eliminate or prevent establishment of snake habitat, eliminate food resources for the snake, and can fragment existing habitat and prevent dispersal of snakes (Service 1999). Flood control and maintenance activities which can result in snake mortality and degradation of habitat include levee construction, stream channelization, and the riprapping of streams and canals (Service 1999).

In addition to agricultural, flood control, and maintenance activities, other activities have occurred in the Basin that likely affected the snake and did not receive incidental take authorization. For example, over the last three to four years, approximately 75 acres of potential snake seasonal wetland habitat were altered and/or degraded on lands owned by the Sacramento International Airport. This is a significant percentage of the remaining natural wetlands in the Basin. These unauthorized activities are currently under investigation by the Service.

The Natomas Basin currently supports approximately 24,567 acres of snake habitat (Table 4). Of that, approximately 96 acres are ponds and seasonally wet areas, 22,693 acres are rice fields, and 1,778 are canals.

Threatened Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle was listed as a federally-threatened species on August 8, 1980 (45 **FR** 52803). Two areas along the American River in the City's metropolitan area have been designated as critical habitat for the beetle [50 **FR** 17.95 (I)]. In addition, an area along Putah Creek, Solano County, and the area west of Nimbus Dam along the American River Parkway, Sacramento County, are considered essential habitat, according to the Recovery Plan for the beetle (Service 1984). These areas support large numbers of mature elderberry shrubs (*Sambucus* spp.) with extensive evidence of use by the beetle. A detailed account of the beetle's life history is presented in the "Valley Elderberry Longhorn Beetle Recovery Plan" (Service 1984) and Barr (1991).

Description

Longhorn beetles (family Cerambycidae) are characterized by somewhat elongate and cylindrical bodies with long antennae, often in excess of 2/3 of the body length. The valley elderberry longhorn beetle is large and stout-bodied. Males range in length from about 13-21 mm (measured from the front of the head to the end of the abdomen) with antenna about as long as the body. Females are slightly more robust than males, measuring about 18-25 mm, with somewhat shorter antennae. The beetles are dark metallic-green with a bright red-orange border on the elytra (thickened, hardened forewings). Males generally have the metallic-green elytral pattern reduced to four oblong spots, exhibiting much of the red-orange color. Females and some males are mostly metallic-green and exhibit only a narrow band of red-orange color along the front margin of the elytra.

Reproductive Biology

Adult beetles are active from March through June. They are uncommon and rarely observed despite their large size and conspicuous coloration. They presumably mate at this time, the females laying their eggs on the bark of an elderberry. How the beetle locates mates is unknown, although some other cerambycids appear to use pheromones. The larvae hatch in a few days and bore into the stem, where they remain, feeding on the pith until they complete their development. The larva then cuts an emergence hole, pupates inside the stem, and emerges as an adult in the spring. The complete life cycle is thought to take one or two years. Adults are presumed to die after reproducing, but this is not definitively known.

Essential Habitat Components, Movement

The beetle is dependent on its host plant, elderberry, which is a common component of the remaining riparian forests of the Central Valley. Use of the elderberry by the beetle, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the shrub's use by the beetle is an exit hole created by the larva just prior to the pupal stage. Recent field work along the Cosumnes River and in the Folsom Lake area indicates that larval galleries can be found in elderberry stems with no evidence of exit holes; the larvae either succumb prior to constructing an exit hole or are not far enough along in the developmental process to construct an exit hole. Larvae appear to be distributed in stems which are 1.0 inch or greater in diameter at ground level. Barr (1991) noted that elderberry shrubs and trees with many exit holes were most often large, mature plants; young stands were seldom occupied.

Population densities of the beetle are probably naturally low (Service 1984); it has been suggested, based on the spatial distribution of occupied shrubs (Barr 1991), that the beetle disperses poorly. Low density and limited dispersal capability may cause the beetle to be vulnerable to the negative effects of the isolation of small subpopulations due to habitat fragmentation.

Range

The beetle's current distribution is patchy throughout the remaining habitat of the Central Valley from Redding to Bakersfield. Surveys conducted in 1991 (Barr 1991) found evidence of beetle activity at 28 percent of the 230 sites with elderberry. The beetle appears to be only locally common i.e., found in population clusters which are not evenly distributed across available elderberry shrubs). Frequently, only particular clumps or trees in the study areas were found to harbor the beetle.

Reasons for Decline and Threats to Survival

Extensive destruction of California's Central Valley riparian forests has occurred during the last 150 years due to agricultural and urban development (Katibah 1984, Smith 1977, Thompson 1961). Based on a 1979 aerial survey, only about 102,000 acres out of an estimated 922,000 acres of Central Valley riparian forest remain (Katibah *et al.* 1984). More extreme figures were given by Frayer *et al*. (1989), who reported that approximately 85 percent of all wetland acreage

in the Central Valley was lost before 1939 and that from 1939 to the mid-1980's, the acreage of wetlands dominated by forests and other woody vegetation declined from 65,400 acres to 34,600 acres. Differences in methodology may explain the differences between the studies. In any case, the historical loss of riparian habitat in the Central Valley strongly suggests that the range of the beetle has been reduced and its distribution greatly fragmented. Loss of non-riparian habitat where elderberry occurs (e.g., savanna and grassland adjacent to riparian habitat, oak woodland, mixed chaparral-woodland), and where the beetle has been recorded (Barr 1991), suggests further reduction of the beetle's range and increased fragmentation of its upland habitat. In Sacramento County, some riparian forest along the American River corridor is protected as parks and open space, but elderberries in savanna and streamside riparian habitats in the southern portion of the County are vulnerable to expansion of residential and commercial developments.

Habitat fragmentation not only isolates small populations, but also increases the interface between habitat and urban or agricultural land, increasing negative edge effects such as the invasion of non-native species (Huxel 2000) and pesticide contamination (Barr 1991). There are several edge effect-related factors that may be related to the decline of the beetle. Recent evidence indicates that the invasive Argentine ant (*Iridomyrmex humilis*) poses a risk to the long-term survival of the beetle. Surveys along Putah Creek found beetle presence where Argentine ants were not present or had recently colonized, and beetle absence from otherwise suitable sites where Argentine ants had become established (Huxel 2000). The Argentine ant has negatively impacted populations of other native arthropod species (Holway 1995; Ward 1987). Predation on eggs, larvae, and pupae are the most likely impacts these ants have on the beetle. In Portugal, Argentine ants have been found to be significant egg predators on the eucalyptus borer (*Phoracantha semipunctata*), a cerambycid like the valley elderberry longhorn beetle. Egg predation on the beetle could lead to local extirpations, as indicated by a population viability study suggesting that egg and juvenile mortality are significant factors affecting probability of extinction for the beetle (Huxel and Collinge, in prep.). The Argentine ant has been expanding its range throughout California since its introduction around 1907, especially in riparian woodlands associated with perennial streams (Holway 1995, Ward 1987). Huxel (2000) states that, given the potential for Argentine ants to spread with the aid of human activities such as movement of plant nursery stock and agricultural products, this species may come to infest most drainages in the Central Valley along the valley floor, where the beetle is found.

Direct spraying and drift of pesticide, including herbicides and/or insecticides, in or near riparian areas (which is done to control mosquitos, crop diseases, invasive and/or undesirable plants, or other pests) is likely to adversely affect the beetle and its habitat. Although there have been no studies specifically focusing on the effects of pesticides on the beetle, evidence suggests that the species is likely to be affected by pesticides. As of 1980, the prevalent land use adjacent to riparian habitat in the Sacramento Valley was agriculture, even in regions where agriculture was not generally the most common land use (Katibah *et al.* 1984). Therefore, the species is likely vulnerable to pesticide contamination from adjacent agricultural practices. Recent studies of major rivers and streams documented that 96 percent of all fish, 100 percent of all surface water samples and 33 percent of major aquifers contained one or more pesticides at detectable levels

(Gilliom 1999). Pesticides were identified as one of the 15 leading causes of impairment for streams included on the Federal Water Pollution Control Act, as amended (Clean Water Act), section 303(d) lists of impaired waters. As the beetle occurs primarily in riparian habitat, the contamination of rivers and streams affects this species and its habitat. Pesticides have been identified as one of a number of potential causes of pollinator species' declines and declines of other insects beneficial to agriculture (Ingraham *et al.* 1996). Therefore, it is likely that the beetle, typically occurring adjacent to agricultural lands, has suffered a decline due to pesticides.

Status Within the Action Area and Environmental Baseline

The California Natural Diversity Database lists 168 beetle occurrences in California (CNDDB 2002). Three of these are located in Sutter County and 16 are located in Sacramento County. The beetle has not been documented to occur within the Basin. However, several occurrences have been recorded in close proximity to the Basin along the Sacramento River. For example, the beetle has been observed on the Yolo County side of the Sacramento River directly west of Fisherman's Lake. Potential beetle habitat (i.e., elderberry shrubs with stems greater than one inch diameter at ground level) is located along the outside perimeter of the Basin, and small patches of potential habitat are known to exist in many locations within the Basin. The number of elderberry shrubs in the Natomas Basin and the local population status of the beetle are not known.

Beetle habitat is defined as elderberry shrubs (*Sambucus* spp.) with stems greater than one inch in diameter at ground level. No attempt was made to quantify the number of elderberry shrubs with stems measuring greater than one inch in diameter at ground level within the proposed action's action area. However, habitat class types identified in the EIR/EIS that may potentially be inhabited by elderberry shrubs (and therefore, the beetle) include 98 acres of oak groves, 124 acres of riparian, and 106 acres of other tree groves (i.e., groves that are neither oak groves or riparian)(Table 13). Additional elderberry shrubs are likely scattered throughout the action area.

Threatened Colusa Grass

Colusa grass is endemic to vernal pools of California's Sacramento and San Joaquin valleys. The Service (1997b) listed it as a threatened species in 1997. Colusa grass has been state-listed as endangered since 1979 (CDFG 1991) and has been considered to be rare and endangered by the California Native Plant Society since 1974 (Powell 1974). The California Native Plant Society now includes Colusa grass on List 1B and considers it to be "endangered throughout its range" (Skinner and Pavlik 1994) and "seriously endangered in California" (Tibor 2001). CDFG considers the status of Colusa grass to be declining (CDFG 2001).

Description

Unlike terrestrial grasses, Colusa grass has pith-filled stems, lacks distinct leaf sheaths and ligules, and produces exudate. Colusa grass differs from other members of the Orcuttieae in that it has zigzag stems, cylindrical inflorescences, and fan-shaped lemmas and lacks glumes,

whereas the other genera within the tribe have fairly straight stems and possess glumes. Moreover, *Orcuttia* species have distichous spikelets and narrow, five-toothed lemmas, and *Tuctoria* species have spikelets arranged in a loose spiral, and narrow, more-or-less entire lemmas. Colusa grass is not likely to be confused with Anthochloa, despite their former taxonomic affiliation. The latter does not occur in North America, is perennial, does not have glands, the inflorescence is not cylindrical, and the spikelets have glumes (Hoover 1940).

All members of the Orcuttieae share several characteristics that differ from many other grasses. Most grasses have hollow stems, but the Orcuttieae have stems filled with pith. Another difference is that the Orcuttieae produce two or three different types of leaves during their life cycle, whereas most grasses have a single leaf type throughout their life span. The juvenile leaves of the Orcuttieae, which form underwater, are cylindrical and clustered into a basal rosette. After the water dries, terrestrial leaves form in all species of the tribe; these leaves have flattened blades and are distributed along the stem (Keeley 1998). *Orcuttia* species have a third type of leaf that is not found in *Neostapfia* or *Tuctoria* (Reeder 1982, Keeley 1998). The terrestrial leaves of the Orcuttieae also differ from other grasses in other respects. Whereas grass leaves typically are differentiated into a narrow, tubular *sheath* that clasps the stem tightly and a broader blade that projects away from the stem, terrestrial leaves of the Orcuttieae are broad throughout and the lower portion enfolds the stem only loosely. The Orcuttieae also lack a ligule, which is a leaf appendage commonly found in other grasses (Reeder 1965, Reeder1982, Keeley 1998). Another characteristic common to all Orcuttieae is the production of an aromatic exudate, which changes from clear to brown during the growing season (Reeder 1965, Reeder 1982). The exudate most likely helps to repel herbivores (Crampton 1976, Griggs 1981).

Compared to other members of the Orcuttieae, Colusa grass shows fewer adaptations to existence underwater, indicative of its relatively primitive evolutionary position and the shorter duration of underwater growth (Keeley 1998). The aquatic seedlings of Colusa grass have only one or two juvenile leaves (Keeley 1998). The terrestrial stage consists of multiple stems arising in clumps from a common root system. The stems are decumbent and have a characteristic zigzag growth form (Crampton 1976). Overall stem length ranges from 10 to 30 cm (3.9 to 11.8 in.). The entire plant is pale green when young (Davy 1898) but becomes brownish as the exudate darkens (Reeder 1982, Reeder 1993). Leaf length is 5 to 10 cm (2.0 to 3.9 in.) (Hitchcock and Chase 1971). Each stem produces one dense, cylindrical inflorescence that is 2 to 8 cm (0.8 to 3.1 in.) long and 8 to 12 mm (0.31 to 0.47 in.) broad. Within the inflorescence, the spikelets are densely packed in a spiral arrangement; the tip of the rachis projects beyond the spikelets. Each spikelet typically contains five florets but does not have glumes. The fan-shaped lemmas are approximately 5 mm (0.20 in.) long. The grains are 2.5 mm (0.10 inch) long and are coated with exudate. Colusa grass has a diploid chromosome number of 40 (Reeder 1982, Reeder 1993).

Historical and Current Range

In the 50 years after its initial discovery (Davy 1898), Colusa grass was reported from only three sites other than the type locality; these were in Merced and Stanislaus counties. By the mid-

1970's, Colusa grass had been reported from a total of 11 sites in Colusa, Merced, Solano, and Stanislaus counties (Hoover 1936, Hoover 1940, Crampton 1959, Medeiros 1976, Reeder 1982). During the 1980's, many new populations of Colusa grass were located during extensive surveys. As of 1989, 40 occurrences were extant and 11 already had been extirpated. Of the 51 occurrences known up to that point, 26 were in Merced County, 22 were in Stanislaus county, two were in Solano County, and one was in Colusa County (Stone *et al*. 1988, CNDDB 2001). These occurrences were in the San Joaquin Valley, Solano-Colusa, and Southern Sierra Foothills vernal pool regions (Keeler-Wolf *et al*. 1998).

Although fewer than one-quarter of the historical occurrences have been visited within the past decade, their status is presumed to be the same as on the last visit (CNDDB 2002). Currently, CNDDB (2002) includes 59 occurrences of Colusa grass; 48 occurrences are presumed to be extant and 11 others are either known or presumed to be extirpated.

The extant populations occur primarily in the Southern Sierra Foothills Vernal Pool Region, where they are concentrated northeast of the city of Merced in Merced County (24 occurrences) and east of Hickman in Stanislaus County (16 occurrences). Of the remaining eight extant occurrences, four are in central Merced County, representing the San Joaquin Valley Vernal Pool Region. The others are in the Solano-Colusa Vernal Pool Region, with two each in southeastern Yolo and central Solano counties (Stone *et al*. 1988, Keeler-Wolf *et al*. 1998, CNDDB 2002). The species has been extirpated from Colusa County (CNDDB 2002).

Life History and Habitat

Many life-history characteristics are common to all members of the Orcuttieae. They are annuals, and all exhibit C_4 photosynthesis (Downton 1975, Griggs 1981, Keeley 1998). All are wind-pollinated, but pollen probably is not carried long distances between populations (Griggs 1980, Griggs and Jain 1983). Local seed (i.e., caryopsis) dispersal is by water, which breaks up the inflorescences (Reeder 1965, Crampton 1976, Griggs 1980, Griggs 1981). Long-distance dispersal is unlikely (Service 1985*c*) but seed may have been carried occasionally by waterfowl (family Anatidae), tule elk (*Cervus elaphus nannoides*), or pronghorn (*Antilocapra americana*) in historical times (Griggs 1980). The seeds can remain dormant for an undetermined length of time, but at least for three or four years, and germinate underwater after they have been immersed for prolonged periods (Crampton 1976, Griggs 1980, Keeley 1998). Unlike typical terrestrial

grasses that grow in the uplands surrounding vernal pools, members of the Orcuttieae flower during the summer months (Keeley 1998).

All members of the Orcuttieae are endemic to vernal pools. Although the various species have been found in pools ranging widely in size, the vast majority occur in pools of 0.01 hectares (0.025 acres) to 10 hectares (24.7 acres) (Stone *et al*. 1988). Large pools such as these retain water until May or June, creating optimal conditions for Orcuttieae (Crampton 1959, Crampton 1976, Griggs 1981, Griggs and Jain 1983). Within the pools, Orcuttieae occur in patches that are essentially devoid of other plant species (Crampton 1959, Crampton 1976). Typically, plants near the center of a pool grow larger and produce more spikelets than those near the margins, but patterns vary depending on individual pool characteristics and seasonal weather conditions (Griggs 1980).

Reproductive Ecology

In an experiment where Colusa grass was grown along with Greene's tuctoria and two species of *Orcuttia* (Keeley 1998), seeds of Colusa grass took approximately three months to germinate following inundation, longer than all other species. Unlike *Orcuttia* species, Colusa grass does not produce flattened, floating juvenile leaves (Reeder 1982, Keeley 1998). Germination and seedling development have not been studied in the wild but are assumed to be similar to those of *Tuctoria* species, which have similar seedlings. Thus, Colusa grass seed would be expected to germinate in late spring when little standing water remains in the pool, and flowering would begin approximately three to four weeks later, as observed for *Tuctoria* (Griggs 1980). Flowering individuals of Colusa grass have been collected as early as May throughout the range of the species (CNDDB 2002). Colusa grass spikelets break between the florets (Reeder 1993), shattering as soon as the inflorescence matures (Crampton 1976).

Among all members of the Oructtiaeae, the soil seed bank may be 50 times or more larger than the population in any given year. In general, years of above-average rainfall promote larger populations of Orcuttieae, but population responses vary by pool and by species (Griggs 1980, Griggs and Jain 1983). Population sizes have been observed to vary by one to four orders of magnitude among successive years and to return to previous levels even after three to five consecutive years when no mature plants were present (Griggs 1980, Griggs and Jain 1983, Holland 1987). Thus, many years of observation are necessary to determine whether a population is stable or declining.

Reproductive and survival rates of Colusa grass have not been reported, but annual monitoring confirms that population sizes of Colusa grass vary widely from year to year. Over a 6-year monitoring period, the population at the Bert Crane Ranch in Merced County dropped from 250 plants in 1987 to zero in 1989 and 1990 but rebounded to over 2,000 plants in 1992 (Silveira in litt. 2000). At Olcott Lake in Solano County, the lowest population of the decade was 1,000 in 1994 yet was followed by a high of over one million the following year (CNDDB 2001).

Habitat and Community Associations

Colusa grass has the broadest ecological range among the Orcuttieae. It occurs on the rim of alkaline basins in the Sacramento and San Joaquin valleys, as well as on acidic soils of alluvial fans and stream terraces along the eastern margin of the San Joaquin Valley and into the adjacent foothills (Stone *et al*. 1988). Elevations range from 5 m (18 ft.) to approximately 105 m (350 ft.) at known sites (CNDDB 2001). Colusa grass has been found in Northern Claypan and Northern Hardpan vernal pool types (Sawyer and Keeler-Wolf 1995) within rolling grasslands (Crampton 1959). It grows in pools ranging from 0.01 to 250 hectares (0.02 to 617.5 acres), with a median size of 0.2 hectares (0.5 acres), and also occurs in the beds of intermittent streams and in artificial ponds (Stone *et al*. 1988, K. Fuller personal communication 1997, EIP Associates 1999). This species typically grows in the deepest portion of the pool or stream bed (Crampton 1959, Stone *et al*. 1988) but also may occur on the margins (Hoover 1937, Stone *et al*. 1988). Deeper pools and stock ponds are most likely to provide the long inundation period required for germination (EIP Associates 1999).

Several soil series are represented throughout the range of Colusa grass. In the Solano-Colusa Vernal Pool Region, Colusa grass grows on clay, silty clay, or silty clay loam soils in the Marvin, Pescadero, and Willows series. In the San Joaquin Valley Vernal Pool Region, soils are clay or silty clay loam in the Landlow and Lewis series (Silveira in litt. 2000). Colusa grass habitat in the Southern Sierra Foothills Vernal Pool Region includes many soil series with textures ranging from clay to gravelly loam. For sites with known soil series, these include Bear Creek, Corning, Greenfield, Keyes, Meikle, Pentz, Peters, Raynor, Redding, and Whitney (Stone *et al*. 1988, EIP Associates 1999, CNDDB 2001). The type and composition of impermeable layers underlying occupied vernal pools also varies, ranging from claypan to lime-silica or iron-silica cemented hardpan and tuffaceous alluvium (Stone *et al*. 1988)

Colusa grass usually grows in single-species stands, rather than intermixed with other plants. Thus, associated species in this case are plants that occur in different zones of the same pools but are present in the same season. For example, Crampton (1959) observed that Colusa grass dominated pool beds, with hairy Orcutt grass forming a band around the upper edge of the stand. In saline-alkaline sites, common associates of Colusa grass are frankenia and saltgrass, whereas on acidic sites associates include coyote-thistle, turkey mullein (*Eremocarpus setigerus*), and vernal pool popcorn flower (Stone *et al*. 1988, EIP Associates 1999). Greene's tuctoria formerly grew in one vernal pool with Colusa grass, but the former no longer occurs there (Stone *et al*. 1988, CNDDB 2001).

Reasons for Decline and Threats to Survival

Colusa grass declined primarily because pools in which it occurred were destroyed by conversion to irrigated agriculture, primarily to orchards and vineyards (Crampton 1976, Medeiros 1976, CNDDB 2001). Other factors that extirpated populations of Colusa grass included altered hydrology, surface disturbance, and excessive livestock grazing. At least nine, and possibly 11, occurrences have been extirpated, although several others most likely were eliminated before being reported (Stone *et al*. 1988). The Yolo County occurrences have been damaged by herbicide application (Witham in litt. 2000) and the groundwater there has been

contaminated by industrial chemicals (K. Fuller personal communication 1997).

The same factors that contributed to the decline of Colusa grass continue to pose threats. Agricultural conversion is most likely to occur in eastern Stanislaus County and threatens the 16 extant occurrences there. Dry-land farming there is gradually being replaced by irrigated agriculture; the former apparently is compatible with the persistence of Colusa grass, but the latter is not (Crampton 1959, Crampton 1976). Changes in natural hydrology, such as draining pools or creating reservoirs, could create unsuitable conditions for Colusa grass by decreasing or increasing inundation periods. Increased grazing intensity or summer grazing would threaten Colusa grass, even though moderate cattle grazing in spring has not posed a problem (Stone *et al*. 1988). Sheep grazing is compatible if the flock is removed before Colusa grass begins growth for the year. However, sheep trampling and bedding during the seedling and flowering stages are detrimental (Witham in litt. 1992).

Another threat to the survival of Colusa grass comes from the construction of the proposed University of California campus and associated community in Merced County. Four occurrences (constituting five pools and ponds) are in the area expected to be developed within the next 15 years, and two others (constituting one pool and one stockpond) are within the "planning area" (EIP Associates 1999, CNDDB 2001).

Additional factors threaten the survival of Colusa grass, particularly the problem of small population size. Although populations may drop to only a few visible plants in certain years, seven consisted of fewer than 100 plants even at their peak (CNDDB 2002) and thus are likely to represent small populations. Non-native plants such as swamp grass and alkali mallow, and invasive native species such as cocklebur and lippia could out-compete Colusa grass and may be particular problems in combination with other factors such as decreased inundation and inappropriate livestock grazing (Stone *et al*. 1988, Witham in litt. 2000). Grasshopper foraging has been observed on Colusa grass (Stone *et al*. 1988), but the extent of this threat is unknown. The two Yolo County occurrences are threatened by herbicide run-off from adjacent agricultural operations (CNDDB 2001).

Status with Respect to Recovery

Most of the conservation efforts for Colusa grass have been accomplished as part of the broader effort to survey and protect vernal pools in the Central Valley. Surveys conducted by Crampton (1959), Medeiros (1976), and Stone *et al.* (1988) contributed to distributional records and identification of threats. Four occurrences of Colusa grass, comprising six occupied pools, have been protected by The Nature Conservancy. One is Olcott Lake on the Jepson Prairie Preserve in Solano County, where the Colusa grass population has been monitored annually since 1989

(Witham in litt. 1992, CNDDB 2001). The other five pools are on the Flying M Ranch conservation easement in eastern Merced County (Stone *et al*. 1988).

Three additional occurrences of Colusa grass are on federal land, which offers more options for conservation but does not in itself constitute protection. Two are on a U.S. Department of Defense facility in Yolo County, which was scheduled to be released from federal ownership in 2001 (Fuller in litt. 2000). The other occurrence is on the Arena Plains Unit of the Merced National Wildlife Refuge in Merced County. The Service, which administers the refuge, acquired the Arena Plains in 1992, and refuge personnel have been monitoring the Colusa grass population annually since 1993. Although the refuge allowed grazing to continue on the Arena Plains after it was purchased, temporary electric fencing was placed around the Colusa grass pool one year to exclude cattle when the population was deemed to be particularly vulnerable (D. Woolington pers. comm. 1997, Silveira in litt. 2000).

Status within the Action Area and Environmental Baseline

Fifty-nine Colusa grass occurrences have been reported in California (CNDDB 2002). None of those are from Sacramento County, Sutter County, or the Basin. The closest reported Colusa grass occurrences are from Yolo County, approximately ten miles southwest of the Basin.

The Natomas Basin supports limited amounts of potential Colusa grass habitat. Potential habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat per acre of grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat per acre of grassland in the Basin (K. Fuller, pers. comm. to C. Aubrey, 2003). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. However, none of the vernal pools that have been identified in the Basin are either large or deep. Orcuttieae are almost always associated with pools that retain water into May or June (Crampton 1959, Crampton 1976, Griggs 1981, Griggs and Jain 1983).

Threatened Slender Orcutt Grass

Slender Orcutt grass was federally listed as threatened in 1997 (Service 1997*b*) and has been state-listed as endangered since 1979 (CDFG 1991). It was recognized as rare and endangered by the California Native Plant Society as early as 1974 (Powell 1974), is now included on List 1B, and is considered to be "endangered throughout its range" (Skinner and Pavlik 1994).

Description

Slender Orcutt grass occurs in valley grassland and blue oak woodland. It grows in vernal pools on remnant alluvial fans and high stream terraces and recent basalt flows. It has some ability to

colonize artificial habitats, such as the margins of stock ponds (Stone *et al*. 1988, Corbin and Schoolcraft 1989, CNDDB 2000).

Slender Orcutt grass grows as single stems or in small tufts consisting of a few stems. The plants are sparsely hairy and branch only from the upper half of the stem. Although the stems typically are erect, they may become decumbent if many branches form near the stem tip (Reeder 1982). The stems range from 5 to 20 cm (2.0 to 7.9 in.) in height (Schoolcraft in litt. 2000) and are approximately 0.5 mm (0.02 in.) in diameter. The terrestrial leaves are 1.5 to 2 mm (0.06 to 0.08 in.) wide. In slender Orcutt grass, the inflorescence comprises more than half of the plant's height, and the spikelets are more or less evenly spaced throughout the inflorescence. Each spikelet contains from five to 20 florets. The grains are approximately 3 mm (0.12 in.) long (Hitchcock 1934, Reeder 1982, Stone *et al*. 1988, Reeder 1993). In one study, seed weight ranged from 0.32 to 0.81 milligrams (mg)(1.1 to 2.8 x 10^{-5} ounces) (Griggs 1980). The diploid chromosome number of slender Orcutt grass is 26 (Reeder 1982).

Slender Orcutt grass is most similar to hairy Orcutt grass, but the former has narrower stems and leaves, branches at the upper nodes, larger spikelets that are not crowded on the rachis, larger seeds, a different chromosome number, and flowers earlier (Reeder 1982). Other *Orcuttia* species have unequal lemma teeth and also differ in seed size and chromosome number (Reeder 1982).

Historical and Current Range

By the mid-1980's, slender Orcutt grass was known from only 18 localities in Lake, Sacramento, Shasta, and Tehama counties (Reeder 1982, Stone *et al*. 1988). During the late 1980's, Stone *et al*. (1988) and others (CNDDB 2000) discovered 34 additional occurrences of slender Orcutt grass. Of the 52 occurrences reported prior to 1990, the majority (29 occurrences, 55.8 percent) were in the Northeastern Sacramento Valley Vernal Pool Region of Tehama County; most of those were in the vicinity of Dales, except for four occurrences on the Vina Plains. Another 14 occurrences (26.9 percent) were in the Northwestern Sacramento Valley Vernal Pool Region, on the Stillwater and Millville Plains of Shasta County. The Modoc Plateau Vernal Pool Region accounted for another six occurrences (11.5 percent), including four in Shasta County and two in Siskiyou County. The remaining three occurrences included two in Lake County, which was in the Lake-Napa Vernal Pool Region, and one in Sacramento County, in the Southeastern Sacramento Valley Vernal Pool Region (Griggs and Jain 1983, Stone *et al*. 1988, CNDDB 2000).

During the past decade, 27 new occurrences of slender Orcutt grass have been reported, including three that were introduced into created pools. Thus, a total of 79 occurrences are known, of which 73 are presumed to be extant (Corbin in litt. 1999, CNDDB 2000). In addition to the counties where it was reported historically, slender Orcutt grass is now known from Lassen and Plumas counties.

The primary area of concentration for slender Orcutt grass (42.5 percent of occurrences) is still in the vicinity of Dales, Tehama County, where 28 natural occurrences and the three introduced populations remain extant. Those 31 occurrences and the four in the Vina Plains of Tehama County are all in the Northeastern Sacramento Valley Vernal Pool Region (Keeler-Wolf *et al*. 1998). A secondary area of concentration for slender Orcutt grass is the Modoc Plateau Vernal Pool Region in Lassen, Plumas, Shasta, and Siskiyou counties with 22 extant occurrences (30.1 percent). The portion of Shasta County that is in the Northwestern Sacramento Valley Vernal Pool Region has 12 extant occurrences (16.4 percent). The Lake-Napa Vernal Pool Region accounts for two extant occurrences, both in Lake County, and the remaining two occurrences are in Sacramento County, in the Southeastern Sacramento Valley Vernal Pool Region (Stone *et al*. 1988, Corbin and Schoolcraft 1989, Corbin in litt. 1999, CNDDB 2000).

Reproductive Ecology and Demography

Optimal germination of slender Orcutt grass is achieved through stratification followed by warm days and mild nights (Griggs 1974 in Stone *et al*. 1988). Peak flowering of this species typically occurs in May in the Central Valley (Griggs 1981, Reeder 1982) but not until June or July on the Modoc Plateau (Corbin in litt. 2000, Schoolcraft in litt. 2000). Unlike hairy Orcutt grass and Greene's tuctoria, slender Orcutt grass is not likely to die when pools are flooded by late spring or summer rains. At two sites near Dales that were inundated by rains in May 1977, slender Orcutt grass plants dropped their existing inflorescences but resprouted and flowered again within one month (Griggs 1980, Griggs and Jain 1983). Moreover, the population at the Vina Plains Preserve in Tehama County experienced a second pulse of germination after summer rains in 1982 (Broyles 1983, in Alexander and Schlising 1997). Conversely, drought has been known to cause 100 percent mortality (Griggs 1980, Griggs and Jain 1983).

Similar to other vernal pool annuals, slender Orcutt grass populations can vary greatly in size from year to year. Fluctuations of up to four orders of magnitude have been documented in Lake and Shasta counties (Griggs 1980, Griggs and Jain 1983). At the Vina Plains Preserve, the single population ranged in size from 1,000 to 147,700 individuals during the five times it was reported over a 13-year period (Stone *et al*. 1988, Alexander and Schlising 1997). However, slender Orcutt grass populations do not always fluctuate in size. Among five populations of slender Orcutt grass that Griggs tracked from 1973 to 1979, two remained at the same order of magnitude for the entire period. Both were in the Dales area. None of the other five species of Orcuttieae included in the study remained stable for the full seven years (Griggs 1980, Griggs and Jain 1983).

Seeds of slender Orcutt grass germinate even in dry years, but the proportion of plants surviving to maturity varies. In a 1977 demographic study of two slender Orcutt grass populations near Dales and a third near Redding (Griggs 1980, Griggs and Jain 1983), survivorship ranged from 0 to 75 percent (average = 40 percent). At the two sites near Dales, densities of slender Orcutt grass were 694 and 1,530 per square meter (64.5 and 142.1 per square foot, respectively) in 1977 (Griggs 1980, Griggs and Jain 1983). At the Vina Plains Preserve, the single occupied pool had a density of 71 plants per square meter (6.6 per square foot) in 1995 (Alexander and Schlising

1997). Slender Orcutt grass produced an average of 58 seeds per plant in 1977, ranging from 11.3 to 163.9 among the populations studied. At one Dales-area site, the soil seed bank was estimated to be more than 14 times greater than the population of growing plants in 1977 (Griggs 1980, Griggs and Jain 1983).

Griggs (1980) and Griggs and Jain (1983) reported that most of the genetic diversity in slender Orcutt grass occurred among individuals with the same seed parent. He found nearly as much genetic diversity within a single population but little difference between populations. However, his study included only two populations from Tehama County, which were in close proximity. One of the Sacramento County populations differs considerably from other occurrences in outward appearance, suggesting that it may differ genetically (Cochrane in litt. 1995*a*).

Habitat and Community Associations

Slender Orcutt grass is found primarily on substrates of volcanic origin (Crampton 1959, Corbin and Schoolcraft 1989), on soils that range from slightly to strongly acidic (Stone *et al*. 1988) and from clay to sandy, silty, or cobbly loam (Corbin and Schoolcraft 1989, CNDDB 2000 and unprocessed data). Sacramento Valley populations occur on the Redding, Toomes, and Tuscan soil series (Stone *et al*. 1988, CNDDB 2000). Elsewhere, soil series have not been reported. Natural pools in which slender Orcutt grass grows are classified as Northern Volcanic Ashflow and Northern Volcanic Mudflow vernal pools (Sawyer and Keeler-Wolf 1995). However, this species also has been reported from other natural and artificially-created seasonal wetlands such as creek floodplains, stock ponds, and borrow pits. Impervious layers beneath occupied pools range from iron-silica hardpan to bedrock (Stone *et al*. 1988, Corbin and Schoolcraft 1989, CNDDB 2000).

Among the populations studied by Stone *et al.* (1988), the median area of pools occupied by slender Orcutt grass was 0.65 hectares (1.6 acres) and ranged from 0.08 to 45 hectares (0.2 to 111 acres). On the Modoc Plateau, occupied pools known as of 1989 ranged in size from 2 to 40 hectares (5 to 100 acres) and were typically at least 30 cm (11.8 in.) deep; this species was restricted to the deepest areas of these pools (Corbin and Schoolcraft 1989). Slender Orcutt grass occurs through a wide range of elevations corresponding to its broad geographical range. The lowest reported elevation was 27 m (90 ft.) in Sacramento County (Stone *et al*. 1988) and the highest was 1,640 m (5,380 ft.) in Lassen County (CNDDB unprocessed data).

Vegetation types in which the occupied pools occur are diverse, ranging from grassland and oak woodland to mixed conifer forest, silver sagebrush (*Artemisia cana*) flats, and sedge meadows (Crampton 1959, CNDDB 2000). Associated species vary throughout the range of slender Orcutt grass. Among the most common associates in the Sacramento Valley are vernal pool popcorn flower, pale spikerush (*Eleocharis macrostachya*), coyote-thistle, whiteflower navarretia, and water shamrock. At other locations throughout northern California, slender Orcutt grass occurs with a wide variety of plants, including various species of *Downingia, Eryngium*, and *Navarretia* (Stone *et al*. 1988, Corbin and Schoolcraft 1989, Alexander and Schlising 1997, CNDDB 2000). Although slender Orcutt grass grows in the same vernal pool

complexes as hairy Orcutt grass in Tehama County (including the Vina Plains Preserve) and Sacramento Orcutt grass in Sacramento County, it has not been found to share any pools with either species (Stone *et al*. 1988, Cochrane in litt. 1995*a*, Alexander and Schlising 1997, CNDDB 2000).

Reasons for Decline and Threats to Survival

Urban development in the vicinity of Redding has extirpated or caused the severe decline of five slender Orcutt grass occurrences through construction activities and hydrological alterations (Griggs and Jain 1983, CNDDB 2000). Agricultural conversion apparently eliminated the species from the type locality. Although the exact location of the type collection is not known, the general area was being used for crop fields and both irrigated and dry pastures as of 1987 (Stone *et al*. 1988).

Urban development is continuing in the vicinity of Redding and could eliminate the remaining populations in that area. A variety of other factors are contributing to the continued decline of slender Orcutt grass including off-road vehicle use, inappropriate livestock grazing, altered hydrology, and competition from other plants (Stone *et al*. 1988, Corbin and Schoolcraft 1989). Off-road vehicle use is a particular problem near Redding and in forested areas of the Modoc Plateau. According to Stone *et al*. (1988), "moderate" livestock grazing in spring is compatible with slender Orcutt grass but overstocking, summer grazing, and trampling pose threats to several occurrences. However, grazing may be necessary to control aggressive competitors such as the native species, pale spikerush (Witham in litt. 2000). Altered hydrology contributes to the decline of slender Orcutt grass by creating conditions unsuitable for its germination, growth, or reproduction, and by promoting the growth of competing plant species.

Status with Respect to Recovery

Four natural occurrences of slender Orcutt grass are in designated preserves. These include the Trust for Wildland Communities' Boggs Lake Preserve in Lake County, The Nature Conservancy's Vina Plains Preserve in Tehama County, and two occurrences on CDFG's Dales Lake Ecological Reserve in Tehama County (Broyles 1987, Stone *et al*. 1988, CNDDB 2000). All four populations are monitored annually (Baldwin and Baldwin 1989*a*, Baldwin and Baldwin 1989*b*, Baldwin and Baldwin 1991, CNDDB 2000). A conservation area containing a population of slender Orcutt grass was recently established in Sacramento County to compensate for impacts to vernal pools (Fuller in litt. 2000). An unknown number of additional occurrences are protected from development by conservation easements; one is in Shasta County (CNDDB 2000), and the others are in the Dales Lake area of Tehama County, where a private landowner put more than 16,188 hectares (40,000 acres) of ranch land into a conservation easement in cooperation with The Nature Conservancy (Witham in litt. 2000).

Introductions of slender Orcutt grass have been attempted at two privately-owned sites. In 1978, slender Orcutt grass was seeded into two adjacent "ponds" in Chico, Butte County. Fewer than 100 plants grew in the two ponds that year or in 1979 (Griggs 1980), which was the last time the population size was reported. The other introduction was in 1982, when slender Orcutt grass was seeded into an artificial pool in Shasta County. As of 1987, the population was thriving (CNDDB 2000), but its current size is not known. An unintentional introduction may have taken place at the Dales Lake Ecological Reserve. In 1995, slender Orcutt grass appeared in 11 of 21 artificially-created vernal pools there, possibly because its seeds were contained in plant litter from nearby natural pools that was spread on the surface of the created pool (Witham in litt. 2000). The CNDDB (2000) considers those 11 pools to comprise three element occurrences, but the populations may not be viable; very few plants were found in 1995 and only one of the pools still supported slender Orcutt grass in 1999 (Witham in litt. 2000).

Twenty-seven of the 73 (37.0 percent) extant occurrences of slender Orcutt grass are wholly or partially on federal land. Seventeen of these are managed by the U.S. Forest Service, primarily the Lassen National Forest, although one is on the Shasta-Trinity National Forest. The other ten are on lands operated by the U.S. Bureau of Land Management; nine of these are in the Redding Resource Area and the other is in the Alturas Resource Area. Two of the occurrences on the Lassen National Forest, Adobe North and South Vernal Pools, are within an area that has been proposed as a Research Natural Area (Corbin in litt. 2000). The Green Place Reservoir occurrence in Shasta County is within a Wilderness Study Area and has been jointly proposed by the U.S. Bureau of Land Management and the Lassen National Forest as a Research Natural Area (Schoolcraft in litt. 2000). The Lassen National Forest and Susanville District of the U.S. Bureau of Land Management jointly prepared a management plan for slender Orcutt grass sites under their administration (including those in the Shasta-Trinity National Forest) in order to ensure the long-term survival of the species (Corbin and Schoolcraft 1989). Actions identified in that plan included avoidance of known populations, maintenance of natural hydrology, monitoring selected populations, and surveys in suitable habitats. As a result of the plan, several areas have been fenced to exclude livestock and a considerable number of additional populations have been discovered (Corbin in litt. 1999, CNDDB 2000, Corbin in litt. 2000, Schoolcraft in litt. 2000).

Status within the Action Area and Environmental Baseline

A review of CNDDB (2002) revealed that slender Orcutt grass had been reported 84 times in California. Slender Orcutt grass has not been recorded from Sutter County or the Basin. However, it has been reported twice from Sacramento County. The closest reported slender Orcutt grass record to the Basin is approximately 14 miles away in north-central Sacramento County.

The Natomas Basin supports limited amounts of potential slender Orcutt grass habitat. Potential habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat per acre of grasslands in

Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat per acre of grassland in the Basin (K. Fuller, pers. comm. to C. Aubrey, 2003). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. However, none of the vernal pools that have been identified in the Basin are either large or deep. Orcuttieae are almost always associated with pools that retain water into May or June (Crampton 1959, Crampton 1976, Griggs 1981, Griggs and Jain 1983).

Endangered Sacramento Orcutt Grass

Sacramento Orcutt grass was federally listed as an endangered species in 1997 (Service 1997b) and has been state listed as endangered since 1979 (CDFG 1991). The California Native Plant Society has included it on lists of very rare and endangered plants for over two decades (Powell 1974); Sacramento Orcutt grass is currently on List 1B, with the highest endangerment rating possible (Skinner and Pavlik 1994).

Description

Sacramento Orcutt grass has unequal lemma teeth, unlike hairy and slender Orcutt grasses. Both California and San Joaquin Valley Orcutt grasses have unequal lemma teeth but can be distinguished from Sacramento Orcutt grass by the length of the lemma and its teeth and bristles, the size and density of the inflorescence, and the size of the seeds. Moreover, the chromosome number of Sacramento Orcutt grass differs from all other *Orcuttia* species (Reeder 1982).

Historical and Current Range

Sacramento Orcutt grass is endemic to the Southeastern Sacramento Valley Vernal Pool Region (Keeler-Wolf *et al*. 1998) and has always been restricted to Sacramento County. The earliest collection was from 1936 near Phoenix Field. Three other occurrences documented in 1941 and 1958 extended the range north to Orangevale and south to near Sloughhouse. Sacramento Orcutt grass was introduced to Phoenix Park, Sacramento County, in 1978. Three additional natural occurrences were discovered in the late 1980's, including one in extreme southeastern Sacramento County near Route 104. Thus, by 1990, this species was known from a total of seven natural occurrences and one introduction (Stone *et al*. 1988, CNDDB 2000).

Within the past decade, Sacramento Orcutt grass has been discovered at one new site in Sacramento County, within the previously known range. However, one entire occurrence and a portion of another have been extirpated. Thus, eight of the nine occurrences are extant. Five occurrences, comprising more than 70 percent of the occupied habitat, are concentrated into a single area of approximately 6 km^2 (2.3 square miles) east of Mather Field. Two other occurrences are adjacent to each other: Phoenix Field Ecological Reserve and the introduced population at Phoenix Park. The eighth extant occurrence is near Rancho Seco Lake (Stone *et al*. 1988, Cochrane in litt. 1995*a*, Morey in litt. 1996, CNDDB 2000). All occurrences are in the Southeastern Sacramento Valley Vernal Pool Region (Keeler-Wolf *et al*. 1998).

Reproductive Ecology and Demography

Sacramento Orcutt grass flowers in May and June (Griggs 1977, Skinner and Pavlik 1994, Cochrane in litt. 1995*a*) and sets seed in June and July (Holland 1987). The plants are adapted for wind pollination but do provide a source of pollen for native bees (Griggs 1974, in Stone *et al*. 1988). Seeds likely do not disperse far under natural conditions. In a 6-year period, an experimental population spread at most 3 m (10 ft.) from the seed source, and 95 percent of plants were within 30 cm (11.8 in.) of the source (Holland in litt. 1986). A demographic study conducted from 1974 to 1978 (Griggs 1980, Griggs and Jain 1983) indicated that Sacramento Orcutt grass produced an average of 500 seeds per plant. At one site in 1978, 88 percent of plants survived to maturity. The size of the seed bank stored in the soil was approximately 44 times as great as the population of growing plants (Griggs 1980, Griggs and Jain 1983). The number of plants varies with rainfall. Large numbers of plants grow only in years when seasonal rainfall exceeds 40 cm (15.7 in.), particularly when heavy rains begin in November and continue through the end of April (Holland 1987). This species is less likely to germinate in years of below-normal precipitation than other members of the tribe (Griggs 1980, Griggs and Jain 1983).

In studies of enzyme systems, genetic diversity between populations of Sacramento Orcutt grass was low. However, plants from the primary area of concentration had alleles that did not occur in other areas. The amount of genetic variation occurring among related individuals was approximately equal to that within populations (Griggs 1980, Griggs and Jain 1983).

Habitat and Community Associations

Sacramento Orcutt grass has been found in Northern Hardpan and Northern Volcanic Mudflow vernal pools (Sawyer and Keeler-Wolf 1995). It occurs on high-terrace sites (Stone *et al*. 1988) at elevations of 46 to 82 m (150 to 270 ft.) (CNDDB 2000). Occupied pools occur in blue oak woodland and annual grassland (Crampton 1959, Griggs 1977, CNDDB 2000). Among occupied pools discovered prior to 1988, the median area was 0.28 hectares (0.69 acres) and ranged from 0.1 hectares (0.25 acres) to 0.82 hectares (2.03 acres). Soils underlying pools where Sacramento Orcutt grass grows are acidic with an iron-silica hardpan (Stone *et al*. 1988), and the pools contain numerous cobbles (Crampton 1959, Stone *et al*. 1988). Most of the known occurrences are on soils in the Redding series, but at least two are in the Pentz-Pardee-Red Bluff association (Stone *et al*. 1988).

The most common associates of Sacramento Orcutt grass are vernal pool popcorn flower, coyote-thistle, pale spikerush, and dwarf woolly-heads (Stone *et al*. 1988). Boggs Lake hedge-hyssop co-occurs with Sacramento Orcutt grass in one pool (Stone *et al*. 1988, CNDDB 2000). One population of slender Orcutt grass grows in the same vicinity as Sacramento Orcutt grass, but the two species have not been found together (Cochrane in litt. 1995*a*).

Reasons for Decline and Threats to Survival

One former occurrence of Sacramento Orcutt grass between Orangevale and Folsom was

eliminated by urban development. The species was extirpated from one pool near Grant Line Road by changes in hydrology: pool depth was increased artificially to provide a longer-lasting water source for livestock, which created conditions unsuitable for persistence of Sacramento Orcutt grass (Stone *et al*. 1988, CNDDB 2000). Although they have not been extirpated, extant occurrences at the Phoenix Field Ecological Reserve and the Phoenix Park Vernal Pool Preserve have been degraded by off-road vehicles and alterations to natural drainage patterns (Clark *et al*. 1998).

The remaining pools where Sacramento Orcutt grass grows are subject to a wide variety of factors that threaten the species' survival. Urban encroachment, which encompasses many activities, is the primary factor. One occurrence in the primary area of concentration could be destroyed by expansion of the county landfill (Cochrane in litt. 1995*a*); the precise area of expansion has yet to be determined. At present, trash from the landfill frequently blows into the pools (Cochrane in litt. 1995*b*). An industrial park and road widening threaten another one of the occurrences in the same area (Stone *et al*. 1988, Cochrane in litt. 1995*a*). The Phoenix Field Ecological Reserve and Phoenix Park occurrences are affected by excess runoff from lawns, ball fields, and roads; by herbicide and fertilizer applied in adjacent areas (Griggs and Jain 1983, Holland in litt. 1986, Stone *et al*. 1988, Cochrane in litt. 1995*a*, Morey in litt. 1996, Clark *et al*. 1998); and by dumping of landscape waste (Clark *et al*. 1998). Another threat at the Phoenix Field Ecological Reserve is invasion of garden plants (Clark *et al*. 1998). Recreational activities such as rollerblading (Witham in litt. 2000), biking, and horseback riding (Cochrane in litt. 1995*a*, Cochrane in litt. 1995*b,* Clark *et al*. 1998) also are damaging the Phoenix Park occurrence.

Competition from native plants such as pale spikerush and non-native plants such as mannagrass (*Glyceria* spp.) could displace Sacramento Orcutt grass (Stone *et al*. 1988, Cochrane in litt. 1995*a,* Cochrane in litt. 1995*b*, Clark *et al*. 1998). Livestock grazing during the growing season, or overstocking during winter grazing, may degrade habitat for Sacramento Orcutt grass; however, grazing may be useful in providing control of competing plants if appropriate timing and stocking rates can be determined (Griggs 1977, Stone *et al*. 1988, Cochrane in litt. 1995*b*).

Status with Respect to Recovery

Two reserves have been set aside to protect Sacramento Orcutt grass. The Phoenix Field Ecological Reserve encompasses 3.2 hectares (8 acres) and is managed by CDFG. The site has been fenced and only authorized persons have access. CDFG plans to install a drain to prevent urban and landscape runoff from entering the pools. Volunteers and agency personnel monitor the Sacramento Orcutt grass population periodically (Morey in litt. 1996, Clark *et al*. 1998). The nearby Phoenix Park Vernal Pool Preserve encompasses 5.7 hectares (14 acres) and is managed by the Fair Oaks Recreation and Park District. A low fence excludes motorized vehicles but allows foot traffic. Interpretive signs and a footbridge also have been installed (Clark *et al*. 1998).

Griggs (1980) studied the ecology, demography, and genetics of several species in the Orcuttiae

tribe, including Sacramento Orcutt grass. In the course of his research, he introduced local seeds into an unoccupied, natural pool in Phoenix Park. The introduction apparently was successful because the population has persisted and remained stable since 1978 (Cochrane in litt. 1995*a,* CNDDB 2000).

The Service funded a status survey for members of the Orcuttieae in the 1980's, which led to the discovery of several new populations (Stone *et al*. 1988). The CDFG sponsored a native plant recovery workshop in 1995 to develop recovery strategies for Sacramento Orcutt grass (Cochrane in litt. 1995*a*). Workshop participants have since conducted several tasks contributing to the species' recovery, including monitoring populations, assessing threats, and providing public education (Cochrane in litt. 1995*b*, Morey in litt. 1996).

Status within the Action Area and Environmental Baseline

A review of CNDDB (2002) revealed that Sacramento Orcutt grass had been reported nine times in California. Sacramento Orcutt grass has not been recorded from Sutter County or the Basin. However, it has been reported nine times from Sacramento County. Most of these records are from northeastern Sacramento County. The closest reported Sacramento Orcutt grass record to the Basin is approximately 15 miles away in northeastern Sacramento County.

The Natomas Basin supports limited amounts of potential Sacramento Orcutt grass habitat. Potential habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat per acre of grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat per acre of grassland in the Basin (K. Fuller, pers. comm. to C. Aubrey, 2003). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. However, none of the vernal pools that have been identified in the Basin are either large or deep. Orcuttieae are almost always associated with pools that retain water into May or June (Crampton 1959, Crampton 1976, Griggs 1981, Griggs and Jain 1983).

Swainson's Hawk

The Swainson's hawk is listed by the State of California as a threatened species and is protected under the MBTA. Additional information on the life history of the Swainson's hawk can be found in CDFG's November 1, 1994, *Staff Report regarding Mitigation for Impacts to Swainson's Hawk (Buteo swainsoni) in the Central Valley of California* (CDFG 1994).

Description

The Swainson's hawk is a medium sized buteo (708 - 992 g [25-35 ounces]) with relatively long, pointed wings and a long, square tail. It occurs in three primary color phases (plumage morphs), including a light-morph, dark-morph, and rufous-morph. Some individuals are an intermediate morph, with variations of the three primary morphs (Estep 2001, in City *et al.* 2003). The dark-morph hawk differs from the light-morph in that it is entirely brown with a light patch under the tail. The trailing edges of the wings are slightly lighter in color than the leading edges. Both the dark and light morphs can have white undertail coverts. The third variation is a rufous-morph, which is characterized by a lighter color of brown with rusty barrings on the underparts. The Swainson's hawk soars with its wings held above the horizontal in a dihedral or "v" shape. When perched, its wings are slightly pointed and extend to or beyond the tail feathers (Estep 2001, in City *et al.* 2003).

Swainson's hawks are opportunistic foragers, flushing prey (rodents, insects and some birds) from fields, pastures and grasslands adjacent to their nests. In the Central Valley, their primary diet consists of small rodents, including meadow voles (*Microtus californicus*). During the summer months, the hawks consume large quantities of insects (Estep 1989).

Historical and Current Range, Movements

The Swainson's hawk breeds throughout western North America, including provinces of Canada and most states west of the Mississippi River (Dechant *et al*. 2001). It winters in grassland and agricultural regions from Central Mexico to southern South America (England *et al*. 1997).

Historically, the Swainson's hawk nested throughout lowland California. However, its current California nesting distribution is limited to the Mojave Desert, northeastern California, the Central Valley, and a few isolated locations in the Owens Valley (CDFG 1992b, 1994). The Swainson's hawk typically occurs in California only during the breeding season (March through September) and winters outside of the U.S. in Mexico and South America. The species was once thought to winter exclusively in Argentina. However, recent telemetry studies (satellite radio) have shown the species to winter in Mexico, with additional detections in Central America and South America. The Central Valley population migrates only as far south as Central Mexico (Estep 2001, in City *et al.* 2003). Additionally, 30 individual hawks have been wintering in the Delta for the past several years (Estep 2001, in City *et al.* 2003) and there are records of small numbers of Swainson's hawks wintering in southern Florida and Texas.

Essential Habitat Components and Use

Stringers of remnant riparian forest along drainages contain the majority (87 percent) of known nests in the Central Valley (England *et al*. 1995, Estep 1984, Schlorff and Bloom 1984). Swainson's hawks usually nest in large (12.2-18.3 m, 40-60 ft.) native trees such as valley oak (*Quercus lobata*), cottonwood (*Populus fremontii*), walnut (*Juglans* sp.), and large willow (*Salix* sp.) and generally do not utilize non-native trees (Estep and Teresa 1992). Nest sites are always

directly associated with high-quality foraging habitat (Estep 1989). The loss of foraging habitat is recognized as having the potential to cause the abandonment of breeding territories and to contribute to a continued reduction in the statewide breeding population (CDFG 1988).

The hawk's minimum foraging area depends upon the vegetation supporting the prey populations and the farming activities that make prey particularly susceptible to predation, such as reduction of cover after harvesting, discing, mowing, flood irrigation and burning. The hawk's highly active foraging behavior often results in birds traveling as far as 30 km from a nesting site (Estep, 1989). Hawk foraging ranges fluctuate annually in response to changing crop patterns, and seasonally in response to changes in prey accessibility and abundance (Estep and Teresa 1992). Communal foraging occurs, especially when agricultural fields such as alfalfa undergo some form of cutting or harvesting (Babcock 1995). Swainson's hawks have been observed foraging behind farm machinery (moving harvester blade or disc), capturing rodents that have become exposed from ground disturbance (Estep, 1989). Foraging ranges in fields with increased vegetation cover and reduced prey availability can be as large as 15,000 acres (Koford, 1992). Suitable cover types for foraging habitats, in order of suitability, include native grassland, agriculture soon after discing, alfalfa and other hay crops, fallow fields, lightly grazed pasture, combinations of hay, grain, and row crops, rice fields prior to flooding and after draining, and heavily grazed pasture. Unsuitable cover types for foraging habitats include vineyards, mature orchards, flooded rice fields, cotton, thistle in fallow fields and any crop where prey are unavailable due to high vegetation height and density (Estep 1989). Because of the distribution of remaining potential nest trees (i.e., narrow riparian bands), Central Valley hawks have shortest average inter-nest distance recorded to date (Estep 1989).

Reproductive Ecology

Swainson's hawks begin to arrive in the Central Valley from their wintering grounds in March to breed and raise their young. The species typically roosts and migrates in groups. Territories are usually established by April with incubation and brooding occurring through June. The earliest fledging of young occurs in July and the young remain with the parents for approximately one month following fledging or until the southern migration in early fall. Recent telemetry studies have shown that some fledglings leave the nesting area and their parents to join a juvenile group or remain alone before the fall migration (Estep 2001, in City *et al.* 2003). Males provision females while the females incubate the eggs. Later, both parents feed the young. Nesting success is inversely correlated with distance to foraging habitat (Woodbridge 1991).

Swainson's hawks show a high degree of nest fidelity and generally return to the same area in which they nested previously. They will investigate several nest sites within this "territory," and settle on one nest dependent on local disturbances, surrounding habitat variables, the proximity of other nesting raptors (i.e., great horned owls, redtail hawks, etc.), and nest condition, although this selection mechanism is not well understood. Some pairs may repair several nests before settling in on one nest site. In the case of juvenile birds, they may build and/or repair a nest and then leave without laying eggs. Therefore, in any given year, and any given area, depending on nest site availability, many of the available nest sites may not be used. Generally, in the

Natomas Basin, one in every three nest sites are used each year, based on annual surveys of successfully nesting Swainson's hawks (T. Roscoe, pers. comm., in NBHCP 2003).

Reasons for Decline and Threats to Survival

Swainson's hawks were once described as a very common raptor in California, found throughout the State's lowlands (Sharp 1902). Since the mid-1800s, the native grasslands have undergone a gradual conversion to agricultural uses. This habitat loss has caused a substantial reduction in the breeding range and size of the breeding population in California (Bloom 1980, England *et al.* 1995).

The loss of agricultural lands due to urban development is further removing essential Swainson's hawk foraging habitat throughout the mid-section of the Central Valley (Estep and Teresa 1992). Swainson's hawks are sensitive to habitat fragmentation and will avoid low density development even though suitable prey conditions may exist (Estep and Teresa 1992). They have not been found in apparently suitable urban areas in the Central Valley where foraging habitat is unavailable for 5-8 km (e.g., Lodi and Sacramento), thus requiring long-distance transport of prey throughout the entire nesting cycle. Rapid urbanization or crop changes near cities could cause the long-term decline of Swainson's hawks in existing urban neighborhoods (England *et al*. 1995). Additional threats are habitat loss due to riverbank protection projects, conversion from agricultural crops that provide abundant foraging opportunities to crops such as vineyards and orchards, shooting, pesticide poisoning of prey animals and hawks on wintering grounds, competition from other raptors, and human disturbance at nest sites.

Status with Respect to Recovery

Nesting surveys conducted periodically by CDFG indicate a relatively large and stable hawk population along the Sacramento River every three or four years. Populations of meadow voles, the principal prey item of adult Swainson's hawks in the Central Valley, vary cyclically, peaking every three to four years. Vole populations in the Basin appeared to reach a peak in 1999 (SHTAC 2000).

Historically, as many as 17,000 Swainson's hawk pairs may have nested in California (CDFG 1992b, 1994). Currently, there are 882 known extant nesting site occurrences in California (Estep 2001, in City *et al.* 2003). The proposed action is in the Central Valley population of hawks, which consists of an estimated 600 to 900 of the remaining breeding pairs. The overall Swainson's hawk population is considered to be declining (CDFG 1992b, 1994). However, the Central Valley's breeding population has remained stable over the past ten years (Estep 2001, in City *et al.* 2003).

Status within the Action Area and Environmental Baseline

More than 87 percent of the known nest sites in the Central Valley are within riparian systems (Estep, 1984; Schlorff and Bloom, 1984). This is primarily a function of tree availability and not a preference for large riparian stands or the presence of other components of a riparian forest. Swainson's hawks also nest in mature roadside trees, isolated individual trees in agricultural fields, small groves of oaks, and trees around farm houses (CDFG, 1992, 1994). The Sacramento River location affords the hawk relatively easy access to foraging uplands on either side of the river, including lands in Yolo County. Relative to the Basin specifically, information indicates that nesting sites and foraging activity occur throughout the Basin (Estep 2001, in City *et al.* 2003), again depending on the presence of suitable trees in proximity to upland foraging areas.

Estep (2002) monitored Swainson's hawk nesting in and along the Natomas Basin in 2002. Seventy hawk territories were identified and monitored; the majority of them were located along the banks of the Sacramento River. Nest trees included walnut, cottonwood, willow, eucalyptus, valley oak, ornamental mulberry, and sycamore. Forty-three of the total 70 territories monitored were active (i.e., at least one adult was active on the nesting territory). Of the 43 active sites, 24 were occupied by breeding pairs that successfully nested (i.e., reared at least one young to fledging). The remaining nineteen sites were either unsuccessful (N = 18) or could not be determined (N = 1). At the 18 failed nest sites, eleven nested but failed to rear young to fledging; seven were occupied by the adult breeding pair but did not attempt to nest. Although the number of nests and active nests has increased yearly since 1999, overall reproductive performance has remained relatively constant because the proportion of successful nests has declined. The number of young per successful nest has remained relatively stable and is consistent with the Sacramento Valley population as a whole.

The proposed action will occur within the range of the Central Valley population of Swainson's Hawks. Much of this population's nesting habitat has been lost to agricultural practices, flood control projects, and urban expansion (Estep 2002). These same factors have also contributed to an overall reduction in native foraging habitat (e.g., grasslands). Within the proposed action's action area, projects have been and continue to be conducted that likely degrade the baseline of the species. In 2001 and 2002, the County of Sacramento approved several small development projects (residential and commercial) in the Natomas Basin that likely resulted in the loss of Swainson's foraging habitat. These developments were discussed in a January 31, 2003, letter from the Service and CDFG to the County of Sacramento (Service File no. 1-1-03-TA-0052). Some of the County-approved developments were relatively close to Swainson's hawk nest trees, which may affect nesting success at those trees. However, the total amount of habitat converted was small (< 10 acres) and was dispersed throughout the southwestern portion of the Basin. The amount developed would not be considered urbanization. The Sacramento International Airport removed three Swainson's hawk nest trees in 2002, two of which had been active in 2001. The third had not been active for the last couple of years (J. Estep, pers. Comm. to Craig Aubrey, 2003).

The Natomas Basin currently supports approximately 328 acres of potential Swainson's nesting habitat (riparian = 124 acres, oak groves = 98 acres, tree groves = 106 acres) (Table 5). This does not include potential nesting habitat on the west side of the levee on the Sacramento River. The majority (80 percent) of nesting habitat is located outside of the proposed Permit Areas. The amount of potential Swainson's foraging habitat fluctuates and is dependant on the amount and composition of agricultural crops. There is currently a total of approximately 22,051 acres of potential Swainson's foraging habitat in the Basin. Non-rice crops represent the majority (16,686 acres). Additional habitat types include: alfalfa (371 acres), idle (1,464 acres), grassland (886 acres), pasture (674 acres), and ruderal (1,970 acres). About 40 percent of the potential foraging habitat is located within the proposed Permit Areas. Drained rice fields are also known to provide potential foraging habitat for the hawk. Therefore, when drained or fallow, a portion of the Basin's 22,693 acres of rice fields are potential foraging habitat for the hawk.

In their April, 2003, Addendum to the Technical Memorandum for the NBHCP (Technical Addendum), the applicants include a detailed analysis regarding potential suitable foraging habitat in the Basin (see Appendix K to the NBHCP). Using assumptions derived from the literature (e.g., Bechard 1982, Estep 1989, Estep and Theresa 1992), they classified the Basin's available foraging habitat according to habitat quality and temporal availability. They found: (1) the majority (almost 75 percent) of available foraging habitat is moderate in quality (Table 5); (2) only eight percent of potential foraging habitat in the Basin is considered high quality; and (3) most of the Basin's potential foraging habitat is not available during the hawk's nesting period, especially when considered in proximity to nest sites because most of the Basin's row crops are bot available as foraging habitat until the late summer and early fall crop harvest. The availability of foraging habitat in proximity to the nest during the nesting season is important because studies have shown that Swainson's hawk reproductive performance decreases with increasing distance between the nest and foraging habitat (England *et al.* 1997, Woodbridge 1991). The authors analyzed the effects of the project under three possible scenarios[3] in which mitigation would be implemented and determined: (1) in two of the three scenarios, although there was an overall decrease in the amount of available foraging habitat, the amount of foraging habitat available to the hawk throughout the nesting season increased; (2) the NBHCP's conservation recommendations directed the Conservancy to focus upland habitat acquisitions in the vicinity of Swainson's nests; (3) implementation of the NBHCP would result in a net increase in the amount of high-quality foraging habitat in the Basin, especially in the vicinity of nest sites; and (4) although some nest sites in the vicinity of the proposed development activities might be abandoned upon implementation of the proposed action, factors such as the existing surplus of nest territories and planned tree plantings in the Basin would prevent any significant adverse effects to the nesting population.

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[3]The authors evaluated these three potential scenarios in which the mitigation program would be implemented depending on the nature of the baseline habitat to be replaced by the mitigation in order to capture the full range of potential future baseline habitat conditions in the Natomas Basin.

Aleutian Canada Goose

The Aleutian Canada goose (goose) was federally listed as endangered on March 11, 1967 (32 **FR** 4001), reclassified as threatened on December 12, 1990 (55 **FR** 51112), and de-listed on March 20, 2001 (66 **FR** 15643). The State has not issued the goose any special status. Additional details of the physical description and life history of the goose can be found in the Aleutian Canada Goose Recovery Plan (Service 1991a).

Description

The Aleutian Canada goose is one of the smallest subspecies of Canada goose . Adults are slightly larger than a mallard duck (*Anas Platyrhynchos*), weighing 1.8-2.7 kg. Like all Canada geese, Aleutian Canada geese have a black head and neck with a white cheek patch, brown wings and back, a grayish-brown breast and belly, a white rump patch, and black legs and feet. The Aleutian Canada goose is distinguished from other Canada goose subspecies by its small size, short bill, and white ring encircling the base of the neck.

Wintering and migrating Aleutian Canada geese forage in harvested corn fields, newly planted or grazed pastures, or other agricultural fields (e.g., rice stubble and green barley). Lakes, reservoirs, ponds, large marshes, and flooded fields are used for roosting and loafing (Grinnell and Miller 1944, Service 1991). In winter, Aleutian Canada geese exhibit a crepuscular foraging pattern, roosting in large flocks during most of the day and night and flying to and from foraging areas during the hours around dawn and dusk.

Historical and Current Range

Historically, the Aleutian Canada goose nested on most of the larger islands in the Aleutian chain and in the Commander and northern Kuril Island chains. When it was listed in 1967, it was only known to nest on Buldir Island in the western Aleutian Islands. Subsequently, remnant flocks have been found on Chagulak Island in the eastern Aleutians, and Kaliktagik in the Semidi Islands.

The Aleutian Canada goose's major migration and wintering areas include coastal areas of Oregon and northern California and California's Sacramento and San Joaquin Valleys. The Aleutian Canada goose migrates between breeding and wintering areas from August to mid-March.

Reasons for Decline and Threats to Survival

The decline in numbers of Aleutian Canada geese and the reduction of their breeding range is attributed to predation by arctic fox (*Alopex lagopus*), which were introduced on many Aleutian islands by fur traders during the period from 1836 to 1930 (55 **FR** 239). The role of migration and wintering habitat loss in the historic decline of Aleutian Canada geese is not well understood. Changing land use practices, including the conversion of cropland and pastures to

housing and other urban development, and sport and subsistence hunting likely contributed to the historical decline (Service 1991).

Status with Respect to Recovery

Most historic nesting islands are protected and managed, in part, for Aleutian goose recovery by the Alaska Maritime National Wildlife Refuge (Service 1991). The overall population of Aleutian Canada geese has sustained a strong increase in numbers since 1990. The most recent and highest population estimate of Aleutian Canada geese from the Aleutian Islands is of birds from their staging area near Crescent City in spring 1998. This estimate suggests that the Aleutian Canada goose population now exceeds 27,000 individuals, compared to fewer than 800 birds in 1975. Since 1990, the annual rate of growth of the population, based on peak counts of birds in California, has averaged about 20 percent. The overall annual growth rate of the population since recovery activities began in the 1970s has been about 14 percent. The Service delisted the Aleutian Canada goose on March 20, 2001 (66 **FR** 15643).

Environmental Baseline and Status within the Action Area

Aleutian geese forage and roost in suitable habitats throughout the Sacramento Valley, including the Sacramento, Colusa, Butte Sink, and Sutter National Wildlife Refuges and the agricultural fields that surround them. The Butte Sink, in particular, is a major fall staging area for Aleutian geese. Aleutian geese migrate to this location in the fall, remain about 1.5 months, then continue south in December (Service 1991). Staging geese roost in flooded fields, ponds, and berms in rice fields in the Butte Sink, and fly out to surrounding agricultural fields to forage on waste grains and beans, and sprouting winter wheat. Approximately 40,000 acres of potential suitable winter habitat exists in the Natomas Basin (Table 6). The Aleutian Canada goose winters in areas both north and south of the Natomas Basin and occasionally seen as a winter transient foraging in the Basin.

Burrowing owl

The borrowing owl is classified by the State of California as a Species of Special Concern. It is classified as endangered in Canada and is listed as threatened or endangered in many of the states that it is known to inhabit (Rosenberg *et al*. 1998).

Description, Essential Habitat Components

The burrowing owl is a small, long-legged owl of open habitats that possesses a short tail, long, narrow wings, and flat head. It is often observed perched on the ground or on fence posts (Sibley, 2000). The burrowing owl generally inhabits vacated burrows created by small mammals, such as badgers (*Taxidea taxus*), ground squirrels (*Spermophilus* spp. and *Ammospermophilus* spp.), and foxes (*Vulpes* spp.) or artificial structures (e.g., culverts, wood debris piles, etc...) for nesting and shelter. It also uses the burrow as refugia from the daytime heat (Haug and Oliphant, 1990). Ground squirrel burrows are most often used by burrowing

owls in central California (Johnson, pers. comm.). At the Conservancy's Betts-Kismat-Silva and Ayala properties, owls use ground squirrel and muskrat burrows (Roberts, pers. comm.). Burrowing owls forage nocturnally on small mammals and may take invertebrates during the day (Haug and Oliphant, 1990). The species is often found in areas with few visual obstructions such as roadsides and other disturbed areas inhabited by ground squirrels. It also favors elevated places such as berms, levees, road and rail beds where it can overlook open lands (NBHCP 2003). Additional information about burrowing owls can be found in CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995).

Historical and Current Range, Movements

The burrowing owl is a neotropical migrant that occurs throughout the western United States, including portions of northern Mexico and southern Canada. Its breeding range extends from the Canadian prairie provinces through the western United States to southern California and Texas. The species is also locally distributed throughout suitable habitat in the Caribbean, Central America, and South America. The owl winters in the southern portion of its range (Haug *et al*. 1993).

There are two subspecies of burrowing owl in North America. The Florida burrowing owl (*Speotyto cunicularia floridans*) is located primarily in Florida and the Bahamas. The western burrowing owl (*S. c. hypugaea*) is located throughout Mexico, the western United States , and southwestern Canada (Haug *et al.* 1993).

California appears to have a nonmigratory population of burrowing owls (primarily in the Imperial Valley), as well as burrowing owls wintering from other regions. Burrowing owls in northern California are probably migratory, but little information is known about their migration habits (Haug *et al*. 1993). Burrowing owls in Natomas are non-migratory and resident (Johnson, pers. comm.). The owl is fairly uncommon along the coast north of Marin County, and rare east of the crest of the Sierra Nevada. Additional populations are reported from the Modoc Plateau and Great Basin region. Fragmentation or elimination of historic habitat and population declines have been noted throughout its range (NBHCP 2002).

Essential Habitat Components

Burrowing owls occupy open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation (e.g., campuses, airports, golf courses, perimeter of agricultural fields, banks of irrigation canals) (Natureserve 2000). They use well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground such as moderately to heavily grazed pasture. Although specific habitat characteristics associated with burrowing owls vary by location, the three basic attributes of nesting habitat are: (1) available nest burros; (2) short or sparse vegetation; and (3) open terrain (Zarn, 1974). Burrowing owls forage in a variety of habitats including cropland, pasture, prairie dog colonies, fallow fields, and sparsely vegetated areas. In Saskatchewan, burrowing owls preferred foraging in dense, permanent grass-forb vegetation greater than 30 cm in height located in uncultivated areas and

right-of-ways. They also tended to avoid cultivated cropland and pasture (Haug and Oliphant 1990). Benedict *et al*. (1996), Warnock (1997), and Warnock and James (1996) stated that large, contiguous areas of native grassland are important for the species.

Reasons for Decline and Threats to Survival

Numerous factors have contributed to the owl's decline throughout its range including: (1) habitat loss, fragmentation, and degradation (e.g., agricultural practices, land development); (2) vehicle collisions; (3) rodent control measures; and (4) predation from domestic animals. Of these, habitat alteration and destruction is most important (Sheffield 1997). Habitat alteration and destruction as a result of development appears to be the most important recent influence on burrowing owl populations in central California. Agricultural practices such as the removal of ground squirrels, use of chemical herbicides on levees along irrigation canals, and increased use of insecticides and rodenticides likely also contribute to the owl's decline in central California (DeSante *et al.* 1997). Urbanization is likely a key threat to the species in the proposed action's action area.

Status with Respect to Recovery

Populations of the Florida burrowing owl are stable and are at no risk of extinction. In contrast, populations of the western burrowing owl are declining throughout the subspecies' range (Haug *et al.* 1993).

Burrowing owl populations are decreasing in California. DeSante *et al*. (1997) observed: (1) that only about 873 breeding pairs of owls existed in central California in 1991; (2) owls almost exclusively bred at lower elevations (where the majority of development is occurring); (3) the species was apparently extirpated in the last decade from Sonoma, Marin, Santa Cruz, and Napa Counties; (4) there was at least a 12 percent decrease in the number of breeding pairs in Central California between 1986 and 1991; and (5) there was at least a 23 percent decrease in the number of breeding groups in central California between 1986 and 1991. They also observed that burrowing owls in central California had been or would soon be reduced to three isolated breeding populations: (1) lower San Francisco Bay between Alameda and Redwood City; (2) Livermore; and (3) the Central Valley. Of the three remaining populations, the Central Valley was the largest with approximately 720 breeding pairs and appeared to have decreased the least between 1986 and 1991.

Little scientific information is available for the local burrowing owl population (e.g., home range information), but suitable habitat in the action area consists of areas with small mammal burrows and nearby foraging habitat. The Sacramento Regional County Sanitation District (SRCSD) monitors and manages burrowing owls at its Bufferlands facility south of Sacramento. The number of owls observed in annual surveys increased from 12 resident owls in 1991 to more than 20 in 1997, with as many as 38 birds observed in one survey (SRCSD 2002).

Status within the Action Area and Environmental Baseline

CNDDB (2002) lists 514 burrowing owl occurrences in the State; one of them is from Sutter and 25 are from Sacramento County. Four CNDDB occurrences are known from the Natomas Basin; three of them are presumed extant. Two of the three extant CNDDB occurrences are located within the City's and Sutter's proposed Permit Areas. CNDDB (2002) does not list all of the known owl occurrences (records were likely not submitted to CNDDB). There is presently a colony of burrowing owls located within the MAP Area (Thomas Reid Associates 2000), and colonies have been protected via the acquisition of the Betts-Kismat-Silva and Ayala reserves by the Conservancy (NBHCP EIR 2003). The Conservancy's Betts-Kismat-Silva and Ayala reserves include four owl sites (Roberts, pers. comm.).

The Natomas Basin has about 140 miles of canals and ditches and associated adjacent agricultural fields which are potentially suitable burrowing owl habitat. Due to the frequently changing conditions of the crop fields, occupied owl burrows are likely to be restricted to the canal and ditch banks which are mostly left undisturbed, except when bank stabilization is needed. The adjacent agricultural fields provide foraging habitat for the owls. Crop types that provide potential owl foraging habitat include alfalfa (371 acres), grassland (886 acres), and pasture (674 acres)(Table 7).

Loggerhead Shrike

The shrike is listed as threatened or endangered in 14 states, and is also listed as endangered in eastern Canada and threatened in western Canada. The Service designated it as a Migratory Nongame Bird of Management Concern in the United States in 1987. The shrike is designated as a state Species of Special Concern (CDFG 1992) and was designated as a Category 2 candidate for federal listing as threatened or endangered throughout its range in 1991. However, on November 15, 1994, the Service eliminated all subspecies of the shrike, except the migrant loggerhead shrike of the central, eastern, and southern United States, from the federal candidate list. The Service determined that populations of the other loggerhead shrike subspecies, including populations of the subspecies that occur in California, were more abundant or widespread than previously thought and were not subject to any identifiable threat (59 FR 58992, November 15, 1994). Therefore, no loggerhead shrike subspecies that occur in California are candidates for federal listing.

Description

The loggerhead shrike is a mockingbird-like songbird with a hooked and notched beak and a heavy build. It has slender legs and feet designed for perching. It ranges in size from 20 to 25 cm and has a wing span of 30 to 35 cm. The loggerhead shrike is gray with a black eye band and black tail. It has a white underbelly and white patch on the wing. Sex is indistinguishable from a distance. Juveniles are a lighter gray color on top then adults. Juveniles also have light gray barring on the breast (USACE, 1997).

The shrike preys upon insects, small rodents and small birds. It impales its prey on barded wire, and thorns in the fork of branches so that it can eat it (USACE 1997). The shrike's primary

spring and summer diet is insects. In the winter, it primarily fees upon small rodents (Fraser and Luukkonen 1986). The shrike is often observed perching on branches, fences or other structures with an unobstructed view its surrounding area. It drops off the perch before beginning a rapid flight low to the ground and glides upwards before perching. It has a rapid wing beat in flight.

Historical and Current Range

Deserts, shrub-steppes, and southern savannas were likely the shrike's main habitat types prior to 1800. Reforestation, abandoned fields and loss of habitat due to human development beginning in the 1930 pushed the shrike's populations from its northeast range (Cade and Woods 1997).

The expansion of agriculture and deforestation associated with settlement and western expansion of North America allowed for an expansion of the shrike's range. Logging practices and agricultural methods opened up addition breeding and feeding habitat for the loggerhead shrike (Cadman 1985). However, the development of new farming practices and the use of pesticides in central and southern Canada, throughout the United States and most of Mexico later caused the shrike's breeding and wintering range to contract. The shrike no longer breeds with regularity in the northeastern portions of its former range or in northern tier states of Michigan, Wisconsin, and Minnesota (CWS 1999). Loggerhead shrikes occasionally winter as far north as southern New England (Bent 1950). Eastern populations are not regularly found north of Oklahoma, Arkansas, Kentucky and Maryland (Miller 1931). The milder winters have allowed the species to extend its winter range into northern California, southern Pennsylvania, southern Nevada, northern Utah, central Colorado and southern and eastern Kansas (Hunter *et al*. 1995). The shrike's winter range also extends south into much of Mexico (Yosef 1996).

Essential Habitat Components

Habitat requirements include nesting habitat with nearby forging habitat. Nesting habitat requires shrubs or trees for nests that are isolated in short grass fields (Yosef 1996). Individuals may build nests in trees or shrubs from three to 6.1 m (20 ft.) from the ground (Fraser and Luukkonen 1990). They will require perches the allow for an unobstructed view of the surrounding area for hunting, as well as thorns, barbed wire, or other objects that can be used to impale or hang their prey.

Movement and Habitat Use

The loggerhead shrike prefers grassland habitat throughout its life cycle. It may use man-made or heavily altered habitat types to fulfill its habitat requirements. The shrike will use agricultural, pasture land and other man-made habitat types (Temple 1995). It requires isolated or thin patches of shrubs, trees or artificial perches like fences for nesting locations and perching locations for hunting. A site for impaling prey is also a necessary habitat feature. Winter habitat requirements are the same as the breeding habitat requirements (Yosef 1996). Nonmigratory populations will use the same region in the winter as they do other times of the year (Miller 1931).

Northern populations of loggerhead shrikes will migrate south into the United States from Canada. Areas with an annual average snow cover of ten to 30 days have less abundant winter populations (Miller 1931). Many of the southern populations of shrikes do not migrate. Nonmigratory populations use the same region in the winter as they do other times of the year (Miller 1931).

Reasons for Decline and Threats of Survival

Habitat loss and, to a lesser extent, the deleterious effects of pesticides have caused the shrike's populations to decline. The conversion of pasture lands and hayfields into row crops and urbanized areas has reduced the shrike's forging habitat. Modern framing practices have removed potential hunting perches (Brooks and Temple 1990). Abandonment and reforestation of fields has also reduced the forging habitat for the species. DDE and other organochlorines have been found in the tissue of adult shrikes and eggshells (Anderson and Dunzan 1978). Low concentrations of pesticides to kill young shrikes (Busbee 1977). Although the use of organochlorines in the United States has been banned, populations continue to decline. Collisions with automobiles may be minor factor in the decline of shrike populations. Suitable foraging habitat is often associated with roadsides.

Status with Respect to Recovery

Shrike populations have declined over much of the United States, especially in the central and eastern portions of the country. Shrike populations in the western United States declined slightly between 1955 and 1979 but currently appear to be stable. No recovery plan has been prepared for the shrike. Although current laws may protect the birds from trapping, killing or harassment, they do not protect the shrike's habitat. Therefore, no efforts are being made to reduce the most significant source of the shrike's decline.

Status within the Action Area and Environmental Baseline

The loggerhead shrike is common throughout most of lowland California (CDFG 1990). It is a non-migratory resident of the Natomas Basin, is known to breed in the Basin, and is observed regularly throughout Natomas Basin (Thomas Reid Associates 2000). Suitable nesting and

foraging habitat are common throughout the Basin. Several shrikes were observed on or near the Metro Air Park project site during a site reconnaissance conducted on March 23, 2000 (Thomas Reid Associates 2000), and three shrikes were observed along the eastern portion of the Plan Area during NBHCP habitat mapping surveys in 2001 (NBHCP 2003).

CNDDB (2002) only lists two occurrences of the shrike in California; both were from Riverside County. However, as indicated above, this is not indicative of the actual distribution or abundance of the species in the State or the project's action area. Several shrikes were observed on or near the MAP project site during a site reconnaissance conducted on March 23, 2000 (MAPPOA 2000). An additional three shrikes were observed along the eastern portion of the Basin in 2001 (May & Associates 2001).

IN THE NATOMAS BASIN, POTENTIAL FORAGING HABITAT FOR THE LOGGERHEAD SHRIKE PRIMARILY CONSISTS OF PASTURE, GRASSLANDS, PONDS AND SEASONALLY WET AREAS, CROPLANDS, ORCHARDS, AND RUDERAL HABITATS. SHRIKES ALSO COULD NEST IN TREES OR SHRUBS OCCURRING IN OR ALONG THE MARGINS OF THESE HABITATS. CANALS, RIPARIAN AREAS, AND OAK AND TREE GROVES ALSO PROVIDE NESTING OPPORTUNITIES FOR THIS SPECIES. BASED ON THE GIS, THE NATOMAS BASIN SUPPORTS APPROXIMATELY 23,350 ACRES OF POTENTIAL HABITAT FOR LOGGERHEAD SHRIKE. HABITAT TYPES THAT POTENTIALLY PROVIDE HABITAT FOR THE SHRIKE IN THE BASIN include: (1) alfalfa (371 acres); (2) grassland (886 acres); (3) non-rice crops (16,686 acres); (4) oaks groves (98 acres); (5) orchard (182 acres); (6) pasture (674 acres); (7) ponds and seasonally wet areas (96 acres); (8) riparian (124 acres); (9) ruderal (1, 970 acres); 10) rural residential (377 acres); (11) tree groves (106 acres); and (12) canals (1,778 acres)(Table 8). Potential foraging habitat for the shrike primarily consists of pasture, grasslands, ponds and seasonally wet areas, croplands, orchards, and ruderal habitats. Shrikes also could nest in trees or shrubs occurring in or along the margins of these habitats. Canals, riparian areas, and oak and tree groves also provide nesting opportunities for this species. However, the actual value of much of this habitat is probably limited. Additionally, only a portion of the potential habitat likely would be used by loggerhead shrikes because the species occurs in close association with small trees and shrubs that it uses as perch sites from which foraging bouts are launched and as nest sites. Small trees and shrubs are often not found in the middle of a field; rather, they occur sporadically along the margins of fields. Telephone lines along the roads also are used as perch sites. Because loggerhead shrikes forage by making short forays from perch sites, they would not use the inner portions of fields that occur at some distance from perch sites. Thus, loggerhead shrikes would predominantly use only the margins of fields and areas where there are perch sites. Considering the entire acreage of agricultural fields as potential habitat for loggerhead shrike likely overestimates the amount of habitat available to this species in the Natomas Basin.

Tricolored Blackbird

The Service (since 1995) considers the tricolor blackbird a Species of Concern (Service 1995) and CDFG has considered it a Bird Species of Special Concern in California since 1992.

Description

The tricolor was first described in 1836 and given the name "tricolored red-wing." In the mid 1900s the species was given its current name. There have been no subspecies described (American Ornithologist Union [AOU] 1998).

The tricolor is a medium-sized, sexually dimorphic blackbird. Males and females are strikingly similar in appearance to the common and ubiquitous red-winged blackbird (*Agelauis phoeniceus*, hereafter "redwing") with which they are sympatric (but do not hybridize). Adult male tricolors are entirely black to glossed bluish, with bright brownish-red lesser wing coverts forming a reddish patch (epaulet) on the wing shoulder and buffy white to pure white median coverts forming a distinctive white boarder to the epaulet (DeHaven 1975). Adult female tricolors are smaller than males, mostly black, with distinct grayish streaks, a whitish chin and throat, and a small but distinct reddish epaulet (DeHaven 1975). Immature (less than 2nd year) birds of both sexes, like redwings, are generally duller in color with more mottling and less distinctive epaulets.

Two other significant morphological distinctions between tricolors and redwings are: (1) the narrower and more pointed wing shape of tricolors; and (2) the somewhat longer and narrower bill of tricolors. Nevertheless, immature birds of the two species, and also adult females of the two species, are difficult for inexperienced observers to separate in the field. Distinctions between tricolors and redwings are especially problematic when the California race of the redwing (*A.p.californicus*) is involved, since it tends to lack the yellowish median covert boarder to the epaulet which is characteristic of other redwing races and helps to distinguish them from tricolors.

The tricolor is a relatively long-lived bird. From recoveries of banded birds, DeHaven and Neff (1973) showed that some individual tricolors survive up to 13 years. However, the available banding data was and still is insufficient for estimating annual survivorship.

Historical and Current Range

The tricolor is native to California where over 99 percent of the total population occurs (Beedy and Hamilton 1999). Tricolor distribution within California extends throughout the Central Valley, surrounding foothills, coastal areas, and scattered inland areas of northern and southern California (Beedy and Hamilton 1999). Small segments (less than 1 percent) of the population sporadically extend into scattered sites in Oregon, western Nevada, central Washington, and western coastal Baja California (Beedy and Hamilton 1999). Several occurrences on the fringes of the species' range are relatively recent phenomena, which may reflect either the increased focus of attention the species has experienced in recent decades or minor range extensions. However, there is no evidence that the species is undergoing any significant range expansion or

that its primary current range is substantially different from that described by Neff (1937), based on studies he conducted in the 1930s.

Reproductive Ecology

Tricolors are colony nesters which form the largest colonies of any North American passerine species. Under its colonial regime, the tricolor male only briefly defends a small area of up to a few square feet immediately around the nest(s), nests with 1-4 females (average 2), and (with females) forages in groups up to several miles from the colony site. The tricolors' synchronized colonial breeding may have been an adaptation resulting from the need to exploit a rapidly changing environment where the locations of secure nesting habitat and rich insect food supplies were ephemeral and likely to change each year (in Beedy and Hamilton 1997). Females breed in the first year, whereas males apparently defer breeding until at least year two (Orians 1963; Payne 1969).

Colony Distribution and Size

Over the past two decades, active breeding colonies of tricolors have been observed in 46 California counties, but most of the population and the species' largest colonies have regularly been recorded in the Sacramento and San Joaquin valleys (Beedy and Hamilton 1999). Colonies range in size from a few hundred birds (rarely as small as just a few dozen birds) to about 300,000 (Neff 1937), but the majority found during the 1930s by Neff (1937) and during the 1970s by DeHaven *et al*. (1975a) contained 1,000-10,000 birds. The most recent studies of the tricolor, beginning in the early 1990s show that many of today's colonies remain in the 1,000-10,000-bird range, but a significant number of larger colonies in the 25,000-50,000-bird range have also been located (in Beedy and Hamilton 1999). Overall during recent studies, most (greater than 60 percent) of the total range-wide nesting effort each year has been in the ten largest colonies, and in 1994, greater than 71 percent of all adult tricolors counted throughout the nesting season were associated with colonies of 10,000 or more birds (Beedy and Hamilton 1997). Also, the recent range-wide surveys of breeding colonies have demonstrated that in many years greater than two-thirds of all tricolor nests are found on private agricultural land (in Beedy and Hamilton 1997).

The annual concentration of such high proportions of the overall breeding population in just a few colonies which are often on private lands increases the risks of continued population declines of tricolors if perturbations to reproduction occur (Beedy and Hamilton 1997; RWD = Richard W. DeHaven's personal observations).

Nesting Substrates

Breeding colonies may establish over water or land and utilize a wide range of nesting substrates. In studies conducted prior to the 1990s, the most common substrates were cattail and bulrush marshes, and Himalaya blackberries (Neff 1937; DeHaven *et al*. 1975a). During the 1990s, along with these substrates, a significant number of colonies have been recorded utilizing

certain spiny grain crops, including barley and wheat grown for either grain or dairy silage (Beedy and Hamilton 1999). Sporadic nesting also occurs in other dense, protective vegetation such as willows, nettles, thistles, giant cane, and safflower, and at sites with various mixtures of the recorded wetland and upland vegetation types (DeHaven *et al*. 1975a; Beedy and Hamilton 1999).

In several recent years, over half of the total yearly breeding effort has occurred in Himalya blackberries (California blackberry is rarely utilized, perhaps due to its smaller clump-size, larger spines, and generally more robust cane structure) and other exotic, non-native plant substrates (in Beedy and Hamilton 1997). During one recent study, the overall reproductive success for entire colonies was higher in Himilaya blackberry colonies than in cattail marshes (Cook 1996), although great variation can occur between years (RWD).

The tricolors' nests are generally bound with grasses to upright plant stems from a 0.3 to 1.5 m (1-5 ft.) above the water or ground.

Insect Requirements

In addition to a spiny, thorny, or wetland-plant nesting substrate capable of supporting the nests and affording protection from weather and predators, another major tricolor breeding requirement is for a large supply of insects (for adults to feed nestlings) in proximity to, and in synchrony with, the colony's nestling production (in DeHaven *et al*. 1975a; DeHaven 2000a; in Beedy and Hamilton 1999). Insect foraging associated with any given colony may occur nearby (within sight of the colony) or extend out greater than ten miles; however, most foraging occurs within about 3 miles of the nesting site (Orians 1961a; Beedy and Hamilton 1997).

Tricolors opportunistically utilize locally available insect populations (Skorupa *et al*. 1980; Beedy and Hamilton 1997). Thus, the insect taxa utilized for nestling provisioning may vary widely by location or time, or both. For example, Beedy and Hamilton (1999) found extensive utilization of dragonfly larvae (Odonata) and lakeshore midges (Diptera) at different colonies. Crase and DeHaven (1977) and Skorupa *et al*. (1980) found other insect taxa broadly utilized for nestling provisioning, including Coleopterans (ground-dwelling beetles, water beetles, and weevils), Orthopterans, Arachnidans, Hemipterans, and others.

Nesting success at large colonies of tricolors in particular necessitates exploitation of concentrated and temporarily abundant insect food resources (Orians 1961b; Payne 1969). Often, suitable insect densities for provisioning nestlings of large colonies become available in response to insects being driven from the ground en masse by shallow flooding associated with agricultural or wetlands management. The most ideal shallow flooding occurs where livestock pastures (or silage fields) of alfalfa, hay, grain, or native grasses, which have recently been cut or grazed to optimal height (less than 15 cm [6 in.]; see below), are being flood-irrigated to stimulate additional forage production (DeHaven 2000a).

Such ideal habitat is often found in association with dairy operations, and dairies and livestock

feedlot operations have become an increasingly important component of many tricolor breeding habitats (Beedy and Hamilton 1999). For example, in 1994, over half of all observed tricolor nesting efforts were associated with dairies and their related/surrounding crops and agricultural uses (Beedy and Hamilton 1997); this included pastures, hay, and silage fields as well as tricolors using the feeding troughs or bunkers at dairies and feedlots (for both grain- and insect-gathering).
The flock-foraging behavior and characteristics of tricolors facilitates their locating and most efficiently exploiting insect food resources suitable to support their colonial breeding activity (Orians, 1961a; RWD). Large foraging areas may be needed by the species to locate the proper juxtaposition of abundant seasonal insect supply and protective nesting substrate capable of supporting a successful colony. Tricolors can quickly respond and begin nesting when such proper conditions are located.

Range-wide breeding surveys in recent years have shown that often, less than 85 percent of all foraging by nesting tricolors occurs on private agricultural land (in Beedy and Hamilton 1997). Tricolors generally do not forage over, or in, deep water greater than wading depth of 2.5-5 cm (1-2 in.). However, recently, birds from several breeding colonies nesting near flooded rice fields have been observed procuring insects from the fields while perching on the rice plants (Hamilton pers. comm., 2001 and report in prep.).

Water Requirement

The more recent studies of tricolors over the past decade have also cited the importance of a third breeding colony requisite: the presence nearby of open, accessible water (Beedy and Hamilton 1997; 1999). Water is necessary for tricolor drinking, preening, and bathing. While a strong association of colonies with such water is apparent, it is less clear whether the lack of such water constitutes a significant limitation on breeding substrate utilization (RWD).

Low-Value Habitats

Outside of dairy (or pasture and grazing)-associated habitats and crops, most cultivated agricultural crops are low in insect-foraging values for breeding tricolors. Examples of low-value, mainly non-habitat crops include: tomatoes, sugar beets, potatoes, beans, cole (Brassica spp.) crops, melons, cucumbers, peas, peppers, spices and herbs, and a wide range of other vegetables. Cotton fields, vineyards (grapes; berry crops), and orchards (fruit or nut crops) are particularly low in value, and are rarely utilized by tricolors for food gathering (RWD; Beedy and Hamilton 1997, 1999).

The large number of agricultural crop-types with low or no values for tricolor breeding is likely related to: (1) the relative lack of large concentrations of preferred insects in such crops; and (2) the tricolors' basic foraging strategy. Like other blackbirds, tricolors forage primarily in small groups or flocks in open spaces, where the vegetative ground cover is less than 15.2 cm (6 in.) in height and overhead cover is sparse or absent, thereby providing good visibility of aerial predators (DeHaven 2000a).

Occasionally, grain crops not associated with dairy operations, including ripening corn, oats, wheat, barley, sorghum, rye, and rice are utilized by tricolors for insect gathering and provisioning of young. More often, however, adult tricolors are found "milking" such crops and consuming the ripening seed heads as they mature during spring through fall.

Patterns Determined from Banding

Banding studies (i.e., Neff 1942; DeHaven and Neff 1973; DeHaven *et al*. 1975b) in which about 70,000 tricolors were banded through the early 1970s revealed:

1. During the annual post-breeding period, many tricolors from throughout the Sacramento Valley and San Joaquin Valley converge on the major rice-growing area near Colusa (in the Sacramento Valley), presumably because of abundant food (waste rice grain) and suitable roosting habitat (blackbirds utilize large [hundreds of thousands to greater than one million birds], mixed-species, communal roosts at night during fall and winter).

2. During winter, a sizable but variable proportion of the Central Valley tricolor population migrates to the San Joaquin Valley and San Francisco Bay-Delta area, with other tricolors wintering throughout fringe areas of their range, including foothill locations above 305 m (1,000 ft.) elevation adjacent to agricultural valleys.

3. During spring, roving flocks of tricolors begin to distribute back out to breeding areas. However, most individuals do not end up breeding where they were hatched or where they bred the previous year (although there may indeed be somewhat greater breeding site fidelity after the initial breeding; RWD). Breeding colony establishment is probably largely controlled by where abundant insects necessary for nestling provisioning are encountered by the roving flocks. Thus, the general distribution of breeding colonies can vary widely between years.

4. Some tricolors may travel nomadically the entire length of the Central Valley and from there into the Bay-Delta region, the northern and eastern plateau region of California, and southern Oregon. In short, Central Valley tricolors move nearly everywhere within the species' range, except no band recoveries have demonstrated any interchange with southern California (which could support a hypothesis that tricolors consist of two separate and largely distinct metapopulations). Thus, overall, a reasonable description of the tricolor is that it is largely a resident within California, but partly migratory within the Sacramento-San Joaquin drainage.

Despite most tricolors not nesting where they were hatched or had nested the previous year (DeHaven *et al*. 1975b), certain breeding sites do show site fidelity with the same location and substrate being used year after year. The consistently used sites may have the three essential breeding requirements–a protective nest substrate, water, and suitable insect-foraging habitat–available on a consistent basis (Beedy and Hamilton 1997;1999).

Habitat Use

Throughout their non-breeding periods, and particularly during winter, tricolors continue to forage in flocks. Such flocks may contain mixed blackbird species and sexes or be highly species and/or sex-specific. For example, during the 1970s, flocks estimated at from 50,000 to over 100,000 tricolors have been observed foraging, and on foraging flights, in the San Joaquin Valley and Bay-Delta area; some of these large flocks were less than 99 percent composed of adult male tricolors (RWD). Tricolors collected during food-habits studies in the fall and winter months in the 1970s had consumed by volume predominantly (88-91 percent) plant matter composed of rice, water grass, sorghum, oats and various other cultivated grains and wild seeds. Rice utilization was particularly high, at 49 and 37 percent, respectively, during the fall and winter periods (Crase and DeHaven 1978). The present non-breeding season food-habits of tricolors, including whether significant changes have occurred since the 1970s have not been assessed (RWD). Nevertheless, it is clear that irrigated and non-irrigated pastures (alfalfa, various hay crops, etc.) and grasslands of various kinds, dry seasonally-wet areas, dairies, livestock feedlots, and harvested grain fields continue to be important foraging areas for tricolors during their non-breeding periods (Beedy and Hamilton 1997, 1999; RWD) just as during breeding periods.

Reasons for Decline and Threats to Survival

Early in the twentieth century, widespread commercial hunting of blackbirds, including tricolors, occurred in California, partly for their commercial value and partly because of their depredations on agricultural crops. In one 5-year period during the 1930s for example, greater than 300,000 tricolors and redwings were killed and marketed for food in the Sacramento Valley alone (Neff 1937). As agriculture expanded in the State, blackbird depredations also increased, and blackbird "control" was expanded to include widespread poisoning of thousands of blackbirds annually for many decades up to about the mid-1960s.

Prior to 1989, under two depredations orders (50 CFR 21.43 and 21.44), such population control could be done without a Federal permit if birds were "committing or about to commit" depredations. However, effective November 15, 1989 [Federal Register 54(219):47524-47526], the Service modified these two previous depredations orders and began requiring Federal permits for such depredations control efforts. This gave the additional protection believed necessary for tricolors and several other birds, while still permitting control if and when necessary for the protection of California's agriculture.

More recently, in 1991, as tricolor populations appeared to be continuing a long-term population decline, the Service included the species as a candidate (Category 2) for federal listing as either Threatened or Endangered (Federal Register 59 [219]:58990). However, subsequent policy changes by the Service in 1995 eliminated the Category 2 designation and further listing action for the tricolor was curtailed.

Nevertheless, the most recent work suggests that this species' downward trend is continuing.

Relevant factors include further incremental habitat losses and direct losses during nesting, which, because of the species' colonial breeding, have the potential to affect thousands of nests and birds.

In the Central Valley, of the more than 4 million acres of wetlands estimated to exist at the start of modern, intensive development and reclamation in the 1850s, only about 560,000 acres (14 percent) remained by 1939. By the mid-1980s, freshwater emergent marsh acreage had been reduced to only about 243,000 acres (6 percent). In addition, the native perennial grasslands historically used by foraging tricolors were reduced by greater than 99 percent in the Central Valley and surrounding foothills (in Beedy and Hamilton 1997).

The early decades of modern development in California may have had little, if any, overall effect on tricolor populations. However, as agriculture, especially expansion of low-tricolor-value crops and urbanization expanded, critical thresholds were eventually exceeded beyond which tricolors were no longer able to continue adapting to cumulative habitat losses. Their populations began a gradual decline. The habitat losses, and downward population trend, are both continuing today.

Urbanization, which in most cases totally eliminates tricolor habitat, has been large and ever-intensifying throughout most of the important tricolor range areas. For example, just within the CALFED sphere of influence alone, over 1.4 million acres in the State are estimated to now be urbanized (Service 2000). This suggests that for the State as a whole, the loss of historical habitat, much of which served the tricolor, due to urbanization has likely been in the range of at least 2-3 million acres. And urbanization is continuing today at an ever-increasing pace.

Losses of tricolor habitat in the State to agriculture have also been quite large, are still continuing, and in some instances, are accelerating. Some 350 crops, including seeds, flowers, and ornamentals are produced in the State. Agricultural commodities include at least 13 field crops, 25 fruit and nut crops, 22 vegetable and melon crops, and numerous nursery products and cut flowers. In addition, the State produces at least 11 major categories of livestock and poultry products. A vast majority of these commodities are neither utilized by, nor otherwise useful to, tricolors.

Crops which do provide some limited values to the species in certain circumstances include barley, wheat, corn, and oats. In recent years, tricolors have been recorded nesting in dense fields of wheat, barley, and various other spinous, grain-crop hybrids being grown for dairy silage. And the species is known to feed on both ripening grain and waste grain left in fields following harvest. The Statewide acreage for barley, wheat, corn, and oats combined is usually about two million acres annually.

Probably the crop of highest recent historical value to tricolors is rice. During the 1970s, Crase and DeHaven (1978) found that rice was an important component of the tricolor's fall and winter diet. Although Statewide acreages of rice have remained relatively stable over the past quarter century at about 0.4-0.5 million acres annually, this crop may now have become much less

valuable to the species, which in turn may be resulting in a population-limiting factor during fall and winter (DeHaven 2000a). The drop in value of rice to tricolors is related to major changes in cultural practices.

From the time rice was introduced in the State early in the century to about the mid-1980s, rice fields were commonly burned in the fall following harvest. This practice resulted in abundant fall-winter food resources for blackbirds and other birds including waterfowl, in the form of waste rice seeds remaining on the ground in harvested fields. And burning of fields reduced or removed the rice straw, thus providing the "open" foraging conditions with less than 6-inch-tall vegetation, which is preferred by blackbirds. As a result, in the Sacramento Valley during the fall and winter months of the 1970s, it was quite common to observe huge foraging flocks of mixed blackbird species (including large numbers of tricolors) foraging in burned rice fields. Such flocks commonly contained tens of thousands of birds (DeHaven 2000a).

Conditions today are much different. Miller and Wylie (1996) have reported that in the past (i.e., until about the mid-1980s), rice fields harvested with conventional cutter-bar headers which cut off the rice heads, left rice stubble behind (which was burned) and rice waste grain on the ground totaling about 388 kg/ha. Today, use of cutter-bar headers has been largely replaced by new, faster technology called a "stripper header" which strips the seeds from the rice head. Although stripping results in roughly the same amount of waste rice remaining in harvested fields (Miller and Wylie 1996), it is much less available to blackbirds, because of the taller stubble left standing. This problem (for blackbird foraging) is further exacerbated because burning, which clears and opens fields for blackbird foraging, is being phased out because of environmental concerns. Moreover, an increasing amount of rice acreage is now being flooded in the fall following harvest. This provides high-value water bird habitat, especially for waterfowl, but generally precludes any significant foraging by blackbirds (DeHaven 2000a).

Clearly, the specific issue of availability of waste rice grain and the overall issue of fall-winter food resources and availability for blackbirds in the Central Valley, including tricolors, needs further study. How these factors may relate to the tricolors' observed and continuing population decline have not been studied. Clearly, problems for this species may not only be related to its breeding, as is being commonly assumed and reported by most recent investigators (DeHaven 2000a).

Besides rice (and occasionally the other spinous grain crops), the other main agricultural crop-type of importance to tricolors is hay. Hay is classified as either "alfalfa" or "other" by the California Agricultural Statistics Service (CASS). Together, these two hay classifications total about 1.5 million acres statewide annually. The benefits of hay fields, as well as irrigated and non-irrigated pastures, grasslands, and vernal pool/grassland complexes, is mainly for tricolor insect-foraging, especially during the breeding season. Generally, for tricolors to extensively use a particular field, it must have been grazed or mowed to reduce vegetative height to less than 15.2 cm (6 in.). Tricolors will generally not settle to the ground to forage in taller, very dense vegetation. Although there have been no confirming studies, with respect to hay fields, it is likely that modern, intensive pest control management practices implemented over recent

decades have substantially reduced insect-foraging opportunities in such crops (RWD).

Population Status

A number of studies were conducted on tricolors throughout the 1990s, including: (1) an historical breeding records analysis; (2) several annual State- or range-wide surveys of breeding colonies, beginning in 1994; and (3) a number of studies of breeding ecology. While these recent efforts have shown the species' geographic range mostly unchanged compared to the 1930s (Neff 1937) and 1970s (DeHaven *et al*. 1975a), they do provide strong evidence of a continuing overall population decline. In particular, Beedy *et al*. (1991) summarized all historical and recent breeding records, including unpublished reports and inventories, and through supplemental field surveys concluded that breeding tricolors had declined further since the DeHaven *et al*. (1975a) study era. In addition, extensive breeding colony surveys in 1994 and 1997, showed a 37 percent population decline in the later year (Beedy and Hamilton 1997; 1999). The recent population declines have been most apparent in historical strongholds of the species' range in the Central Valley, including Fresno, Kern, Merced and Sacramento counties, although range-wide losses are evident as well (Beedy and Hamilton 1997).

Recent extensive breeding-season surveys of tricolors in which dozens of participants canvassed all known breeding sites, except a few very sparsely used areas on fringes of the species' range, found these total numbers of individuals: 1994–369,000 birds; 1997–238,000 birds; 1999–105,000 birds; and 2000–163,000 birds (in Hamilton 2000). It is believed that these annual totals reflect most of the overall remaining breeding population of the species.

The consensus among recent tricolor investigators as well as the principal investigator from the 1970s work on this species (RWD) is that the tricolors' decline is resulting largely from continuing losses of nesting and foraging habitats due to agricultural conversions and urban expansions (e.g., Cook 1996; Beedy and Hamilton 1997, 1999; DeHaven 2000a). Range-wide losses of tricolor habitat due to such land-use changes have not yet been systematically quantified. However, a picture of the severity of the problem is evident in DeHaven's (2000a) recent report comparing tricolor breeding over a quarter-century observation period. In Sacramento County–a traditional stronghold of the species' breeding, for example, he found that the losses of habitat due to urbanization of thousands of acres in the Natomas, Elk Grove, and Galt areas, was striking. Similar striking losses of habitat have occurred from conversions of pastures, grasslands, hay, and grain fields to vineyards and orchards. For example, Sacramento County's grape acreage expanded 75 percent from 7,533 acres to 13,176 acres in just one recent 2-year (1996-1998) period, which was far ahead of the 50 percent increase rate for the State overall during the entire previous 10-year (1989-1998) period.

Status within the Action Area and Environmental Baseline

CNDDB (2002) lists 348 tricolor occurrences in the State; six of these are from Sutter and 79 are from Sacramento County. A nesting colony is located on the Conservancy's Betts-Kismat-Silva reserve in the eastern edge of the Natomas Basin. The colony nests in riparian scrub and its population has increased in recent years (Roberts, pers. comm.).

In the Natomas Basin, large canals, ponds and seasonally wet areas, and riparian habitat have the potential to support tricolor nesting colonies. For foraging, pasture, annual grassland, alfalfa, rice, and nonrice crops could be used in addition to the nesting habitats. Based on these definitions, the Natomas Basin currently supports about 1,998 acres of potential nesting habitat and 41,310 acres of potential foraging habitat (Table 9).

White-Faced Ibis

The white-face ibis was formerly included as a Category 2 candidate for listing as endangered or threatened (Service 1991b), but is now considered a species of concern. It is a Species of Special Concern in the State of California because of population declines in the 1960s and 1970s (Remsen 1978). Additional information can be found in the *Draft Recovery Plan for the Giant Garter Snake* (Service 1999).

Description

The white-faced ibis (*Plegadis chihi*) is closely related to the glossy ibis (*P. falcinellus*) and the puna ibis (*P. ridgwayi*) (Hancock *et al*. 1992) and is considered a full species (American Ornithologist's Union 1988, Sibley and Ahlquist 1990, Hancock *et al.* 1992). There are no recognized subspecies (American Ornithologist's Union 1998).

Adult white-faced ibis are medium-sized wading birds [total length 46 to 56 cm (18.1 to 20.0 in.), weight 450 to 525 g (15.8 to 18.5 ounces)], dark maroon-brown in color, with a long decurved bill that is thicker at the base than in curlews. The neck and legs are long; the bill and legs are blackish in color (Belknap 1957, Cogswell 1977, Ryder and Manry 1994). During the breeding season the plumage reflects iridescent purple, violet, and green; a white band of feathers separates the face from the forehead and extends completely behind the back of the eye; the legs and the irises are red; and bare facial skin turns reddish or purple (Belknap 1957, Cogswell 1977, Hancock *et al*. 1992, Ryder and Manry 1994).

Breeding white-faced ibis can be distinguished from breeding glossy ibis by the latter's brown iris, blackish facial skin, grayish legs, and lack of white encircling the back of the eye (Belknap 1957, Ryder and Manry 1994). Non-breeding adult plumage is similar in these two species except for the red iris (versus brown) in the white-faced ibis (Belknap 1957, Ryder and Manry 1994). In the wild, juveniles of the two species are difficult or impossible to distinguish (Hancock *et al.* 1992).

White-faced ibis forage largely on invertebrates and to a lesser degree on small vertebrates. Major food items reported include earth worms (Bray and Klebenow 1988), crayfish (Belknap 1957) and larval and adult insects (Belknap 1957, Capen 1976). Other foods include spiders, snails, leeches (Kaneko 1972, Capen 1976), small fish, and frogs (Belknap 1957).

White-faced ibis are highly gregarious and feed in loose flocks that can exceed 1,000 birds (Ryder and Manry 1994). They feed while walking by probing in soft substrates or at the base of vegetation (Belknap 1957, Kotter 1970, Bray and Klebenow 1988). Foraging white-faced ibis also secure food by snatching animals exposed on the soil surface (Capen 1976). In deeper water, they feed by sweeping their bills sideways while vibrating their mandibles rapidly in the water column (Belknap 1957).

Historical and Current Range

White-faced ibis occur in two disjunct populations, one largely in western North America and the other in the pampas of central and southern South America (Hancock *et al.* 1992). In North America, white-faced ibis winter primarily in Mexico and also in the Central and Imperial Valleys of California, coastal Louisiana, and Texas (Ryder 1967, Capen 1976, Ryder and Manry 1994, Shuford and Hickey 1996). Key areas of wintering white-faced ibis in California's Central Valley include the Delevan-Colusa Butte Sink Area, northwestern Yuba County, the Yolo Bypass, Grasslands Wetlands Complex, and Mendota Wildlife Area (Shuford and Hickey 1996). In southern California, wintering areas include the Imperial and Coachella Valleys, and the Prado Basin/Upper Santa Ana River Valley (Shuford and Hickey 1996).

The largest North American breeding colonies of white-faced ibis occur in Utah (Great Salt Lake), Nevada (Carson River Basin), Oregon (Harney Basin), and coastal Texas and Louisiana (Ivey *et al.* 1988, Taylor *et al.* 1989, Ryder and Manry 1994, Kelchlin 1997). Substantial colonies of nesting white-faced ibis have recently been reported in southeastern Idaho (Taylor *et al.* 1989) and in California. The largest recent breeding colonies in the Central Valley of California have been reported from Mendota Wildlife Area and Colusa National Wildlife Refuge. Reports of smaller breeding colonies of white-faced ibis in California's Central Valley since 1985 include the Woodland Sugar Ponds (Earnst *et al*. 1998), San Luis National Wildlife Refuge, and Tulare Lake Basin. White-faced ibis have also bred in California's Central Valley at South Wilbur Flood Area (Ivey and Severson 1984), Kern National Wildlife Refuge (Voeks and English 1981, J. Allen pers. comm. 1998), and Buena Vista Lake (Voeks and English 1981, Booser and Sprunt 1980).

The distribution of white-faced ibis before settlement by Europeans was likely greater than it is now because rapid human population growth during the last century has destroyed wetland habitat throughout its distribution in California (Frayer *et al.* 1989). Ibis breeding colonies have been destroyed at various historical locations throughout California, including Tulare and Buena Vista Lakes (Kern County) and San Jacinto Lake (Riverside County). Both of these areas also provided habitat for ibis during migration (Booser and Sprunt 1980).

Reproductive Ecology

White-faced ibis nest in colonies of varying size. Nesting in North America begins about mid-April and ends with fledged young in August or September (Kotter 1970, Kaneko 1972, Capen 1977, Ryder and Manry 1994). Reproduction is often asynchronous with courting, nest-building, incubating birds, and fledglings present concomitantly within larger colonies (Belknap 1957, Ivey and Severson 1984).

Usually three to four eggs are laid, approximately one every two days per nest (Kotter 1970, Kaneko 1972, Capen 1976, Kelchlin 1997). Both parents share with incubation, which lasts about 17 to 26 days (Belknap 1957, Kotter 1970). The parents also share with feeding their altricial (not capable of moving about on its own soon after hatching) young until fledging approximately eight weeks later (Kotter 1970). Mortality of young occurs from exposure to excessive heat, cold and rain, and predation by birds and mammals (Belknap 1957, Kotter 1970, Capen 1976). Usually one brood is attempted each nesting season except when an earlier nesting attempt fails (Capen 1976). Annual reproductive success has been reported to range from 1.42 to 2.99 chicks per clutch (Ryder and Manry 1994, Taft *et al.* 1995).

Nesting and wintering white-faced ibis concentrate locally in large numbers and also occur in lesser numbers over a wide area of its range (Ryder 1967, Booser and Sprunt 1980, Hancock *et al.* 1992). The white-faced ibis is well adapted to changes in environmental conditions such as drought and flooding (Ryder 1967). Therefore, use of specific areas can vary greatly from year to year depending on habitat conditions (Ryder 1967).

Most populations of white-faced ibis are migratory (Ryder 1967). Birds breeding in Utah, Nevada, Oregon, and Idaho migrate southerly to wintering grounds in Mexico, and the Central Valley and southern coastal regions of California (Ryder 1967, Ryder and Manry 1994, Kelchlin 1997). Ibis breeding in California's Klamath Basin also migrate south in winter. However, the proportion of California's breeding population that overwinters outside of California is unknown (E. Kelchlin pers. comm. 1998). White-faced ibis nesting in Louisiana and Texas are mostly resident (Ryder and Manry 1994). Individuals also wander and have been sighted in southern British Columbia, Alberta, Saskatchewan, Ohio, New York, Illinois, Florida, and Hawaii (Hancock *et al.* 1992, Ryder and Manry 1994).

Habitat Use

White-faced ibis typically nest over water in emergent vegetation such as hardstem bulrush (*Scirpus acutus*), baltic rush (*Juncus balticus*), and cattail (*Typha latifolia*) (Kaneko 1972, Capen 1976, Ivey and Severson 1984, Cornely *et al*. 1994, Taft *et al.* 1995). The height of the nest above water is variable ranging from near the water's surface to 137 cm (53.9 in.) above (Ryder and Manry 1994). Nests are constructed of the dominant emergent plants available (Ryder and Manry 1994).

Foraging occurs in flooded [less than 20 cm (7.9 in.) water depth] fields, pastures, open marshes

(Kotter 1970, Capen 1976, Bray and Klebenow 1988, Taft *et al.* 1995), mudflats, and edges of canals, ponds and ditches (Belknap 1957, Taylor *et al.* 1989). In Yolo, Sacramento and Colusa Counties, rice is preferred foraging habitat; ibis may be foraging primarily on crayfish (E. Beedy pers. comm. 1998). Flooded alfalfa is reported to be a preferred foraging habitat compared to irrigated pasture, wheat-barley, and corn (Capen 1976, Bray and Klebenow 1988). Nitrogen fixation by alfalfa and reduced tillage practices may contribute to greater invertebrate abundance for foraging ibises (Bray and Kebenow 1988).

White-faced ibis communally roost in dense vegetation over shallow water and in open sites. They are reported to roost in dense emergent vegetation such as reed (*Phragmites communis*), bulrush, and cattail (Belknap 1957, Kaneko 1972, Ryder and Manry 1994). They also roost in open marshes and small shallow ponds surrounded by dense emergent vegetation, and on exposed islands in the middle of ponds (Hancock *et al.* 1992, Shuford and Hickey 1996).

Other bird species that have been reported to nest in mixed colonies with white-faced ibis include great blue heron (*Ardea herodias*), double crested cormorant (*Phalacrocorax auritus*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), black-crowned night heron (*Nycticorax nycticorax*), Franklin's gull, Forster's tern (*Sterna foresteri*) and American coot (*Fulica americana*) (Ryder 1967, Kotter 1970, Ivey and Severson 1984, Cornely *et al*. 1994, Taft *et al.* 1995).

Reasons for Decline and Threats to Survival

Low numbers of white-faced ibis in the western United States including California during the 1950s and 1960s have been attributed to a variety of human induced factors, including destruction of breeding habitat and pesticide effects (Ryder 1967, Booser and Sprunt 1980, Ryder and Manry 1994). Approximately 91 percent of wetlands [more than 1.8 million hectares (4.5 million acres)] in California have been lost to agricultural and urban development since the 1780s (Dahl 1990). About 98,000 hectares (243,000 acres) of potential ibis nesting habitat (emergent wetlands) were lost in the California Central Valley between 1939 and the 1980s (Frayer *et al.* 1989). Wetlands were also lost at high rates in other western states with important white-faced ibis breeding colonies: Idaho (56 percent wetland loss), Nevada (52 percent wetland loss), Oregon (38 percent wetland loss) and Utah (30 percent wetland loss) (Dahl 1990).

The agricultural pesticide DDT was used widely in the United States until its ban in the 1970s. DDE, a metabolic biproduct of DDT, is positively associated with egg shell thinning and cracking, and crushed eggs in birds including white-faced ibis (Capen 1976, Steele 1984, Henny and Herron 1989, Dileanis and Sorenson 1992, Dileanis *et al.* 1996). DDE concentrations greater than or equal to three to four parts per million have been associated with lower hatching success and reproductive output in white-faced ibis (Steele 1984, Henny and Herron 1989). White-faced ibis are considered highly susceptible to the toxic effects of DDE because DDE concentrations in body tissues have remained relatively high in this species, and the levels of DDE resulting in reproductive failure are lower in white-faced ibis compared to other bird

species (Capen 1976, Henny *et al.* 1985).

White-faced ibis continue to experience high concentrations of DDE, egg shell thinning, and reproductive failure in California and adjacent western states (Henny and Herron 1989, Dileanis and Sorenson 1992, Cornely *et al.* 1994, Dileanis *et al.* 1996). Ibis may be exposed to DDT used in agricultural fields in Mexico (Shuford and Hickey 1996). In the Imperial Valley of California, a major wintering area for white-faced ibis, DDE residues are among the highest reported in the United States (Setmire *et al.* 1993). DDE concentrations in white-faced ibis are among the highest of the birds sampled at the Salton Sea, California (Setmire *et al.* 1993).

A wide variety of agricultural pesticides are currently used as algicides, fungicides, herbicides and insecticides in California (Dileanis *et al.* 1996). Many pesticides in use are moderately to highly toxic; synergistic effects are largely unknown. White-face ibis are at risk to direct contact with pesticides during and shortly after application because they feed in and nest near agricultural lands (King *et al.* 1980). Ibis wintering in Mexico are at potential risk from pesticide contamination, excessive hunting, and habitat destruction (Hancock *et al.* 1992). The magnitude of these risks for white-faced ibis wintering in Mexico, however, has received little attention (Ryder 1967).

Because white-faced ibis depend on wetland habitat for nesting, increased competition in the Central Valley for water by urban, industrial, and agricultural uses may threaten the integrity of breeding habitat in the future. White-faced ibis wintering and breeding colonies close to large human populations such as the southern Sacramento Valley, San Joaquin Valley and the southern California region may be at risk from increasing human disturbance and loss of foraging habitat to urban development.

Status With Respect to Recovery

Numbers of overwintering white-faced ibis in the major wintering areas of California have tended to increase from the 1970s to the 1990s (Shuford and Hickey 1996). In the Sacramento Valley, wintering ibis were rare in the 1970s, with the highest counts of 11 birds in 1978 and 1979 (Shuford and Hickey 1996). In the 1980s, flocks of 225 were frequently seen at or near Colusa and Delevan National Wildlife Refuges, Colusa County. At Delevan National Wildlife Refuge in January and December 1994, 1,100 and 1,370 ibis were reported, respectively (Shuford and Hickey 1996). Aerial surveys of the Grasslands wetlands complex near Los Banos showed increases in ibis numbers from 100-300 in the early 1980s, to 500-700 in the mid to late 1980s, to 2,000-2,200 during 1992 to 1994 (Shuford and Hickey 1996). In 1985, Beedy (pers. comm. 1998) estimated about 800 adult ibis at the Woodland Sugar Ponds in Yolo County. Shuford and Hickey (1996) estimated that a minimum of 10,000 to 11,000 ibis wintered in California's Central Valley in 1994-1995. Between 2,000 to 3,000 ibis were in the Sacramento Valley, and up to 8,000 in the Grasslands wetlands complex during this time.

There are seven known ibis occurrences (rookeries) in California (CNDDB 2001). There are no known nesting occurrences in Sutter or Sacramento counties. The nearest known nesting

occurrence is in Yolo County, north of the City of Woodland. No suitable white-faced ibis nesting habitat occurs in the Natomas Basin, although approximately 20,000 acres of suitable winter foraging habitat (i.e., rice, alfalfa, and other agricultural fields) exists there (MAPPOA 2000). In the Sacramento Valley, wintering ibis were very rare in the 1970s, with the highest counts numbering only 11 birds in 1978 and 1979. Since then, they have increased in the Sacramento Valley, and white-faced ibis are now common in the Natomas Basin in the winter.

Overall numbers of white-faced ibis breeding pairs have tended to increase in the Central Valley of California since 1985. Ibis are not reported to have bred at Mendota Wildlife Area during 1985 to 1991. However, breeding ibis numbers at Mendota Wildlife Area represented approximately 95 percent of breeding ibis in the Central Valley during 1992 to 1997. Ibis numbers at Colusa National Wildlife Refuge increased from 1985 to 1989, but no nesting was reported there from 1990 to 1997.

Environmental Baseline

White-faced ibis are most-often associated with emergent wetland habitats, particularly for nesting. The elimination of marsh habitat from the Natomas Basin has precluded the ibis from nesting there. However, the ibis does commonly winter and forage in the Basin. The Natomas Basin supports about 25,000 acres of potential ibis wintering and foraging habitat including alfalfa fields (371), rice (22,693), canals (1,778), and ponds and seasonally wet areas (96 acres)(Table 10).

Bank Swallow

The bank swallow is listed by the State of California as a threatened species. It is a protected migratory bird in the United States and Canada (Schloriff 1992, Palmer-Ball 1996).

Description

The bank swallow (*Riparia riparia*) is approximately 12 cm long, has a wing span of 89-110 cm, and weighs 10-18 g. Adults have a grayish brown mantle, crown, rump and wing-coverts; a white throat with a distinct brown breast-band that extends to the belly and ends at a point; a black to brown-black bill; a dark brown iris; and black-brown or dark brown legs and feet. Adult males and females have the same color scheme but may be distinguished by the presence or absence of a brood patch (Lethaby 1996, Pyle 1997, Turner and Rose 1989).

Juvenile bank swallows can be identified from adults by whitish upperparts and a buffy pink wash to the throat, which they lose after one year (Lethaby 1996 and Pyle 1997). They have a horn-brown bill and pale yellow bill flanges that darken after the first month of fledging. The iris of juveniles is a lighter brown, and the feet and legs are flesh-brown or horn brown at fledging. The claws are dull yellow.

The bank swallow is a social bird that spends most of its life in a colony or migrating with mix-

species flocks. It develops colonies from ten to 2,000 birds. The bank swallow is an aerial feeder that forages over lakes and ponds, rivers and streams, meadows, pastures, and bogs (Stoner 1936, Gross 1942). It tends to avoid dense forests, woodland, deserts, and alpine areas. During breeding, its forging sites are usually 200 m from the colony (Mead 1979; Turner 1980, in Garrison 1999). The bank swallow feeds upon terrestrial and aquatic jumping or fly insects and larvae. It forages primarily from dawn to dusk (Hobson and Sealy 1987) and may feed singly, in pairs or in a flock. Flock feeding usually occurs when a colony is feeding on a local source of food (Stoner 1936, Turner and Rose 1989).

Preening can occur singly or in large groups. Preening in larger groups usually occurs during the migration period (Cramp *et al*. 1988, in Garrison 1999). Preening occurs on wires and vegetation, often spaced as closely as three to four cm or with shoulders touching (Meservey and Kraus 1976). Bank swallows are also known to dust-bathe in areas of loose bare soil (Hobson and Sealy 1987). A bank swallow will bathe in water by wading into shallow water or hitting the surface of the water briefly while flying (Cramp *et al*. 1988, in Garrison 1999). Sunbathing is done by spreading open both wings slightly away from body, ruffling feathers, and leaning to one side (Barlow *et al*. 1963).

Historical and Current Range

The breeding range for the bank swallow covers most of central and southern Alaska, most of Canada (except in the northern extremes), and across the northern half of the United States. The winter range is primarily in South America and the Pacific slopes of southern Mexico. The bank swallow can also be found in most of Europe and Asia during the breeding season and in Arabia and Africa during the winter. Its range has been changed in local areas where development, flood and erosion control projects has reduced the available nesting habitat.

In California, bank swallow colonies were found in Siskiyou, Shasta, and Lassen Counties. Colonies were also found along the Sacramento River from Shasta County south to Yolo County (Small 1994). Colonies in California range from sea level to 21,00 m above sea level (Campbell *et al*. 1997). The bank swallow was know to nest on coastal bluffs in southern California and riverbanks throughout the Central Valley and northern California. Current populations are concentrated on the banks of the Central Valley streams. Seventy-five percent of the current populations occur along the banks of the Sacramento and Feather Rivers (most on the Sacramento River upstream of its confluence with the Feather River). Other colonies are located along the central coast, from Monterey to San Mateo County. There are no breeding colonies remaining in southern California (Laymon *et al.* 1988). No suitable nesting habitat exists within the Natomas Basin.

Essential habitat components

The bank swallow requires vertical or near vertical dirt banks formed by erosion action on low-gradient, meandering streams or rivers, or bluffs or cliffs formed by storms, tidal action and wind-eroded banks along the coastline. Potential nesting sites need alluvial soils or other soil material that the bank swallow can dig a burrow in. Foraging areas should be near the colony and may include wetlands, open water, agricultural areas or grasslands.

Reproductive ecology

The bank swallow usually arrives at the colony site unpaired. In California, some of the flocks arrive at the colony site and spend most of their time foraging for food for two to three weeks before the rest of the flocks arrive. The later groups arrive at the colony site and begin to form pair bonds (Kuhnen 1985). The male secures a mate as he builds the burrow. Soon after he secures a mate and the burrow is finished, nest building begins. Building of the burrow usually takes four to five days; the nest takes one to three days to complete (Asbik 1976, Sieder 19870). Nest building has been observed as early as April 12 in California. However, egg-laying has been observed as early as April 11. A brood may be replaced if lost in the early or middle of the breeding period.

Egg incubation by the female begins one to two days before the clutch is complete (Petersen 1955, Turner and Rose 1989). The male only incubates the clutch when the female leaves the nest (Ellis 1982). The clutch is incubated for 13 to 16 days before hatching begins. Hatching may take two to three days to finish (Petersen 1955). Brooding begins after hatching and is continuous for the first two to three days, gradually decreasing and halting after seven to ten days. Females do all the brooding at night. Both parents brood during the day (Beyer 1938). Feeding of the hatchlings begins after hatching and ends three to five days after fledging. Both parents are involved in the feeding process, with the male predominating. Feeding rate increases as hatchling size increases. Fledging occurs in mid-July approximately 22 days after hatching. During fledging, the parents reduce the feeding rate of the hatchlings. The fledgling returns to the nest after first flight and stays in the burrow for four to five days before leaving the nest. The flock stays at the colony site about one week after the juveniles fledge (Turner and Bryant 1979, Petersen 1955; Cramp *et al*. 1988, in Garrison 1999).

Movements and Habitat Use

The bank swallow is a medium to long-distant migrant that migrates with mixed-species flocks, which may be as large as 5,000 to 9,000 birds (Bull 1985, in Garrison 1999). The flocks can be mixed with Barn, Cliff, Northern Rough-winged, and Tree swallows. The bank swallow usually leaves the wintering grounds in February (when nestlings fledge) and arrive in North America between early March and late May. It returns to the wintering grounds in Mexico, Central America and South America during late summer or early fall (Am. Ornithol Union 1998, Hilty and Brown 1986, Oberholser 1974, in Garrison 1999; Keller *et al*. 1986). The species arrives in California around early March and begins to leave for the wintering grounds in July and early

August (NBHCP 2003).

Nesting colonies are usually found along rivers, streams, lakes, coastlines, or in sand and gravel pits. The colony site is usually near open water at erosion sites, or areas exposed to wave wash (Hjertaas 1984, in Garrison 1999). The colony site is chosen by the colony before the individual burrow sites are chosen. The colony site selection is based on the colony size, breeding success of the previous year and available habitat. A colony site is more likely to be recolonized if the previous year was a successful breeding year (Freer 1979). The preferred burrow site is higher on the stream bank to protect them from predators (Sieder 1980). The burrow is dug with bill, feet and wings, which takes about 4 to 5 days to complete.

Both the male and female bank swallow roost in the burrow during nest-building and the beginning of the egg-laying period. During the egg incubation and brooding of young nestlings period the female would spend most of the time roosting in the burrow. During this period of time the male would roost on rocks, fences, trees, empty burrows or other available structures. The male bank swallow may occasionally roost in the burrow at night during the brooding period. In adverse weather several adults may roost in the same burrow. Young bank swallows would roost in the burrow about one week after fledging. After fledging and before the colony migrates, adults and juveniles roost on exposed rocks, vegetation, logs and other available structures (Cramp *et al*. 1988, in Garrison 1999). Migration roosts include vegetation at wetlands and marshes (Paton and Fellows 1994).

The average burrow depth in California is 61.5 cm long with an average entrance of 5.5 cm by 7.2 cm. The average distance between each burrow in California is 13.2 cm (Humphrey and Garrison 1987). Most of the colonies in California were found in the banks of rivers, lakes, streams, and coastlines at a rate of 105 to 111 colonies (Laymon *et al*. 1988). The colonies were located in the vertical face of the bank and bluffs in friable soils made up mostly of sandy, silty, loamy soils. In California, of the 22 sites recorded, 14 (64 percent) were located in sandy loam soil, 4 (18 percent) in loam sand soil, 3 (14 percent) in loam soils, and 1 (5 percent) in sand soils. The average height of the colony was 3.3 m (Humphrey and Garrison 1987). The average success rate of building and occupying a burrow in California is 59.6 percent (Garrison *et al*. 1987).

Reason for Decline and Threats to Survival

The bank swallow is sensitive to weather changes that effect successful foraging, cold weather during the migration, and cause banks to collapse (i.e., flood and rain events). Predation by birds or reptiles and the collapse of a burrow when predators are digging into the burrow also result in mortalities (Persson 1987). Collision with automobiles has contributed to the decline of bank swallow populations. Juveniles are more likely to be killed by vehicles then older bank swallows. However, loss of nesting habitat is the primary cause of decline of the species. For

example, California has lost most of its central and southern nesting habitat to flood and erosion control projects along streams and rivers (Garrison *et al*. 1987, Small 1994).

Status with respect to Recovery

In 1987, it was estimated that California had 111 colonies, with an estimated total population of 25,180 pairs. The Breeding Bird Survey estimated that between 1966 and 1991, North American bank swallow populations were stable. However, California nesting populations were reported to be declining at the same time (Humphrey and Garrison 1987).

A Recovery Plan for the Bank Swallow has been written in California. Along the Sacramento River, artificial banks and enhanced banks were built. In 1986, burrows were dug with a hand auger on the Sacramento River (Schlorff 1992, Garrison 1991).

Environmental Baseline

There are 171 known bank swallow occurrences in California (CNDDB 2001). One of these occurrences is extirpated. There are 35 bank swallow occurrences (all presumed extant) in Sutter County and seven occurrences in Sacramento County (all presumed extant). Although there is no suitable nesting habitat in the Natomas Basin, bank swallows from nearby nesting colonies have the potential to forage in the Natomas Basin and foraging could also occur during migration to nesting sites north of the Natomas Basin. The Natomas Basin supports about 43,000 acres of potential bank swallow foraging habitat including alfalfa (371 acres), grassland (886 acres), nonrice crops (61,686 acres), pasture (674 acres), ponds and seasonally wet areas (96 acres), rice (22,693 acres), riparian (124 acres), and canals (1,778 acres)(Table 11).

Northwestern Pond Turtle

The northwestern pond turtle (*Clemmys marmorata marmorata*) is a subspecies of the Pacific pond turtle (*C. marmorata*) and is a member of the family Emydidae (box and water turtles). It is considered a Species of Concern by Service and is a state Species of Special Concern. In 1993, the Service reviewed the status of the pacific pond turtle and found that listing was not warranted (Service 1993b). Both subspecies of the pacific pond turtle, however, are considered Species of Concern.

Description

The pacific pond turtle is a small (9-19 cm) aquatic turtle characterized by an olive, dark brown, or black shell with a spotted head and neck (Stebbins 1985). Ventrally, it is yellowish, sometimes with dark blotches in centers of the plasteral shield (Storm *et al.* 1995). The northern pacific subspecies is defined on the basis of its mottled head and neck coloration and a relatively high frequency of inguinal shields. The southern subspecies is defined on the basis of its light head and neck coloration with more prominent markings in these areas, and a reduced frequency of occurrence of large inguinal shields. The two subspecies of pacific pond turtle can be slightly

distinguished morphologically. *C. m. marmorata* has a pair of well-developed triangular inguinal scutes on the bridge and its brown or grayish neck and head are well marked with dark dashes. *C. m. pallida* has poorly developed inguinal scutes (missing in 60 percent of individuals) and its throat and neck are a uniform, light color (Ernst *et al.* 1994).

In both subspecies, the pacific pond turtle demonstrates sexual dimorphism at maturity. Holland (1994) noted over 20 different dimorphic characteristics between adult male and female turtles, although their gender can usually be identified by utilizing just a few. The degree of dimorphism is variable for each character and each individual, but generally adult males tend to have a flatter carapace, concave plastron posteriorly, thicker tail base with the cloacal opening at or beyond the margin of the carapace, larger head with a longer nose and pointier snout, and a larger neck with yellow or whitish chin and throat (Ashton 1997). The characteristics should be viewed in concert to determine gender, versus pinpointing a single characteristic. Juvenile males and females usually resemble adult females, but are smaller in size with relatively long tails.

The diet of pacific pond turtles is comprised primarily of small aquatic invertebrates, including crustaceans, insects and occasionally annelids (Holland 1994, Bury 1986). They may also consume small vertebrates, including fish and amphibians (Holland 1985, Bury 1986). Feeding on carrion of mammals, birds, reptiles, amphibians and fish is common (Evenden 1948; Carr 1952; Holland 1985, 1994; Bury 1986), but live prey is preferred (Bury 1986). Prey is ingested in the water, as the turtles are apparently unable to swallow in air (Holland 1991). Turtles infrequently forage on plants such as pond lily (*Nuphar polysepalum*), inforescences, willow and alder catkins and ditch grass inflorescences (Holland 1994), although post-partum females have been observed ingesting large amounts (up to 8.5 g) of tule (*Scirpus* sp.) and cattail (*Typha latifolia*) roots (Holland 1985).

Historical and Current Range

Fossil evidence indicates that pacific pond turtles have existed in the western United States since at least the late Pliocene (Hay 1908). In California, remains discovered at archaeological sites indicate that Indians ate them (Ernst *et al.* 1994). The northwestern pond turtle historically and currently ranges from Puget Sound, Washington, south through Oregon, generally west of the Sierra-Cascade crest, to the American River drainage in central California. The southern pacific subspecies ranges from the vicinity of Monterey Bay, California, south through the coast ranges to Baja California Norte, Mexico. The area of the Central Valley of California between the American River drainage and the Transverse Ranges is considered to be a zone of intergradation between the two subspecies (Seeliger 1945). Historically, the pacific pond turtle inhabited the vast permanent and seasonal wetlands on the Central Valley, with the Tulare Lake Basin being a stronghold for the species.

Records of *C. m. marmorata* from Grant County, Oregon, and British Columbia, Canada, are believed to represent introduced animals (Nussbaum *et al*. 1983, Storer 1937). Outlying populations of *C. m. marmorata* occur in Nevada primarily in the Truckee and Carson River

drainages.

Essential Habitat Components

The pacific pond turtle is found in fresh to brackish permanent to intermittent aquatic riparian habitats, including marshes, rivers, ponds, streams, and vernal pools. Pond turtles also may occur in man-made habitats, such as irrigation ditches, reservoirs, and sewage and mill ponds. Preferred aquatic habitat is characterized by slow moving or quiet water, emergent aquatic vegetation, deep pools with undercut banks for refugia, and partially submerged rocks and logs, open mud banks, matted floating vegetation, sandbars or warm water for thermoregulatory basking. Hatchling and young turtles (1 year) require shallow, slow-flowing water areas (less than 30 cm deep) dominated primarily by emergent aquatic reeds (*Juncus* sp.) and sedges (*Carex* sp.) (Holland 1991 and Reese and Welsh 1998). Pacific pond turtles have been located from brackish estuarine waters at sea level to mountains streams over 1,800 m in elevation.

Viable terrestrial habitat is nearly as important as sufficient aquatic habitat to the existence of pacific pond turtles. They have been documented as traveling on land during all times of the year (Reese and Welsh 1997). Even in the central and southern portions of its range where air temperatures are warmer, pacific pond turtles spend nearly four months a year on terrestrial sites (Rathbun *et al*. 2002). Characteristics of terrestrial habitats frequented by pacific pond turtles for basking, dispersal, nesting, overwintering and protection from predators are highly variable throughout its range, but some type of vegetative cover is required. Reese and Welsh (1998) found that the portions of the Trinity River in northwestern California containing nonvegetated shorelines were nearly absent of pacific pond turtles. Peak terrestrial activity occurs during nesting season for adult females and during an overwintering period for adults and hatchlings of both sexes. Reese and Welsh (1997) believe that the traditionally protected buffer zones along rivers is simply not adequate enough for the turtles. Holland (1994) advised 0.5 km from the known aquatic site of pacific pond turtles are needed to adequately protect nesting habitat and turtle populations. Rathbun *et al.* (2002) recommended that each site be assessed individually, due to the complex interaction of factors associated with terrestrial areas and behavioral flexibility of the pacific pond turtle.

Reproductive Ecology

The reproductive ecology of the pacific pond turtle remains poorly understood (Holland 1994). It is assumed that size and age determine first reproductive capability and it varies geographically and possibly altitudinally (Holland 1994). Most female turtles do not develop eggs until they achieve a carapace length of at least 120 millimeters (mm) (Holland 1994). The age of first reproduction is usually seven to nine years for the southern pacific pond turtle and ten to 14 years of age for the northwestern pond turtle (Holland 1994). Ashton (1997) reported that mating occurs underwater, typically in late April to early May, but may occur year-round (Holland

1994). Most females lay eggs in alternate years, although some females, particularly in southern and central California, oviposit annually (Holland 1994, Ashton 1997).

Known clutch size ranges from one to 13 eggs (average is four to seven), with larger females generally laying larger clutches (Holland 1985, 1991, 1994). Females may deposit more than one clutch a year (Rathbun *et al.* 1993, 2002; Scott *et al.* 2002; Lovich and Meyer 2002). The first clutch of 25 turtles studied in coastal streams of California had significantly more eggs than the second clutch with 27 to 43 days between each oviposit (Scott *et al.* 2002). From May through July, females move into upland habitat to nest, although observations of egg deposits have been recorded as early as late April and as late as early August (Storer 1930; Buskirk 1992; Rathbun *et al.* 1992, 1993; Holland 1994; Scott *et al.* 2002). Through hand palpation and x-radiography, Scott *et al.* (2002) and Lovich and Meyer (2002) reported that females carry shelled eggs from two to three weeks on average (recorded longest was 33 days) before oviposition.

Nest locations range from three to 585 m from aquatic habitat (Storer 1930, Holland 1994, Lovich and Meyer 2002). Nest sites are typically located in open areas dominated by sparse, low vegetation such as grasses and forbs, that allow long exposures to direct sunlight. Soils are dry and generally well drained with significant clay/silt content and have a low slope angle. Nests on sloping terrain often have a southern or southwestern exposure. Females empty the contents of their bladders to soften the soil, excavate their nests in the ground, deposit the eggs, and cover the nest by scraping soil and vegetation over the eggs. Time requirements for completion of the nest and oviposition varies from less than two hours to 86 hours (Holland 1994, Rathbun *et al.* 2002, and Lovich and Meyer 2002). Females tend to be very wary during overland nesting movements and may abandon nesting or delay attempts if even slightly disturbed (visually or audibly) or if they hit a rock or root during excavation (Holland 1991, 1994; Rathbun *et al*. 1992, 2002). Additionally, some female turtles have been observed producing one or more "false scrapes" in which they excavate a nest, but do not deposit eggs (Holland 1994). Incubation requires from 90 to 126 days in the wild with overall hatching rates at about 70 percent (Holland 1994). Hatching of the eggs occurs in the fall with hatchling sizes ranging from 23-31 mm in carapace length and 1.5-7 g (0.05-0.25 ounces) in weight with larger hatchlings occurring in the northern part of the range (Holland 1994). The majority of hatchlings remain in the nest throughout the winter and finally emerge in the spring. In southern and central California, a few records exist of some hatchlings emerging from the nest in late summer or early fall (Buskirk 1992, Holland 1994). Hatchlings that overwinter in the nest receive nourishment from an umbilical yolk sack (Holland 1994). Hatchlings double in size by the end of the first growing season (Holland 1991).

Survivorship in pacific pond turtles apparently is dependent on age. Hatchlings and first year juveniles are subject to low survivorship, averaging ten to 15 percent; survivorship may not increase significantly until turtles are four to five years old (Holland 1994). Once turtles achieve a carapace length of 120 mm, survivorship improves with an average adult turnover rate of three to five percent per year (Holland 1994). Under normal circumstances, pacific pond turtle populations consist of 55 to 70 percent adults. But in areas such as the Willamette Valley, Oregon where intense threats to juvenile survivorship exist, adult-bias populations average 90

percent (Holland 1994).

Movements and Habitat Use

In the majority of its range, pacific pond turtles are active from about March through October with the peak of activity in May and June in both aquatic and terrestrial habitats. Some turtles "overwinter" in aquatic sites such as the primary lake or pond they inhabit or other nearby ponds or pools. Turtles may also overwinter in undercut areas or holes in the banks of watercourses or move to upland habitat. It appears that most turtles that overwinter in aquatic habitats are found in lacustrine systems (lakes and ponds), whereas most turtles that overwinter in terrestrial sites are found in flowing-water systems (streams and rivers) (Holland 1994). Reese and Welsh (1997) suggested that the timing for turtles to overwinter was related to avoidance of flood conditions. An additional study supports that premise, but further surmises that subzero winter temperatures also regulated the timing of turtles seeking terrestrial refuge (Rathbun *et al.* 2002).

Turtles may move up to 260 m from aquatic habitat to overwinter under dense vegetation, logs or leaf litter (Holland 1994). Microhabitat characteristics of terrestrial overwintering sites are highly variable ranging from habitats of conifer to hardwood to woody shrubs. In northern California, Reese and Welsh (1997) studied 12 pacific pond turtles and determined that the turtles preferred terrestrial overwintering sites on relatively cool north- and east-facing slopes as opposed to south- and west-facing slopes. Rathbun *et al.* (2002) suggested the sites are a complicated interaction of factors involving elevation, moisture, slope, solar exposure and vegetative cover. Despite overwintering, most turtles still exhibit activity, although at a reduced level, including basking, foraging and moving between overwintering sites in subzero air and water temperatures (Rathbun *et. al* 2002, Reese and Welsh 1997, Holland 1994). Turtles may also engage in communal overwintering, with large numbers concentrated in a relatively small area (Holland 1994).

Bury (1972) found home ranges of pacific pond turtles to average 1 hectare (2.5 acres) for males, 0.3 hectare (0.7 acre) for females, and 0.4 hectares (1 acre) for juveniles. Within the northern California stream system studied by Bury (1972), males moved greater distances than females or juveniles. Turtles move significant distances (at least 2 km) if the local aquatic habitat changes (e.g., disappears), and adult turtles can tolerate at least seven days without water (Holland 1994). Nevertheless, dispersal abilities of juveniles and the recolonization potential of pacific pond turtles after extirpation of a local population are unknown.

Reasons for Decline and Threats to Survival

Adult males typically have a higher probability of survivorship than adult females, with skewed sex ratios observed as high as 4:1 males to females (Holland 1991). The most plausible explanation for these observed sex ratios is that females suffer higher rates of predation during overland nesting attempts (Holland 1991). Females display a rate of scarring on the shell up to six times greater than males, usually indicating attempted predation by mammals (Holland 1994). Adults are long lived, the maximum life span being approximately 40 years (Bury and

Holland unpubl. data).

Habitat loss and alteration are the primary factors that caused the historic decline of the pacific pond turtle throughout its range. In California, over 90 percent of historic wetlands have been diked, drained and filled primarily for agricultural development and secondarily for urban development (Frayer *et al*. 1989). Much of the wetland habitat lost, such as in the Tulare Lake basin, was prime habitat for the pacific pond turtle. Historic levels of pacific pond turtle populations in the Tulare Lake Basin and southern San Joaquin Valley were estimated at 3.35 million turtles (Holland 1991). Today, the pacific pond turtle remains in 90 percent of its historic range, but at greatly reduced numbers (Holland 1991).

Water projects in the mid 1900s, which accompanied agricultural growth, also had a negative effect on pond turtle populations. Construction of reservoirs directly eliminated pond turtle habitat and isolated or fragmented remaining populations. Historically, urbanization also has significantly altered or eliminated pond turtle habitat, with the greatest impact occurring in southern California within the range of the southern pacific pond turtle.

Records of harvesting pacific pond turtles for food date back to an account by Lockington (1879) of the commercial harvest of the species for the San Francisco market. At the time, commercial harvest had already depleted populations of the pacific pond turtle in the San Francisco area, resulting in commercial operations focusing on populations in the San Joaquin Valley, particularly Tulare Lake (Elliot 1883, Brown 1940). Over 18,000 pond turtles were offered for sale in San Francisco markets, presumably in one year in the 1890s (Smith 1895). This practice of large scale harvesting continued at least through the 1920s (Storer 1930).

A variety of factors working together continue to result in a significant decline of pacific pond turtle populations throughout 75 to 80 percent of its range (Holland 1991). These natural, introduced and human made factors include predators, exotic competitors, habitat destruction, alteration and degradation, parasites and disease, and drought.

The pacific pond turtle is preyed upon by a wide variety of native and introduced predators, including large and small mammals, raptors, herons, corvids, snakes, frogs and fish. Pacific pond turtles are relatively poor swimmers and rely on crypsis and use of refugia to escape predation (Reese and Welsh 1998). Of the native predators, the raccoon (*Procyon lotor*) is a ubiquitous and effective predator, taking animals of all sizes, including eggs and hatchlings. Raccoon populations, in particular, respond favorably to urban environments, where human refuse may support larger populations than normal. Larger populations of raccoons and other predators combined with reduced nesting habitat for pond turtles adjacent to aquatic habitat, results in concentrations of nests which are more easily detected by predators. In Oregon, over 99 percent of nests examined in 1991-1993 were destroyed by predators, most likely raccoons, spotted skunks (*Spilogale putorius*) or coyotes (*Canis latrans*) (Holland 1994).

Two introduced predators of particular concern are the bullfrog (*Rana catesbeiana*) and the largemouth bass (*Micropterus salmoides*). Both species were introduced into the western United

States in the latter part of the 19th century, and through range expansions, reintroductions, and transplants these species have become established across most of the western United States (Moyle 1973). Both species have been observed to feed on juvenile pacific pond turtles. When these introduced species occur in large numbers, they may effectively preclude any significant level of recruitment in some turtle populations (Holland 1994). In aquatic habitats containing largemouth bass, but no bullfrogs, a fringe of emergent vegetation around the pond edge may protect hatchling and juvenile pond turtles from predation by bass (Holland 1991).

Humans are also major predators on pacific pond turtles. Collection of pond turtles for food still exists today with numbers from 20 to over 100 known to be taken in a single instance (Holland 1991, 1994). A commercial pet market exists for pond turtles despite state prohibitions (Holland 1991). Indiscriminate shooting of pacific pond turtles can be a significant mortality factor, particularly in areas adjacent to urban development. Some sportsman shoot turtles as they incorrectly assume that turtles consume game fish and waterfowl. Turtles are also shot by private landowners that fear they may lose property rights if this species is granted federal threatened or endangered status (Ashton 1997). There are also reports of shooting turtles for target practice or sport (Milner 1986 and Holland 1994).

In some areas, humans also accidentally predate on pacific pond turtles from automobile, boat and off-road vehicle traffic, as well as incidental catch during fishing. A study of a pacific pond turtle population in the Willamette Valley indicated an annual actual or potential loss of three to five percent of the total population to automobile traffic (Holland 1994). Reese and Welsh (1997) noted that pacific pond turtles frequently cross roads in agricultural areas.

Off-road vehicle activity poses a threat to pacific pond turtles both directly and indirectly. Direct impacts include crushing of individual turtles or nests and access to remote populations of the turtle for the purposes of collection or shooting. Off-road vehicle activity indirectly impacts pond turtles by interfering with normal foraging and basking activities, and by altering or restricting overland or instream movements of turtles. Long-term impacts of off-road vehicle activity include increased soil erosion, soil compaction, vegetation removal, siltation of the watercourse, and alteration or loss of refugia. According to Holland (1991), pacific pond turtle populations located in off-road vehicle areas in California tend to be small and disjunct, and occur in very limited habitats. Poor habitat quality combined with a very low probability of maintenance or reestablishment by immigration, renders these populations highly susceptible to extirpation.

Incidental collection of pond turtles by fisherman may be a significant mortality factor in some areas. Approximately 3.6 percent of turtles captures by Holland (1991) at an Oregon site had ingested fish hooks. At a southern Sierra Nevada, California site, about six percent of captured turtles showed evidence of trauma related to removal of hooks, had hooks in place, or were found dead with hooks embedded in the esophagus or stomach (Holland 1991). Turtles captured by Holland (1991) in Oregon before and after ingestion of fish hooks had lost a significant amount of weight, suggesting that hooked turtles may eventually starve to death. Hooked turtles are often killed by fisherman, who mistakenly presume that pond turtles are competitors for fish

or consume ducklings (Holland 1991).

Another factor that may adversely affect pond turtle populations is the introduction of nonnative competitors. Numerous species of nonnative aquatic turtles have been observed within the range of the pacific pond turtle (Jennings 1987). These include the painted turtle (*Chrysemys picta*), red-eared slider (*Pseudemys scripta elegans*), common snapping turtle (*Chelydra serpentina*), spiny soft-shelled turtle (*Apalone spinifera*), alligator snapping turtle (*Macroclemys temmincki*), stinkpot (*Sternotherus odoratus*), diamondback terrapin (*Malaclemys terrapin*), and the Mississippi map turtle (*Graptemys kohni*). Most of these turtles represent animals imported for the pet or food trade that have been released or escaped captivity. In addition to competition for food, exotic turtles also may carry new pathogens and/or parasites for which pond turtles exhibit no immunity.

Additional exotic competitors of particular concern are carp (*Cyprinus carpio* and *Carassius auratus*), sunfish (*Lepomis* spp. and *Pomoxis* spp.), and crayfish (*Cambarus*, *Procambarus*, and *Pacifasticus*). Carp alter aquatic habitats by consuming emergent and floating vegetation. Their activities also produce turbid water conditions. These alterations of the aquatic habitat may have a significant impact on hatchling turtle habitat, may reduce the availability of invertebrate prey and decrease turtle foraging success as turtles rely primarily on vision to capture prey (Holland 1991). Sunfish, which are capable of reaching large population sizes in aquatic habitats may modify or compete for the available invertebrate prey base (Holland 1991). Although direct scientific data are unavailable to support this hypothesis, Holland (1991) noted that several sites lacking native or non-native fishes support the largest known pacific pond turtle populations. Crayfish, which also may prey on young pond turtles, may compete with pond turtles for both the invertebrate prey base and carrion (Holland 1991).

The pacific pond turtle has been described as an aquatic generalist as it occurs in a wide variety of aquatic habitats throughout its range (Holland 1991, 1994). Currently across its range, Ashton (1997) believes that loss of aquatic habitat through destruction, alteration or degradation is the greatest anthropogenic threat to pacific pond turtles. Reese and Welsh (1997) and Holland (1994) agree but charge that since pacific pond turtles are semi-terrestrial, finding protection not only for their aquatic habitat, but also adjacent uplands used for nesting, overwintering and dispersal purposes is of paramount importance to protecting pacific pond turtles. Conversion of wetlands to farmland, destruction of riparian area and uplands, urbanization, irrigation, channelization, water diversions, dams, grazing, mining, contaminants, roads, railroads and recreational activity all continue to have significant negative impacts on turtle populations.

Wetlands that have persisted are often indirectly affected by adjacent agricultural practices. Many of these aquatic habitats are utilized to convey or store agricultural water and, therefore, are subject to changes in the timing and amount of water flow. These wetlands often are channelized and periodically cleaned of aquatic vegetation rendering them unsuitable for pond turtles. Where pond turtles persist adjacent to agricultural lands, upland nesting opportunities may be limited or nonexistent because of the practice of farming up to the edge of the aquatic habitat. Because the pond turtle is long-lived, populations may persist in these areas long after

recruitment of young has ceased. According to Holland (1991), turtle populations in agricultural settings tend to be very small and heavily adult biased.

Another significant source of habitat alteration throughout the range of the pacific pond turtle is livestock grazing. Livestock have been documented as a major cause of excessive habitat disturbance in riparian areas (Behnke and Raleigh 1978, Kauffman and Krueger 1984). Cattle have a disproportionately greater adverse affect on riparian and other wetland habitats because they tend to concentrate in these areas, particularly during the dry season (Marlow and Pogacnik 1985). Cattle trample and eat emergent vegetation (Platts 1981) that serves as foraging habitat for turtles of all sizes and as critical microhabitat for hatchlings and first year animals. Streambanks also are trampled by cattle often resulting in the collapse of undercut banks (Platts 1981, Kauffman *et al*. 1983) that provided refugia for turtles. Cattle grazing results in increased erosion in the stream (Winegar 1977) which fills in deep pools, increases stream velocity, and adversely affects aquatic invertebrates (Behnke and Raleigh 1978, Platts 1981). Cattle may also crush turtles (Holland 1991).

Construction of roadways adjacent to pond turtle habitat adversely affects pond turtles in several ways. First, roads often present a partial or complete barrier to turtles traveling overland to nesting or overwintering sites. In studies in California, Oregon and Washington, pacific pond turtles have been observed crushed on roadways (Holland 1985, 1992), with the majority of these being gravid or post-partum females. In addition to hampering access to nesting areas, the road bed itself reduces the area of potential nesting. Roads constructed on south-facing slopes adjacent to the Umpqua River in Oregon probably eliminated both existing and potential nesting habitat (Holland 1992).

Parasites known to use pacific pond turtles as a host include trematodes, helminths, nematodes, lungworms and leeches (Holland 1994). Leeches were found on 7 to 10 percent of turtles studied from several sites in northern California (Holland 1991). Substantial numbers of nematodes have been found in the guts of northern pacific pond turtles from northern California (Bury 1986).

Status with Respect to Recovery

Northwestern pond turtle recovery efforts have been limited. In Washington, long-term recovery efforts are underway. Lands containing remaining populations have been preserved through purchase by the state of Washington or other non-profit organizations. The pacific pond turtle habitat on these lands have been enhanced by elimination of grazing, addition of basking materials, removal of non-native predators (bullfrogs and warm water fish), removal of invasive plant species, and planting of native shrubs (Washington Dept. of Fish and Wildlife 2000). A captive breeding program formally initiated in 1990 through the partnering of the Washington Department of Fish and Wildlife, Woodland Park Zoo and Center for Wildlife Conservation resulted in the release of 38 juvenile turtles in the Columbia River Gorge Puget Sound lowlands between 1991 and 1998 (Washington Dept. of Fish and Wildlife 2000). Since the program informally started (i.e., prior to 1990), 490 juvenile turtles have been released back into the wild

in Washington, with at least 90 percent surviving.

A similar "head start" program was implemented for the Kern River Preserve in 1992, 1993 and 1995 by the Audubon Society with consultation from the Woodland Park Zoo. The program successfully released and gave a head start to 53 turtles onto the Kern River Preserve. Recapture studies indicate the released turtles appeared healthy in 1993 with future studies forthcoming to determine exact survival rate and long-term success of the program (Overtree and Collings 1997). Additionally, the Service is developing long range management plans for the National Wildlife Refuges in the Columbia River Gorge (Pierce, Franz and Steigerwald) to support the recovery efforts.

Status within the Action Area and Environmental Baseline

CNDDB (2002) lists 14 pond turtle occurrences in Sacramento County and two pond turtle occurrences in Sutter County. Although no CNDDB occurrences have been recorded in either the Natomas Basin, the species is known to occur there. The species has been observed at Fisherman's Lake (NBHCP EIR 2002) as well as along the Natomas Main Drain (May & Associates 2001). The Natomas Basin probably supports a limited pond turtle population; however, no systematic surveys have been conducted.

Environmental Baseline

The canals and drains throughout the Natomas Basin are considered potential aquatic habitat for pond turtles. The species has been observed at Fisherman's Lake (NBHCP EIR 2002) as well as along the Natomas Main Drainage Canal (May & Associates 2001). Currently, there are about 250 miles of canals and drains in the Basin. Fisherman's Lake is considered high-quality aquatic habitat for the pond turtle and turtles have been observed there. Because most of the basin is developed agricultural land or commercial/ residential development, many of the potential upland breeding habitats have been eliminated. Despite this, a limited amount of potential breeding habitat probably occurs along many of the canals and aquatic habitats.

The Natomas Basin supports approximately 24,691 acres of potential pond turtle habitat (Table 12). Of that, approximately 96 acres are ponds and seasonally wet areas, 22,693 acres are rice, 124 acres are riparian, and 1,778 acres are canals. Although the importance of rice habitat to the turtle has not been documented, rice fields likely provide some foraging opportunities. The Basin's ponds and seasonally wet areas and its extensive system of drainage and delivery canals likely provide more suitable aquatic and upland habitat for the turtle.

Midvalley Fairy Shrimp

The midvalley fairy shrimp is considered a Species of Concern by the Service. The Service is currently conducting a status review of the species, and will issue a 12-month finding to determine if a petition to list it as endangered is warranted (68 **FR** 22724). The midvalley fairy shrimp has not been designated any special status by the State.

Description

The midvalley fairy shrimp (*Branchinecta mesovallensis*) was described by Belk and Fugate in June, 2000. The species was named for its limited range in the Central Valley of California. The type locality is on the Virginia Smith Trust land in Merced County, California (Belk and Fugate 2000). Midvalley fairy shrimp specimens were collected as early as 1989.

Male midvalley fairy shrimp are most similar in appearance to the Conservancy fairy shrimp (Belk and Fugate 2000). These species are distinguished by the shape of the tip of their antennae. The midvalley fairy shrimp's antennae is bent such that the larger hump of two humps possessed by both species is anterior, whereas this same hump is posterior in the Conservancy fairy shrimp. Females of these two species differ in the shape of their brood pouches. The brood pouch of the midvalley fairy shrimp is pyriform and extends to below segments 3 and 4. The brood pouch of the Conservancy fairy shrimp is fusiform and extends to below segments 5 and 7. Midvalley fairy shrimp females also closely resemble the vernal pool fairy shrimp, except that vernal pool fairy shrimp females have a pair of dorsolateral processes on each side of thoracic segment 3, whereas the midvalley fairy shrimp does not have any dorsolateral processes on this thoracic segment.

Historic and Current Range

Although the historic distribution of the midvalley fairy shrimp is unknown, vernal pool habitats in the regions where it is currently known to occur have been dramatically reduced since pre-agricultural times (Holland 1998). The habitat of the midvalley fairy shrimp may have been even more severely reduced than other vernal pool habitats, since it can occur in swales and short-lived pools that may escape detection in dry years or during the dry season (Helm 1999, Belk and Fugate 2000).

The midvalley fairy shrimp is endemic to a small portion of California's Central Valley. Helm (1998) found midvalley fairy shrimp in less than 0.5 percent of the vernal pools he examined. Based on the few known occurrences, the species' distribution is limited to the Southeastern Sacramento, Southern Sierra Foothill, San Joaquin, and Solano-Colusa vernal pool regions. In the Southeastern Sacramento region, most occurrences are clustered around the City of Sacramento and Mather Air Force Base in Sacramento County. In the Southern Sierra Foothills and San Joaquin vernal pool regions, the midvalley fairy shrimp has been documented in the vicinity of the Virginia Smith Trust property in Merced County and from isolated occurrences in San Joaquin, Madera, and Fresno counties. However, because this species was described only

recently, it is likely additional occurrences will be found in the future.

Life History and Reproductive Ecology

The life cycle of the midvalley fairy shrimp is well suited to the unpredictable conditions of vernal pool habitats. The midvalley fairy shrimp can mature and reproduce very rapidly; it has been observed to reach maturity in as little as eight days and reproduction was observed in as few as 16 days after hatching (Helm 1998). Under the culturing conditions described in Helm (1998), the midvalley fairy shrimp lived for 147 days, about as long as other Central Valley species observed. Multiple hatchings of the midvalley fairy shrimp have been observed in a single rainy season as its vernal pool habitat repeatedly fills and dries. Helm (1998) found the midvalley fairy shrimp to be very tolerant of warm water, occurring in pools with water temperatures ranging from 5 to 32˚C . This temperature is higher than that measured for any other Central Valley fairy shrimp collected, except for the California fairy shrimp. Little is known about the midvalley fairy shrimp's tolerance to variations in water chemistry, but it has been found in some relatively alkaline pools (Helm 1998).

Essential Habitat Components

The midvalley fairy shrimp has been found in small, short-lived vernal pools and grass-bottomed swales ranging from 1.2 to 202 m^2 in area and averaging less than 10 cm in depth (Helm 1998). The species has been collected from pools on a volcanic mudflow landform of the Merhten Formation in Pentz Gravelly Loam and Raynor Clay soils. The midvalley fairy shrimp has also been found on San Joaquin Silt Loam soils on the Riverbank formation on Low Terrace landforms. At the time the type specimens were collected, the dominant macrophytes in the pool were the wetland grasses *Lolium multiflorum, Hordeum maximum gussoneanum,* and *Deschampsia danthanoides*, species that are characteristic of extremely short-lived pools and swales.

The midvalley fairy shrimp has only been collected with one other fairy shrimp, the vernal pool fairy shrimp, on three occasions (Eriksen and Belk 1999). It may occupy habitats that are not inundated for a sufficient period of time for other species to inhabit.

Reasons for Decline and Threats to Survival

As with all vernal pool species that occur in the Central Valley, suitable habitat for the midvalley fairy shrimp has declined dramatically over the past century, and pressure to develop remaining lands in the Central Valley are increasing rapidly. Holland (1998) estimated that only 25 percent of vernal pool habitats remain in the Central Valley, including the Southeastern Sacramento Valley and San Joaquin vernal pool regions where the species is currently known to occur.

Because the midvalley fairy shrimp occupies very small pools and was only recently recognized as a separate species, it may actually be at greater risk than the species already protected under the Act. These small depressions require less preparation prior to conversion to urban or agricultural uses because they are already relatively level, and thus may be more attractive to developers. Even during the wet season, they may not contain water continuously, even when nearby larger pools are full. Under these conditions, midvalley fairy shrimp pools may not be surveyed at all, and conversion allowed. Continued conversion of the grassland-vernal pool ecosystem matrix to urban or agricultural uses is the largest threat to survival of the midvalley fairy shrimp. The largest number of known locations is in Sacramento County, around the City of Sacramento, which is growing rapidly. Urban expansion in this area poses a threat to the majority of the midvalley fairy shrimp populations known to exist today.

Environmental Baseline and Status within the Action Area

There are 52 reported occurrences of midvalley fairy shrimp in California, 12 of which are reported from Sacramento County (CNDDB 2002). The midvalley fairy shrimp has not been recorded from Sutter County or the proposed action's action area. However, as stated above, this may be due to the short time that the midvalley fairy shrimp has been recognized as a distinct species. Potential midvalley fairy shrimp habitat occurs in the vernal pools on the east side of the Basin, in grasslands north of Del Paso Road. Additional potential habitat occurs in other ponds and seasonally wet areas in the Basin. No potential midvalley fairy shrimp habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities.

Potential midvalley fairy shrimp habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat in grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat in the Basin (K. Fuller, pers. comm.). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. Once again, this estimate greatly overestimates the amount of potential vernal pool habitat in the Basin, as most of the ponds and seasonally wet areas do not have the hydrology sufficient to support vernal pool crustaceans.

Western Spadefoot Toad

The western spadefoot toad was listed as a Category 2 species by the Service in 1994 (Service 1994*b*). Due to a change in policy regarding candidate species, western spadefoot toads are now considered a Species of Concern (Service 1998). The western spadefoot toad was designated a Species of Special Concern by the State in 1994 (Jennings and Hayes 1994, CDFG 1998).

Description

Spadefoot toads are distinguished from the true toads (*Bufo* spp.) by their cat-like eyes (due to vertically elliptical pupils), the single black sharp-edged "spade" on each hind foot, teeth in the upper jaw, and rather smooth skin (Stebbins 1985). The parotid glands (large swellings on the

side of the head and behind the eye) are absent or indistinct on spadefoot toads. Their pupils are vertical in bright light but are round at night. Males may have a dusky throat and dark nuptial pads on the innermost front toes. Amplexus, the copulatory embrace by males, is pelvic (Stebbins 1985).

The western spadefoot toad ranges in size from 3.7 to 6.2 cm snout-vent length. It is dusky green or gray above and often has four irregular light-colored stripes on its back, with the central pair of stripes sometimes distinguished by a dark, hourglass-shaped area. The skin tubercles (small, rounded protuberances) are sometimes tipped with orange or are reddish in color, particularly among young individuals (Storer 1925, Stebbins 1985). The iris of the eye is usually a pale gold. The abdomen is whitish without any markings. Spadefoot toads have a wedge-shaped, glossy black "spade" on each hind foot. The call of western spadefoot toads is hoarse and snore-like, and lasts about one-half to one second (Stebbins 1985).

Historical and Current Range

The western spadefoot toad is nearly endemic to California, and historically ranged from the vicinity of Redding in Shasta County southward to Mesa de San Carlos in northwestern Baja California, Mexico (Stebbins 1985). In California, western spadefoot toads ranged throughout the Central Valley, throughout the Coast Ranges, and the coastal lowlands from San Francisco Bay southward to Mexico (Jennings and Hayes 1994).

The western spadefoot toad is no longer present throughout most of the lowlands of southern California (Stebbins 1985). The species also is believed to be extirpated from many historic locations within the Central Valley (Jennings and Hayes 1994, Fisher and Shaffer 1996). According to Fisher and Shaffer (1996), western spadefoot toads have suffered a severe decline with virtually complete extirpation from the Sacramento Valley, and a reduced density of populations in the eastern San Joaquin Valley. Declines in abundance have been more modest in the Coast Ranges. This species occurs mostly below 900 m (Stebbins 1985), but can occur up to 1363 m (Morey 1988). However, the average elevation of sites where the species still occurs is significantly higher than the average elevation for historical sites; this suggests that declines have been more pronounced in lowlands.

Jennings and Hayes (1994) examined 832 museum and sighting records from 346 locations and concluded that western spadefoot toads occurred in 18 California counties: Alameda, Amador, Butte, Kern, Madera, Mariposa, Monterey, Orange, Riverside, Sacramento, San Benito, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Stanislaus, Tehama, and Tulare. Based on these same records, they concluded that western spadefoot toads may no longer occur in six counties: Calaveras, Fresno, Los Angeles, San Bernardino, Shasta, and Yolo. Fisher and Shaffer (1996) conducted field surveys of 315 sites in the Sacramento Valley, San Joaquin Valley, and Coast Ranges from 1990 to 1992. These surveys confirmed the presence of western spadefoot toads in Alameda, Calaveras, Glenn, Kern, Madera, Merced, Monterey, Sacramento, San Benito, San Luis Obispo, Santa Barbara, Stanislaus, and Tulare Counties. Western spadefoot toads were not found at sites surveyed in Amador, Butte, Fresno, Mariposa, San

Joaquin, Shasta, Tehama, and Yolo Counties.

Essential Habitat Components

According to Stebbins (1985), western spadefoot toads are primarily a species of lowland habitats such as washes, floodplains of rivers, alluvial fans, playas, and alkali flats. However, they also occur in the foothills and mountains. Western spadefoot toads prefer areas of open vegetation and short grasses, where the soil is sandy or gravelly. They are found in the valley and foothill grasslands, open chaparral, and pine-oak woodlands.

Western spadefoot toads require two distinct habitat components in order to meet life history requirements, and these habitats probably need to be in close proximity. As mentioned previously, spadefoot toads are primarily terrestrial. They require upland habitats for feeding and constructing burrows for their long dry-season dormancy. Typical of amphibians, wetland habitats are required for reproduction. Western spadefoot toad eggs and larvae have been observed in a variety of permanent and temporary wetlands including rivers, creeks, pools in intermittent streams, vernal pools, and temporary rain pools (CDFG 2000). This indicates a degree of ecological plasticity. However, it appears that vernal pools and other temporary wetlands may be more optimal for breeding due to the absence of or at least reduced abundance of both native and non-native predators, many of which require more permanent wetlands.

Western spadefoot toads also have exhibited a capacity to breed in altered wetlands as well as man-made wetlands. Spadefoot toads, including eggs and larvae, have been observed in vernal pools that have been disturbed by activities such as earthmoving, disking, intensive livestock use, and off-road vehicle use. Spadefoot toads, again including eggs and larvae, also have been observed in artificial ponds, livestock ponds, sedimentation and flood control ponds, irrigation and roadside ditches, roadside puddles, tire ruts, and borrow pits (Fisher and Shaffer 1996, CDFG 2000). This again exhibits a degree of ecological plasticity and adaptability. However, although western spadefoot toads have been observed to inhabit and breed in wetlands altered or created by man, survival and reproductive success in these pools have not been evaluated relative to that in unaltered natural pools.

Reproductive ecology

Western spadefoot toads breed from January to May in temporary pools that form following winter or spring rains. Water temperatures in these pools must be between 9 and 30˚C for western spadefoot toads to reproduce (Brown 1966, 1967). During breeding, highly vocal aggregations of more than 1,000 individuals may form (Jennings and Hayes 1994). Breeding calls are audible at great distances, which serves to bring individuals together at suitable breeding sites (Stebbins 1985).

Females deposit their eggs in numerous small irregularly cylindrical clusters of ten to 42 eggs (average = 24) (Storer 1925) and may lay more than 500 eggs in one season (Stebbins 1951). Eggs are deposited on plant stems or pieces of detritus in temporary rain pools, or sometimes

pools in ephemeral stream courses (Storer 1925, Stebbins 1985). Oviposition does not occur until water temperatures reach the required minimum of 9˚C (Jennings and Hayes 1994). Depending on the temperature regime and annual rainfall, oviposition may occur between late February and late May (Storer 1925, Burgess 1950, Feaver 1971, Stebbins 1985).

Depending on temperature, western spadefoot toad eggs hatch in 0.6-6 days (Brown 1967). At relatively high water temperatures (e.g., 21ºC), Storer (1925) noted that about half of the western spadefoot toad eggs had failed to develop, possibly due to a fungus that thrives in warmer water and invades toad eggs. Larval development can be completed in three to 11 weeks (Burgess 1950, Feaver 1971), depending on food resources and temperature. In eight vernal pools examined by Morey (1998), the average duration to complete larval development (hatching to metamorphosis) was 58 days (range 30-79 days). Longer periods of larval development were associated with larger size at metamorphosis. Larval development must be completed before pools dry. Morey (1998) stated that vernal pools must persist for at least five weeks for western spadefoot toads to successfully breed. Pools that persist for longer periods permit longer larval development resulting in larger juveniles with great fat reserves at metamorphosis (Morey 1998), and these larger individuals have a higher fitness level and survivorship (Pfennig 1992). Recently metamorphosed juveniles emerge from water and seek refuge in the immediate vicinity of natal ponds. They spend several hours to several days near ponds before dispersing. Weintraub (1979) reported that toadlets of plains spadefoot toads seek refuge in drying mud cracks, under boards, and under other surface objects including decomposing cow manure. Annual reproductive success probably varies with precipitation levels, success being lower in drier years (Fisher and Shaffer 1996). Metamorphosing larvae may leave the water while their tails are still relatively long (greater than 1 cm) (Storer 1925). Age at sexual maturity is unknown, but considering the relatively long period of subterranean dormancy (eight to nine months), individuals may require at least two years to mature (Jennings and Hayes 1994).

Movements and Habitat Use

Western spadefoot toads are almost completely terrestrial and enter water only to breed (Dimmitt and Ruibal 1980). However, typical of amphibians, toads require a certain level of moisture to avoid dessication, which can be a challenge in the arid habitats occupied by spadefoot toads. Spadefoot toads have behavioral and physiological adaptations that facilitate moisture retention.

During dry periods, spadefoot toads construct and occupy burrows that may be up to 0.9 m (3 ft.) in depth (Ruibal *et al*. 1969). Toads may remain in these burrows for 9-10 months. While in these burrows, they are completely surrounded by soil and appear to enter a state of torpor. Typical of amphibians, spadefoot toads have very permeable skin, which allows them to absorb moisture from the surrounding soil. Spadefoot toads may retain urea to increase the osmotic pressure within their bodies. This prevents water loss to the surrounding soil and even facilitates water absorption from soils with relatively high moisture tensions (Ruibal *et al*. 1969, Shoemaker *et al*. 1969). Spadefoot toads appear to construct burrows in soils that are relatively sandy and friable, as these soil attributes facilitate both digging and water absorption (Ruibal *et al*. 1969).

Spadefoot toads emerge from burrows to forage and breed following rains in the winter and spring. The factors that stimulate emergence are not well understood. In Arizona, spadefoot toads emerged after as little as 0.25 cm of precipitation, which barely wet the soil surface and obviously did not soak down to burrows (Ruibal *et al*. 1969). Sound or vibration from rain striking the ground appears to be the primary emergence cue used by spadefoot toads, and even the vibrations of a motor can cause toads to emerge (Dimmitt and Ruibal 1980). Spadefoot toads may move closer to the surface prior to precipitation and may even emerge to forage on nights with adequate humidity.

Above-ground activity is primarily nocturnal, presumably to reduce water loss. Even when exposed to artificial light, spadefoot toads will immediately move away or begin burrowing underground (Storer 1925, Ruibal *et al*. 1969). During the day, toads dig and occupy relatively shallow burrows 2-5 cm in depth (Ruibal *et al*. 1969) and may even use small mammal burrows. In addition to breeding during periods of above-ground activity, spadefoot toads must acquire sufficient energy resources prior to reentering dormancy (Seymour 1973).

Reasons for Decline and Threats to Survival

The principal factors contributing to the decline of the western spadefoot toad are loss of habitat due to urban development and conversion of native habitats to agricultural lands, the introduction of non-native predators, and stochastic events that particularly impact small, isolated populations (e.g., Morey 1998). The species likely suffered dramatic reductions in the mid to late 1900s when urban and agricultural development was rapidly destroying natural habitats in the Central Valley and southern California (Jennings and Hayes 1994). According to Jennings and Hayes (1994), over 80 percent of the habitat once known to be occupied by the western spadefoot in southern California (from the Santa Clara River Valley in Los Angeles and Ventura counties southward) has been developed or converted to uses that are incompatible with successful reproduction and recruitment. In northern and central California, loss of habitat has been less severe, but nevertheless significant; it is estimated that over 30 percent of the habitat once occupied by western spadefoot toads has been developed or converted (Jennings and Hayes 1994). Regions that have been severely affected include the lower two-thirds of the Salinas River system and much of the areas east of Sacramento, Fresno, and Bakersfield. Many of the remaining suitable rainpool or vernal habitats, which are concentrated on valley terraces along the edges of the Central Valley floor, have disappeared or been fragmented (Jennings and Hayes 1994).

Another reason for decline in the population of western spadefoot toads is the introduction of non-native predators, specifically bullfrogs, crayfish, and fish (Hayes and Warner 1985, Hayes and Jennings 1986, Fisher and Shaffer 1996). All of these were introduced into California in the late 1800s and early 1900s, and through range expansions, additional introductions, and transplants, have become established throughout most of the state. Fisher and Shaffer (1996) reported an inverse relationship between the presence of western spadefoot toads and that of non-native predators. They further reported that non-native predators may have displaced western spadefoot toads at lower elevations resulting in the toads being found primarily at higher

elevation sites where these predators apparently are less abundant.

Habitat loss and fragmentation results in populations that are small in size and increasingly isolated. This reduces movements by individuals and genetic exchange between populations. Small populations are more likely to go extinct due to catastrophic or stochastic events. Isolation reduces the potential for recolonization of areas where toads have disappeared. This results in lower overall abundance and population viability.

Fisher and Shaffer (1996) also discussed the possible role of ultraviolet radiation in the declines of native amphibians in the Central Valley. However, they concluded that there is no evidence that ultraviolet radiation is a significant factor in amphibian declines at this time.

Habitat loss and fragmentation remain significant threats to the vernal pool ecosystems that support western spadefoot toads (Service 1994*a*). This loss is a result of urban, industrial, and agricultural development. Many remaining vernal pools and wetlands are suffering from habitat degradation resulting from disking, intensive livestock grazing and trampling, off-road vehicle use, and contaminant runoff. In addition to contaminant problems, run-off from adjacent developed areas also could change hydrologic regimes by converting temporary pools to more permanent wetlands. This increases the likelihood of invasion and colonization by non-native predators.

The continued presence and proliferation of non-native predators is a significant threat to western spadefoot toads. Western spadefoot toads have evolved with natural predators such as snakes and wading birds. Non-native species may increase predation pressure beyond natural levels, thereby causing western spadefoot toads to decline in abundance.

Fisher and Shaffer (1996) assessed native amphibian populations in the Coast Ranges, Sierra foothills, and Central Valley. They predicted that widespread declines of western spadefoot toads will occur if non-native species continue to spread into low-elevation Coast Range habitats. However, in the San Joaquin Valley, they found that although there were relatively few introduced exotics, native amphibians have still declined significantly. The San Joaquin Valley is intensively farmed and has been subject to extensive habitat loss, degradation, and fragmentation (Service 1998). Adverse impacts from these activities as well as isolation from other western spadefoot toad populations may have caused the observed declines.

Another threat to western spadefoot toads is roads. This threat likely will increase in significance as new roads are built and existing roads are expanded. Roads can result in direct mortality, habitat loss and fragmentation, disturbance, and contaminants, as well as inducing urban growth. Mortality on roads could particularly be a problem during dispersal when toads are more likely to encounter roads. Morey and Guinn (1992) reported road mortality among spadefoot toads in San Joaquin County, and Jennings (1998) reported road mortality at all seven sites that he surveyed in Kings and Alameda Counties. Three CNDDB (2000) occurrences report observations of western spadefoot toads killed by vehicles in San Joaquin, San Luis Obispo, and Santa Barbara Counties. The impact of road mortality on populations of western

spadefoot toads is unknown. Roads can be a barrier to movements and effectively isolate populations. Roads were found to be significant barriers to gene flow among common frogs (*Rana temporaria*) in Germany and this has resulted in genetic differentiation among populations separated by roads (Reh and Seitz 1990). Contaminants from road materials, leaks, and spills also could adversely impact toads by contaminating the water in wetlands.

Activities that produce low frequency noise and vibration in or near habitat for western spadefoot toads may be detrimental to the species. Dimmitt and Ruibal (1980) determined that spadefoot toads were extremely sensitive to such stimuli; toads were caused to break dormancy and emerge from their burrows. Disturbances that cause spadefoot toads to emerge at inappropriate times could result in detrimental effects such as mortality or reduced productivity.

A less-visible but equally important threat to smaller populations of western spadefoot toads is the decrease in vigor and viability sometimes observed in small populations of animals. Small, isolated populations have an increased risk of detrimental effects from stochastic genetic and demographic changes. One such impact is inbreeding, which can result in an increase in incidence of birth defects, slower growth, higher mortality, and lower fecundity.

Status with Respect to Recovery

Vernal pools and other wetlands now are recognized as both sensitive and ecologically important, and efforts are being made to conserve these habitats. A number of sites with suitable habitat for western spadefoot toads already are being protected in national wildlife refuges, state parks, state ecological reserves, private preserves, habitat mitigation banks, and conservation easements. Additionally, 23 vernal pool species are now Federally protected including 18 plants and five animals. This will result in habitat conservation and management efforts that will contribute to the conservation of western spadefoot toads.

Status within the Action Area and Environmental Baseline

The western spadefoot toad has not been reported from within the proposed action's action area or Sutter County (CNDDB 2002). Five occurrences have been reported from eastern Sacramento County; the closest reported occurrence in Sacramento County is approximately 15 miles from the Basin. The closest overall spadefoot occurrence to the Basin is from Placer County and is approximately six miles from the Basin.

Potential toad habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat in grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat in the Basin (K. Fuller, pers. comm.). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. Once again, this estimate greatly overestimates the amount of potential vernal pool habitat in the Basin, as most of the ponds and seasonally wet areas do not have the hydrology sufficient to support the toad. No potential toad habitat is

located within 76 m (250 ft.) of any of MAP's proposed action activities. Based upon the toad's limited distribution and distance form the Basin, it is very unlikely that the toad would be found in the Basin (K. Fuller, pers. comm. to C. Aubrey 2003).

California Tiger Salamander

In 1994, the Service issued a 12-month warranted but precluded finding for the California tiger salamander (59 **FR** 18353). Subsequently, the Service issued its final rule listing the Santa Barbara County distinct population segment of the species as endangered (65 **FR** 57242). The Sonoma County distinct population segment of the California tiger salamander was listed as endangered on an emergency basis under the Act on July 22, 2002 (67 **FR** 47726). The California tiger salamander throughout the remainder of its range, including Fresno County, is a Federal candidate species. The Service proposed to list the Central California Distinct Population Segment of the California Tiger Salamander as threatened and reclassify the Sonoma County and Santa Barbara County Distinct Populations of the salamander from endangered to threatened on May 23, 2003 (68 **FR** 28647). The State considers the California tiger salamander a Species of Special Concern.

Description

The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 207 mm (8.2 in). California tiger salamanders exhibit sexual dimorphism; males tend to be larger than females. Coloration of the California tiger salamander is white or yellowish markings against black. As adults, California tiger salamanders tend to have the creamy yellow to white spotting on the sides with much less on the top, whereas other tiger salamanders have brighter yellow spotting with more on the top.

Historic Range

Historically, the California tiger salamander inhabited low elevation grassland and oak savanna plant communities of the Central Valley, adjacent foothills, and the inner coast ranges in California (Storer 1925, Shaffer *et al.* 1993) from sea level up to about 460 m (1500 ft). Along the coast ranges, the species occurred from the Santa Rosa area of Sonoma County south to the vicinity of Buellton in Santa Barbara County. In the Central Valley and surrounding foothills, the species occurred from northern Yolo County southward to northwestern Kern County and northern Tulare County. Today, the species is found in grasslands and oak savannah in the Sierra Nevada foothills, Central Valley, Bay Area, and the coast ranges in central California. Populations in areas such as Santa Barbara County and Sonoma County are now considered endangered.

Essential Habitat Components

California tiger salamanders require both wetland and adjacent upland habitat to complete their life cycle (Shaffer *et al.* 1993). Subadult and adult California tiger salamanders spend the dry

summer and fall months of the year aestivating (a state of dormancy or inactivity in response to hot, dry weather) in the burrows of small mammals, such as California ground squirrels (*Spermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) (Storer 1925; Loredo and van Vuren 1996; 1998; Trenham 1998a). During estivation, California tiger salamanders eat very little (Shaffer *et al.* 1993). Once fall or winter rains begin, they emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds (Stebbins 1985, 1989; Shaffer *et al.* 1993). Historically, the California tiger salamander utilized vernal pools, but it also currently breeds in stockponds. Occurrence of California tiger salamanders is significantly associated with occurrence of ground squirrels (Seymour and Westphal 1994). Active ground burrowing rodent colonies probably are required to sustain California tiger salamanders because inactive burrow systems become progressively unsuitable over time. Loredo *et al.* (1996) found that ground squirrel burrow systems collapsed within 18 months following abandonment by or loss of the mammals; although California tiger salamanders used both occupied and unoccupied burrows, they apparently did not use collapsed burrows. California tiger salamanders cannot persist without upland habitat.

Reproductive Ecology, Life History

Adult California tiger salamanders may migrate up to 2 km (1.2 mi) from their upland sites to the breeding ponds (S. Sweet, University of California, Santa Barbara, *in litt*. 1998), which may be vernal pools, stockponds, or other seasonal water bodies. The distance between the upland sites and breeding pools depends on local topography and vegetation, and the distribution of ground squirrel or other rodent burrows (Stebbins 1989). Males migrate before females (Twitty 1941; Shaffer *et al.* 1993; Loredo and Van Vuren 1996; Trenham 1998b). Males usually remain in the ponds for an average of about six to eight weeks, while females stay for approximately one to two weeks. In dry years, both sexes may stay for shorter periods (Loredo and van Vuren 1996; Trenham 1998b). Marked salamanders have been recaptured at the pond where they were initially captured; in one study, approximately 80 percent were recaptured at the same pond (Trenham 1998b). The rate of natural movement of salamanders among breeding sites depends on the distance between the ponds or complexes of ponds and on the intervening habitat (e.g., salamanders may move more quickly through sparsely covered and more open grassland than densely vegetated lands)(Trenham 1998a). As with migration distances, the number of ponds used by an individual over its lifetime will be dependent on landscape features and environmental factors.

Adult salamanders mate in the breeding ponds, after which the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925, Twitty 1941). In ponds with no or limited vegetation, they may be attached to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). After breeding, adults leave the pool and return to the small mammal burrows (Loredo *et al.* 1996; Trenham 1998a), although they may continue to come out nightly for approximately the next two weeks to feed (Shaffer *et al.* 1993). In drought years, the seasonal pools may not form and the adults can not breed (Barry and Shaffer 1994).

Salamander eggs hatch in ten to 14 days with newly hatched salamanders (larvae) ranging from 11.5 to 14.2 mm (0.45 to 0.56 in) in total length (Petranka 1998). The larvae are aquatic. They are yellowish gray in color and have broad fat heads, possess large, feathery external gills, and broad dorsal fins that extend well onto their back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume smaller tadpoles of Pacific treefrogs (*Pseudacris regilla*) and California red-legged frogs (*Rana aurora*) (J. Anderson 1968; P. Anderson 1968). The larvae are among the top aquatic predators in the seasonal pool ecosystems. They often rest on the bottom in shallow water, but also may be found at different layers in the water column in deeper water. The young salamanders are wary and when approached by potential predators, will dart into vegetation on the bottom of the pool (Storer 1925).

The larval stage of the California tiger salamander usually last three to six months, as most seasonal ponds and pools dry up during the summer (Petranka 1998). Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Individuals collected near Stockton in the Central Valley during April varied from 47 to 58 mm (1.88 to 2.32 in) in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer the ponding duration, the larger the larvae and metamorphosed juveniles are able to grow, and the more likely they are to survive and reproduce (Pechmann *et al.* 1989; Semlitsch *et al.* 1988; Morey 1998; Trenham 1998b). The larvae will perish if a site dries before metamorphosis is complete (P. Anderson 1968, Feaver 1971). Pechmann *et al.* (1988) found a strong positive correlation with ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 pools sampled supported larval California tiger salamanders, and 5 of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only six (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998)

In the late spring or early summer, before the pools dry completely, metamorphosed juveniles leave their pools and settle in small mammal burrows at the end of their nightly movements (Zeiner *et al.* 1988; Shaffer *et al.* 1993; Loredo *et al.* 1996). Like the adults, juveniles may emerge from these retreats to feed during nights of high relative humidity (Storer 1925; Shaffer *et al.* 1993) before settling in their selected upland sites for the dry, hot summer months. Juveniles have been observed to migrate up to 1.6 km (1 mi) from breeding pools to upland areas (Austin and Shaffer 1992). An estimated 83 percent of the salamanders rely on rodent burrows for shelter (Petranka 1998). Mortality of juveniles during their first summer exceeds 50 percent (Trenham 1998b). Unseasonable emergence from uplands in hot dry weather occasionally results in mass mortality of juveniles (Holland *et al.* 1990). Juveniles do not typically return to the breeding pools until they reach sexual maturity at several years of age (Trenham 1998b; L. Hunt, *in litt*. 1998). Trenham (1998b) estimated survival from metamorphosis to maturity at his study site at less than five percent (well below an estimated replacement level of 18 percent). Adult survivorship varies greatly between years, but is a crucial determinant of whether a population is a source or sink (i.e., whether net productivity exceeds the level necessary to maintain the population).

Lifetime reproductive success for California and other tiger salamanders is low. Trenham *et al.* (2000) found the average female bred 1.4 times and produced 8.5 young that survived to metamorphosis per reproductive effort. This resulted in roughly 11 metamorphic offspring over the lifetime of a female. Two reasons for the low reproductive success are the preliminary data suggest that most individuals of the California tiger salamanders require two years to become sexually mature, but some individuals may be slower to mature (Shaffer *et al.* 1993); and some animals do not breed until they are four to six years old. While individuals may survive for more than ten years, many breed only once, and in some populations, less than 5 percent of marked juveniles survive to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well as from human caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Reasons for Decline and Threats to Survival

California tiger salamanders are imperiled by a variety of human activities. Current factors associated with declining populations of the salamander include continued degradation and loss of habitat due to agriculture and urbanization, non-native plants, hybridization with non-native tiger salamanders, and introduced predators. Fragmentation of existing habitat and the continued colonization of existing habitat by non-native tiger salamanders may represent the most significant current threats to California tiger salamanders, although populations are likely threatened by more than one factor. Isolation and fragmentation of habitats within many watersheds have precluded dispersal between sub-populations and jeopardized the viability of metapopulations (broadly defined as multiple subpopulations that occasionally exchange individuals through dispersal, and are capable of colonizing or “rescuing” extinct habitat patches).

Although no systematic, range-wide studies have been conducted, it is known that significant

numbers of California tiger salamanders are killed by vehicular traffic while crossing roads (Hansen and Tremper 1993; S. Sweet, *in litt*. 1993). For example, during a 1-hour period on a road bordering Lake Lagunita on the Stanford University campus, 45 California tiger salamanders were collected, 28 of which had been killed by cars (Twitty 1941). More recently, during one 15-day period in 2001 at a Sonoma County location, 26 road-killed California tiger salamanders were found (D. Cook, pers. comm. 2002). Overall breeding population losses of California tiger salamanders due to road kills have been estimated to be between 25 and 72 percent (Twitty 1941; S. Sweet *in litt*. 1993; Launer and Fee *in litt*. 1996). Mortality may be increased by associated roadway curbs and berms as low as nine to 12 cm (3.5 to 5 in), which allow California tiger salamanders access to roadways but prevent their exit from them (Launer and Fee 1996; S. Sweet *in litt*. 1998).

In a recent study along a 1.05 km (0.7 mi) high-vehicular-use (21,450 vehicles per day) section of the Trans-Canadian Highway in Alberta, Canada, Clevenger *et al.* (2001) recorded 183 road-killed tiger salamanders (*Ambystoma tigrinum*) in 30 days and concluded it was likely that very little of the local population had survived. In California, vehicular-use levels along various State, interstate, and secondary roads commonly far exceed the level of use reported in the Alberta study. Vehicular usage on California roads is also increasing rapidly and directly with human population and urban expansion. During November 2002, California's estimated total vehicular travel on State highway system roads alone was 23 billion km (14.27 billion mi)(this figure and subsequent vehicular-use data from California Department of Transportation's Internet website, January 2, 2003). From 1972 to 2001, State highway system total vehicular usage rose steadily from 108.6 km to 270 km (67.11 to 167.81 billion mi) annually. For the 23 California counties in which the California tiger salamander may occur, State highway system total annual vehicular usage in 1999, 2000, and 2001 was 53.27, 55.85, and 57.21 billion miles (86, 90, and 92.1 billion km), respectively. The steady increase of vehicular use is thus continuing. We believe such figures illustrate (1) the general growth in vehicular usage that has been, and is still, occurring in many parts of the California tiger salamander's range, and (2) that additional increments of road-kill losses, which are already a potentially serious problem for the species, are likely occurring.

The most overwhelming threat to the California tiger salamander is from continuing habitat destruction, degradation, and fragmentation. Secondary threats exist from predation and competition from introduced exotic species; possible commercial overutilization; disease; hybridization with non-native salamanders; various chemical contaminants; road-crossing mortality; and certain unrestrictive mosquito and rodent control operations. The various primary and secondary threats are not currently being offset by existing Federal, State, or local regulatory mechanisms. The California tiger salamander also is vulnerable to chance environmental or demographic events, to which small populations are particularly vulnerable. The combination of its biology and specific habitat requirements makes the animal highly susceptible to random events, such as drought, disease, and other occurrences.

Environmental Baseline, Status within the Action Area

The proposed action is closest to the Central Valley population of the California tiger salamander. This population occupies Yolo County, Solano, Sacramento County south of the Cosumnes River, northeastern Contra Costa County, eastern San Joaquin County, western Amador County, western Calaveras County, western Tuolumne County, eastern Stanislaus County, Merced, western Mariposa County, and northwestern Madera County. Six percent (42) of the known California tiger salamander localities are in this population (CNDDB 2002). Ten localities in Calaveras, Contra Costa, Madera, Merced, Sacramento, Solano, Stanislaus, and Yolo counties are considered extirpated (CNDDB 2002). The species historically occurred as far north as Butte County, but has not recently been documented north of the Cosumnes River. The remaining sites inhabited by the California tiger salamander occur in the low elevation foothills on the eastern side of the Central Valley (Shaffer *et al.* 1993). Urban development and agriculture have eliminated much of the grassland and vernal pools. From 1996 to 1998, 14361 ha (35487 ac) of native habitat were converted to urban and agricultural uses in Yolo, Solano, Contra Costa, Stanislaus, Merced, Sacramento, San Joaquin, Stanislaus, Merced, and Madera counties. There are 361,761 acres of habitat for the California tiger salamander in the Central Valley.

Of 127 California tiger salamander localities where wetland type was identified, 26 percent (33) were in vernal pools. The Central Valley population of California tiger salamanders occurs within the Southeastern Sacramento Valley and Southern Sierra Foothills Vernal Pool Regions (Keeler-Wolf 1998). Vernal pools in both regions are threatened by conversion of grasslands and grazing land to housing developments and intensive agriculture.

California tiger salamander localities in the Central Valley population may be affected by proposed or recently implemented development projects, including a vineyard (Borden Ranch, Launa Creek Partnership), housing developments (Mueller Ranch, Liberty Hills Community), and highway construction (Oakdale Bypass). These development projects would destroy upland estivation habitat and wetland breeding habitat, thereby killing salamanders and reducing the viability of subpopulations at the affected localities. Vineyards planted in areas such as Borden Ranch along the San Joaquin-Sacramento County line have degraded and destroyed habitat for California tiger salamanders (Service files). The now-closed Rancho Seco nuclear power plant site in southeast Sacramento County has been converted to a public park, which could degrade or eliminate potential habitat for the nearby California tiger salamander subpopulation.

In Yolo and Solano counties, the major impacts to California tiger salamander populations have been agricultural. Portions of the California tiger salamander subpopulation at Jepson Prairie in Solano County is protected by the University of California Natural Reserve System and the Solano Land Trust. However, some estivation habitat may have been disrupted by construction of a PG&E natural gas pipeline in the vicinity of the reserve. California tiger salamanders also were found at the proposed Calpine power plants near Jepson Prairie. Vernal pool and upland habitat at this site was partially disced and planted to winter wheat in 1992, potentially killing salamanders and reducing the viability of the habitat (C. Nagano, Service, pers. obs).

In Stanislaus County, California tiger salamanders were considered extirpated until they were found by biologists surveying a potential route for the Oakdale Bypass near Oakdale (California Department of Transportation 2001). This route threatens the only known population of California tiger salamanders in the Oakdale area.

A total of 671 California tiger salamander species occurrence have been recorded in California (CNDDB 2002). Of these, eight occurrence have been recorded in Sacramento County. No salamanders have been recorded in either Sutter County generally or within the proposed action's action area. The closest salamander record is from Yolo County and is approximately 12 miles from the Basin. However, this location is considered extirpated. The closest extant occurrence is from Yolo County, approximately 20 miles west of the Basin.

Legenere

The Service classifies legenere as a Species of Concern. The species has no special state status. It has been included on California Native Plant Society lists of rare and endangered species for 25 years (Powell 1974) and is currently on List 1B because it is "endangered throughout its range" (Skinner and Pavlik 1994).

Description

Legenere is an inconspicuous annual. The entire plant is hairless. The main stems are 10 to 30 cm (3.9 to 11.8 in.) long and decumbent, although many branches are erect. Extra roots often arise from the lower nodes. The leaves, which are produced underwater, are 1 to 3 cm (0.4 to 1.2 in.) long and narrowly triangular; they fall off the plant before flowers appear. The egg-shaped or oval bracts are 6 to 12 mm (0.24 to 0.47 in.) long and remain throughout the flowering period. A single flower arises above each bract. Legenere flowers may or may not have corollas, and a single plant can produce both types of flowers. When present, the corollas are white or yellowish, 3.5 to 4 mm (0.14 to 0.16 in.) long, and two-lipped. The upper two corolla lobes are narrower than the lower three, and the corolla tube is slit on the upper side. The stamens are joined to form a tubular structure. The flower stalks are very slender and elongate as the fruit matures, reaching a final length of as much as 3 cm (1.2 in.). Legenere has a cylindrical capsule 6 to 10 mm (0.24 to 0.39 in.) long, which splits open only at the tip. Each capsule contains up to 20 seeds, which are approximately 1 mm (0.04 in.) long, brown, smooth, and shiny (McVaugh 1943, Mason 1957, Abrams and Ferris 1960, Holland 1984, Morin 1993). The chromosome number of legenere has not been determined.

The genera most likely to be confused with legenere are *Howellia, Downingia*, *Lobelia,* and *Porterella*. Both *Howellia* and *Downingia* have capsules that split along the sides, whereas legenere's capsule opens at the tip. Moreover, *Downingia* flowers are not stalked. The *Lobelia* species in California have either red or blue flowers and spherical fruits, as opposed to the whitish flowers and cylindrical fruits of legenere. *Porterella* has showy blue flowers with yellow or white marks at the base of the corolla lobes, and it occurs at higher elevations than legenere (Morin and Niehaus 1977, Holland 1984, Morin 1993).

Historical and Current Range

Between 1890 and 1984, legenere had been reported from 12 sites in eight counties encompassing six vernal pool regions. The historical counties of occurrence were Solano (three sites, including the type locality), Lake and Sacramento (two sites each), and Napa, Placer, San Mateo, Sonoma, and Stanislaus counties (one site each) (Hoover 1937, Mason 1957, Rubtzoff and Heckard 1975, Holland 1984). These sites were located in the Central Coast, Lake-Napa, Santa Rosa, Solano-Colusa, Southeastern Sacramento Valley, and Southern Sierra Foothills vernal pool regions (Keeler-Wolf *et al*. 1998). As of 1984, the only three populations believed to remain extant were in Napa, Placer, and Sacramento counties (Holland 1984).

Since 1984, legenere has been rediscovered at several historical sites and has been found at numerous new locations. During that time, the type locality and six other occurrences have been extirpated. Among the 42 occurrences presumed to be extant, 20 are in Sacramento County, including nine in the vicinity of Elk Grove and six in the vicinity of the former Mather Air Force Base. Another area of concentration, with ten extant occurrences, is near Dozier in Solano County. Other counties where this species is presumed to remain are Lake, Napa, Placer, San Joaquin, San Mateo, Shasta, and Tehama (Skinner and Pavlik 1994, CNDDB 2000).

The vernal pool regions (Keeler-Wolf *et al*. 1998) where legenere remains extant are Lake-Napa, Northeastern Sacramento Valley, Northwestern Sacramento Valley, Santa Rosa, Solano-Colusa, and Southeastern Sacramento Valley. It has been extirpated from the Southern Sierra Foothills Vernal Pool Region. The Central Coast Vernal Pool Region occurrence in San Mateo County has not been rediscovered since 1906 but is presumed to be extant because suitable habitat remains in the area (CNDDB 2000).

Reproductive Ecology and Demography

Legenere seeds germinate between late February and April. The specific conditions necessary for seed germination are unknown. The plants grow through the standing water; as the water evaporates or recedes, legenere stems may collapse onto the lake bottom or become caught on taller, stronger plants (Holland 1984). Legenere flowers during April, May, or June (Morin and Niehaus 1977, Holland 1984, Skinner and Pavlik 1994). Pollination in legenere has not been studied, but the small, inconspicuous flowers suggest that it may be self-pollinated (Holland 1984). By late June, each plant typically produces six to ten capsules containing several hundred seeds each. Seed dispersal agents are unknown but may include gravity, water, and waterfowl. Most populations contain densities of less than one plant per square meter (10.8 $ft.^2$) (Holland 1984). Legenere is even more variable than are other vernal pool annuals; entire populations have disappeared for decades, then reappeared (Holland 1984, CNDDB 2000). Thus, a persistent soil seed bank most likely exists. Survival rates and other aspects of demography have not been investigated.

Habitat and Community Associations

Legenere grows in a variety of habitats including vernal pools, vernal marshes, artificial ponds, and floodplains of intermittent streams. Occupied vernal pool types include Northern Basalt Flow, Northern Claypan, Northern Hardpan, Northern Volcanic Ashflow, and Northern Volcanic Mudflow (Sawyer and Keeler-Wolf 1995). The surrounding plant community may be grassland,

open woodland, or hardwood forest containing oaks (*Quercus* spp.) or California buckeye (*Aesculus californica*). At one site, legenere grows in both a vernal pool and the adjacent grassland (CNDDB 2000). The vernal pools and lakes supporting legenere vary in size from approximately 4 m^2 (43 $ft.^2$) to 41 hectares (100 acres) (Holland 1984, CNDDB 2000). When it occurs in large pools and vernal lakes, legenere grows only in the shallower areas (less than 20 cm [8 in.] deep) (Holland 1984). Substrates in occupied areas may have been deposited by streams or volcanic flows. Soils underlying the pools themselves typically are shallow, acidic clays with few stones (Holland 1984). Legenere has been reported from elevations ranging from 3 m (10 ft.) in Solano County to 884 m (2,900 ft.) in Lake County (CNDDB 2000).

Legenere occurs most often with smooth goldfields and pale spikerush, and to a lesser extent with Boggs Lake hedge-hyssop and dwarf downingia (CNDDB 2000 and unprocessed data).

Reasons for Decline and Threats to Survival

Of the four occurrences of legenere known to be extirpated, two were destroyed by conversion to agriculture, one by changes in hydrology, and one by urban development (Holland 1984, CNDDB 2000). Several sites where the species still occurs have been degraded by discing or other agricultural practices, inappropriate livestock grazing, dirt biking, and trash dumping (CNDDB 2000). The San Mateo County site has been subjected to logging and hydrological changes; legenere has not been observed there in over 90 years (Holland 1984). Legenere occurred at Boggs Lake in the 1950's but has not been seen there since (Rubtzoff and Heckard 1975, Holland 1984, CNDDB 2000), even though suitable habitat remains.

Approximately one-third of the extant occurrences of legenere are in areas slated for commercial or residential development (Holland 1984, CNDDB 2000). In fact, some of the populations extant in 1983 already may have been destroyed by development, but they have not been visited since that time. More than one-third of populations are subject to livestock grazing (CNDDB 2000), but few appear to be declining. Holland (1984) indicated that "light" grazing during the winter and early spring did not seem to be detrimental to legenere. Competition from lippia (*Lippia* spp.) is a threat at one Solano County site (CNDDB 2000).

Status with Respect to Recovery

Holland (1984) conducted a status survey of legenere in 1983 with funding from the County of Sacramento, R.C. Fuller Associates, and The Nature Conservancy. He confirmed that several historical populations no longer persisted. New populations of this species were discovered during pre-project surveys and during searches by The Nature Conservancy volunteers (Holland 1984, CNDDB 2000).

Sixteen occurrences of legenere are (or were) on nature preserves or publicly-owned lands. Five occurrences are known currently from the Jepson Prairie Preserve in Solano County, two from the nearby Calhoun Cut Ecological Reserve, and two from the Dales Lake Ecological Reserve. Legenere was known from Boggs Lake before the preserve was established, but it has not been rediscovered in that area for over 40 years (Holland 1984). Two occurrences, at Hog Lake and on the Stillwater Plains, are on property administered by the U.S. Bureau of Land Management. Sacramento County owns land supporting three occurrences of legenere; one is at a wastewater treatment plant, and the other two are in county parks. Finally, one occurrence is on land owned

by the Sacramento Municipal Utility District (CNDDB 2000). However, mere occurrence on public land is not a guarantee of protection. Only the preserves and the U.S. Bureau of Land Management occurrences are managed to promote the continued existence of legenere and other rare species. As of 1991, one Sacramento County developer had plans to preserve several pools containing legenere when he developed the property (CNDDB 2000).

Status within the Action Area and Environmental Baseline

A review of CNDDB (2002) revealed that legenere had been reported 57 times in California. Legenere has not been recorded from Sutter County or the Basin. However, it has been reported 20 times from Sacramento County. The closest reported Legenere occurrence to the Basin is approximately two miles away.

The Natomas Basin supports limited amounts of potential Legenere habitat. Potential legenere habitat of approximately 21.3 acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat in grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat in the Basin (K. Fuller, pers. comm.). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. Once again, this estimate greatly overestimates the amount of potential vernal pool habitat in the Basin, as most of the ponds and seasonally wet areas do not have the hydrology sufficient to support legenere. No potential legenere habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities.

Boggs Lake Hedge-Hyssop

Boggs Lake hedge-hyssop has no federal listing status. It was listed as endangered in California in 1978 (CDFG 1991) and is a candidate for listing in Oregon (Skinner and Pavlik 1994). It was included in the first California Native Plant Society list of rare and endangered plants (Powell 1974) and is now on List 1B (Tibor 2001). The U.S. Forest Service formerly considered Boggs Lake hedge-hyssop to be "sensitive" but has reclassified it as a "special interest plant" because it is more abundant than previously thought (Corbin in litt. 2000). The U.S. Bureau of Land Management classifies Boggs Lake hedge-hyssop as a "special status" species (Corbin *et al*. 1994).

Description

Boggs Lake hedge-hyssop is a an erect annual with hollow stems two to ten cm (0.8 to 3.9 in.) tall. The stems are mostly hairless, except for a few glandular hairs in the inflorescence. The leaves are opposite and have entire margins. Leaves near the base of the stem are 1 to 2 cm (0.4 to 0.8 in.) long and lance-shaped, but the leaves become shorter, wider, and blunt-tipped farther up on the stem. The 6 to 8 mm (0.23 to 0.31 in.) long flowers are borne singly in the upper leaf axils. Each corolla has two lips; the tube and upper lip are yellow, whereas the lower lip is white. However, the flowers appear yellow from a distance. The calyx is 4 to 6 mm (0.16 to 0.24 in.) long and has five sepals of differing lengths and shapes, giving rise to the specific epithet, heterosepala (meaning different sepals). The upper three sepals are united for approximately one-third of their length; the center sepal is longer than the others. The two lower sepals are separate and have notched tips, in contrast to the blunt tips of the upper sepals. The fruit of Boggs Lake

hedge-hyssop is a small, dry, pear-shaped capsule that is approximately the same length as the calyx. The tiny seeds are oblong and have narrow lengthwise ridges (Mason and Bacigalupi 1954, Mason 1957, Wetherwax 1993).

Boggs Lake hedge-hyssop is most similar to bractless hedge-hyssop (*G. ebracteata*). However, in bractless hedge-hyssop, the sepals are longer, pointed, and are separate almost all the way to their bases; all five corolla lobes are white; and the seeds have both lengthwise and crosswise ridges. The other California species, common American hedge-hyssop (*G. neglecta*), has bracts below the calyx, purplish corolla lobes, and a corolla at least twice as long as the calyx (Mason 1957, Wetherwax 1993).

Historical and Current Range

Boggs Lake hedge-hyssop was first collected in Lake County in 1923. The exact collection site is uncertain, but probably was Boggs Lake, where the species also was collected in 1929 and 1953 (Mason and Bacigalupi 1954). Another site was found in Madera County in 1961, then one in Sacramento County in 1977 (CNDDB 2000). During the 1980's, 20 additional occurrences were discovered in California, plus one in Lake County, Oregon (CDFG 1987). These additional California occurrences included nine in Shasta County; three each in Fresno, Placer, and Sacramento counties; and one each in Lake and Modoc counties (CNDDB 2000). Thus, the historical range included the Lake-Napa, Modoc Plateau, Southeastern Sacramento Valley, and Southern Sierra Foothills vernal pool regions (Keeler-Wolf *et al*. 1998).

Currently, Boggs Lake hedge-hyssop is known from 86 extant occurrences in California (CNDDB 2002) plus one in Oregon. Only one of the historical occurrences is believed to have been extirpated; it was in Sacramento County. In addition to the four vernal pool regions where it was known historically, Boggs Lake hedge-hyssop is now known from the Northeastern and Northwestern Sacramento Valley and the Solano-Colusa vernal pool regions (Keeler-Wolf *et al*. 1998). Additional counties of occurrence are Merced, San Joaquin, Solano, and Tehama (CNDDB 2000, Witham in litt. 2000).

Reproductive Ecology and Demography

Most of the life history information regarding Boggs Lake hedge-hyssop comes from an intensive study of the Oregon population by Kaye *et al*. (1990). California plants are morphologically similar to those in Oregon and grow in similar habitats; therefore, the life history of Boggs Lake hedge-hyssop is presumed to be similar in the two states.

The seeds of Boggs Lake hedge-hyssop most likely germinate in response to autumn or winter rains (Kaye *et al*. 1990, Corbin *et al*. 1994). By the time the water recedes the plants already are in bud or in flower; flowering can begin when as much as 5 cm (2.0 in.) of water remains (Kaye *et al*. 1990, Corbin *et al*. 1994). Throughout the range of the species flowers are open between April and August, with those at the highest elevations flowering later (Corbin *et al*. 1994). Each plant typically produces only one or two flowers (Kaye *et al*. 1990, Corbin *et al*. 1994), which mature into fruits within one to two weeks after flowering begins. The plants disappear quickly after seed-set (Corbin *et al*. 1994).

Kaye *et al*. (1990) determined that Boggs Lake hedge-hyssop is self-compatible and does not require insects for pollination. During their one-season study in Oregon, plants set equal amounts of seed whether or not insects were excluded. Moreover, insects were not observed visiting the flowers in natural settings (Kaye *et al*. 1990). The Oregon population averaged approximately 150 seeds per fruit, but the number of fruits per plant was not reported. The fruits showed no insect damage (Kaye *et al*. 1990). Seed dispersal agents are not known, and seed longevity in the soil has not been tested. However, seeds in one population on the Lassen National Forest (Shasta County) apparently remained dormant for three years, which was the interval between observations of growing plants (Corbin *et al*. 1994).

California populations of Boggs Lake hedge-hyssop range in size from only a few individuals to over one million (CNDDB 2000). As observed with other vernal pool annuals, population numbers fluctuate greatly from year to year (Corbin *et al*. 1994). The Boggs Lake population declined from 1,000 individuals in 1981 to zero in 1989 and remained at zero (Serpa 1993, CNDDB 2000) until 1997, when five plants were found (R. Bittman personal communication). The plants were widely scattered at Boggs Lake historically, with individuals growing isolated from each other (Mason and Bacigalupi 1954). At the one Vina Plains occurrence, the density of Boggs Lake hedge-hyssop was 67.4 plants per square meter (6.3 per square foot) in 1995 (Alexander and Schlising 1997).

Habitat and Community Associations

Boggs Lake hedge-hyssop occurs in vernal pools and in marshy areas on the margins of reservoirs and lakes, as well as in man-made habitats such as borrow pits and cattle ponds (Kaye *et al*. 1990, Corbin *et al*. 1994, CNDDB 2000). It has been found in several types of vernal pools, including Northern Basalt Flow, Northern Claypan, Northern Hardpan, Northern Volcanic Ashflow, and Northern Volcanic Mudflow (Sawyer and Keeler-Wolf 1995). Occupied wetlands are amongst annual grassland, oak woodland, juniper (*Juniperus* spp.) woodland, or conifer forest (CDFG 1987, Kaye *et al*. 1990, Corbin *et al*. 1994, CNDDB 2000).

Although Boggs Lake hedge-hyssop most often occurs on the margins of lakes and pools where water does not become too deep (Corbin *et al*. 1994), it also has been found in the beds of deeper vernal pools (CNDDB 2000). Clay is the most frequently encountered soil underlying occupied habitats, although loam and loamy sand also have been noted. Most sites are underlain by an impermeable layer (Corbin *et al*. 1994, CNDDB 2000). Kaye *et al.* (1990) noted that in juniper woodlands, Boggs Lake hedge-hyssop occurred on acidic soils with a pH of approximately 5. Some northern California sites are on slightly acidic soils, but soil pH has not been tested in other areas (Corbin *et al*. 1994). Known Boggs Lake hedge-hyssop sites in California range in elevation from 8 m (25 ft.) in Solano County to at least 1,576 m (5,170 ft.) in Modoc County (CNDDB 2000, Corbin in litt. 2000). A reported occurrence of Boggs Lake hedge-hyssop at North Emerson Lake Modoc County is at 2,400 m (7,900 ft.) in elevation (CNDDB 2000), but several species experts have revisited the site and found only bractless hedge-hyssop (Corbin in litt. 2000, Schoolcraft in litt. 2000). The elevation of the Lake County, Oregon, occurrence is 1,634 m (5340 ft.) (Kaye *et al*. 1990).

The most frequent associate of Boggs Lake hedge-hyssop is bractless hedge-hyssop (CNDDB 2000); the latter may form dense colonies containing only a few individuals of Boggs Lake hedge-hyssop (Mason and Bacigalupi 1954). Other typical associates, in order of frequency, are

vernal pool popcorn flower, two-horned downingia (*Downingia bicornuta*), slender Orcutt grass, and pale spikerush (CNDDB 2000, Corbin in litt. 2000).

Reasons for Decline and Threats to Survival

Habitat conversion for housing was responsible for the extirpation of one Boggs Lake hedge-hyssop population in Sacramento County (CNDDB 2000). Cattle trampling destroyed many immature plants at the Oregon occurrence (Kaye *et al*. 1990). Four occurrences have been disturbed but not extirpated by hydrological alterations such as excavation and damming, and another three by surface disturbances such as discing and grading (CNDDB 2000).

Urban growth through residential development, shopping center construction, and landfill expansion threatens seven of the populations in Placer and Sacramento counties (CNDDB 2000). Competition from medusahead (*Taeniatherum caput-medusae*) potentially threatens the species at five sites on the Modoc Plateau (Corbin *et al*. 1994). Nine of the extant occurrences contain fewer than 100 individuals at their maximum, and several are undergoing rapid declines (CNDDB 2000). These populations are sufficiently small that they are in danger of extirpation from chance events (Menges 1991).

Livestock grazing may or may not pose a threat to the survival of Boggs Lake hedge-hyssop. Although 48 California occurrences are subject to grazing by cattle, sheep, horses, or feral pigs (Corbin *et al*. 1994, CNDDB 2000, Corbin in litt. 2000), only 6 of those were reported to have heavy grazing or severe trampling (CNDDB 2000). Trampling and herbivory can be detrimental if they occur before seed set or if use is concentrated in a small area. However, moderate grazing is believed to be a compatible use if it occurs after Boggs Lake hedge-hyssop sets seed (Mason and Bacigalupi 1954, CDFG 1987). Directed research is necessary to establish appropriate use levels and seasons. The 47 occurrences administered by the U.S. Forest Service and the U.S. Bureau of Land Management potentially are subject to disturbance or destruction from livestock grazing and trampling, activities associated with logging, assorted recreational uses, hydrological alterations, road construction, fire suppression, weed competition, and herbicide drift (Corbin *et al*. 1994, California Natural Diversity Data Base 2000). However, management guidelines proposed by the agencies (Corbin *et al*. 1994) would mitigate such disturbances.

Status with Respect to Recovery

Twelve (14 percent) of the known occurrences of Boggs Lake hedge-hyssop are in nature reserves. Seven of those are on ecological reserves operated by CDFG, including four at Dales Lake in Tehama County, two at Thomes Creek in Tehama County, and one at Big Table Mountain in Fresno County. Nature reserves owned by private conservation organizations support another five occurrences, including two at Big Table Mountain Preserve in Fresno County (one of which is partially on federal land) and one each at Boggs Lake Preserve in Lake County, Vina Plains Preserve in Tehama County, and Jepson Prairie Preserve in Solano County. When The Nature Conservancy managed the Boggs Lake Preserve, they erected fences around colonies of Boggs Lake hedge-hyssop to keep out horses and deer (Serpa 1993). Volunteers conduct annual monitoring and searches for Boggs Lake hedge-hyssop and other rare plants at the Boggs Lake, Jepson Prairie, and Vina Plains preserves (Baldwin and Baldwin 1991, California Natural Diversity Data Base 2000).

Forty-seven (57 percent) of Boggs Lake hedge-hyssop occurrences are on federal land, which does not necessarily mean that they are protected from disturbance. Among the occurrences on federal land, 32 are on the Lassen and Modoc National Forests in Lassen, Modoc, and Shasta counties. Two of these are in areas with special designations, the Murken Botanical Special Interest Area and the South Warner Wilderness, where many uses are restricted (Corbin *et al*. 1994). Another 15 occurrences are at least partially on lands administered by the U.S. Bureau of Land Management in five different resource areas. These include six occurrences in Tehama County, five in Shasta County, two in Fresno County (one of which is partially on a private nature reserve), and one each in Lassen County, California, and Lake County, Oregon (Kaye *et al*. 1990, Corbin *et al*. 1994, California Natural Diversity Data Base 2000, Corbin in litt. 2000). Four of the occurrences on U.S. Bureau of Land Management property are in wilderness study areas (Corbin *et al*. 1994) and may be afforded additional protection if Congress designates those areas as official wilderness.

The U.S. Forest Service and the U.S. Bureau of Land Management developed a formal conservation strategy for Boggs Lake hedge-hyssop (Corbin *et al*. 1994) on lands they administer in northeastern California. Their goal was to protect 90 percent of the plants and sites from direct disturbance and hydrological alterations over a ten-year period. Additional conservation measures identified in the plan were comparisons of grazed and control areas, monitoring, surveys, and acquisition through land exchanges. However, due to funding priorities and the reclassification from "sensitive" status, intensive monitoring has been discontinued (Corbin in litt. 2000). The agencies have fenced several sites in northeastern California (Corbin *et al*. 1994, Corbin in litt. 2000) and in Fresno County (CDFG 1991, Franklin in litt. 1993) to prevent cattle from trampling Boggs Lake hedge-hyssop. Boggs Lake hedge-hyssop also may benefit from a grazing-management experiment being conducted at Big Table Mountain in Fresno County.

Status within the Action Area and Environmental Baseline

A review of CNDDB (2002) revealed that Boggs Lake hedge-hyssop had been reported 86 times in California. Boggs Lake hedge-hyssop has not been recorded from Sutter County, Area or the Basin. However, it has been reported eleven times from Sacramento County. The closest reported Boggs Lake hedge-hyssop occurrence to the Basin is approximately three miles away. However, that occurrence is presumed extirpated; the site has been developed). The next closest reported occurrence is from Sacramento County, approximately 12 miles from the Basin.

The Natomas Basin supports limited amounts of potential Boggs Lake hedge-hyssop habitat. Potential Boggs Lake hedge-hyssop habitat of approximately 21.3 wetted acres occurs in the vernal pools on the east side of the Basin, in 886 acres of grasslands primarily north of Del Paso Road. This estimate of vernal pool acreage is based upon assessments of the amount of vernal pool habitat in grasslands in Sacramento County and probably greatly overestimates the actual amount of vernal pool habitat in the Basin (K. Fuller, pers. comm.). Additional potential habitat occurs in 96 acres of other ponds and seasonally wet areas in the Basin. Once again, this estimate greatly overestimates the amount of potential vernal pool habitat in the Basin, as most of the ponds and seasonally wet areas do not have the hydrology sufficient to support vernal pool plants. No potential Boggs Lake hedge-hyssop habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities.

Sanford's Arrowhead

The Service considers Sanford's arrowhead a Species of Concern and the California Native Plant Society includes it on List 1B (Tibor 2001). The State has not designated the species any special status.

Description, Reproductive Ecology

Sanford's arrowhead is a perennial herbaceous plant belonging to the water-plantain family (Alismataceae). It is one of five species of arrowhead and is endemic to California. Sanford's arrowhead plants are immersed aquatic plants that grow from underground tubers or heavy rhizomes. When mature, three-sided, erect, lance-shaped leaves develop to a height of 30.5 to 99 cm (12 to 39 in.) (Mason 1957). White flowers occur in several small whorls and appear from May through October (Tibor 2001). The lower flowers are female, occur in a group of three at a node and rarely have functional stamens. The upper flowers are usually male, recurved, and subtended by a triangular bract. Seedling establishment is rarely observed, as this species normally reproduces asexually from tubers.

Historic and Current Range, Habitat Types

Sanford's arrowhead was historically found throughout California, from Tehama and Shasta County in the north to Ventura and Orange County in the south. It is now extirpated from southern California and is rare throughout the rest of its range. Sanford's arrowhead is currently found from Shasta to Kern County (Tibor 2001).

Sanford's arrowhead occurs in slow, shallow assorted freshwater habitats, such as marshes and swamps in the Central Valley. Many populations have been lost to urban development and conversion to agriculture (Tibor 2001). No information regarding ecological niche requirements, genetics, pollinators, competition with other aquatic plants, or potential transplant site suitability criteria is available.

Reasons for Decline and Threats to Survival

Populations of Sanford's arrowhead are variously threatened by application of herbicides, competition from non-native plants, urban development, foot traffic and trampling, improper livestock grazing, surface water diversion and channel alteration, and illegal dumping (CNDDB 2001, Tibor 2001).

Environmental Baseline and Status within the Action Area

In 1980, a status review was conducted of the 36 historical sites in the Central Valley containing Sanford's arrowhead. Only five extant populations were found and 31 populations were determined to be extirpated due to habitat losses from urban development or agricultural practices. This review prompted future additional searches for the species. Currently, Sanford's arrowhead is known from 50 populations in Butte, Del Norte, Fresno, Kern, Madera, Merced, Sacramento, San Joaquin, and Tehama counties. The species is extirpated from Orange and Ventura counties. Sanford's arrowhead is known from two populations in San Joaquin County, one last seen in 1994 and the other last seen in 1940. The location of the population found in

1940 was revisited in 1980 but no plants were found. The single relocated population of Sanford's arrowhead covers an estimated area in excess of 46.5 m^2 (500 $ft.^2$) within a 5 acre-area of private land. Although occurring along the shoreline of an eroding island 1.5 m (5 ft.) above sea level, the extant population is considered to be in excellent condition and the condition of the other one is unknown. No status or trend information is available for any population of Sanford's arrowhead (CNDDB 2001).

A review of CNDDB (2002) revealed that Sanford's arrowhead had been reported 50 times in California. It has not been recorded from Sutter County or the Basin. However, it has been reported 27 times from Sacramento County; one record is less than one mile from the Basin. Several records are from along the American River within the City of Sacramento's City Limits.

Habitat classes identified in the EIR that may support Sanford's arrowhead in the Basin include ponds and seasonally wet areas (96 acres) and canals (1,778 acres)(Table 15). Of the total ponds and seasonally wet areas, seven acres are in the City's proposed Permit Area, four acres are in MAP's Permit Area, and ten acres are in Sutter's Permit Area. Of the total canals, 117 acres are in the City's proposed Permit Area, 72 acres are in MAP's Permit Area, and 215 acres are in Sutter's Permit Area.

Delta Tule Pea

Species description and life history

Delta tule pea is perennial herbaceous vine-like plant in the pea family (Fabaceae). Delta tule pea plants are entirely smooth (lacking hairs) and generally robust. Semi erect to prostrate stems arise from underground rootstocks. The stems have a flattened appearance due to the broad wings along the margins of the stems. Tangled masses of stems can grow as a group from 1.0-2.5 m (39-98 in.) tall. The compound leaves are composed of ten to 14 lance-like to semi-elliptical leaflets. Individual plants are difficult to distinguish from one another when growing in masses. Clusters of ten to 20 crimson to rose-purple flowers appear in May and June. Delta tule pea occupies slough edges and marsh lands and can form colonies on the slightly drier uplands sites, typically 0-2.7 m (0-9 ft.), adjacent to freshwater and brackish marshes. Little to no information is available regarding reproductive strategy, ecological niche requirements, salt tolerance, competitors, pollinators, genetics or why the species occurs as many small patches even though apparent suitable habitat is available for expansion.

Reasons for decline

Agricultural land conversion, bank protection (rip-rap), improper livestock grazing, recreational uses, accelerated soils erosion, use of herbicides, and competition from non-natives variously threaten the species (CNDDB 2001).

Distribution, Status Within the Action Area, and Environmental Baseline

Delta tule pea is known from numerous locations in freshwater and brackish marshes throughout much of the San Francisco Bay and upper delta. Although the total population and occupied habitat of Delta tule pea has been reduced historically by extensive diking and draining of wetlands, the species is known from 119 populations in Contra Costa, Napa, Sacramento, San

Joaquin, and Solano counties (CNDDB 2002). Delta tule pea has also been reputed to occur in Alameda, Fresno, Marin, San Benito, San Mateo, Santa Clara, and Tulare counties. The material from these counties is not currently considered to be delta tule pea. The Service has no information of any populations from these seven counties. Over half of the known populations are in Solano County. Land ownership where populations of Delta tule pea occur are mostly unknown. CDFG owns four populations, California Department of Parks and Recreation owns two populations, the Department of Defense owns seven populations.

Delta tule pea is known from nine locations in southern Sacramento County (none north of Paintersville), all of them presumed to be extant (CNDDB 2002). The species is not known from Sutter County or the Basin. The closest occurrence to the Basin is in southern Sacramento County, approximately 20 miles south of the Basin. The species is not anticipated to be in the Basin (see effects analysis). However, if the species were found in the Basin, habitat classes identified in the EIR that may support the species in the Basin include ponds and seasonally wet areas (96 acres) and canals (1,778 acres)(Table 15). Of the total ponds and seasonally wet areas, seven acres are in the City's proposed Permit Area, four acres are in MAP's Permit Area, and ten acres are in Sutter's Permit Area. Of the total canals, 117 acres are in the City's proposed Permit Area, 72 acres are in MAP's Permit Area, and 215 acres are in Sutter's Permit Area.

Although CDFG, the California Department of Parks and Recreation, the Department of Defense, and the Service have populations of Delta tule pea under their ownerships and management, most populations occur on private lands and are unprotected. Little has been accomplished on the ground to promote the survival or enhance populations of Delta tule pea.

Effects of the Proposed Action

The effects of the issuance of the proposed ITPs to the City, Sutter, and Conservancy are analyzed below. The effects of the issuance of an ITP to MAP were analyzed in the January 16, 2002, biological opinion for that project (Service File # 1-1-01-F-0302). However, because the development authorized by the MAP project is considered part of the total 17,500 acres considered in the NBHCP, development authorized by MAP is considered in this effects analysis. Some differences may exist between the acreage totals used in this biological opinion as compared to the MAP biological opinion. However, after completing the effects analysis, these acreage differences do not change any determinations regarding jeopardy to any of the proposed Covered Species.

The NBHCP proposes to investigate the possible intentional (re)introduction of several Covered Species (i.e., California tiger salamander, delta tule pea, Sanford's arrowhead, Bogg's Lake hedge-hyssop, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, legenere) that are not currently found in the proposed action's action area. Reintroduction, as defined in the NBHCP, is not the intentional introduction of Covered Species into the Basin from outside the Basin. Instead, it refers to the relocation of Covered Species from either: (1) one Conservancy reserve to another; or (2) from an urban development site to a Conservancy reserve. The effects analyses also consider potential colonization of the Basin by several species (i.e., Sanford's arrowhead, Bogg's Lake hedge-hyssop, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, legenere). In these cases, the Service believes that the species are in close enough proximity to the Basin for dispersal to the Basin to occur. The Service does not believe that either the

California tiger salamander or the delta tule pea have the potential to occur in the Basin (discussed below).

Direct and Indirect Effects

Direct effects are the immediate effects of the proposed project on the species or its habitat and include the effects of interrelated actions and interdependent actions. Interrelated actions are those actions that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those actions that have no independent utility apart from the proposed action (50 CFR §402.02). Indirect effects are those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur (50 CFR §402.02).

Threatened Vernal Pool Fairy Shrimp, Endangered Vernal Pool Tadpole Shrimp, and Midvalley Fairy Shrimp

Issuance of the proposed ITPs to the City, Sutter, and Conservancy will likely have minimal adverse effects on covered vernal pool crustaceans. Suitable potential habitat exists in the Permit Areas and the vernal pool fairy shrimp and vernal pool tadpole shrimp have been identified in the Basin. The midvalley fairy shrimp has not been identified in the proposed action's action area. However, the species has been identified approximately 11 miles southeast of the Basin in Sacramento County (and consequently, likely close enough for dispersal by birds) and has only recently been recognized as being a distinct species. So, the midvalley fairy shrimp may either already exist in the action area or may reasonably occur during the life of the proposed Permits. Furthermore, the midvalley fairy shrimp appears to inhabit pools that would not stay inundated long enough to support other vernal pool crustaceans, which may make the small vernal pools characteristic of the eastern Natomas Basin more likely to support the species. When present in the proposed Permit Areas, vernal pool crustaceans will likely be taken through the destruction of their habitat by development activities.

As stated in the species descriptions, the applicants did not quantify the amount of suitable vernal pool crustacean habitat in the Basin. The Basin is not known to contain substantial numbers of vernal pools and is not considered to be essential to recovery of the shrimp species by the Service; the proposed action's action area is not included in the Service's proposed vernal pool critical habitat rule (67 FR 59884). The vernal pool fairy shrimp and vernal pool tadpole shrimp have only been identified once in the Basin. The midvalley fairy shrimp has not been identified there. Based upon estimates derived from data gathered in Sacramento County (see Environmental Baseline for details), the Basin's 886 acres of grasslands would contain at the most 21.3 acres of vernal pools. Additionally, some portion of the Basin's 96 acres of ponds and seasonally wet areas may be suitable for vernal pool crustaceans. However, this estimate greatly overestimates the actual amount of vernal pool habitat in the Basin because grasslands in the Basin have a lower density of vernal pools than surrounding areas of Sacramento County (see Environmental Baseline) and most of the ponds and seasonal wetlands do not have appropriate hydrology to support covered vernal pool species. Of the total 886 acres of grasslands in the Basin, 427 are in the City's Permit Area and 134 are in Sutter's Permit Area (Table 14). This equates to 10.2 and 3.26 acres of vernal pools in the City and Sutter's Permit Areas, respectively. Of the total 96 acres of ponds and seasonally wet areas in the Basin, seven are in the City's Permit Area, four are in the MAP Permit Area, and ten are in Sutter's Permit Area (Table 14). Most of the potential

habitat that will be lost is located in the eastern portion of the City's Permit Area. As stated above and in the species descriptions, ponds and seasonally wet area acreages almost certainly vastly overestimate the actual potential vernal pool crustacean acreage in the Basin, as most of the ponds and seasonally wet areas do not have the appropriate hydrology to support vernal pool-associated species. Ponds and seasonally wet areas located in the MAP Permit Area do not have the appropriate hydrology to support vernal pool crustaceans and no other potential habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities (Service 2002).

Issuance of the proposed ITP to the Conservancy will likely have little effect on vernal pool crustaceans in the Natomas Basin. The majority of potential suitable habitat is located in the Land Use Agencies' Permit Areas and therefore, will not likely be acquired by the Conservancy. Any other potential suitable habitat in the Basin that the Conservancy may acquire would likely be considered potential foraging habitat for the Swainson's Hawk (because vernal pools are often found in upland areas such as grasslands) and therefore, most-likely not considered for conversion to other land uses such as managed marsh. The most likely forms of direct effects caused by the Conservancy would be management activities such as grazing and invasive plant control. However, if done properly, these activities should actually benefit vernal pool species.

The conservation measures proposed by the Permittees will minimize the effects of the proposed ITPs on vernal pool crustaceans. If potential vernal pool crustacean habitat is located within a proposed development site in the City's or Sutter's Permit Area, applicants will be required to survey for vernal pool crustaceans. If covered vernal pool crustaceans are observed, measures have been proposed to avoid, minimize and mitigate the impacts to the species. Applicants will be required to consult with the Service to determine how to best avoid and minimize the take of vernal pool crustaceans. Measures that will be applied as appropriate are: (1) preserving the occupied pool(s) and surrounding uplands on site; (2) temporary avoidance and relocation of resources; or (3) payment into a Service-approved conservation bank. Off-site mitigation lands require mitigation ratios different from those used for other Covered Species (i.e., 0.5:1 used for snake, hawk, etc...)(see Table 3). If the vernal pool tadpole shrimp is identified within a proposed development site, the Wildlife Agencies may require the developer to avoid and preserve the vernal pool resource. In these cases, the Conservancy would be tasked with managing the vernal pools. Management activities such as grazing and invasive plant control could likely affect vernal pool crustaceans. For example, disturbance to wetted vernal pools could affect water quality and therefore, any vernal pool crustaceans in the water. However, the SSMPs developed by the Conservancy would be designed to protect the species and their vernal pool habitat.

Indirect effects to Covered vernal pool crustaceans may occur if upland areas surrounding potential crustacean habitat is altered. For example, if the upland area adjacent to an occupied vernal pool is graded, the hydrology of the vernal pool could be changed, thereby affecting the crustaceans that inhabit it. However, given the limited extent of vernal pool habitat, the extremely limited documented occurrences of Covered vernal pool crustaceans in the permit areas and the take avoidance and minimization measures in the plan, the level of indirect impacts to the three vernal pool shrimp species will be low to non-existent.

Overall, the proposed action should have little effect on the vernal pool fairy shrimp, vernal pool tadpole shrimp, and midvalley fairy shrimp. The vernal pool fairy shrimp and vernal pool tadpole shrimp have only been identified once in the Basin and the midvalley fairy shrimp has not been identified there. There is very little suitable habitat and the Permittees have proposed

suitable measures that minimize mitigate the impacts. The Natomas Basin represents a small portion of the range of these three species and does not contain habitat essential for the recovery of the species. Because the proposed action is unlikely to have much, if any, effect on the species locally, it is not anticipated to affect either the Southeastern Sacramento Valley Vernal Pool Region (as defined by Keller-Wolf *et al.* 1998) or the species as a whole.

Threatened Giant Garter Snake

The giant garter snake is found throughout the proposed action's action area and suitable snake habitat exists in each of the proposed permit areas. Implementation of the proposed action will have direct effects on the snake throughout the project's action area by authorizing the City, Sutter, Conservancy, and MAPPOA[4] to participate in and authorize activities that directly result in the disturbance, wounding, and death of snakes throughout the Permit Areas and on the Conservancy's reserves. In addition, project-related activities will likely result in the take of the snake through the destruction of 8,512 acres of its habitat (Table 4). This is approximately one-third of the existing snake habitat in the Basin (total = 24,567 acres) and much of the habitat that will be affected is likely important to the snake in the Basin because it is used for movement, foraging, or important activities. Examples of possible direct effects on the snake caused by the proposed action include: (1) injury and death of snakes as a result of being crushed or entombed during construction activities; (2) injury and death of snakes as a result of vehicles striking snakes while accessing construction sites; (3) displacement of snakes from their habitat to areas of less suitable habitat; and (4) loss of prey items on or downstream of the project sites due to silting, fill, or spill of oil or other contaminants. However, there are numerous conservation measures incorporated into the plan that will minimize the effects of the proposed action on the snake such as construction work windows, surveys, and dewatering requirements.

Issuance of an ITP to the City of Sacramento. Issuance of the proposed ITP to the City will result in the loss of 1,094 acres of potential snake habitat (7 acres of ponds and seasonally wet areas, 970 acres of rice, and 117 acres of canals). Some snake habitat in geographic Areas 2 and 3 (southwest and east, respectively) (Figure 5), as described by Brode and Hansen (1992), will be lost. The most important snake habitat in Area 2 to be affected is Fisherman's Lake. Numerous CNDDB (2002) records are known from Fisherman's Lake and the City's Permit Area abuts the eastern side of the lake. The Conservancy has already acquired reserves (i.e., Natomas Farms and Cummings tracts) on the western side of Fisherman's Lake. Additionally, an as yet to be determined buffer between development in the City's Permit Area along the eastern side of the lake and the lake will likely minimize some of the effects of development near the lake. This buffer will: (1) minimize human intrusion into the habitat; (2) help minimize the number of domestic animals that prey upon snakes; (3) reduce the effects of run-off from urban development; and (4) reduce the disturbance of snakes from surrounding development. However, since it appears that the buffer will be a multiple-use area (i.e., accessible by local residents for walking, etc.), the effectiveness of the buffer for the snake will be less than that if the area were

[4]Reminder: Activities associated with the MAP project were analyzed and authorized under the biological opinion (Service File no. 1-1-01-F-0302) for that project. However, because the development authorized by the MAP project is included in the total 17,500 acres considered in the NBHCP, development authorized by MAP is considered in this effects analysis. Therefore, although the effects of the MAP project are re-analyzed here, activities associated with MAP have already been authorized.

isolated from all entry. By allowing the area to be accessed by the public, snakes will likely still be disturbed (although to a lesser extent) on an on-going basis. Although the buffer likely will provide some benefit, its ability to protect snakes will be limited because the area will not be solely managed for the benefit of snake or other Covered Species and the buffer may not include all of the snake's upland habitat. The majority of the City's effects on snake habitat in Area 3 occur in the northern portion of the City's Permit Area and will mostly result from the conversion of rice fields and their associated drainage/irrigation canals to development.

Development as a result of issuing the proposed ITP to the City will likely have little effect on the connectivity between Area 2 and Areas 1 and 3 (see Figure 5). With regard to movement between Areas 1 and 2 (northwest and southwest), although some delivery and drainage canals crossing under I-5 and SR-99/70 will likely be affected (especially east of Fisherman's Lake), other canals with the potential to provide movement corridors for the snake between the two geographic areas will remain after the issuance of the proposed ITP to the City. With regards to movement between geographic Areas 2 and 3 (southwest and east), it is unlikely that direct movement between these two geographic areas exists even today. The most probable movement corridor between Areas 2 and 3 would be the East Drainage Canal, which is surrounded by development. There is little or no upland buffer for the snake in this area and it is unlikely that the snake uses this canal as a movement corridor. Therefore, additional development along the East Drainage Canal will have little effect on the connectivity between Areas 2 and 3, as there is already considerable development along the canal that likely precludes its use by snakes. Other canals between geographic areas 2 and 3 probably provide for only very limited movement and dispersal between areas and may not represent a true movement corridor for the snake between geographic areas. It is unlikely that snakes would traverse through these types of culverts because of lack of suitable habitat within the culverts over several hundred feet or more. The culverts are extremely long, often do not have emergent vegetation near their entrances, and have little clearance (i.e., distance between the water's surface and the top of the culvert) during the snake's active season (May 1-October 1); the culverts lack the 2-3 foot clearance described by Brode and Hansen (1992) as typical for culverts that allow for snake passage. The use of larger culverts or free-standing bridges (best) that contain some of the minimum habitat characteristics of the snake (i.e., emergent vegetation up to the culvert entrances, burrows, prey) should provide improved passage opportunities for the snake.

Issuance of an ITP to Sutter County. Most of Sutter's proposed Permit Area is potential snake habitat and issuance of the ITP to Sutter will result in the loss of 5,802 acres of potential snake habitat (10 acres of ponds and seasonally wet areas, 5,577 acres of rice, and 215 acres of canals). As a result, development in Sutter's Permit Area will have a greater direct effect on the snake than development in the City's Permit Area. Some snake habitat in geographic Areas 1 and 3 (northwest and east, respectively) (see Figure 5), as described by Brode and Hansen (1992), will be lost. In Area 1, development will encompass portions of the North and East Drainage Canals and much of their extensive system of associated rice fields. In Area 3, development will occur in the northern portion of "Snake Alley," by encompassing the northern half of the North Main Canal and its system of associated rice fields and irrigation canals in the southeastern portion of the Permit Area. In addition, portions of the East Drainage Canal and the canal that parallels the east side of SR 99/70 between Elverta Road and the northern end of Snake Alley will also be lost. These areas were identified by Brode and Hansen (1992) as being important for the snake in the Basin. In addition, Wylie *et al.* (2002) described much of these areas as good snake habitat.

Sutter County drainage improvements associated with the proposed South Sutter County Specific Plan include expanding two existing drainage channels outside of the proposed Permit Area; the Montna Drain and the Natomas East Drain (East Drainage Canal) (Figure 2 and 3). These drainage improvements are included in the proposed action and widening these canals will likely directly affect the snakes. Both of these canals were described by Wylie *et al.* (2002) as good snake habitat and snakes have been observed in close proximity to where activities will occur. Based upon observations of Hansen and Brode (1993), it will take at least 3-5 years for the canals to be inhabited by snakes, if ever, following the improvements. The Montna Drain and the Natomas East Drain parallel the North Main Canal (commonly referred to as "Snake Alley") to the east and west, respectively, but will not affect Snake Alley outside of Sutter's Permit Area, except where the East Drainage Canal crosses Snake Alley at Elverta Road. It is anticipated that the proposed Sutter County drainage improvements will convert approximately 16.5 acres of existing agricultural land (rice) to drainage channel. This acreage is included in Sutter's total permitted acreage.

Issuance of the proposed ITP to Sutter will have no direct effect on the movement of snakes between Area 2 and Areas 1 and 3 because Area 2 is located completely within Sacramento County and is removed from Sutter County (Figure 5). However, issuance of the ITP to Sutter will affect the movement of snakes within Area 1 and may affect the movement of snakes between Areas 1 and 3. The Sutter Permit Area divides the available snake habitat in Area 1 in half. Some canals in Sutter's Permit Area that are likely used by the snake for connectivity in Area 1 will be lost. However, other opportunities for movement (e.g., canals) will be available if the proposed ITP is issued. For example, suitable movement corridors will remain in the Swainson's Hawk Zone west of Sutter's Permit Area. Sutter has committed in the NBHCP that the County will not allow development in the Swainson's Hawk Zone. In addition, Sutter will provide protective measures for the snake, such as fencing along the East and North Drainage Canals in its Permit Area to help ensure that snakes are able to move through these canals.

Some of the movement opportunities for snakes between Areas 1 and 3 will likely be affected by the issuance of the proposed ITP to Sutter because some canals will be closed or otherwise made unavailable to snakes. However, issuance of the proposed ITP to Sutter will not prevent movement of snakes between the two geographic areas because some connectivity corridors will remain. Protective measures (e.g., fencing and gaited access) have been provided for the North and East Drainage Canals where they traverse through Sutter's Permit Area and additional connectivity corridors will remain south of Sutter's Permit Area, in northern Sacramento County.

Issuance of an ITP to the Metro Air Park Property Owners Association. The effects of the issuance of an ITP to MAP were analyzed in the January 16, 2002, biological opinion for that project (Service File # 1-1-01-F-0302). Issuance of the ITP to MAPPOA will result in the loss of 1,617 acres of potential snake habitat (4 acres of ponds and seasonally wet areas, 1,541 acres of former rice lands, and 72 acres of canals). Some snake habitat in Area 1 (Figure 5), as described by Brode and Hansen (1992), will be lost. Numerous CNDDB (2002) snake records are known from the canals within and adjacent to MAP. Wylie *et al.* (2002) identified good snake habitat on site. Although MAP development will affect the snake and its habitat, extensive areas of snake habitat will remain in Area 1 following implementation of the proposed action.

As stated in the January 16, 2002, biological opinion for the MAP project, issuance of the MAP ITP will not affect the connectivity between Areas 1 and 2. Although the potential for Lone Tree

Canal to fully function as snake habitat will be reduced, it will remain suitable for foraging and passage to upstream and downstream areas. MAPPOA will install a snake road deterrent on Lone Tree Road and is required to maintain at least 12 inches of water in the canal between April and October. The connection between the Lone Tree Canal and the southwestern zone presently exists as a culvert beneath Interstate 5. This passage is currently ineffective, and will not be improved or worsened as a result of the activities within MAP or by the Conservancy. A snake-excluding fence will be constructed along Lone Tree Canal so that snake mortality in adjacent areas is not increased.

Issuance of an ITP to the Natomas Basin Conservancy. Issuance of an ITP to the Conservancy will result in both significant beneficial and only minor detrimental effects to the snake. Restoration, enhancement, maintenance, and farming activities that take place on Conservancy lands inhabited by snakes may directly result in the injury or death of snakes on those lands. As stated in the NBHCP, the Conservancy will be responsible for the preservation of 8,750 acres of land. Three quarters (6,562.5 acres) of the total acreage will be managed as either marsh (2,187.5 acres) or rice habitat (4,375 acres). All of the marsh and rice habitat is likely to be inhabited by snakes in the future. As there is very little existing marsh habitat in the project's action area, almost all of the marsh habitat managed by the Conservancy will be created through habitat enhancement and creation activities. Since most of the lands available for preservation are currently rice fields considered to be inhabited by snakes and the soils underlying rice fields are typically the best for managed marsh enhancement, habitat restoration and creation activities on these lands will likely result in injury and death of snakes. After habitat restoration and enhancement activities are completed, on-going maintenance activities will likely result in some injury to and death of snakes as a result of activities such as change/repair of water control structures and levee repairs. Management of Conservancy lands as rice fields will also likely result in the injury to and death of snakes. The remaining 2,187.5 acres of land that are not managed as marsh or rice fields will be managed as uplands. Although the uplands will be managed for the hawk and other upland-associated Covered Species, irrigation canals or ditches traversing the uplands and uplands within 61.0 m (200 ft.) of the aquatic resources could be inhabited by or used by snakes. Therefore, habitat restoration, enhancement, and maintenance activities in these upland areas could also result in the disturbance, harm, and death of these snakes.

The Conservancy plans to annually fallow 10 percent of its ricelands. Therefore, 10 percent (437.5 acres) of the total 4,375 acres of rice habitat will not be available to the snake each year. However, the actual loss of snake habitat due to rice field fallowing is likely to be much less than 400 acres per year because: (1) the extensive system of canals traversing the rice fields will still be available to the snake; and (2) the portions of fallowed rice fields within 61.0 m (200 ft.) of the snake's aquatic habitat will serve as upland habitat (although marginal) for the snake during the active season.

The adaptive management provisions of the NBHCP allow for the habitat management ratio to be increased from 25 percent marsh/ 50 percent rice/ 25 percent upland to up to 75 percent marsh/ 25 percent upland. If this occurs, then up to 6,562.5 acres of Conservancy lands may be restored, enhanced, and managed as marsh. However, since: (1) the ratio change is applied prospectively; (2) the Service has not issued a final recovery plan for the snake; and (3) the Conservancy has already acquired over 2,750 acres of land, the total amount of potential marsh habitat created would be much less than 6,562.5 acres.

Effects of the Proposed Conservation Measures on the Snake. The Land Use Agencies and the Conservancy have proposed a number of conservation measures that minimize the effects of the proposed action on the snake (see NBHCP, sections V.A.5. and V.B.4.). These measures are similar to those included in Appendix C of the Service's November 13, 1997, *Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California* (Snake Programmatic Consultation). Examples of conservation measures include, but are not limited to: (1) construction windows (i.e., limiting construction to periods when snakes are least likely to be injured or killed); (2) dewatering; (3) snake surveys to minimize the potential that snakes are located on the project site when construction activities occur; and (4) environmental awareness training. These measures will all minimize direct effects to snakes. Additional conservation measures include provisions such as protecting the North and East Drainage Canals with fencing to ensure some connectivity remains between and within the system of habitat reserves.

The most important conservation measure proposed in the NBHCP is the development of a system of habitat reserves. Once complete, the Conservancy will have acquired/restored/ enhanced a minimum of 2,187.5 acres of marsh and 4,375 acres of rice habitat to be managed for the snake and other Covered Species in perpetuity. Managed marsh is at least equivalent and likely greater in habitat quality to the canals, ponds, and seasonally wet areas that will be destroyed as a result of issuing the ITPs to the Land Use Agencies. As such, a total of 2,187.5 acres of marsh will created and preserved for the 425 acres of canals, ponds, and seasonally wetted areas lost. This is equivalent to approximately five acres of habitat preserved for every acre habitat lost. Much of the uncertainty regrading the ability of created marsh habitat no longer exists. Data gathered by BRD on the Conservancy's reserves and at the Colusa National Wildlife Refuge demonstrate that snakes use created marsh habitat (Wylie and Martin 2002, Wylie *et al.* 2003). In fact, Wylie *et al.* (2003) stated that the enhanced areas at the Colusa Nation Wildlife Refuge are occupied by a healthy population of snakes. Managed marsh habitat, because it is interlaced with meandering channels, has lots of edge habitat. The snake often travels and hunts along these edges. They are also directly adjacent to upland habitat, where they can go to escape from predators. Snake rice habitat lost as a result of issuing the ITPs to the Land Use Agencies will be preserved at rate of approximately one acre for every two acres of rice lost. Additional benefits will be gained for the snake on Conservancy rice lands through the use of wildlife-friendly practices such as minimizing mowing on rice checks, berms, and other water control structures.

In order to mitigate for the loss of 1,094 acres of snake habitat resulting from the issuance of the proposed ITP to the City, the Conservancy will provide (with fees acquired by the City) 3018.8 acres of habitat for the snake. Of that, 1006.2 acres will be managed marsh and 2012.5 acres will be rice fields. However, as stated above, 10 percent of the total rice field habitat will be fallowed annually; therefore, the total acreage of rice field habitat is actually 1811.2 acres. In order to mitigate for the loss of 5,802 acres of snake habitat resulting from the issuance of the proposed ITP to Sutter, the Conservancy will provide (with fees acquired by Sutter) 2800.1 acres of snake habitat for the snake. Of that, 933.4 acres will be managed marsh and 1866.8 acres will be rice fields. However, as stated above, 10 percent of the total rice field habitat will be fallowed annually; therefore, the total acreage of rice field habitat is actually 1680.1 acres. In order to mitigate for the loss of 1,617 acres of snake habitat resulting from the issuance of the proposed ITP to MAPPOA, the Conservancy will provide (with fees acquired by MAPPOA) 743.6 acres of

snake habitat for the snake. Of that, 247.9 acres will be managed marsh and 743.6 acres will be rice fields. However, as stated above, 10 percent of the total rice field habitat will be fallowed annually; therefore, the total acreage of rice field habitat is actually 669.3 acres.

After implementation of the proposed action, the Conservancy will have acquired/restored/ enhanced a minimum of 2,187.5 acres of marsh and 4,375 acres of rice habitat to be managed for the snake and other Covered Species in perpetuity. Although this amount is less than that being impacted by the proposed action, the NBHCP adequately protects the snake because the effective mitigation ratio is greater than 0.5:1. Managed marsh habitat on the Conservancy's reserves is more valuable to the snake than the existing habitat in the Basin because: (1) the habitat will be protected in perpetuity; (2) the habitat is monitored and actively managed for the benefit of the snake and other Covered Species; (3) the habitat will not be subject to continuos disturbance caused by farming or canal maintenance activities; (4) the habitat will be available for the snake year-round whereas the Basin's rice habitat is only available during a portion of the year; (5) the habitat will not be periodically made unavailable to the snake as occurs with canal maintenance activities; and (6) the habitat will be relatively free of human intrusion. In short, managed marsh preserves will provide high-quality habitat that is not subject to most of the impacts that routinely adversely affect the snake and its existing habitat throughout the rest of the Basin. With regard to the Conservancy's rice reserves, Conservancy rice lands will be more advantageous for the snake because rice production practices will be more "snake-friendly." For example, the Conservancy will maintain rice checks, berms, and other water-control structures in as natural a state as practicable and maintain prey species (e.g., mosquito fish) in or near the rice fields. These rice fields will also be consistently available, regardless the market for water transfers, unlike non-Conservancy rice habitat in the Basin, which is available for water transfers.

Summary/Discussion of Direct Effects on the Snake. The proposed action is likely to directly affect the snake throughout much of the Basin. Some areas that have historically been known to be occupied by large numbers of snakes will be developed. In addition, some potential connectivity corridors between the Basin's three geographic areas will be compromised. However, after implementation of the proposed action, much of the potential snake habitat in the Basin will remain. Of over 24,000 acres of potential snake habitat in the Basin, over 16,000 acres will remain after implementation of the proposed action. These lands include areas in both Sutter and Sacramento County that are designated in land use plans as either agriculture or open space and are anticipated to be so in the future. Up to 6,500 acres of the remaining snake habitat in the Basin will be protected and enhanced as part of the Conservancy's system of reserves. Additionally, much of the habitat that has historically been and is currently known to be important for the snake will not be affected. For example, much of Snake Alley (the North Main Canal and its important surrounding matrix of irrigation/drainage canals and rice fields) will not be directly affected by the proposed action because it lies south of Sutter's proposed Permit Area in unincorporated Sacramento County. This area is designated as agricultural cropland and as discussed in the cumulative effects section (below), is not anticipated to change in the foreseeable future. Based upon the adopted land use plans for the area and the fact that much, if not all, of Snake Alley is located within the 100 year floodplain, Snake Alley is expected to remain in agricultural use and rice would be the most appropriate crop. Because rice farming is expected to persist, many of the irrigation canals are expected to persist. Because Based upon the historical literature (e.g., Brode and Hansen 1992), the observed density of snakes, and the amount, configuration, and quality of suitable snake habitat in the area (e.g., Wylie and Martin 2002; Wylie *et al.* 2002), Snake Alley appears to be important for the continuation of the snake in the

Basin. In another example, portions of the North Drainage Canal in the western Basin will not be affected because they are outside of Sutter's proposed Permit Area. Although development will get as close, or closer, than 61.0 m (200 ft.) to it, Fisherman's Lake, an important snake habitat area in Area 2, will be mostly protected. The Conservancy has already purchased lands on Fisherman's Lake's west bank (Figure 6) and the east bank will be partially protected from development. Lands in the northwestern corner of the Basin support snakes, will not be developed, and have been targeted by the Conservancy for some mitigation land acquisitions. Lastly, lands in northern Sacramento County between Snake Alley and the North Drainage Canal will not be developed because it is unincorporated land in Sacramento County which is outside the urban services boundary. These lands will allow movement between Snake Alley to the western and northwestern portions of the Basin.

Implementation of the proposed action will likely have some negative effects on connectivity. For example, development will surround the North and East Drainage Canals and other canals connecting the three geographic Areas will be lost. However, connectivity corridors will remain for the snake. Canals are required for flood control in the Basin and agriculture (which requires irrigation water) is anticipated to continue through the life of the Permits. The Land Use Agencies, through their adopted general plans, community plans, and specific plans, will promote compact urban development within limited portions of the Natomas Basin. Under the NBHCP, the Land Use Agencies are required to ensure connectivity (see NBHCP, Section IV.C.1.d.) and the Plan includes measures to help maintain connectivity. The Conservancy will consolidate reserve acquisitions during the 50-year life of the permits in order to build larger blocks of habitat reserve lands. Reducing the number of blocks reduces the number of connections to be maintained. Specific measures identified in the NBHCP to ensure viability of the reserve system include: (1) relocating reserve components; (2) MOAs; (3) easements; and (4)s outright purchases of land, which would be designed to ensure connectivity for the snake between Conservancy reserves. The NBHCP does not include the closure of canals as a Covered Activity and the Water Agencies have not applied for ITPs at this time. Therefore, in the event of a proposed canal closure, the Water Agency (or project sponsor for canal closure) would be required to comply with the Act.

The NBHCP requires that an annual assessment of connectivity within and between reserves be conducted. If an annual assessment determines that connectivity has been lost, it then must be reestablished. Otherwise, the Conservancy could have its permit suspended or revoked. Because the Conservancy, as the plan operator, acts on behalf of the Land Use Agencies, the agencies could also have their Permits suspended or revoked if connectivity is lost. Therefore, it is in the City's and Sutter's best interest to ensure connectivity for the snake in the Basin. The Final EIS/EIR provides detailed discussion regarding connectivity in the Basin.

Indirect Effects. Implementation of the proposed action is likely to have several indirect effects on the snake. Snakes displaced as a result of development activities could: (1) encounter intraspecific and interspecific competition in their new habitats; (2) be more susceptible to predation in their new, unfamiliar habitats; and (3) experience lower survivorship as they hunt in unfamiliar habitat. Development adjacent to snake habitat could: (1) result in decreased water quality in the snake's aquatic habitat through the introduction of pesticides, herbicides, petroleum products, heavy metals, polynuclear aromatic hydrocarbons, and other organic compound and nutrients in run-off; (2) introduce new snake predators (i.e., cats) to the snake's habitat; (3)

disrupt snake activities and behavior through noise and other disturbances; and (4) disturb the snake by increasing the number of snake-human interactions.

Perhaps the most important indirect effect potentially caused by the proposed action is the availability of irrigation/drainage canals for the snake. However, Natomas Mutual is a long-established privately held water company and as the Conservancy becomes a major land owner within the Basin, it will require substantial water deliveries that will assist Natomas Mutual with remaining an economically viable company. Additionally, substantial agricultural interests are anticipated to remain within the Natomas Basin throughout the life of the Permit(s). The NBHCP represents all reasonably foreseeable development in the Basin and except for some airport lands, adopted land use plans and policies designate the remaining areas of the Basin as either open space or agriculture. Natomas Mutual has provided irrigation water for over 80 years and there are no plans to discontinue service. As long as agricultural activities continue in the Basin, there will be a demand for Natomas Mutual's services. So, even if Natomas Mutual ceases to operate, there will likely be a demand for irrigation water, which would be met by some other provider. In addition to irrigation canals provided by Natomas Mutual, it is anticipated that drainage canals will remain throughout the life of the Permits. Figure 17 of the NBHCP identifies drainage channels within the Natomas Basin that are considered likely to be retained for flood control purposes for both existing agricultural uses and for Planned Development. Regardless of the type of uses within the Basin, whether agricultural or urban, major flood control channels are required to convey water through the Basin. These canals and their surrounding rice fields will continue to provide habitat and movement corridors for the snake.

Issuance of the proposed permits to the Permittees will provide the conditions necessary for the permanent maintenance of a stable, protected snake population in the Basin (and, consequently, for the continued viability of the snake in the Basin) for the following reasons: (1) the measures proposed by the City and Sutter, including pre-construction surveys and dewatering and fencing of important canals, will minimize the impacts to the snake; (2) the protection and enhancement/ restoration/creation 6,562.5 acres of higher quality managed marsh and rice reserves, and in particular, the creation of a minimum 2187.5 acres of managed marsh habitat in place of 425 acres of canals, ponds and other seasonally wetted areas that will be lost and that will result in an effective mitigation ratio of approximately 5 to 1 for this key snake habitat, will effectively mitigate the impacts resulting from the conversion of 8,512 acres (including MAP) of varying quality snake habitat to urban development; (3) essential connectivity among the Basin's three geographic areas will remain following project build-out; (4) after implementation of the proposed action, over 16,000 acres of snake habitat will remain, including many areas that are recognized as important to the viability of the snake in the Basin; and (5) the creation of year round, protected snake habitat that is specifically managed to benefit the snake will substantially reduce mortality sources such as farming activities (e.g., field preparation, harvest) and canal maintenance activities. The proposed action will not adversely affect snakes outside of the Natomas Basin. Therefore, because the proposed action will not affect the viability of the snake in the Basin or affect the snake outside the Basin, the viability of the American Basin population and the entire species will not be compromised.

Threatened Valley Elderberry Longhorn Beetle

Implementation of the proposed action will likely affect the beetle by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that result in direct effects

to any beetles inhabiting the Permit Areas or on the Conservancy's reserves. Although the beetle has not been observed in the Basin, it has been observed in close proximity to the Basin (i.e., across the Sacramento River from the Basin). Suitable beetle habitat is known to occur in the Basin and the Permittees have requested incidental take authorization in case beetles or their habitat is found in the Permit Areas. Take could be in the form of injury, or death of beetles. For example, beetles could be adversely affected if the elderberry shrub they inhabit is relocated. This is the most likely form of direct effects and would presumably injure or kill some beetles. The January 16, 2002, biological opinion that evaluated the potential effects of the proposed Metro Air Park project (Service File # 1-1-01-F-0302) found that the proposed action would not directly affect the beetle, as no elderberry shrubs were located on-site. However, suitable beetle habitat could grow in the MAP project site by time development occurs and therefore, incidental take coverage for direct effects to the beetle was granted.

The Conservancy's management and restoration activities may have a minor adverse effect on the beetle. Management activities may include mechanical treatment and removal of non-native shrubs and limited excavation to establish new plants. The Conservancy will avoid impacts to elderberry shrubs to the maximum extent practicable. However, it is reasonable to expect that in some instances, the Conservancy will have to conduct activities that affect the elderberry shrubs, and as a consequence, the beetles that inhabit them. For example, a berm on which an elderberry shrub is located could need repair. There may also be potential direct effects associated with the need to relocate shrubs that become established outside of riparian restoration areas, such as along irrigation ditches. However, because of the small number of elderberry shrubs in the Basin and Conservancy's goal to minimize impacts to the species, direct effects of the Conservancy's management activities on the beetle should be minimal.

As stated in the Environmental Baseline for the species, the amount of potential beetle habitat in the proposed action's action area has not been quantified. However, beetle habitat is more likely to be located in some habitat classes than others. Within the Basin, the habitat classes most likely inhabited by the beetle include oak groves, riparian, and tree groves. Of the total 98 acres of oak groves in the Basin, eight acres (City = 6, MAP = 2) will be lost (Table 13). Of the total 124 acres of riparian habitat in the Basin, 24 acres (City = 24) will be impacted. However, much of the 24 acres of affected riparian areas are located on the east side of Fisherman's Lake and will not be developed. Therefore, 24 acres overstates the actual amount of riparian habitat that will be lost. Of the total 106 acres of tree groves in the Basin, 33 acres (City = 10, MAP = 23) will be lost. It must be emphasized that: (1) loss of oak groves and riparian habitat overstates the amount of potential beetle habitat lost; (2) elderberry shrubs are likely located in some additional isolated areas of the Basin; and (3) there are no documented occurrences of the beetle in the basin.

The conservation measures proposed by the Land Use Agencies and the Conservancy will effectively minimize and mitigate the potential effects of the proposed action on the beetle. The Permittees will conduct surveys for the beetle and its habitat. When possible, Permittees will avoid beetle habitat. When this is not possible, shrubs will be transplanted during their dormant season (to minimize any potential adverse effects on the shrub and consequently, the beetle) and replacement seedlings will be planted. Beetles have observed emerging from shrubs after they were transplanted to conservation areas (B. Cordone, pers. comm. to Craig Aubrey, 2003) and beetles have been observed emerging from replacement seedlings in conservation areas (G. Sutter, pers. comm. to Craig Aubrey, 2003). The Land Use Agencies and Conservancy have

agreed to adhere to the Service's Beetle Guidelines, or any updated Guidelines, as they are updated in the future. This provision will help ensure that the NBHCP's beetle conservation strategy is consistent with the Service's most current conservation strategy for the species.

Indirect effects of the proposed action on the beetle should be minimal. The most likely potential indirect effect is the removal of elderberry shrubs with stems less than one inch diameter at ground level. When development activities occur, these shrubs will not be considered suitable beetle habitat (because their stems are not yet large enough) and will therefore, not be protected. Left alone, they would presumably grow to become suitable beetle habitat. Construction activities would preclude these shrubs from becoming suitable habitat for the beetle.

Overall, the effects of the proposed action on the beetle should be minimal. There are few elderberry shrubs in the Basin, limited areas where elderberry shrubs would be likely to occur, and the beetle has never been observed in the Basin. Impacts to the beetle are unlikely to occur on either a frequent or large-scale basis. The Permittees have proposed measures that minimize and mitigate the impacts such as requiring land owners/developers to mitigate according to the Service's Beetle Guidelines. Therefore, the proposed action is minimized and unlikely to affect the survival of the beetle in the Basin. Furthermore, because of the proposed action's minimal effects on the beetle and the Basin represents only a small portion of the beetle's current range, the proposed action is not likely to affect the survival or recovery of the species overall.

Threatened Colusa Grass, Threatened Slender Orcutt Grass, Endangered Sacramento Orcutt Grass, Legenere, and Boggs Lake Hedge-Hyssop

Issuance of the proposed ITP's to the City, Sutter and the Conservancy may adversely affect Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop. The species have been reported from the vicinity of the proposed action's action area and potential habitat may occur in the proposed action's action area. However, none of these species has been observed in the Basin and the potential habitat is likely not suitable for three of the species: Colusa grass, slender Orcutt grass, and Sacramento Orcutt grass. The three species are known to occur inhabit large vernal pools that remain inundated for long periods of time. The Basin's vernal pools are typically small and do not remain inundated for long periods of time. In addition, because of the very limited amount of vernal pool resources in the proposed action's action area, the proposed action is likely to have very little, if any, effect on the five vernal pool species. MAPPOA did not request coverage for the Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, or the Boggs Lake hedge-hyssop and it does not appear that suitable habitat for any of these species exists on the proposed MAP project site. Although four acres of ponds and seasonally wet areas exist on the proposed MAP project site, these wetlands do not appear to support vernal pool-associated species.

The most likely direct effect to Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop resulting from the Land Use Agencies' activities would be direct mortality or destruction of the seed bank as a result of development, should any plants be found to exist in the permit areas, as a result of development. For example, construction equipment may kill plants by crushing them when it runs over them. Seeds could be destroyed or rendered unable to germinate when seasonal wetland areas they occupy are partially or wholly filled.

As stated in the species descriptions, the actual amount of suitable vernal pool habitat in the Basin was not quantified. The Basin is not known to contain substantial numbers of vernal pools and is not considered essential to the species' recovery or included in the Service's proposed vernal pool critical habitat rule (67 **FR** 59884). Based upon estimates in southern Sacramento County, the Basin's 886 acres of grasslands would contain at the most 21.3 acres of vernal pools. Additionally, some portion of the Basin's 96 acres of ponds and seasonally wet areas may be suitable for vernal pool plants. However, this estimate greatly overestimates the actual amount of vernal pool habitat in the Basin because grasslands in the Basin have a lower density of vernal pools than surrounding areas of Sacramento County (see Environmental Baseline) and most of the ponds and seasonal wetlands do not have correct hydrology to support covered vernal pool species. Of the total 886 acres of grasslands in the Basin, 427 are in the City's Permit Area and 134 are in Sutter's Permit Area (Table 14). This equates to 10.2 and 3.26 acres of vernal pools in the City and Sutter's Permit Areas, respectively. Of the total 96 acres of ponds and seasonally wet areas in the Basin, seven are in the City's Permit Area, four are in the MAP Permit Area, and ten are in Sutter's Permit Area (Table 14). Most of the potential habitat that will be lost is located in the eastern portion of the City's Permit Area. As stated in the species descriptions, ponds and seasonally wet areas acreages almost certainly vastly overestimate the actual potential vernal pool acreage in the Basin, as most of the ponds and seasonally wet areas do not have the correct hydrology to support vernal pool-associated species. Ponds and seasonally wet areas located in the MAP Permit Area do not have the correct hydrology to support vernal pool plants and no other potential habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities (Service 2002).

Issuance of the proposed ITP to the Conservancy may result in the loss of Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop, should any of these species be found on reserve lands. Plants could be harmed or killed during reserve restoration or maintenance activities. For example, plants could be crushed by construction equipment creating habitat on the Conservancy's reserves or grazed by cattle used for invasive weed abatement. However, because the plants have not been observed in the Basin and there is very little, if any, suitable habitat in the Basin, the chance of the Conservancy impacting the species is very small.

Implementation of the proposed conservation measures will minimize the potential effects of the proposed action on the Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop. The Land Use Agencies have proposed to require developers to survey, using a Service-approved protocol, for vernal pool plants in potential habitat. If vernal pool plants are identified, developers will be required to avoid impacts or mitigate for any effects on the plants. Possible strategies include: (1) on-site avoidance and preservation of the vernal pool resource; (2) payment into a Service-approved conservation bank; or (3) relocation of vernal pool resources (another potential direct effect related to development).

Indirect effects to Covered vernal pool plants may occur if upland areas surrounding potential vernal pool plant habitat are altered. For example, if the upland area adjacent to an occupied vernal pool is graded, the hydrology (i.e., depth, frequency and length of inundation, etc.) of the vernal pool could be changed, thereby affecting the plants that inhabit it. However, the Land Use Agencies have proposed conservation measures that either avoid or minimize indirect effects to vernal pool species. For example, if either Sacramento Orcutt grass, slender Orcutt grass, or Colusa grass are identified on-site, the Wildlife Agencies may require the landowner/developer to

preserve the vernal pool resource. In other cases, the landowner/developer will be required to mitigate for the effects according to the Service's current vernal pool guidelines.

Overall, the proposed action should have little to no effect on the Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop. There is very little (if any) suitable habitat in the Basin and none of the species have been identified there. The plan contains avoidance, minimization, and mitigation measures to eliminate or offset any impacts to this species should any be discovered during pre-construction surveys required under the plan. The proposed action will not adversely affect the species outside the Basin. Therefore, the proposed action will not affect the viability of the Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, legenere, and Boggs Lake hedge-hyssop in the vicinity of the Natomas Basin or as species.

Swainson's Hawk

The Swainson's hawk is a common inhabitant of the Natomas Basin. In 2001, active hawk nests were located in the City's, MAPPOA's, and Conservancy's proposed permit areas. Although no nests were located in Sutter's proposed permit area, nests were located close (< 1 mile) from the permit area. The overwhelming majority of the Basin's hawk nests are in mature trees situated either on the banks of or near the Sacramento River. Suitable hawk foraging habitat exists throughout the Basin in each of the proposed permit areas and is well within the known foraging range of the hawk. Implementation of the proposed action will likely affect the hawk throughout the action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that result in adverse effects to hawks through loss of habitat within the Permit Areas and on the Conservancy's reserves. Hawks will be disturbed through the removal of their nest trees and foraging habitat.

Effects to Nesting Habitat

The majority of the Basin's potential nesting habitat will not be directly affected by the issuance of the ITPs to the Permittees. Most known hawk nests and potential nest trees are located in unincorporated Sacramento County along the Sacramento River and outside of the proposed Permit Areas. Additional nest sites are located on lands within the City adjacent to the Sacramento River. These areas, which are located within the one mile-wide swath of land abutting the Sacramento River in the Basin known as the Swainson's hawk zone, constitute the core nesting habitat for the hawk within the Basin. With the exception of 252 acres previously approved for development by the City within the Swainson's hawk zone, ,the Permittees have committed to avoid development within this area. Following implementation of the proposed action, at least 263 of the Basin's total 328 acres (80.1 %) of potential nesting habitat will remain. However, it is likely that closer to 287 acres (87.5 %) of nesting habitat will remain, as the riparian habitat bordering Fisherman's Lake will not be removed.

Issuance of the proposed ITP to the City will likely result in effects on 40 acres of potential Swainson's nesting habitat (Table 5). Most of the potential nesting habitat is comprised of riparian areas (24 acres). Other nesting habitat types include oak groves (6 acres) and tree groves (10 acres). Much of the 24 acres of affected riparian areas is located on the east side of Fisherman's Lake and will not be developed. Although this habitat will not be destroyed, indirect effects are still likely (see below).

According to Figure 13 of the NBHCP, six Swainson's hawk nest trees are located in the City's proposed Permit Area (excluding the nests adjacent to Fisherman's Lake). A seventh tree was removed in 1998. Four of the six nests were inactive in 2002 (Estep 2002). At least two of these are in areas that have already been developed. In addition to the six nests that are located in the City's proposed Permit Area, a single nest is located just west of the City's proposed Permit Area, north of El Camino and west of I-80 (Estep 2002). This nest was active in 2002 and will likely be indirectly affected (described below) by the issuance of the proposed ITP to the City. Hawks could be also be disturbed by construction noise or daily activities once the City's Permit Area is developed.

Issuance of the proposed ITP to Sutter will not result in the direct loss of any potential nesting habitat (Table 5). Additionally, there are no Swainson's nests in Sutter's proposed Permit Area.

The effects of issuing the proposed ITP to the MAPPOA were analyzed in the January 16, 2002, biological opinion for that project (Service File # 1-1-01-F-0302). Issuance of the ITP to MAPPOA has or will result loss of 25 acres of potential hawk nesting habitat (tree groves = 23 acres, oak groves = 2 acres). A single hawk nest tree will be removed. This tree was active in 2001 (NBHCP 2002) and inactive in 2002 (Estep 2002). Another inactive nest is located on Powerline Road between the airport and MAP (Estep 2002). Sufficient information was not available to determine if the nest tree will be removed by the MAP project. However, at the very least, because of its proximity to MAP, hawks in the nest tree will likely be disturbed by construction activities or by daily activities once MAP is completed. A single active nest tree is also located directly south of the MAP Permit Area (Estep 2002) and will likely be directly affected by the issuance of the proposed ITP to MAPPOA. For example, hawks nesting in the tree could be disturbed by construction activities or disturbed as the site is used once it is developed. Hawks in nest trees in urban areas have been shown to have lower reproductive success than those in rural areas (England *et al.* 1995) (see indirect effects section below). To mitigate for the loss of the nest tree on the MAP site and other Swainson's hawk habitat, MAPPOA will secure 200 contiguous acres, in perpetuity, via fee title or conservation easement and turn the lands over to the Conservancy to manage for the benefit of Swainson's hawk nesting. The nest tree conservation lands will be secured entirely within the Natomas Basin in the Swainson's hawk one-mile zone along the Sacramento River, or in the eastern portion of the Natomas Basin, including, but not limited to, areas near the levees and Natomas East Main Drain. Acquisition will focus on sites that provide upland foraging habitat, have potential for additional acquisition of adjoining properties, and are surrounded by agricultural lands. The nest tree conservation lands will be planted with a minimum of fifteen trees. MAPPOA will provide funding sufficient for monitoring the success of replacement trees for a period of 3 years and plant additional replacement trees at the rate of one additional replacement tree for every replacement tree lost prior to the end of the 3 year monitoring period. Trees planted to replace trees lost, will be monitored for an additional 3 year period to ensure survival until the end of the monitoring period.

The NBHCP requires that the City and Sutter replace any nest trees directly impacted by the proposed action. Therefore, in order to mitigate for impacts to hawk nesting habitat (effects on four nest trees not located in existing development), the City has proposed to plant 60 trees (5 gallon size) at a ratio of 15:1 within 14 months of the issuance of the proposed Permit (see section V.A.5.b. of the NBHCP). Trees will be maintained, monitored, and as needed, replaced, in accordance with section V.A.5.b. of the NBHCP. Although the City has not yet provided

funding for planting the 60 nest trees, the Conservancy has planted potential nesting habitat on its Betts, Kismat, and Sliva, Bennet South preserves. Additional plantings are planned for Bennet North and Lucich South in 2003. Sutter does not propose to plant additional nest trees if the proposed ITP is approved, as no nest trees will be affected within their proposed Permit Area.

The conservation measures that the Land Use Agencies have proposed will mitigate the proposed action's impacts to nest trees. Very few documented nest trees will be directly impacted by the proposed action and there appears to be a surplus of Swainson's nest trees in the Basin. According to Estep (2002), only 43 of the Basin's 70 nest territories were active in 2002.[5] The NBHCP and associated EIR/EIS also document the amount of potential nesting habitat lost. Although it appears that approximately 20 percent of the Basin's total 328 acres of potential nesting habitat will be lost, in actuality, this value is closer to 13 percent.

Based upon Estep (2002), even if all six nest trees located in the City's Permit Area become unsuitable following issuance of the proposed ITPs, sufficient nest trees will remain for the Basin's hawks. In addition, replacement nest trees are being planted at a ratio of 15:1 to replace the four nest trees to be impacted by new development. This indicates that sufficient nesting habitat will be available for the hawk both in the short- and long-term. In addition, the Conservancy is already conducting nest tree plantings in its reserve system. Loss of nesting habitat is not a concern of implementing the NBHCP.

Effects to Foraging Habitat

In contrast to the small loss of Swainson's nesting habitat, issuance of the proposed ITPs will result in a larger loss of foraging habitat. Approximately 40 percent, or 9,188 acres, of the Basin's total 22,051 acres of potential foraging habitat will be lost as a result of issuing the proposed ITPs to the City, Sutter, and MAPPOA. However, while the amount of potential foraging habitat that will be lost is substantial, the location and quality of that existing habitat reduces the impacts of its loss on the hawk. Almost all of this habitat is considered moderate-quality habitat and, importantly, is not available for foraging during the majority of the hawk's nesting season. As discussed in the April 2003, Technical Addendum, the amount of usable foraging habitat available to the hawk in the Basin varies considerably during the hawk's time in the Basin. While available foraging habitat is abundant in some periods such as late summer or early fall, much less habitat is available in April, May, and July. Swainson's hawks lay eggs in April; young fledge in July. Therefore, much less foraging habitat is available during the hawk's nesting period. Based upon the results of Estep (1989) and Bechard (1982), this lack of available foraging habitat during the nesting period likely leads to larger foraging ranges. The overwhelming majority of foraging habitat lost to urban development is also greater than one mile (the distance from nest to foraging considered by CDFG [1994] to be of most importance to the hawk) from the majority of the Basin's Swainson's nest trees. Studies have shown that reproductive success decreases as the distance required to forage from the nest increases (Woodbridge 1991, England *et al.* 1997). The effects of the loss of foraging habitat on the hawk are lessened because plentiful foraging habitat west of the Sacramento River is currently, and in

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[5] Estep's (2002) data included nest trees on both sides of the waterways [i.e., Sacramento River, American River, Natomas East Main Drainage Canal and Natomas Cross Canal] surrounding the Natomas Basin.

the future will remain, available to and used by Swainsons' hawks nesting in the Basin (discussed below).

Issuance of the proposed ITP to the City will likely result in the loss of 6,925 acres (31.4 percent) of the Basin's total foraging habitat (Table 5). Of that total, 675 acres are considered high-quality habitat, 5,098 acres are considered moderate-quality habitat, and 1,152 acres are considered low-quality habitat. Issuance of the proposed ITP to Sutter will likely result in the loss of 1,860 acres (8.4 percent) of the Basin's total foraging habitat. Of that, eight acres are considered high-quality habitat and 1,852 acres are considered moderate-quality habitat. Issuance of the ITP to MAPPOA will likely result in the loss of 403 acres (1.8 percent) of the Basin's total foraging habitat. Of that 50 acres are considered high-quality habitat, 349 acres are considered moderate-quality habitat, and four acres are considered low-quality habitat. An additional 119 acres of potential foraging habitat will be affected by construction of off-site drainage, sewer, and roadway improvement related to the MAP project. In addition to reductions in potential Swainson's foraging habitat for the habitat types listed above, implementation of the proposed action will result in the loss of approximately 8,000 acres of rice. When fallowed or otherwise not flooded, rice fields provide potential marginal to moderate-quality foraging habitat for hawks. Therefore, issuance of the proposed ITPs to the Permittees will likely result in a further loss of rice foraging habitat.

Indirect Effects of Urban Development

In addition to the direct effects posed by the proposed ITPs, implementation of the proposed action will indirectly affect the hawk. The most likely indirect effect is a potential decrease in reproductive performance associated with development in proximity to nest trees. In these instances, nest trees would not be removed, but nearby foraging habitat would be converted to non-appropriate Swainson's foraging habitat types. For example, three nest trees located along Fisherman's Lake will not be removed as a result of the proposed action. However, they will be located in close proximity (250 ft. or less along the eastern edge of the lake) to urban development. Swainson's nesting success in developed areas has been shown to be reduced in comparison to rural areas (England *et al*. 1995). In another example, seven Swainson's hawk nest trees (3 active) are currently either located in or directly adjacent to existing development. Issuance of the proposed ITP will allow further development near these nest trees, thereby decreasing the amount of available foraging habitat nearby. The increased energy required to forage over greater distances could lead to a decrease in reproductive performance, as described in England *et al.* (1995). For the same reasons discussed above, Swainson's hawks using two nest trees adjacent to MAP will likely have reduced reproductive success in comparison to hawks nesting in rural areas.

Effect of Issuing the Proposed ITP to the Conservancy

Issuance of the proposed ITP to the Conservancy will have negligible negative effects on the hawk. Nesting and foraging hawks could be disturbed as a result of the Conservancy's reserve restoration and management activities. However, these effects are temporary, and should be minimal since the Conservancy will manage the mitigation lands for the benefit of the Covered Species. Perhaps the largest potential negative effect of the Conservancy's activities on the hawk could be the destruction of hawk foraging habitat during the construction of wetland reserves. However, this is unlikely, given the fact that lands suitable for wetland restoration will most

likely be either rice or existing wetlands. The creation of wetlands from rice may remove some marginal hawk foraging habitat, but of the potential foraging habitat types affected in the Basin, rice is least beneficial to the hawk (Estep 1989). The upland component of the managed marsh reserves will continue to provide suitable foraging and nesting habitat for the hawk.

The main positive benefit of the issuance of the proposed ITP to the Conservancy will be the development of the Conservancy's reserve system. After implementation of the proposed action, 2,187.5 acres of high-quality upland foraging habitat will be created and/or preserved and protected in perpetuity for the hawk. As described in the NBHCP, the upland foraging habitat will be managed for the hawk and will include both nesting and foraging habitat. Proposed acquisition criteria will help ensure that these upland areas are in close proximity to nesting hawks.

In addition to the Conservancy's upland reserves, the hawk will benefit somewhat from the Conservancy's managed marsh reserves and rice habitat. Rice fields will provide foraging habitat after they have been drained and before they are filled. The Conservancy will also fallow ten percent of its rice fields annually, which will provide up to 437.5 acres of fallow rice habitat in any given year. Managed marsh reserves contain between 20 and 30 percent uplands, which will provide between 437.5 and 656.25 acres of additional upland habitat. Rice fields and managed marsh uplands will likely be less beneficial for the hawk than habitats in upland reserves because upland reserves will be managed to maximize the amount of available hawk prey.

In order to mitigate for its effects to 6,925 acres of mostly moderate-quality foraging habitat, the City will provide 1,509.3 acres of potential foraging habitat. Of that, 1006.2 acres will be high-quality foraging habitat on the Conservancy's upland reserves; 201.2 acres will be moderate-quality habitat provided in the form of fallowed rice habitat on the Conservancy's rice lands; and up to 301.9 acres of moderate-quality uplands will be provided in the upland component of the managed marsh reserves. In order to mitigate for its effects to 1,860 acres of Swainson's mostly moderate-quality foraging habitat, Sutter will provide up to 1400.1 acres of foraging habitat. Of that, 933.4 acres will be potential high-quality foraging habitat on the Conservancy's upland reserves; 186.7 acres will be provided in the form of moderate-quality fallowed rice habitat on the Conservancy's rice lands; and up to 280.0 acres of moderate-quality uplands will be provided in the upland component of the managed marsh reserves. In order to mitigate for its effects to 502 acres (403 acres from project footprint and 199 acres from off-site improvements) of mostly moderate-quality Swainson's foraging habitat, MAPPOA will provide up to 371.9 acres of potential foraging habitat. Of that, 247.9 acres will be high-quality foraging habitat on the Conservancy's upland reserves; 49.6 acres will be provided in the form of moderate-quality fallowed rice habitat on the Conservancy's rice lands; and up to 74.4 acres of moderate-quality uplands will be provided in the upland component of the managed marsh reserves. An additional 200 acres of high-quality foraging habitat will be provided by MAPPOA to mitigate for the loss of a Swainson's hawk nest tree and surrounding foraging habitat.

When the potential effects of the proposed action on potential foraging habitat and proposed mitigation are considered together, the proposed action may cause a net decrease of between 7,000.5 and 9,188 acres of potential foraging habitat in the Basin. The exact amount will be determined by the existing use of upland reserves at the time of acquisition. For example, if a reserve is acquired that already provides suitable habitat for the hawk, no new habitat is created. If, on the other hand, a reserve is acquired that does not provide habitat for the hawk and is

restored/managed so that it provides habitat for the hawk, then new habitat is created. Therefore, if only existing upland habitat is preserved, the net loss will be 9,188 acres. In contrast, if all preserved upland habitat is created following acquisition by the Conservancy, there will be a net decrease of 7,000.5 acres of foraging habitat.

Benefits obtained through the creation of the Conservancy's upland reserves are actually greater than those described in the preceding paragraph. The majority of the Basin's existing Swainson's foraging habitat (e.g., sugar beets, tomatoes, melons, etc.) is moderate in quality and is not available throughout the hawk's nesting season. In contrast, the Conservancy's upland reserves will be high-quality habitat that is available throughout the time hawks are in the Natomas area. Because of the priorities established for the acquisition of upland reserves, there will be an increase in the amount of high-quality foraging habitat in the vicinity of the majority of the Basin's hawk nesting territories which will be available to the hawks during the nesting season, which should result in a decrease in the distance required for hawks to forage and a potential increase in reproductive success.

Even though there will be a net loss of available foraging habitat in the basin, the Conservancy's reserve system will have several advantages over existing foraging opportunities in the Basin. These include: (1) the Conservancy's uplands will be managed for the hawk and other upland species in perpetuity; (2) priorities for acquiring upland reserves will help ensure that managed uplands are in close proximity to the majority of the Basin's nests thus increasing the amount of foraging habitat in close proximity to nests during the critical nesting season; (3) upland reserves and the upland component of managed marsh reserves will provide opportunities for the establishment of new nest trees; (4) the upland component of managed marsh reserves will provide additional moderate-quality potential foraging habitat in perpetuity; (5) Conservancy rice fields will provide additional moderate-quality potential foraging habitat in perpetuity; (6) the amount of high-quality hawk foraging habitat will increase; (7) foraging habitat will be made available for Swainson's hawks throughout their time in the Basin; and (8) no development will occur in the one-mile wide Swainson's Hawk Zone, except for a small amount of acreage previously authorized for development in the City's proposed Permit Area. These factors will help avoid, minimize, and mitigate the effects of the proposed action on the hawk's nesting and foraging habitat.

Effect of the Proposed Conservation Measures

Implementation of the proposed conservation measures (see Sections V.A.1-3 and V.A.5.b of the NBHCP) will minimize the potential adverse effects of the proposed action on the hawk. Except for lands approved for urban development in the North Natomas Community Plan in 1994, the City and Sutter will not approve development permits within the one-mile-wide Swainson's Hawk Zone, which is adjacent to the Sacramento River. MAP is not located within the Swainson's Hawk Zone. If the City or Sutter seek to expand development into the Swainson's Hawk Zone beyond that described above, granting of such coverage would require an amendment to the NBHCP and ITPs, which would be subject to review and approval by the Service and the CDFG in accordance with all applicable statutory and regulatory requirements. Approval of any Urban Development within the Swainson's Hawk Zone beyond that described above would constitute a significant departure from the Plan's OCP and would trigger a new effects analysis, potential amendments and/or revisions to the Plan and Permits, a separate conservation strategy and issuance of ITPs to the permittee for that additional urban development, and/or possible

suspension or revocation of the City's and/or Sutter's Permits. Neither the City nor Sutter control lands in the Swainson's Hawk Zone within the unincorporated portion of Sacramento County. However, on December 10, 2002, the City and Sacramento County entered in to the "Joint Vision," a Memorandum of Understanding, in which they acknowledged no future growth may occur in the Basin without first analyzing the impacts to protected species (see Cumulative Effects section below). Therefore, the City, Sutter, and Sacramento County have acknowledged that no additional development may occur in the Swainson's Hawk Zone without environmental review.

In addition to not developing in the Swainson's Hawk Zone, additional measures will minimize and mitigate the potential effects of the proposed action on the hawk. Potential disturbance of active nests will be minimized through the use of pre-construction surveys, avoidance buffers (until the young have fledged), timing restrictions, and monitoring (see Section V.D.5.b of the NBHCP). These measures will ensure that disturbance of active nesting hawks is minimized. The loss of nest trees will be minimized by preserving large trees wherever possible and avoiding construction activities near active nests. In addition, the Land Use Agencies will mitigate the loss of nest trees in its proposed Permit Area by replacing lost trees at a rate of 15:1. The City will plant 60 replacement trees within 14 months of issuance of the proposed ITPs. By planting these trees up front and selecting trees that are likely to become suitable for the hawk relatively quickly (accomplished through species selection, management, and size at planting), the City will minimize the potential temporal effects of removing nest trees.

Implementation of the proposed conservation measures by the Conservancy will also help minimize the effects of the proposed action on the hawk. The Conservancy's measures include: (1) minimizing disturbance of active nests; (2) minimizing the number of nest trees lost; (3) mitigating loss of nest trees; (4) maximizing the foraging potential of upland reserves; and (5) maximizing the amount of available nesting habitat in the Basin. In addition, criteria established for the acquisition of upland reserves will help maximize their potential benefit to the hawk. All of these benefits will have the effect of making the mitigation lands more valuable to the hawk than if the lands were simply preserved.

Discussion

Following implementation of the proposed action, between 13,000 and 15,000 acres of potential Swainson's foraging habitat (including high-quality mitigation lands) will remain in the Basin. Most of the foraging habitat remaining after implementation of the proposed action will be moderate-quality habitat, but as shown in Table 5, most of the Basin's existing potential foraging habitat is moderate-quality habitat. Both the City and Sutter have committed to not developing lands in the Swainson's Hawk Zone (without conducting additional analyses and obtaining appropriate permits) if the proposed ITPs are approved. Because of its proximity to the majority of the Basin's hawk nests, this area is critical for the area's hawks. This is also where much of the high-quality foraging habitat that is expected to produce prey throughout the hawk's nesting season will be created on the Conservancy's upland reserves because the upland reserve acquisition criteria have been established so that much of the upland reserves are acquired in the Swainson's Hawk Zone. In addition to the continuing availability of foraging lands in the Basin, large expanses of foraging habitat are available in Yolo County on the west side of the Sacramento River. In fact, according to the Technical Addendum, Yolo County supports more than 200,000 acres of non-rice agricultural crops, 40,000 acres of which are planted in alfalfa.

Much of Yolo County's available foraging habitat is within the Swainson's flight distance. Much of this habitat is located in the Yolo and Sutter bypasses and because the bypasses are flood control structures that are subject to annual flooding and the State Reclamation Board's floodway restrictions, is very likely to never be developed. It is very likely that hawks nesting in or adjacent to the Basin currently forage in Yolo County. Even with the loss of potential foraging habitat that will result from implementation of the proposed action, a large amount of foraging habitat will remain available to support the Basin's hawks.

The proposed action is not likely to affect the viability of the hawk in the Basin, Central Valley, or as a species. Overall, the proposed action is likely to result in a shift in the timing and quality of Swainson's foraging habitat and an increase in the amount of suitable nest trees. Although approximately 9,000 acres (including MAP) of mostly moderate-quality foraging habitat will be lost, approximately 13,000 acres of mostly moderate-quality foraging habitat will not be affected. Almost all of the lost habitat will be outside the 1-mile Swainson's Hawk Zone and therefore, more than one mile away from the majority of the Basin's nest trees. In addition, a total of 2,387.5 acres (including extra 200 acres for MAP) of high-quality foraging habitat will be enhanced/ managed for the benefit of the hawk. This habitat will help offset the effects of the proposed action on Swainson's foraging by providing a consistent source of abundant prey for hawks, including times of the year (e.g., nesting season) when foraging habitat is limited in the Basin and much of it will be in close proximity to the majority of the Basin's nest trees. Additional Swainson's foraging opportunities will be gained from the 10 percent of the Conservancy's rice reserves that will be fallowed annually (437.5 acres) and the 20-30 percent of managed marsh reserve habitat that will be comprised of upland habitat (437.5-656.2 acres). Tens of thousands of acres of foraging habitat are also available just across the Sacramento River in Yolo County; which will not be developed in the foreseeable future. Very few Swainson's nest trees will be affected by the proposed action and almost 40 percent of the available hawk nest territories are not being used (Estep 2002). This surplus of nest territories will minimize the temporal loss of those nest trees that are directly affected. Nest trees that are affected will also be replaced at a ratio of 15:1. This, in conjunction with other tree plantings on the Conservancy's reserves, will result in a substantial increase in the number of nest trees in the Basin. Because of the avoidance, minimization and mitigation measures proposed by the applicants, and the habitat conditions within and outside the Basin after implementation of the proposed action, the proposed action should not result in the significant injury or death of hawks that nest and forage in the Basin. The primary impact of the proposed action will be a net loss of potential Swainson's hawk foraging habitat; however, because of the varying quality of that habitat and its limited availability to the species during the nesting season, this loss will not result in significant adverse effects to the hawks in the basin. Substantial amounts of foraging habitat will remain in the basin as well as abundant foraging habitat in nearby Yolo County, and the proposed action will result in the addition of high-quality foraging habitat managed specifically to benefit the hawk (i.e., located in close proximity to nest trees, managed to produce mots of hawk prey, available throughout the hawk's time in the Basin, etc.). The environmental baseline combined with the conservation measures provided under the plan should continue to support a viable Natomas Basin Swainson's hawk population. Because significant adverse effects to the species are not anticipated locally, the Service does not anticipate adverse effects to either the Central Valley population or the species as a whole.

Aleutian Canada Goose

Implementation of the proposed action will likely affect the goose throughout the action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that directly result in the disturbance of geese throughout the Permit Areas and on the Conservancy's reserves. The goose is known to occasionally occur in the Basin during the winter and suitable goose foraging habitat will be altered/destroyed by each of the Permittees. Loud noises produced by construction activities on or adjacent to the goose's habitat in the winter will likely disturb geese.

In addition to disturbing the goose, implementation of the proposed action may result in minimal impacts to the goose through the destruction of 14,751 acres of potential winter habitat (Table 6). Although the total number of acres of goose habitat that will be lost is greater than that for species such as the snake, the goose is not constrained by such factors as connectivity and is only an occasional visitor to the Basin. Issuance of the ITP to the City will result in the loss of 4,663 acres of non-rice crops, 23 acres of pasture, and 970 acres of rice habitat. Issuance of the ITP to Sutter will result in the loss of 1,529 acres of non-rice crops, 101 acres of pasture, and 5,577 acres of rice habitat. The effects of the issuance of an ITP to MAP were analyzed in the January 16, 2002, biological opinion for that project (Service File # 1-1-01-F-0302). Issuance of the ITP to MAPPOA will result in the loss of 325 acres of non-rice crops, 22 acres of pasture, and 1,541 acres of rice habitat.

Issuance of an ITP to the Conservancy will have both beneficial and deleterious effects on the goose. Construction activities conducted in the goose's wintering habitat (e.g., non-rice crops) when the goose is in the Basin may disturb geese. The construction of up to 2,187.5 acres of managed marsh will further decrease the amount of available foraging habitat for the goose. However, the managed marsh may be used as loafing or roosting habitat. Hunting is being considered on Conservancy reserves and may also directly affect the goose. Geese may be injured or killed by hunting activities. However, hunting is not a covered activity and this should only happen rarely. Given the goose's limited use of the Basin, the fact that the species ranges from southern Oregon through the San Joaquin Valley, and the healthy increasing population, hunting's effects on the goose in the Basin should be negligible.

Implementation of the proposed goose conservation measures will minimize impacts to the goose. Most importantly, the establishment of the Conservancy's system of reserves will help provide a stable system of winter habitat for the goose. All of the Conservancy's 8,750 acres of rice reserves and 2,187.5 acres of upland reserves will serve as potential habitat for the species and uplands within the managed marsh reserves may be used as loafing or roosting habitat. In order to mitigate the loss of the 5,656 acres of goose habitat resulting from the issuance of the proposed ITP to the City, 2012.5 acres of rice habitat and 1006.2 acres of uplands will be preserved and managed in perpetuity. In order to mitigate the loss of the 7,207 acres of goose habitat resulting from the issuance of the proposed ITP to Sutter, 1866.8 acres of rice habitat and 933.4 acres of uplands will be preserved and managed in perpetuity. In order to mitigate the loss of the 1,888 acres of goose habitat resulting from the issuance of the proposed ITP to the MAPPOA, 495.8 acres of rice habitat and 247.9 acres of uplands will be preserved and managed in perpetuity. Additional potential foraging and loafing acreage will be gained through the development of the 2,187.5 acres of managed marsh reserves.

In addition to the Conservancy's reserves, disturbance effects of the proposed action on geese in rice fields will be minimized by the use of the May 1-October 1 snake construction window. Because of the work window, no geese should be in rice fields when construction activities occur.

Overall, the effects of the proposed action on the goose should be minimal. Considering the goose's limited use of the Basin, the very small amount of the goose's total wintering range occupied by the Basin, the overall health of the subspecies, and the abundant habitat throughout the Central Valley, the loss of habitat resulting from the proposed action is practically inconsequential to the goose. This subspecies most often winters in other areas of the Sacramento Valley, including the Sacramento, Colusa, Butte Sink, and Sutter National Wildlife Refuges and the agricultural fields that surround them. Outside of the Natomas Basin, there are hundreds of thousands of acres (just considering rice fields) of potential winter foraging habitat for the goose. Furthermore, the amount of foraging habitat does not appear to be a factor limiting the number of geese in the Basin and the Conservancy's reserve system will increase the amount of available loafing and roosting habitat. Based upon the baseline habitat of the goose, its use of the Basin, the health of goose populations, and benefits acquired from the Conservancy's reserve system, the amount of development planned in Natomas will not affect the viability of the goose in the Basin, Central Valley, or species as a whole.

Burrowing Owl

Implementation of the proposed action will likely affect the owl by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that result in direct effects to owls throughout the Permit Areas and on the Conservancy's reserves. The owl is known to occur in the proposed action's action area, nesting owls have been observed in each of the proposed permit areas, and suitable habitat will be altered/destroyed by each of the Permittees. Take could be in the form of disturbance, injury or death of owls. Examples of possible owl take include, but are not limited to: (1) owls could be disturbed by noise produced by construction activities or humans working within the owl's habitat; (2) owls could be killed if burrows are destroyed while inhabited by owls; (3) owls could be displaced if their burrows are destroyed while they are not in them; and (4) development conducted in foraging habitat adjacent to an owl's burrow could cause the owl to venture further for food or move to another burrow.

Approximately 700 acres of potential burrowing owl foraging habitat (alfalfa, grassland, pasture) (Table 7) and 64.5 (35.4 percent) of the total 246.8 miles of canals in the Basin will be lost as a result of the proposed action. Berms, banks, and levees bordering the canals are often used by ground squirrels and therefore, offer burrows for the owl. Some canals not lost as a result of development will also become unsuitable for the owl because they will be surrounded by development and therefore, no longer in proximity to suitable foraging habitat. On the other hand, some of the canals are surrounded by rice habitat (not suitable foraging habitat) and are therefore probably less likely to be inhabited by owls.

Issuance of the proposed ITP to the City will result in the development of 427 acres of grassland and 23 acres of pasture, which constitute suitable owl foraging habitat (Table 7). In addition, at least 19.3 miles of canals whose banks may be inhabited by ground squirrels (whose burrows are often used by owls) will be lost. Issuance of the proposed ITP to Sutter will result in the development of 134 acres of grassland and 101 acres of pasture, which constitute suitable owl foraging habitat. In addition, approximately 33.6 miles of canals whose banks may be inhabited

by ground squirrels will be lost. The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA will result in the development of 22 acres of pasture, which constitute suitable owl foraging habitat. In addition, 11.6 miles of canals whose banks may be inhabited by ground squirrels will be developed.

Upon implementation of the proposed action, the Conservancy will create/restore and protect in perpetuity 8,750 acres of habitat preserves. Of that, approximately 2,187.5 acres will would be maintained as upland habitat and would be potential foraging habitat for the burrowing owl. However, the burrowing owl exhibits strong site fidelity and may not readily find newly created suitable habitat. Additional habitats made available to the owl as a result of implementing the Conservancy's reserve system include upland foraging habitat within the managed marsh component of the reserve system and irrigation/drainage canals on reserve lands. Approximately 20-30 percent (437.5-656.2 acres) of the total 2,187.5 acres of managed marsh reserves will be managed as dryland pasture or grasslands. In addition, those irrigation/drainage canals located on Conservancy lands not operated by Natomas Mutual or RD 1000 will be managed in a more ground squirrel-friendly manner, which should provide more burrows for the owl. Contiguity of marsh upland reserves will be important to help maintain larger groups of burrowing owls. In 1999, the Conservancy acquired the Betts-Kismat-Silva property, which is "probably home to the largest concentration of burrowing owls in the Natomas Basin" (Wildlands 2000). The Conservancy has also acquired the Ayala tract, which is inhabited by owls. These two reserves represent the only known owl occurrences within the Basin that are outside of the proposed Permit Areas.

In order to mitigate the loss of 450 acres of potential owl foraging habitat resulting from the issuance of the proposed ITP to the City, 1006.2 acres of potential upland foraging habitat will be created on the Conservancy's upland reserves. In addition, between 201.2 and 301.9 acres of potential upland foraging habitat will be created on the Conservancy's managed marsh reserves. In order to mitigate the loss of 235 acres of potential owl foraging habitat resulting from the issuance of the proposed ITP to Sutter, 933.4 acres of potential upland foraging habitat will be created on the Conservancy's upland reserves. In addition, between 186.7 and 280.0 acres of potential upland foraging habitat will be created on the Conservancy's managed marsh reserves. In order to mitigate the loss of 22 acres of potential owl foraging habitat resulting from the issuance of the proposed ITP to the MAPPOA, 247.9 acres of potential upland foraging habitat will be created on the Conservancy's upland reserves. In addition, between 49.6 and 74.4 acres of potential upland foraging habitat will be created on the Conservancy's managed marsh reserves.

As described in the effects analysis for the giant garter snake, a decrease or change in demand for irrigation water may lead to a change or decrease in the number of canals in the Basin. Canals removed from use may no longer support mammals such as the ground squirrels, whose burrows are used by owls in the Basin. Additionally, if canals are modified or moved, the burrows in the banks of the existing canals may be destroyed.

Implementation of the proposed conservation measures will avoid, minimize, and mitigate the effects of the proposed action on the owl. The Land Use agencies will not permit owls to be disturbed during the nesting season and owl relocation efforts will be made during the rest of the year. Studies are currently being conducted to evaluate the effectiveness of passive owl relocations (D. Gifford, pers. comm.). Relocation efforts in Canada and California have been

somewhat successful (Haug *et al.* 1993) and management efforts using artificial nets boxes in burrows in Sacramento County have led to habitual use by burrowing owls (SRCSD 2002). Conservation measures employed by the Conservancy will also minimize the effects of the proposed action on the owl.

The NBHCP's acquisition strategy and the SSMPs it develops for each of the reserves will reflect the needs of the owl and should provide effective measures to offset impacts to the owl resulting from development in the Permit areas. The Conservancy will consider the habitat and management requirements of burrowing owls when developing management plans for the upland reserves and upland components of managed marsh reserves.

Although burrowing owls will be impacted by the proposed action, proposed action activities will not affect the viability of the subspecies. Although owls in the Basin will be impacted, the Permittees have proposed conservation measures that mitigate the impacts. For example, relocation will be used to move owls from areas to be developed to Conservancy reserves. Once on the Conservancy's reserves, the owls will benefit from the stability of high-quality foraging and burrow habitat. The Conservancy's proposed conservation measures include measures to provide burrow and foraging habitat for the owl as well as minimize impacts to burrowing animals such as ground squirrels (whose burrows are used by the owl). In contrast, much of the Basin's existing potential habitat is subject to frequent disturbance that lessens its value to the species. The conservation measures provided under the plan should provide for the continued viability of the owl in the basin. In addition, because the Natomas Basin represents a very small portion of both the subspecies' and Central Valley population's population and range, and any negative impacts to the owl resulting from the proposed action will not compromise the viability of the Central Valley population, the subspecies, or the species as a whole.

Loggerhead Shrike

Implementation of the proposed action will likely affect the loggerhead shrike throughout the proposed project's action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that may result in the disturbance, injury or death of shrikes throughout the Permit Areas and on the Conservancy's reserves. The shrike is a non-migratory resident of the Natomas Basin, is known to breed in the Basin, and is observed regularly throughout Natomas Basin (Thomas Reid Associates 2000). Suitable shrike habitat will be altered/destroyed by each of the Permittees. In addition to disturbance, take of shrikes will likely occur in other forms. For example, shrike mortalities could occur as a result of increased vehicular traffic.

Habitat conversion will likely be the greatest effect to the shrike as a result of the proposed action. Land converted from compatible to incompatible habitat types will likely result in the displacement of birds, decreased nesting and foraging habitat and increased competition. Based on the habitat and land use analysis, potential shrike habitat would decline by about 9,000 acres. However, most of the potential habitat that would be lost would be nonrice crops which provide relatively poor habitat for loggerhead shrike because the shrike feeds predominantly on insects and intensive management of agricultural lands strives to reduce insect pests. Further, insecticides are used to control insect pests, and insecticide use is believed to contribute to the decline of loggerhead shrike populations (Kaufman, 1996).

Issuance of the proposed ITP to the City will result in the loss of 427 acres of grassland habitat, 4,663 acres of non-rice crop habitat, six acres of oak groves, 13 acres of orchards, 23 acres of pasture, seven acres of ponds and seasonally wet areas, 24 acres of riparian habitat, 1,137 acres of ruderal areas, 46 acres of rural residential, ten acres of tree groves, and 117 acres of canals (Table 8). Issuance of the proposed ITP to Sutter will result in the loss of 134 acres of grassland habitat, 1,539 acres of non-rice crop habitat, 101 acres of pasture, 10 acres of ponds and seasonally wet areas, 88 acres of ruderal areas, and 215 acres of canals. The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA will result in the development of 325 acres of non-rice crop habitat, two acres of oak groves, 22 acres of pasture, four acres of ponds and seasonally wet areas, six acres of ruderal areas, ten acres of rural residential, 23 acres of tree groves, and 72 acres of canals.

Issuance of the proposed ITP to the Conservancy will have both beneficial and deleterious effects on the shrike. Potential negative effects include, but are not limited to: (1) construction activities conducted in or near the shrikes's foraging habitat may disturb shrikes; and (2) conversion of habitat on Conservancy reserves may inadvertently make that habitat less suitable for shrike nesting or foraging. However, since the Conservancy must consider the needs of all Covered Species when designing SSMPs, adverse effects should be minimal. Once completed, the Conservancy's habitat reserves will provide 2,187.5 acres of high-quality upland habitat for the shrike in perpetuity. This habitat will be more stable in quality and location and may encourage the establishment and long-term persistence of a breeding population in the Natomas Basin. Specifically to attract and maintain loggerhead shrikes, the Conservancy will encourage development and maintenance of perching and nesting sites on habitat reserves. Riparian habitat and some of the managed marsh on the reserves may provide additional nesting opportunities and foraging perch sites.

In order to mitigate the loss of potential shrike foraging habitat resulting from the issuance of the proposed ITP to the City, 1006.2 acres of potential foraging habitat will be created on the Conservancy's upland reserves. In order to mitigate the loss of potential shrike foraging habitat resulting from the issuance of the proposed ITP to Sutter, 933.4 acres of potential upland foraging habitat will be created on the Conservancy's upland reserves. In order to mitigate the loss of potential shrike foraging habitat resulting from the issuance of the proposed ITP to the MAPPOA, 247.9 acres of potential upland foraging habitat will be created on the Conservancy's upland reserves.

Implementation of the proposed conservation measures will minimize the adverse effects of the proposed action on the shrike. Active shrike nests will be avoided by at least 30.5 m (100 ft.), thereby decreasing disturbance of nesting shrikes. The use of pre-construction surveys should also minimize the take of shrikes.

Loss of canal habitat (see snake discussion) and predation are two potential indirect effects of the proposed action. Development authorized as a result of this HCP could result in the future loss of irrigation/drainage canals in the Basin. As stated in the species description, suitable shrike nesting habitat may grow along canals. Cats are known to prey upon the San Clemente Loggerhead Shrike. Indirect effects of predation will be minimized by acquiring preserves no closer than
800 feet from development.

Issuance of the proposed ITPs to the Permittees is not likely affect the viability of the shrike in the Basin, Central Valley, or as a species. After implementation of the proposed action, over 14,000 acres of shrike foraging habitat will remain in the Basin and additional nesting and perching opportunities will be available. Continued use of the Basin by the shrike is very likely. The species is not considered to be subject to any identifiable threat in the State and populations in the western United States appear to be stable. Shrikes are common throughout lowland California and the Natomas Basin represents a very small fraction of the species' range.

Tricolored Blackbird

Implementation of the proposed action will likely affect the tricolored blackbird throughout the project's action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that directly result in the disturbance of blackbirds throughout the Permit Areas and on the Conservancy's reserves. Tricolor nesting colonies occur in the Basin and suitable tricolor habitat (especially foraging habitat) will be altered/destroyed by each of the Permittees. Displacement of tricolors will also result from loss of potential nesting and foraging habitat.

A total of 449 acres of potential nesting habitat (404 acres of canals, 21 acres of ponds and seasonally wet areas, and 24 acres of riparian) would be converted to urban development as a result of implementing the proposed action (Table 9). However, the actual acreage of nesting habitat lost may be lower than this because: (1) most of the 24 acres of riparian habitat lost is actually located within the buffer area adjacent to Fisherman's Lake (it is not known whether the limited buffer provided at the Lake will fully protect the tricolor); and (2) much of the canal acreage is open water and therefore, not nesting habitat. Nesting habitat would likely be limited to the vegetated margins of the canals. Implementation of the proposed action would result in the loss of 15,311 acres of potential tricolor foraging habitat (non-rice crops = 6,517 acres, grassland = 560 acres, pasture = 147 acres, and rice = 8,087 acres)(Table 9).

Issuance of the proposed ITP to the City would result in the loss of approximately 148 acres of potential tricolor nesting habitat (ponds and seasonally wet areas = 7 acres, riparian = 24 acres, canals = 117 acres) and 6,083 acres of potential tricolor foraging habitat (non-rice crops = 4,663 acres, grassland = 427 acres, pasture = 23 acres, and rice = 970 acres) (Table 9). Issuance of the proposed ITP to Sutter would result in the loss of 225 acres of potential nesting habitat (ponds and seasonally wet areas = 10 acres and canals = 215 acres) and 7,341 acres of potential foraging habitat (non-rice crops = 1,529 acres, grassland = 134 acres, pasture = 101 acres, and rice = 5,577 acres). The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA would result in the loss of 76 acres of potential nesting habitat (ponds and seasonally wet areas = 4 acres, canals = 72 acres) and 1,888 acres of potential foraging habitat (non-rice crops = 325 acres, pasture = 22 acres, and rice = 1,541 acres).

Issuance of the proposed ITP to the Conservancy will have both beneficial and deleterious effects on the tricolor. Potential adverse effects include, but are not limited to: construction activities conducted in or near the tricolor's foraging and nesting habitat may disturb tricolors. However, overall, the beneficial effects of issuing the ITP to the Conservancy will far out-weigh the deleterious effects.

Once completed, the Conservancy's habitat reserves will provide up to 8,750 acres of habitat for the tricolor in perpetuity. Potential nesting habitat will be created in the 2,187.5 acres of managed marsh. With the limited amount of marsh habitat currently available in the Basin, this is a substantial increase the amount of potential nesting habitat available to the Basin's tricolors. Potential foraging habitat will also be created on the Conservancy's 4,375 acres of rice and 2,187.5 acres of upland reserves. The NBHCP's requirement that the Conservancy consolidate reserves will help ensure that abundant potential foraging habitat is in close proximity to nesting habitat. According to DeHaven (2003, pers. comm, with Craig Aubrey), suitable insect prey bases in close proximity to breeding substrates is important for the tricolor.

In order to mitigate the loss of potential tricolor foraging habitat resulting from the issuance of the proposed ITP to the City, 3018.8 acres of potential foraging habitat (rice and uplands) will be created/managed on the Conservancy's upland and rice reserves. In order to mitigate the loss of tricolor nesting habitat resulting from the issuance of the proposed ITP to the City, 1006.25 acres of potential nesting habitat will be created on the Conservancy's managed marsh reserves. In order to mitigate the loss of potential tricolor foraging habitat resulting from the issuance of the proposed ITP to Sutter, 2,800.1 acres of potential foraging habitat (rice and uplands) will be created on the Conservancy's upland and rice reserves. In order to mitigate the loss of potential tricolor nesting habitat resulting from the issuance of the proposed ITP to the City, 933.4 acres of potential nesting habitat will be created on the Conservancy's managed marsh reserves. In order to mitigate the loss of potential tricolor foraging habitat resulting from the issuance of the proposed ITP to the MAPPOA, 743.7 acres of potential foraging habitat (rice and uplands) will be created on the Conservancy's upland and rice reserves. In order to mitigate the loss of tricolor nesting habitat resulting from the issuance of the proposed ITP to the MAPPOA, 247.9 acres of potential nesting habitat will be created on the Conservancy's managed marsh reserves.

Implementation of the proposed conservation measures will minimize the adverse effects of the proposed action on the tricolor. The Land Use Agencies and Conservancy will avoid active tricolor nests by at least 152 m (500 ft.), thereby decreasing disturbance of nesting tricolors and preventing the destruction of active nests. The use of pre-construction surveys should also minimize the take of tricolors. The Conservancy has also proposed to avoid, to the maximum extent possible, foraging habitat in the vicinity of currently or historically active nests, which may help increase survivorship of young. Lastly, the tricolor should indirectly benefit from conservation measures proposed or the snake such as: (1) timing restrictions; (2) dewatering requirements; and (3) vegetation control management because these measures should minimize the disturbance of tricolors.

Potential indirect effects of the proposed action is the loss of canal habitat (see snake discussion) and predation by feral or domestic animals. Development authorized as a result of this HCP could result in the future loss of irrigation/drainage canals in the Basin, which may result in additional losses of potential nesting habitat. Indirect effects of predation will be minimized by acquiring preserves no closer than 800 feet from development.

Overall, the tricolor should benefit from the Plan. Construction of the Conservancy's managed marsh reserves will increase tricolor nesting habitat in proximity to foraging habitat, which is currently limited in the Basin and the Central Valley as a whole. Even though over 15,000 acres of foraging habitat will be converted to urban uses as a result of issuing the ITPs, over 25,000 acres of foraging habitat will remain after issuance of the proposed ITPs. This remaining

foraging habitat, coupled with the created high-quality nesting habitat should increase the value of the Basin to the tricolor. As stated earlier, tricolor numbers have declined in Sacramento County. An increase in nesting habitat and numbers of tricolor in the Basin could result in a small boost (given the species' range and population size) to the species overall.

White-Faced Ibis

Implementation of the proposed action will likely affect the white-faced ibis throughout much of the proposed action's action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that directly result in the disturbance of wintering ibis throughout the Permit Areas and on the Conservancy's reserves. Although the ibis does not nest in the Basin (there is a lack of potential nesting habitat), the species does winter and forage there and suitable foraging habitat will be altered/destroyed by each of the Permittees.

The greatest source of potential take associated with the implementation of the proposed action is the loss of approximately one-third (8,512 acres) of the available potential foraging and wintering habitat in the Basin, the overwhelming majority of which is comprised of rice. Of the total ibis habitat lost in the Basin, 95 percent (8,087 acres) is rice, 0.25 percent (21 acres) is ponds and seasonally wet areas, and 4.75 percent (404 acres) is canals (Table 10).

Issuance of the proposed ITP to the City will result in the loss of 1,097 acres of potential ibis habitat (Table 10). Of that, 970 acres will be rice, seven acres will be ponds and seasonally wet areas, and 117 acres will be canals. Issuance of the proposed ITP to Sutter will result in the loss of 5,802 acres of potential ibis habitat. Of that, 5,577 acres will be rice, ten acres will be ponds and seasonally wet areas, and 215 acres will be canals. The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA will result in the loss of 1,617 acres of potential ibis habitat. Of that, 1,541 acres will be rice, four acres will be ponds and seasonally wet areas, and 72 acres will be canals.

Issuance of the ITP to the Conservancy will have both negative and positive direct effects on the ibis. Examples of possible negative effects on the ibis include, but are not limited to: (1) disturbance as a result of construction and maintenance activities on Conservancy reserves; and (2) the loss of rice foraging habitat due to conversions to other habitat types. However, the Conservancy's overall effects on the ibis will be almost overwhelmingly positive. Rice production practices on Conservancy lands should prove to be more "ibis friendly" and more importantly, the development of the managed marsh component of the reserve system should provide nesting and roosting opportunities for the ibis, which are currently limited in the Central Valley and virtually non-existent in the Natomas Basin. The potential benefit of the managed marsh as nesting and roosting habitat should increase through time, as the reserve system increases in size and individual reserves are consolidated.

In order to mitigate the loss of potential ibis foraging habitat (alfalfa, ponds and seasonally wet areas, rice canals) resulting from the issuance of the proposed ITP to the City, 2012.5 acres of potential rice foraging habitat (rice and uplands) will be managed by the Conservancy in perpetuity. In addition, 1006.2 acres of potential foraging, nesting, and roosting habitat will be created on the Conservancy's managed marsh reserves. In order to mitigate the loss of potential ibis foraging habitat (alfalfa, ponds and seasonally wet areas, rice canals) resulting from the

issuance of the proposed ITP to Sutter, 1866.8 acres of potential rice foraging habitat (rice and uplands) will be managed by the Conservancy in perpetuity. In addition, 933.4 acres of potential foraging, nesting, and roosting habitat will be created on the Conservancy's managed marsh reserves. In order to mitigate the loss of potential ibis foraging habitat (alfalfa, ponds and seasonally wet areas, rice canals) resulting from the issuance of the proposed ITP to the MAPPOA, 495.8 acres of potential rice foraging habitat (rice and uplands) will be managed by the Conservancy in perpetuity. In addition, 247.9 acres of potential foraging, nesting, and roosting habitat will be created on the Conservancy's managed marsh reserves.

Implementation of the proposed conservation measures by the Permittees should minimize the effects of the proposed action on the ibis. Avoidance of developed areas by at least 244 m (800 ft.) by the Conservancy's reserves will help minimize exposure of ibis to development-related effects. Measures included for the avoidance of active ibis nests should benefit the ibis, if and when ibis use lands in the Basin for nesting. Lastly, the ibis should benefit from conservation measures proposed for the snake. For example, limiting construction activities in snake habitat to the snake's active season will limit the destruction of ibis wintering habitat to times when the majority of ibis are not in the Basin.

Potential indirect effects of the proposed action include predation and the additional closure of canals. Development authorized as a result of this HCP could result in the future loss of irrigation/drainage canals in the Basin (see snake discussion), which may result in additional losses of potential nesting habitat. Indirect effects of predation will be minimized by acquiring preserves no closer than 800 feet from development.

Issuance of the proposed ITPs to the Permittees should benefit the ibis. Although about 1/3 of the ibis' foraging habitat in the Basin will be converted to urban uses, over 16,000 acres of ibis foraging habitat will remain after implementation of the proposed action. More importantly, the Conservancy's system of managed marsh reserves will provide potential nesting habitat for the ibis. Ibis nesting habitat is limited throughout the Central Valley; foraging habitat is not. The species is precluded from nesting in the Basin because no nesting habitat occurs there. Therefore, although there will be an overall decrease of foraging habitat in the Basin, the species should benefit because of the opportunities created for the breeding portion of its life cycle.

Bank Swallow

Implementation of the proposed action will likely affect the bank swallow throughout the project's action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that directly result in the disturbance of swallows throughout the Permit Areas and on the Conservancy's reserves. Although the swallow does not nest in the Basin, the species does nest nearby and could forage in the Basin. Potential foraging habitat will be altered/ destroyed by each of the Permittees. In addition to disturbance, once completed, implementation of the proposed action will result in the conversion of approximately 15,760 acres of potential swallow foraging habitat.

Issuance of the proposed ITP to the City will result in the loss of 6,231 acres of potential swallow foraging habitat. Effected habitat types include: grassland (427 acres), nonrice crops (4,663 acres), pasture (23 acres), ponds and seasonally wet areas (7 acres), rice (970 acres), riparian

(24 acres), and canals (117 acres) (Table 11). Issuance of the proposed ITP to Sutter will result in the loss of 7,566 acres of potential swallow foraging habitat. Effected habitat types include: grassland (134 acres), nonrice crops (1,529 acres), pasture (101 acres), ponds and seasonally wet areas (10 acres), rice (5,577 acres), and canals (215 acres). The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA will result in the loss of 1,964 acres of potential swallow foraging habitat. Effected habitat types include: nonrice crops (325 acres), pasture (22 acres), ponds and seasonally wet areas (4 acres), rice (1,541 acres), and canals (72 acres).

Issuance of the proposed ITP to the Conservancy would have both positive and negative effects on the swallow. Swallows could be disturbed by construction or management activities on Conservancy reserves. Additionally, swallow foraging habitat may be temporarily disturbed or converted to other types during the implementation of SSMP's. Although some negative effects would likely occur to the swallow as a result of issuance of the proposed ITP to the Conservancy, the overall effects of issuing the ITP to the Conservancy would be overwhelmingly positive. Construction of the Conservancy's reserves would ensure a permanent source of swallow foraging habitat in the Basin. In addition, the diversity of habitat types on the Conservancy's reserves would help provide varying prey types at different times of year.

All of the Conservancy's rice, managed marsh, and upland reserves will provide potential foraging habitat for the swallow. In order to mitigate the loss of potential swallow foraging habitat resulting from the issuance of the proposed ITP to the City, 4025 acres of potential foraging habitat will be created on the Conservancy's managed marsh, rice, and upland reserves. In order to mitigate the loss of potential swallow foraging habitat resulting from the issuance of the proposed ITP to Sutter, 3733.5 acres of potential foraging habitat will be created on the Conservancy's managed marsh, rice, and upland reserves. In order to mitigate the loss of potential swallow foraging habitat resulting from the issuance of the proposed ITP to MAPPOA, 991.5 acres of potential foraging habitat will be created on the Conservancy's managed marsh, rice, and upland reserves.

If swallows begin to nest in the Basin (unlikely, given the absence of suitable nesting habitat), implementation of the proposed conservation measures by the Permittees will help minimize direct effects to the bank swallow. In addition, the Conservancy is proposing to use CDFG's swallow recovery plan, which should assist the Conservancy's efforts to manage the species on its lands.

Potential indirect effects of the proposed action include predation and the additional closure of canals (see snake discussion). Development authorized as a result of this HCP could result in the future loss of irrigation/drainage canals in the Basin, which may result in additional losses of potential nesting habitat. Indirect effects of predation will be minimized by acquiring preserves no closer than 800 feet from development.

Overall, the impacts of issuance of the proposed ITPs to the Permittees should be negligible. Although the vast majority of California's bank swallows are found on the Sacramento River, most nesting colonies are found upstream of the confluence of the Sacramento and Feather Rivers (Garrison *et al.* 1987, Laymon *et al.* 1988) and there is little potential nesting habitat (i.e., vertical banks) in the vicinity of the Natomas Basin (R. DeHaven, pers. comm., to Craig Aubrey, 2003). Much of the river bank in the vicinity of Sacramento and the Natomas Basin is covered in riprap

or otherwise is not suitable for bank swallow nesting habitat. Although about one-third of the Basin's potential foraging habitat will be converted to urban uses, over 27,000 acres (not considering the Conservancy's reserves) will remain after implementation of the proposed action. Development is precluded from the Swainson's Hawk Zone, which is the portion of the Basin closest to the Sacramento River (where swallow nesting colonies would occur). This is especially important during the breeding season, when swallows forage in close proximity to their nests. Because of the upland reserve acquisition criteria, much of the lands in close proximity to the river will be protected in perpetuity after implementation of the proposed action.

Northwestern Pond Turtle

Implementation of the proposed action will likely affect the turtle throughout the proposed action's action area by authorizing the City, Sutter, Conservancy, and MAPPOA to participate in and authorize activities that directly result in the death, harm, or injury of turtles throughout the Permit Areas and on the Conservancy's reserves. The turtle is known to occur throughout the Basin and each of the Permittees will destroy potential turtle habitat within their Permit Areas. Take of turtles is likely to result from each of the Permittees actions and the greatest potential source of direct effects is the loss of approximately 8,500 acres of potential turtle aquatic and upland habitat (ponds and seasonally wet areas = 21 acres, rice = 8,087 acres, riparian = 24 acres, canals = 404 acres)(Table 12). Additionally, turtles could be disturbed, injured, or killed by construction activities. For example, grading activities could crush turtles or their nests. The construction of new roads could present a barrier to turtle movements.

Issuance of the proposed ITP to the City will result in the loss of 1,118 acres of potential turtle habitat. Of that, 970 acres will be rice, seven acres will be ponds and seasonally wet areas, 24 acres will be riparian, and 117 acres will be canals. Issuance of the proposed ITP to Sutter will result in the loss of 5,802 acres of potential turtle habitat. Of that, 5,577 acres will be rice, ten acres will be ponds and seasonally wet areas, and 215 acres will be canals. The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA will result in the loss of 1,617 acres of potential turtle habitat. Of that, 1,541 acres will be rice, four acres will be ponds and seasonally wet areas, and 72 acres will be canals. Based solely upon the fact that more rice habitat is in Sutter's Permit Area than any of the other permit areas, issuance of the proposed ITP to Sutter will result in the majority of the direct effects to the turtle.

In order to mitigate the loss of potential turtle habitat resulting from the issuance of the proposed ITP to the City, 1006.25 acres of potential foraging/nesting/basking/overwintering habitat will be created/managed on the Conservancy's managed marsh reserves. In addition, 2012.5 acres of rice foraging habitat will be preserved/managed in perpetuity. In order to mitigate the loss of potential turtle habitat resulting from the issuance of the proposed ITP to Sutter, 933.4 acres of potential foraging/nesting/basking habitat will be created/managed on the Conservancy's managed marsh reserves. In addition, 1866.8 acres of rice foraging habitat will be preserved/managed in perpetuity. In order to mitigate the loss of potential turtle habitat resulting from the issuance of the proposed ITP to the MAPPOA, 247.9 acres of potential foraging/nesting/basking habitat will be created/managed on the Conservancy's managed marsh reserves. In addition, 495.8 acres of rice foraging habitat will be preserved/managed in perpetuity. Conservancy upland reserves in proximity (less than 2 km) to turtle aquatic habitat may provide additional nesting and overwintering opportunities for the turtle.

Issuance of the ITP to the Conservancy will have both negative and positive direct effects on the turtle. Examples of possible negative effects on the turtle include, but are not limited to disturbance by construction activities on Conservancy reserves or the loss of rice habitat due to conversions to other habitat types. However, the Conservancy's overall effects on the turtle will be almost overwhelmingly positive. Rice production practices on Conservancy lands should prove to be more "turtle friendly" and more importantly, the development of the managed marsh component of the reserve system should provide foraging, nesting, overwintering, and basking opportunities for the turtle. Most importantly, habitat reserves will provide upland habitat opportunities for the turtle. Upland habitat is currently limited for the turtle in the Basin and most of that which currently exists is regularly disturbed.

The turtle will likely benefit from conservation measures proposed by the Permittees for the snake. For example, dewatering of habitat prior to construction should encourage turtles to seek suitable aquatic habitat elsewhere. Limiting construction activities in suitable snake habitat to between May 1 and October 1 should help minimize turtle mortalities, since they often overwinter underground in a manner similar to the snake. Avoidance of Fisherman's Lake by at least 61 m (200 ft.) will help protect much of the turtle's aquatic and upland habitat there. The NBHCP's connectivity assurances will also help preserve connectivity for the turtle throughout the Basin.

Predation by domestic and feral animals, increased vehicular strikes, and the additional closure of canals (see snake discussion) are three potential indirect effects of the proposed action. Under the Proposed Action, habitat reserves would be located at least 244 m (800 ft.) from urban areas and areas designated for urban development (unless a smaller distance is approved by CDFG and the Service on a case-by-case basis) and a buffer at least 9 m (30 ft.) wide established within the reserve between marsh habitat and roadways. By locating habitat reserves away from urban areas, the potential for death or injury to turtles from vehicle strikes and predation should be reduced, although not eliminated.

Overall, the proposed action is likely to benefit the turtle. Most of the potential habitat that will be lost as a result of the proposed action is rice. Its value to the turtle is questionable because there is little associated upland habitat for basking, nesting, and other upland-associated activities. In contrast, the Conservancy's system of managed marsh reserves will provide both suitable aquatic and upland habitat. Additionally, the Conservancy's upland reserves may provide potential turtle nesting and overwintering habitat. Therefore, the proposed action should increase the viability of the turtle in the Basin. As stated earlier, the Basin currently supports limited numbers of turtles. Because of the wide range of both the subspecies and species, the limited number of turtles in the Basin, and the limited amount of good-quality turtle habitat in the Basin, the Natomas Basin is probably not essential to the turtle's recovery.

Western Spadefoot Toad

Issuance of the proposed ITP's to the City, Sutter, and the Conservancy may result in limited direct effects to the western spadefoot toad. Although the toad has not been observed in the proposed action's action area, it has been observed approximately six miles from the Basin and suitable toad habitat may exist in the Basin (including the City's and Sutter's Permit Areas).

Development activities proposed by the Land Use agencies may result in the disturbance, injury, or deaths of toads. Toads could be injured or killed by construction activities when they are

crushed by construction equipment in their aquatic and upland habitats. Low frequency noises caused by heavy earth moving equipment could cause toads to come out of dormancy and emerge at inappropriate times. This disturbance could then indirectly result in the harm or death of toads. For example, vibrations could cause toads to emerge from their burrows during the summer months, thereby making them more susceptible to dessication.

As stated in the species descriptions, the amount of suitable toad habitat in the Basin was not quantified. The Basin is not known to contain substantial numbers of vernal pools and is not considered essential to recovery; the proposed action's action area is not included in the Service's proposed vernal pool critical habitat rule (67 FR 59884). The toad has not been identified in the Basin. Based upon estimates derived from data gathered in Sacramento County (see Environmental Baseline for details), the Basin's 886 acres of grasslands would contain at the most 21.3 acres of vernal pools. Additionally, some portion of the Basin's 96 acres of ponds and seasonally wet areas may be suitable for the toad. However, this estimate greatly overestimates the actual amount of vernal pool habitat in the Basin because grasslands in the Basin have a lower density of vernal pools than surrounding areas of Sacramento County (see Environmental Baseline) and most of the ponds and seasonal wetlands do not have correct hydrology to support covered vernal pool species. Of the total 886 acres of grasslands in the Basin, 427 are in the City's Permit Area and 134 are in Sutter's Permit Area (Table 14). This equates to 10.2 and 3.26 acres of vernal pools in the City and Sutter's Permit Areas, respectively. Of the total 96 acres of ponds and seasonally wet areas in the Basin, seven are in the City's Permit Area, four are in the MAP Permit Area, and ten are in Sutter's Permit Area (Table 14). Most of the potential habitat that will be lost is located in the eastern portion of the City's Permit Area. As stated in the species description, ponds and seasonally wet areas acreages almost certainly vastly overestimate the actual potential toad in the Basin, as most of the ponds and seasonally wet areas do not have the correct hydrology to support vernal pool-associated species. Ponds and seasonally wet areas located in the MAP Permit Area do not have the correct hydrology to support the toad and no other potential habitat is located within 76 m (250 ft.) of any of MAP's proposed action activities (Service 2002).

Issuance of the proposed ITP to the Conservancy may have some minimal detrimental effects on the toad on Conservancy reserve lands, if the toad ever occurs in the Basin and Conservancy reserve lands. Toads could be disturbed, harmed, or killed during construction and maintenance activities on Conservancy lands, especially managed marsh reserves and surrounding grasslands. Toads could be crushed in their burrows by heavy equipment, disturbed by heavy equipment, disturbed by people performing vegetation management, etc. The Conservancy's managed marsh reserves will likely provide some potential habitat for the toad. However, the species appears to be more successful in seasonally inundated environments such as vernal pools. Managed marsh reserves will likely not have large amounts of wetlands seasonally flooded in the winter; therefore, the toad will not benefit greatly from the reserves. However, the Conservancy has proposed to periodically consult with toad experts and investigate the possibility of creating potential toad habitat on its reserves.

The Land Use Agencies did not propose take avoidance and minimization measures specific to the toad because of the low likelihood of the species to occur in the Basin. However, they will require toad surveys. If toads are found, the Land Use Agencies will require the developers to consult with the Wildlife Agencies on how to avoid and minimize take. In addition, the toad may benefit from conservation measures proposed for other vernal pool Covered Species. For

example, if vernal pool crustaceans are identified, developers will be required to minimize their impacts according to current Service guidelines. Therefore, the toad may indirectly benefit from conservation measures proposed for the crustaceans. If toads are found in the Basin, the Conservancy will be required to provide suitable habitat for them on its reserves. Therefore, any take of toads is both minimized and mitigated.

Two potential indirect effects of the proposed action include predation and vehicular strikes. For example, the number of toads killed or injured by automobiles will likely increase as automobile traffic increases in the Basin. Vehicle mortalities has been identified as a source of toad mortalities. Under the Proposed Action, habitat reserves would be located at least 244 m (800 ft.) from urban areas and areas designated for urban development (unless a smaller distance is approved by CDFG and the Service on a case-by-case basis) and a buffer at least 9.1 m (30 ft.) wide established within the reserve between marsh habitat and roadways. By locating habitat reserves away from urban areas, the potential for death or injury to toads (if toads eventually inhabit the Basin) from vehicle strikes and predation should be reduced, although not eliminated.

Overall, the proposed action is likely to have little to no adverse effects on the toad. The toad has not been observed in the Basin and is very unlikely to occur there (K. Fuller, pers. comm. to C. Aubrey, 2003). In addition, very little suitable toad habitat exists in the Basin. In the remote event toads are discovered in the Basin, the Permittees would implement measures to minimize and mitigate the take. For example, a breeding pond could be avoided altogether or not filled until after the pond had dried and toads no longer inhabited it. Therefore, the proposed action will not impact the species as a whole.

California Tiger Salamander

The closest known occurrence of California tiger salamander is 11 miles from the proposed action's action area. There is a limited amount of potential habitat in the proposed action's action area and it seems likely that the Service would know if salamanders occurred there. The species is readily identifiable when its breeding ponds are surveyed and the species' presence in an area is often discovered when individuals are struck by cars while migrating to the breeding ponds. The Service is also unaware of any likely natural dispersal mechanism that would cause the salamander to occur in the proposed action's action area in the future. Therefore, issuance of the proposed ITPs to the City, Sutter, and Conservancy is not likely to result in any effects to the salamander.

In the very unlikely event salamanders are discovered in the future, the Permittees have proposed conservation measures to minimize and mitigate the impacts. For example, if a developer discovers salamanders on their property, they must consult with the Service to determine how to avoid and minimize impacts to the species. The Conservancy would then be required to provide salamander-conducive habitat in its reserves.

Sanford's Arrowhead

Issuance of the proposed ITP to the City, MAPPOA, Sutter and the Conservancy may adversely affect Sanford's arrowhead. Although the species has not been identified in the proposed action's action area, it is known to occur less than one mile from the Basin and suitable habitat exists in the proposed action's action area. The most likely potential source of direct effects to Sanford's

arrowhead is the death of plants during activities that alter the habitat of Sanford's arrowhead. For example, if a canal inhabited by the species is filled, plants inhabiting the canal could be crushed or otherwise destroyed by construction equipment. Additionally, the plants could be adversely affected if the canal is filled so that habitat is destroyed or sufficient water is no longer provided to the plants.

Issuance of the proposed ITP to the City is likely to destroy 124 acres of potential Sanford's arrowhead habitat (Table 14). Of this, seven acres are ponds and seasonally wet areas and 117 acres are canals. Issuance of the proposed ITP to Sutter is likely to destroy 225 acres of potential Sanford's arrowhead habitat. Of this, ten acres are ponds and seasonally wet areas and 215 acres are canals. The effects of issuance of the ITP for the MAP project were analyzed in the January 16, 2002, biological opinion for that project. Issuance of the proposed ITP to the MAPPOA is likely to destroy 76 acres of potential Sanford's arrowhead habitat. Of this, four acres are ponds and seasonally wet areas and 72 acres are canals. Although canals are considered potential habitat, water diversions and channel alteration have been listed as a threat to Sanford's arrowhead (CNDDB 2001, Tibor 2001).

Issuance of the proposed ITP to the Conservancy is likely to have both detrimental and beneficial effects on Sanford's arrowhead. Plants could be destroyed during the construction and management of reserves. For example, tractors working in an enhancement area could crush plants. The main potential beneficial effect is the construction of the Conservancy's system of managed marsh reserves. The overall effect of these reserves will likely be to improve habitat conditions for Sanford's arrowhead in the Basin. Reserves acquired as mitigation for development resulting from issuance of the ITPs (both together and separately) to the Land Use Agencies will provide a greater amount of potential habitat than currently exists in the Basin. As a result of destroying 124 acres of potential Sanford's arrowhead habitat in the City's Permit Area, the Conservancy (using mitigation fees) will develop 1006.2 acres of managed marsh habitat. As a result of destroying 225 acres of potential Sanford's arrowhead habitat in Sutter's Permit Area, the Conservancy (using mitigation fees) will develop 933.4 acres of managed marsh habitat. As a result of destroying 76 acres of potential Sanford's arrowhead habitat in MAPPOA's Permit Area, the Conservancy (using mitigation fees) will develop 247.9 acres of managed marsh habitat. In addition to the large increase in potential habitat, the habitat on managed marsh reserves is superior because it will not be subject to the relatively intense management practices that occur in the Basin's drainage and irrigation canals.

In addition to acquiring fees for the development of managed marsh reserves, the Land Use Agencies have proposed to minimize the effects of the proposed action on Sanford's arrowhead by conducting pre-development surveys and relocating any potentially affected plants (another potential direct effect related to development). The Conservancy will monitor any populations identified on Conservancy reserves and manage for their conservation.

The most likely potential indirect effect of the proposed action is the closing or reduced usage of drainage and irrigation canals in response to development. This potential effect is addresses in the snake's indirect effects section.

Overall, issuance of the proposed ITPs to the Permittees should have little to no adverse effects on the Sanford's arrowhead. The species has not been observed in the Basin. However, if the species later colonizes the Basin, it is likely to benefit from the proposed action because the

project will result in a net increase of suitable habitat. In the event the species is identified in an area to be developed, the plan allows for their transplantation prior to disturbance. The Conservancy's managed marsh reserves will provide high-quality habitat for the species that is not subject to the adverse impacts of practices such as devegetating irrigation and drainage canals. Because the proposed action is likely to have little adverse effects on Sanford's arrowhead locally, particularly as the species is not known to occur in the basin, and the range of the species is far greater than the immediate project area, the proposed action is not expected to adversely affect the species as a whole.

Delta Tule Pea

Delta tule pea is not known to occur within 20 miles of the action area and the Service does not believe that it is likely that the species will naturally occur in the action area during the future. The Service also does not anticipate any indirect effects to the species in the Basin or in general. Therefore, issuance of the proposed ITPs to the City, Sutter, and MAPPOA is not likely to result in adverse effects to the delta tule pea. In the very unlikely event the delta tule pea does eventually colonize the Basin, the Land Use Agencies have proposed to allow plants to be transplanted from development sites to minimize impacts to the affected individuals. The Conservancy's managed marsh reserves will provide high-quality habitat for the species that is not prone to management practices such as devegetating canals.

Cumulative Effects

Cumulative effects are the effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal Action under review (50 C.F.R. 402.02).

The NBHCP anticipates that a total of 17,500 acres of development will occur in the Basin during the 50-year life of the ITPs. This is based upon the extent, amount, and location of future development outlined in the City's, Sutter's, and Sacramento County's adopted Land Use Plans as well as the level of development contemplated in adopted community plans and specific plans. Section 3.1.4 of the Final NBHCP EIR/EIS discusses a number of development projects including, but not limited to, Alleghany Properties, Northern Territories/Brookfield Land Company, expansion of the Sacramento International Airport, and a private university proposal, that are outside of the development analyzed in the NBHCP and could potentially occur in the Basin in the future. However none of these potential development projects is reasonably certain to occur in the action area of the plan. These areas are not planned for urban development under adopted land use plans; (2) these areas are located outside of the City's Sphere of Influence, the City of Sacramento city limits and Sacramento County's Urban Services Boundary; (3) no urban services (such as sewage) are available to serve development; and (4) other significant legal and planning hurdles must be overcome before development could proceed. In addition, neither the City, Sutter, nor Sacramento County are considering proposed amendments to their general plans that would result in additional urban development in the Natomas Basin. Therefore, none of the projects are either "reasonably certain to occur" within the action area of the plan. Detailed discussion can be found in Section 3.1.4 of the Final NBHCP EIR/EIS.

In addition, any activities in the Natomas Basin that result in take of listed animal species would require either: (1) a Section 10 permit, a federal action, which in turn will trigger formal

consultation under Section 7 with the Service; or (2) a Section consultation with the service if a federal action is involved. The giant garter snake is known to occur in many of the areas identified above, so that incidental take authorization under Section 7 or Section 10 would likely be required before projects in these areas could legally proceed. Therefore, these activities would not be considered cumulative effects.

Both the City and Sutter have agreed to restrict development in the Basin to that outlined in the NBHCP (17,500 acres [including MAP]). If either the City or Sutter does decide to pursue additional development, they agree that prior to approval of any related rezoning or prezoning, such future urban development shall trigger a reevaluation of the Plan and ITPs, a new effects analysis, potential amendments and/or revisions to the Plan and ITPs, a separate conservation strategy and issuance of ITPs to the City and/or Sutter for that additional development. Failure to meet these requirements, could trigger suspension or revocation of their ITP(s).

Threatened Vernal Pool Fairy Shrimp, Endangered Vernal Pool Tadpole Shrimp, Threatened Colusa Grass, Threatened Slender Orcutt Grass, Endangered Sacramento Orcutt Grass, Midvalley Fairy Shrimp, Western Spadefoot Toad, California Tiger Salamander, Legenere, and Boggs Lake Hedge-Hyssop

Changes in land use practices could adversely affect Covered vernal pool species. For example, if an area used for grazing contains vernal pools, conversion of that area to row crops, vineyards, or orchards could result in the destruction of those vernal pools and the organisms that inhabit them. However, considering that most of the species have not been observed in the action area and that the amount of potential habitat in the Basin is very limited, this cumulative effect is likely to have little to no effect on the species by itself, or when added to the proposed action. If a listed vernal pool animal species occurs in the vernal pools, federal action would be required to authorize incidental take, so that these effects would not be considered cumulative to the current action.

Threatened Giant Garter Snake

Because the snake inhabits wetlands and adjacent uplands in highly modified portions of the proposed action's action area, the Service anticipates that a wide range of activities will affect the species. An undetermined number of future land use conversions and routine agricultural practices (including those by RD 1000 and Natomas Mutual) may convert or otherwise alter habitat or disturb, kill, or injure snakes. Ongoing agricultural activities also affect the giant garter snake and other Covered Species, and are largely not subject to an obvious bosection 7 consultation. Some agriculture, such as rice farming, can provide valuable seasonal foraging and upland habitat for Covered Species. Although rice fields and agricultural waterways can provide habitat for the snake and other Covered Species, agricultural activities such as waterway maintenance, weed abatement, rodent control, and discharge of contaminants into wetlands and waterways can degrade habitat and increase the risk of mortality (Service 1999). Maintenance of agricultural waterways can also eliminate or prevent establishment of snake habitat, eliminate food resources, and can fragment existing habitat and prevent dispersal of giant garter snakes and wetland-dependent species (Service 1999). In addition, crop rotation within the Natomas Basin causes shifts in habitat availability, quantity, quality, and affects the presence of giant garter snakes. Although these agricultural practices can result in take of the snake, the snake has persisted despite these activities for decades and therefore, its baseline is probably not being

further depressed by these activities. In addition, in the event take resulted from these activities, it would violate the Act unless authorized through an incidental take statement or an incidental take permit, both of which would trigger Section 7 consultation.

Other cumulative effects include: (1) fluctuations in acres of aquatic habitat due to water management or acres of ricelands in production; (2) diversion of water; (3) levee repairs; (4) riprapping or lining of canals and stream banks; (5) dredging, clearing, and spraying to remove vegetation from irrigation canals; (6) discing, mowing, clearing and spraying vegetation adjacent to canals and streams; (7) use of burrow fumigants on levees and other potential upland refugia; (8) contaminated runoff from agriculture and urbanization; and (9) use of herbicides and pesticides in ricelands and other agricultural lands that provide snake habitat, or which are adjacent to and/or drain into snake habitat. As with the agricultural activities discussed in the preceding paragraph, the snake has persisted despite these activities for decades and therefore, its baseline is probably not being further depressed by these activities.

Non-agricultural flood control and maintenance activities which can result in snake mortality and degradation of habitat include levee construction, stream channelization, and the riprapping of streams and canals (Service 1999); most of these activities would require permits from the U.S. Army Corps of Engineers and trigger a section 7 consultation with the Service. The interior drainage channels within the Natomas Basin are subject to fewer impacts than banks along riverine systems, but plans exist for a possible relocation of a reach of the Natomas East Main Drainage Canal. Similar to flood control and maintenance activities, these activities would likely not be considered cumulative effects because they would require a Section 404 Clean Water Act Permit and therefore, would require section 7 formal consultation if they were likely to adversely affect the snake.

Threatened Valley Elderberry Longhorn Beetle

No potential cumulative effects within the proposed action's action area are anticipated because habitat for this species is limited in the basin, the species is not known to occur in the basin and additional growth beyond planned development covered by the NBHCP not reasonably certain to occur within the action area.

Swainson's Hawk

Infection of hawks by West Nile virus could potentially occur within the Central Valley population of Swainson's hawks (M. Bradbury, pers. comm. to Craig Aubrey, 2002). However, the Service is not aware of Swainson's hawks being infected by the disease in California, although the species has been observed carrying the virus (Centers for Disease Control and Prevention, 2002). Infection of hawks from this disease is not reasonably certain to occur within the action area of the plan and is not considered a cumulative effect. In addition, according to Bradbury (2002, pers. comm. to Craig Aubrey), the more individuals there are, the more likely there will be enough immune individuals to allow the population to recover and the larger the area they cover, the less chance any individual will come into contact with the disease. The proposed action should have no affect on the ability of the hawk to either avoid or recover from the virus. The proposed action is not anticipated to reduce the number of hawks and the amount of habitat being converted is very small in comparison to the total amount of habitat in the vicinity of the proposed action.

Aleutian Canada Goose

A potential cumulative effect of the proposed action specific to the goose is the use of herbicides and pesticides in ricelands and other agricultural lands that provide goose foraging habitat. However, as discussed in the analysis of direct and indirect effects, the goose is only an occasional visitor to the Basin and the Basin represents only a small portion of the goose's winter range in California. Therefore, such use should have little effect on the goose, by itself or when added to the effects of the proposed action.

Burrowing Owl

Potential cumulative effects of the proposed action specific to the owl are: (1) the use of herbicides and pesticides in agricultural lands that provide owl foraging and nesting habitat; and (2) use of rodenticides in lands that provide owl burrowing habitat. However, neither of these activities is likely to reduce the viability of the owl in the Basin or as a whole, either alone or when added to the effects of the proposed action. The burrowing owl has persisted in the basin despite the use of herbicides, pesticides, and rodenticides for decades in the Basin, and the use of these substances is not expected to increase in the future.

Loggerhead Shrike

A potential cumulative effect of the proposed action specific to the shrike is use of herbicides and pesticides in agricultural lands that provide shrike foraging habitat. Herbicides and pesticides have been used for decades in the Basin; their use is not anticipated to increase or to affect the viability of the shrike in the Basin or as a species. The species is not considered to be subject to any identifiable threat in the State and populations in the western United States appear to be stable. Shrikes are common throughout lowland California and the Natomas Basin represents a very small fraction of the species' range. There for, such use is should have little effect on the shrike, by itself, or when added to the effects of the proposed action.

Tricolored Blackbird

A potential cumulative effects of the proposed action specific to the tricolor is the use of herbicides and pesticides in agricultural lands that provide tricolor nesting and foraging habitat. Because of the similarity of habitat requirements with the snake, many of the cumulative effects described for the snake such as agricultural activities will also affect the tricolor. As with the snake, these cumulative effects should not affect the viability of the tricolor in the Basin or as a species, by itself or when added to the effects of the plan. Herbicides and pesticides have been used for decades in the Basin; their use is not anticipated to increase.

White-Faced Ibis

A potential cumulative effect of the proposed action specific to the ibis is the use of herbicides and pesticides in agricultural lands that provide ibis wintering and foraging habitat. In addition, because of the similarity of habitat requirements with the snake, many of the cumulative effects described for the snake will also affect the ibis. Although agricultural pesticide use is a concern, ibis appear to be performing well in Central Valley rice fields, and rice fields represent the majority of available ibis habitat in the Basin. These cumulative effects, by themselves, or when

added to the effects of the proposed action, are not expected to reduce the viability of the ibis in the Basin or as a species.

Bank Swallow

A potential cumulative effects of the proposed action specific to the bank swallow the is use of herbicides and pesticides in agricultural lands that provide swallow foraging habitat. Herbicides and pesticides have been used for decades in the Basin; their use is not anticipated to increase. Furthermore, the swallow is only an occasional visitor to the Basin. Therefore, the cumulative effects of such use on the bank swallow are not, by themselves, or when added to the effects of the proposed action, expected to affect the viability of the swallow in the Basin or as a species.

Northwestern Pond Turtle

A potential cumulative effects of the proposed action specific to the turtle is the use of herbicides and pesticides in agricultural lands that provide turtle foraging habitat. In addition, because of the similarity of habitat requirements with the snake, many of the cumulative effects described for the snake such as canal maintenance will also affect the turtle. The turtle has probably persisted despite the use of herbicides and pesticides in the Basin for decades; their use is not anticipated to increase. The Basin currently provides limited habitat for the turtle and the species ranges from Washington to Mexico. The subspecies ranges from Washington to just south of the project area. Therefore, these cumulative effects, by themselves, or when added to the effects of the proposed action, are not expected to affect the viability of the turtle in the Basin or as a species.

Sanford's Arrowhead

One potential cumulative effect of the proposed action on Sanford's arrowhead is water transfers. In 2003, a number of northern California water districts (including Natomas Mutual) sold water to water districts in southern California. According to news accounts (e.g., Hacking 2003) southern California water districts are currently negotiating for long-term water transfer contracts. If entered into, these contracts could result in a decrease in the amount or suitability of potential Sanford's arrowhead habitat because less water would be available in the proposed action's action area for the species. However, since the basin area provides little potential habitat for this species and the the species has not been observed in the proposed action's action area, future water transfers, by water districts in the basin, either by themselves or when added to the proposed action, are not likely to affect the viability of the Sanford's arrowhead in the Basin or as a species.

Delta Tule Pea

Because the species has neither been observed in nor is expected to occur in the proposed action's action area, no cumulative effects are anticipated.

Conclusion

Federally-Listed, Proposed and Delisted Species

After reviewing the current status of the endangered vernal pool tadpole shrimp, threatened giant garter snake, threatened valley elderberry longhorn beetle, threatened vernal pool fairy shrimp,

endangered Sacramento Orcutt grass, threatened Colusa grass, threatened slender Orcutt grass, proposed California tiger salamander, and delisted Aleutian Canada goose, the environmental baselines for the action area, and the effects of the proposed action, including all measures proposed to avoid, minimize, and mitigate adverse effects and the cumulative effects, it is the Service's biological opinion that the issuance of incidental take permits to the City, Sutter, MAPPOA, and Conservancy pursuant to section 10(a)(1)(B) of the Act is not likely to jeopardize the continued existence of the vernal pool tadpole shrimp, giant garter snake, valley elderberry longhorn beetle, vernal pool fairy shrimp, Sacramento Orcutt grass, Colusa grass, slender Orcutt grass, California tiger salamander, and Aleutian Canada goose for the reasons stated in the "Effects of the Proposed Action" section of this opinion. Critical habitat has not been designated for the giant garter snake, therefore none will be affected. Critical habitat for the valley elderberry longhorn beetle exists to the south/southeast of the project area, but will not be affected. Proposed critical habitat for the listed vernal pool Covered Species (vernal pool tadpole shrimp, vernal pool fairy shrimp, Colusa grass, Sacramento Orcutt grass, and slender Orcutt grass) does not include the proposed action's action area; therefore, none will be affected. As stated earlier, the effects of the issuance of an ITP to MAP were previously analyzed in the January 16, 2002, biological opinion for that project (Service File # 1-1-01-F-0302) and the Service issued an ITP to MAPPOA on February 21, 2002 (TE036473-0). The MAP biological opinion is incorporated by this reference into this opinion.

Other Covered Species - Not Federally-Listed as Threatened or Endangered

After reviewing the current status of the unlisted Swainson's hawk, white-faced ibis, bank swallow, tricolored blackbird, northwestern pond turtle, loggerhead shrike, burrowing owl, western spadefoot toad, midvalley fairy shrimp, Boggs Lake hedge-hyssop, legenere, Sanford's arrowhead, and delta tule pea, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's opinion that should any of these species be listed in the future, issuing incidental take permits that include these species as covered species and that authorize the incidental take of the currently unlisted animal covered species should they become listed during the term of the permits, is not likely to jeopardize the continued existence of the Covered Species. Summaries of the components of the proposed NBHCP that were particularly instrumental in supporting the Service's conclusion with regard to currently unlisted Covered Species are provided in the effects section of this opinion. As stated earlier, the effects of the issuance of an ITP to MAP were previously analyzed in the January 16, 2002, biological opinion for that project (Service File # 1-1-01-F-0302) and the Service issued an ITP to MAPPOA on February 21, 2002 (TE036473-0). The MAP biological opinion is incorporated by this reference into this opinion.

Incidental Take Statement

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened animal species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which

include, but are not limited to, breeding feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement. Sections 7(b)(4) and 7(o)(2) of the Act do not apply to listed plant species.

Ten of the fifteen covered animal species addressed in this biological opinion are neither proposed for listing nor currently listed. As such, there is no take prohibitions under the Act for these animal species at the time of writing. The Incidental Take Statement for the unlisted animal Covered Species and the Permit shall become effective as to each currently unlisted Covered animal Species if and when it becomes are listed under the Act during the terms of the permits.

The proposed NBHCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed HCP, together with terms and conditions described in the associated IA and any section 10(a)(1)(B) permit or permits issued with respect to the proposed HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR 402.14(i). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) to apply. If the Permittees fail to adhere to these terms and conditions, protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the proposed NBHCP, associated reporting requirements, and provisions for disposition of dead or injured animals are described in the NBHCP and its accompanying section 10(a)(1)(B) permits.

The proposed action's action area is known to be occupied or visited by ten of the Covered animal Species. Although the valley elderberry longhorn beetle, bank swallow, midvalley fairy shrimp, western spadefoot toad, and California tiger salamander are not known from the action area, all but the California tiger salamander have potential to be observed there in the future. The amount of take (killing, harming, harassing, wounding) of most animal species, described below, is anticipated to be low, due to the effectiveness of the take avoidance and minimization measures. Many of the species are highly mobile and/or only frequent the Natomas Basin during the winter and are expected to avoid direct effects. Indirect effects are best interpreted as the extent of habitat lost or degraded by the covered activity.

The section 10 (a) incidental take permit would also constitute a Special Purpose permit under 50 CFR 21.27 for the take of any Covered animal Species which may be listed as threatened or endangered under the Endangered Species Act during the permit term and which are also protected by the MBTA, in the amount and/or number and subject to the terms and conditions specified in the 10(a) permit. The MBTA special purpose permit would become effective upon the listing of the species under the ESA. Any such take shall not be in violation of the MBTA of 1918, as amended (16 U.S.C. 703-712). The Special Purpose permit shall be valid for a period of three years from the effective date, provided the section 10(a) permit remains in effect for such period. The Special Purpose permit shall be renewed, provided the permittees remain in compliance with the terms of the 10(a) permit and the Implementation Agreement. Each such

renewal shall be valid for the maximum period of time allowed by 50 CFR 21.27 or its successor at the time of renewal.

Incidental take associated with the MAP project was authorized in the 10(a)(1)(B) permit for that project. Therefore, incidental take related to that project and mitigation reserve lands acquired as a result of that project are not included in this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Service so that they become binding conditions of any grant or permit issued to the City, Sutter, and Conservancy, as appropriate, for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this Incidental Take Statement. If the Service (1) fails to assume and implement the terms and conditions or (2) fails to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Service must track the progress of the action and its impact on the species as specified in the Incidental Take Statement. [50 CFR §402.14(i)(3)]

Amount or Extent of Take

The City and Sutter propose to permanently convert a maximum of 15,517 acres in accordance with the requirements, guidelines, measures, and processes described in the NBHCP and NBHCP IA. Additionally, if all of the 15,517 acres are developed, at least 7,758.5 acres of reserve lands are expected to be established under the NBHCP; take incidental to management of reserves is expected. The disturbance and conversion of land is expected to result in incidental take of the Covered Species. Incidental take that will result from the City's, Sutter's, and the Conservancy's habitat conversion and acquisition, restoration, and management of reserve lands will be authorized through the section 10(a)(1)(B) permit for the NBHCP. Take will be in the form of disturbance, harm, and kill. It is expected that individuals of the Covered Species will or may be taken during development as well as other activities addressed above and in the NBHCP.

The Service expects that incidental take of various Covered Species will be difficult to detect or quantify for the following reasons: (1) the aquatic nature of certain of the organisms and their relatively small body size make the finding of a dead specimen unlikely; (2) the secretive nature of certain of the species makes detection or quantification difficult; (3) species abundance may be masked by seasonal fluctuations in numbers or other causes; (4) species occur in habitats that make them difficult to detect; (5) the species use of the habitat is intermittent. Therefore, the Service estimates that take of covered animal species associated with loss of up to 15,517 acres of Covered Species habitat will be affected as a result of issuing the proposed ITPs to the City and Sutter.

The Service expects that incidental take of various Covered Species on the Conservancy's reserves will be difficult to detect or quantify for the following reasons: (1) the aquatic nature of certain of the organisms and their relatively small body size make the finding of a dead specimen unlikely; (2) the secretive nature of certain of the species makes detection or quantification difficult; (3) species abundance may be masked by seasonal fluctuations in numbers or other causes; (4) species occur in habitats that make them difficult to detect; (5) the species use of the habitat is intermittent. Due to the difficulty in quantifying the number of Covered Species that will be taken as a result of the proposed management actions (described in SSMPs and effects

section), the Service is quantifying take incidental to the project as the number of acres of habitat that could be affected for the Covered Species as a result of the action. Therefore, the Service estimates that take of covered animal species associated with restoration/enhancement/perpetual management of up to 7,758.5 acres of Covered Species habitat (excluding mitigation lands for MAP) will be affected as a result of issuing the proposed ITP to the Conservancy.

Listed and Proposed Species

Threatened Vernal Pool Fairy Shrimp and Endangered Vernal Pool Tadpole Shrimp

The Service anticipates that an undetermined number of vernal pool fairy shrimp and vernal pool tadpole shrimp could be taken over a 50-year period as a result of this proposed action. Vernal pool crustaceans could be killed, harmed, or disturbed during construction activities, implementation of the proposed conservation measures, or management on the Conservancy's reserves. We estimate that the City will incidentally take up to all vernal pool tadpole shrimp and vernal pool fairy shrimp via the disturbance associated with construction activities on 10.2 acres of vernal pools and up to 7 acres of ponds and seasonally wet areas within the City's Permit Area and in association with off-site infrastructure improvements. We estimate that Sutter will incidentally take up to all vernal pool tadpole shrimp and vernal pool fairy shrimp via the disturbance associated with construction activities on 3.3 acres of vernal pools and up to 10 acres of ponds and seasonally wet areas within Sutter's Permit Area and in association with off-site infrastructure improvements. We estimate that the Conservancy will incidentally take up to all vernal pool tadpole shrimp and vernal pool fairy shrimp via the disturbance associated with management activities on up to 0.9 acres per year of vernal pool habitat within the Conservancy's Permit Area. These estimates vastly overstates the actual amount of take likely to occur because it assumes: (1) that all ponds and seasonally wet areas are suitable vernal pool habitat; (2) that the applicants always fill pools; (3) that the applicants always mitigate according to the programmatic ratios; (4) that the Conservancy will disturb one percent of its pools per year to the point of taking all vernal pool fairy shrimp and vernal pool tadpole shrimp inhabiting them; and (5) that all of the Conservancy's pools are occupied by the vernal pool fairy shrimp and/or vernal pool tadpole shrimp. The number of vernal pool crustaceans affected by implementation of the proposed action should be very small, as the amount of potential vernal pool crustacean habitat is very limited throughout the proposed project's action area. No proposed critical habitat will be affected, as none is located in the proposed project's action area.

Threatened Giant Garter Snake

The Service anticipates that an undetermined number of giant garter snakes could be taken over a 50-year period as a result of this proposed action. Take associated with initial construction activities will be in the form of harm, disturbance, and injury or death. We estimate that the City will incidentally take two (2) giant garter snakes via mortality and ten (10) giant garter snakes via the disturbance associated with construction activities on 1,094 acres of snake habitat within the City's Permit Area and in association with off-site infrastructure improvements. Snake take values are based upon data gathered at Colusa National Wildlife Refuge (Service 1999). We estimate that Sutter will incidentally take thirteen (13) giant garter snakes via mortality and fifty-one (51) giant garter snakes via the associated with construction activities on 5,802 acres of snake habitat within Sutter's Permit Area and in association with off-site infrastructure improvements.

Sutter's development activities will kill no more than two (2) snakes per year. Snake take values are based upon data gathered at Colusa National Wildlife Refuge (Service 1999).

Giant garter snakes are likely to inhabit certain lands acquired for reserves and will thus be subject to harm and disturbance from restoration/enhancement/management activities. While minimization measures will be implemented, it is possible that giant garter snakes will be found within reserve lands during these activities. We estimate that the Conservancy will incidentally take three (3) giant garter snakes via mortality and eighteen (18) giant garter snakes via the disturbance associated with construction activities on the Conservancy's 1,939.7 acres of managed marsh reserves. The Conservancy's managed marsh construction activities will kill no more than two (2) snakes per year. We estimate that the Conservancy will incidentally take twenty-one (21) giant garter snakes per year via the disturbance associated with perpetual management activities on the Conservancy's 1,939.7 acres of managed marsh reserves. In addition, we estimate that the Conservancy will incidentally take (primarily in the form of disturbance) forty-one (41) giant garter snakes via the disturbance associated with activities on the Conservancy's 3879.3 acres of rice reserves.

Snake take values are based upon data gathered at Colusa National Wildlife Refuge (Service 1999). Colusa National Wildlife Refuge was chosen as a reference point because at the time the data were gathered, Colusa likely had snake habitat most similar to that of the Basin, when compared to Gilsizer Slough and Badger Creek. The Service would expect that, given the extensive marsh habitats at Gilsizer and Badger Creek, snake densities observed there would be greater than those expected in the Basin and therefore, they would not be good indicators of the density of snakes in the Basin. Although some snake populations have been estimated for the Basin, these populations are based upon linear estimates (i.e., snakes/unit length) and are therefore, not appropriate for estimating the number of snakes affected by the proposed project, which is expressed in the amount of habitat lost in acres (i.e., snakes/unit area).

Threatened Valley Elderberry Longhorn Beetle

The Service anticipates that an undetermined number of beetles could be taken over a 50-year period as a result of this proposed action. Take could be in the form of disturbance, harm, or death. The applicants did not conduct surveys for the beetle in the proposed Permit Areas. However, the amount of potential beetle habitat affected is expected to be very limited, as the Basin is not known for large stands of elderberry shrubs. We estimate that the City will incidentally take up to all valley elderberry longhorn beetles via the disturbance associated with elderberry shrub relocation activities on 6 acres of oak groves, 24 acres of riparian area, and 10 acres of tree groves in the City's Permit Area and in association with off-site infrastructure improvements. We estimate that Sutter will not take any beetles, as no potential habitat is expected to be in Sutter's proposed Permit Area. It is anticipated that some beetles inhabiting elderberry shrubs in riparian restoration areas of reserve lands could be subject to some direct and indirect effects from reserve management activities. Therefore, we estimate that the Conservancy will incidentally take up to all valley elderberry longhorn beetles inhabiting 25 elderberry shrubs per year via the disturbance associated with management activities on 1,939.7 acres of managed marsh in the Conservancy's Permit Area. This amount of take is based upon the amount of potential elderberry shrub habitat that will be lost, the average density of elderberry plant plantings outlined in the Beetle Guidelines (5 elderberry shrubs per 1800 square feet), an assumption that one elderberry shrub is located on each acre of potential beetle habitat to be lost,

and an assumption that ten percent of the Conservancy's elderberry shrubs will be affected per year. It greatly overestimates the actual amount of take likely to occur, as the Conservancy should not be conducting a significant amount of activity that will affect the beetle and not all elderberry shrubs, if any, will be occupied by the beetle. No critical habitat will be affected, as none is located in the proposed project's action area.

California Tiger Salamander

No salamanders are known or expected to occur within the proposed project's action area; therefore, no incidental take is expected from the issuance of the proposed ITP's to the City and Sutter.

Unlisted Species

Swainson's Hawk

The Service anticipates that an undetermined number of Swainson's hawks could be taken over a 50-year period as a result of this proposed action. Take associated with initial construction activities and the Conservancy's management activities (including monitoring) will be in the form of harm or disturbance. Loss of prey species and foraging habitat and disturbances to nesting and foraging hawks from construction are anticipated forms of take. Due to the difficulty in quantifying the number of hawks that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential nesting and foraging habitat that will be impacted due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 8,785 acres of potential hawk foraging habitat will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in 6,925 acres of potential foraging habitat and 40 acres of nesting habitat becoming unsuitable for the hawk. Issuance of the proposed ITP to Sutter is likely to result in 1,860 acres of potential foraging habitat becoming unsuitable for the hawk. Estimates of foraging and nesting habitat lost overestimate the actual take associated with the action. As stated in the "Effects of the Proposed Action" section, most of the potential nesting habitat lost (24 acres) will not actually be developed because it is in the Fisherman's Lake buffer area. Loss of potential nesting and foraging habitat is not expected to result in injury or mortality of hawks because hawks can both forage and nest in other habitat that is available in and around the Basin. Also, Swainson's nest trees will not be removed while young are still in the nest. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion/restoration/ enhancement of up to 1,939.7 acres of potential hawk habitat when the Conservancy's upland reserves are created. Conservancy management practices will also potentially disturb hawks on 2,909.5 acres of managed marsh uplands, upland, and fallowed rice reserves.

Aleutian Canada Goose

The Service anticipates that an undetermined number of Aleutian Canada geese could be taken over a 50-year period as a result of this proposed action. Due to the difficulty in quantifying the number of geese that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential foraging habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 12,863 acres of potential goose foraging habitat will become unsuitable as a result

of the proposed action. Issuance of the proposed ITP to the City is likely to result in 5,656 acres of potential foraging habitat becoming unsuitable for the goose. Issuance of the proposed ITP to the Sutter is likely to result in 7,207 acres of potential foraging habitat becoming unsuitable for the goose. Estimating take in terms of foraging habitat lost overestimates the actual take, as geese will very likely forage in other areas available in the Basin and will not incur any significant disruption of their normal behavioral patterns. And, the goose is only a transient visitor to the Basin. Loss of its foraging habitat in the Basin should have very little impact on the goose. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of up to 1,939.6 acres of potential goose habitat when the Conservancy's managed marsh reserves are created. Conservancy management practices will also potentially distrub geese on 7,758.5 acres of managed marsh, upland, and rice reserves.

Burrowing Owl

The Service anticipates that an undetermined number of owls could be taken over a 50-year period as a result of this proposed action. Take will likely occur in the form of harm, disturbance and mortality. Due to the difficulty in quantifying the number of owls that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential foraging and nesting habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 685 acres of potential foraging habitat and 235.2 miles of canals will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in 450 acres of potential foraging habitat and 19.3 miles of canals becoming unsuitable for the owl. Issuance of the proposed ITP to the Sutter is likely to result in 235 acres of potential foraging habitat and 33.6 miles of canals becoming unsuitable for the goose. Estimating take in terms of foraging habitat lost overestimates the actual take, as burrowing owls will likely forage in other areas available in the Basin, especially when that foraging habitat is not located near any burrowing owl burrows, and will not incur any significant disruption of their normal behavioral patterns. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of undetermined amount of potential foraging habitat when the Conservancy's managed marsh reserves are created. Conservancy management practices will also potentially disturb owls on 5,818.9 acres of managed marsh and upland reserves.

Loggerhead Shrike

The Service anticipates that an undetermined number of shrikes could be taken over a 50-year period as a result of this proposed action. Take will likely occur in the form of mortality, harm, and disturbance. Due to the difficulty in quantifying the number of shrikes that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 8,550 acres of potential shrike habitat will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in 6,473 acres of potential habitat becoming unsuitable for the shrike. Issuance of the proposed ITP to the Sutter is likely to result in 2,077 acres of potential habitat becoming unsuitable for the shrike. Estimating take in terms of foraging habitat lost overestimates the actual take, as the shrike will very likely forage in other areas available in the Basin and will not incur any significant disruption of its normal behavioral patterns. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of undetermined amount

of potential shrike habitat when the Conservancy's managed marsh and upland reserves are created. Conservancy management practices will also potentially disturb shrikes on 3,879.25 acres of managed marsh and upland reserves.

Tricolored Blackbird

The Service anticipates that an undetermined number of tricolored blackbirds could be taken over a 50-year period as a result of this proposed action. Take will likely occur in the form of harm and disturbance. Due to the difficulty in quantifying the number of tricolors that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 373 acres of potential nesting habitat and 13,341 acres of potential foraging habitat will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in148 acres of potential nesting habitat and 6,083 acres of potential foraging habitat becoming unsuitable for the tricolor. Issuance of the proposed ITP to the Sutter is likely to result in 225 acres of potential nesting habitat and 7,341 acres of potential foraging habitat becoming unsuitable for the tricolor. Estimating take in terms of foraging habitat lost overestimates the actual take, as the tricolor will very likely forage in other areas available in the Basin, especially when the foraging habitat is not near any tricolor nesting colonies, and will not incur any significant disruption of its normal behavioral patterns. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of undetermined amount of potential tricolor habitat when the Conservancy's managed marsh and upland reserves are created. Conservancy management practices will also potentially disturb tricolors on up to 7,758.5 acres of managed marsh upland, and rice reserves.

White-Faced Ibis

The Service anticipates that an undetermined number of white faced ibis could be taken over a 50-year period as a result of this proposed action. Take expected to be in the form of disturbance or harm, through loss of aquatic foraging habitat, primarily rice fields, canals and ditches. Due to the difficulty in quantifying the number of ibis that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 6,899 acres of potential ibis habitat will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in 1,097 acres of potential habitat becoming unsuitable for the ibis. Issuance of the proposed ITP to the Sutter is likely to result in 5,802 acres of potential habitat becoming unsuitable for the ibis. Estimating take in terms of foraging habitat lost overestimates the actual take, as the ibis will very likely forage in other areas available in the Basin and will not incur any significant disruption of its normal behavioral patterns. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of undetermined amount of potential ibis habitat when the Conservancy's managed marsh and upland reserves are created. Conservancy management practices will also potentially disturb ibis on 7,758.5 acres of managed marsh, upland, and rice reserves.

Bank Swallow

The Service anticipates that an undetermined number of bank swallows could be taken over a 50-year period as a result of this proposed action. Take expected to be in the form of harm or disturbance through loss of rarely-used foraging habitat. Due to the difficulty in quantifying the number of swallows that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 13,797 acres of potential foraging habitat will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in 6,231 acres of potential foraging habitat becoming unsuitable for the swallow. Issuance of the proposed ITP to the Sutter is likely to result in 7,566 acres of potential foraging habitat becoming unsuitable for the swallow. Estimating take in terms of foraging habitat lost overestimates the actual take, as the bank swallow will very likely forage in other areas available in the Basin and will not incur any significant disruption of its normal behavioral patterns. In addition, there is there is very little potential nesting habitat near the Natomas Basin and therefore, the number of swallows that forage in the Basin should be small. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of undetermined amount of potential swallow foraging habitat when the Conservancy's managed marsh and upland reserves are created. Conservancy management practices will also potentially disturb shrikes on 7,758.5 acres of managed marsh, upland, and rice reserves.

Northwestern Pond Turtle

The Service anticipates that an undetermined number of pond turtles could be taken over a 50-year period as a result of this proposed action. Take expected to be in the form of harm, disturbance and killing, through construction-related loss of habitat and management of the Conservancy's reserves. Due to the difficulty in quantifying the number of turtles that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of potential habitat that will become unsuitable due to direct or indirect effects as a result of the action. Therefore, the Service estimates that 6,920 acres of potential turtle habitat will become unsuitable as a result of the proposed action. Issuance of the proposed ITP to the City is likely to result in 1,118 acres of potential habitat becoming unsuitable for the turtle. Issuance of the proposed ITP to the Sutter is likely to result in 5,802 acres of potential habitat becoming unsuitable for the turtle. Estimating take in terms of habitat lost overestimates the actual take, as much of the Basin's available turtle habitat is rice and as stated in the "Effects of the Proposed Action," has limited value to the turtle. Issuance of the proposed ITP to the Conservancy is likely to result in the conversion of undetermined amount of potential shrike habitat when the Conservancy's managed marsh and upland reserves are created. Conservancy management practices will also potentially disturb turtles on 7,758.5 acres of managed marsh and rice reserves.

Western Spadefoot Toad and Midvalley Fairy Shrimp

The Service anticipates that an undetermined number of toads and midvalley fairy shrimp could be taken over a 50-year period as a result of this proposed action. Toads and midvalley fairy shrimp could be killed, harmed, or disturbed during construction activities, implementation of the proposed conservation measures, or management on the Conservancy's reserves. The number of

toads and midvalley fairy shrimp affected by implementation of the proposed action should be very small, as the amount of potential suitable habitat is very limited throughout the proposed project's action area. We estimate that the City will incidentally take up to all western spadefoot toads and midvalley fairy shrimp via the disturbance associated with construction activities on 10.2 acres of vernal pools and up to seven acres of ponds and seasonally wet areas within the City's Permit Area and in association with off-site infrastructure improvements. We estimate that Sutter will incidentally take up to all western spadefoot toads and midvalley fairy shrimp via the disturbance associated with construction activities on 3.3 acres of vernal pools and up to 10 acres of ponds and seasonally wet areas within Sutter's Permit Area and in association with off-site infrastructure improvements. We estimate that the Conservancy will incidentally take up to all western spadefoot toads and midvalley fairy shrimp via the disturbance associated with management activities on up to 0.9 acres per year of vernal pool habitat within the Conservancy's Permit Area. This estimate vastly overstates the amount of actual take likely to occur because it assumes: (1) that all ponds and seasonally wet areas are suitable vernal pool habitat; (2) that the applicants always fill pools; (3) that the applicants always mitigate according to the programmatic ratios; (4) that the Conservancy will disturb one percent of its pools per year to the point of taking all western spadefoot toads and midvalley fairy shrimp inhabiting them; and (5) that all of the Conservancy's pools are occupied by the western spadefoot toads and/or midvalley fairy shrimp. The number of midvalley fairy shrimp and western spadefoot toads affected by implementation of the proposed action should be very small, as the amount of potential vernal pool habitat is very limited throughout the proposed project's action area and neither one of the species has ever been observed in the Basin.

Effect of the Take

Listed and Proposed Species

For the reasons stated in the analyses of the proposed project's effects, the Service determined that the level of incidental take specified in the effects of the action and this Incidental Take Statement is not likely to result in jeopardy to the endangered vernal pool tadpole shrimp, threatened giant garter snake, threatened valley elderberry longhorn beetle, threatened vernal pool fairy shrimp, or proposed California tiger salamander. The Service has also determined that the proposed action will not destroy or adversely modify either valley elderberry longhorn beetle critical habitat or proposed vernal pool fairy shrimp and vernal pool tadpole shrimp critical habitat.

Unlisted Species

For the reasons stated in the analyses of the proposed project's effects, the Service determined that the level of incidental take specified in the effects of the action and this Incidental Take Statement is not likely to result in jeopardy to the following unlisted Covered Species should they become listed: Swainson's hawk, white faced ibis, bank swallow, tricolored blackbird, northwestern pond turtle, loggerhead shrike, burrowing owl, western spadefoot toad, and midvalley fairy shrimp. The Service has determined that the specified level of incidental take is not likely to result in jeopardy to the Aleutian Canada goose, should it become re-listed.

Reasonable and Prudent Measures and Terms and Conditions

The NBHCP and accompanying agreements identify anticipated adverse effects to all Covered Species likely to result from the proposed actions, and the specific measures and levels of species and habitat protection that are necessary and appropriate to minimize those adverse effects. All of the conservation and management measures in the NBHCP and accompanying agreements, together with the terms and conditions identified in the associated Implementing Agreement, are hereby incorporated by reference as reasonable and prudent measures, and terms and conditions for this incidental take statement pursuant to 50 CFR 402.14(I). Such terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the Applicants fail to adhere to these terms and conditions, the protection of the Permit, and section 7(o)(2), may lapse. The amount or extent of the incidental take anticipated under the NBHCP, associated reporting requirements, and provisions for disposing of dead or injured animals, are as described in the Permit.

Further, the following terms and conditions apply to the Service after issuance of the Permit:

1. The Service shall provide technical assistance to the Applicants throughout the term of the Permit.

2. The Service shall, at all time of listing of any of the currently unlisted Covered Species, reinitiate consultation on the proposed actions in accordance with 50 C.F.R. 402.16.

3. The Service shall ensure that any section 7 consultation with other Federal agencies regarding development activities covered by the permits are consistent with the conservation goals and objectives of the NBHCP, and that any such activities reviewed under section 7 and the Act shall provide levels of listed species protection consistent with the protection afforded under the NBHCP.

Reporting Requirements

The Conservancy shall provide the Wildlife Agencies with an Implementation Annual Report by May 1 of each calendar year the NBHCP is in effect. The Implementation Annual Report shall include all of the information identified in Chapter VI of the NBHCP, including the results of the Compliance Monitoring implemented by City, Sutter and the Conservancy and the Biological Effectiveness Monitoring implemented by the Conservancy during the prior calendar year, and provide an accounting of all mitigation fees collected, all urban development permits issued, and all mitigation lands acquired.

The City and Sutter shall each implement the annual report requirements described at Chapter VI of the NBHCP. In addition, at any other time during the Permit terms, City and Sutter, at the request of the Service or CDFG, shall provide within thirty (30) days, to the Wildlife Agencies additional information relevant to implementation of the NBHCP reasonably available to the City and Sutter.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service has the following conservation recommendations:

1. Pursue available funding sources to enhance and enlarge the habitat preservation program of the MAPHCP and the NBHCP. Priority areas for acquisition should have known giant garter snake presence. In addition, known giant garter snake corridors should be acquired to enhance population exchange.

2. Investigate methods whereby phased agricultural practices can be employed on upland parcels such that maximum net benefits are achieved for Swainson's hawks, burrowing owls, loggerhead shrikes, tricolored blackbirds, and bank swallows.

Reinitiation-closing statement

This concludes formal consultation and conference on the issuance of a Permit to implement the NBHCP. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals that the agency action may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The Incidental Take Statement provided in this conference opinion for unlisted Covered Species does not become effective until the unlisted Covered Species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. If you have any questions regarding this consultation, please contact Wayne S. White, Field Office Supervisor, at (916) 414-6600.

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Table 1. Species proposed for coverage (Covered Species) in the Natomas Basin Habitat Conservation Plan (E = endangered, T = threatened, P = Proposed, D = delisted, SC = species of concern, R = rare, SSC = species of special concern).

Species	Federal Status	State Status
Aleutian Canada goose	D	
Bank swallow		T
Burrowing owl		SSC
Loggerhead shrike	SC	SSC
Swainson's hawk		T
Tricolored blackbird	SC	SSC
White-faced ibis	SC	SSC
Giant garter snake	T	T
Northwestern pond turtle	SC	SSC
California tiger salamander	P	SSC
Western spadefoot toad	SC	SSC
Valley elderberry longhorn beetle	T	
Midvalley fairy shrimp	SC	
Vernal pool fairy shrimp	T	
Vernal pool tadpole shrimp	E	
Boggs Lake hedge-hyssop		E
Colusa Grass	T	
Delta tule pea	SC	
Legenere	SC	
Sacramento Orcutt grass	E	E
Sanford's arrowhead	SC	
Slender Orcutt grass	T	E

Table 2. Habitat reserve types to be created based upon Planned Development in the Natomas Basin Habitat Conservation Plan.

Permittee	Planned Development	Reserve Total to be Created at 0.5 to 1.0	50 percent Rice Reserves	25 percent Managed Marsh Reserves	25 percent Upland Reserves
City of Sacramento	8,050	4,025.0	2,012.5	1,006.3	1,006.3
Sutter County	7,467	3,733.5	1,866.8	933.4	933.4
Metro Air Park	1,983	991.5	495.8	247.9	247.9
TOTAL	**17,500**	**8,750.0**	**4,375.0**	**2,187.5**	**2,187.5**

Table 3. Ratios used to calculate amount of habitat to be acquired to compensate for vernal pool resources.

	Bank	Non-Bank
Preservation	2:1	3:1
Creation	1:1	2:1

Table 4. Anticipated change in the amount of potential giant garter snake habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	After Implememntation
Ponds / seasonally wet areas	96	-7	-4	-10	-21	75
Rice	22,693	-970	-1,541	-5,577	-8,087	14,606
Canals	1,778	-117	-72	-215	-404	1,374
TOTAL	**24,567**	**-1,094**	**-1,617**	**-5,802**	**-8,512**	**16,055**

Table 5. Anticipated change in the amount of potential Swainson's hawk habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan (a = nesting habitat, b = foraging habitat). Acreage values for nesting habitat were obtained from the Draft NBHCP EIR/EIS. Acreage values for the foraging habitat were obtained from the *Addendum to the NBHCP EIR/EIS Technical Memorandum* (see Appendix K of the NBHCP), which includes an updated analysis of Swainson's hawk foraging habitat.

(a)

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Riparian	124	-24	0	0	-24	100
Oak groves	98	-6	-2	0	-8	89
Tree groves	106	-10	-23	0	-33	73
TOTAL	**328**	**-40**	**-25**	**0**	**-65**	**263**

(b)

Habitat Quality	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
High	1,835	-675	-50	-8	-733	1102
Moderate	15,666	-5,098	-349	-1,852	-7,299	8,367
Low	4,550	-1,152	-4	0	-1,156	3,394
TOTAL	**22,051**	**-6,925**	**-403**	**-1,860**	**-9,188**	**12,863**

Table 6. Anticipated change in the amount of potential Aleutian Canada goose habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Non-rice crops	16,686	-4,663	-325	-1,529	-6,517	10,169
Pasture	674	-23	-22	-101	-147	527
Rice (roosting/ foraging)	22,693	-970	-1,541	-5,577	-8,087	14,606
TOTAL	**40,053**	**-5,656**	**-1,888**	**-7,207**	**-14,751**	**25,302**

Table 7. Anticipated change in the amount of potential burrowing owl habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Alfalfa	371	0	0	0	0	371
Grassland	886	-427	0	-134	-560	325
Pasture	674	-23	-22	-101	-147	527
TOTAL	**1,931**	**-450**	**-22**	**-235**	**-707**	**1,223**

Table 8. Anticipated change in the amount of potential loggerhead shrike habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Alfalfa	371	0	0	0	0	371
Grassland	886	-427	0	-134	-560	325
Non-rice crops	16,686	-4,663	-325	-1,529	-6,517	10,169
Oak groves	98	-6	-2	0	-8	89
Orchard	182	-13	0	0	-13	169
Pasture	674	-23	-22	-101	-147	527
Ponds and seasonally wet areas	96	-7	-4	-10	-21	75
Riparian	124	-24	0	0	-24	100
Ruderal	1,970	-1,137	-6	-88	-1,231	739
Rural	377	-46	-10	0	-56	321
Tree groves	106	-10	-23	0	-33	73
Canals (all)	1,778	-117	-72	-215	-404	1,374
TOTAL	**23,348**	**-6,473**	**-464**	**-2,077**	**-9,014**	**14,332**

Table 9. Anticipated change in the amount of potential Tricolored blackbird habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan (a = nesting habitat, b = foraging habitat). Acreage values were obtained from the Draft NBHCP EIR/EIS.

(a)

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Ponds and seasonally wet areas	96	-7	-4	-10	-21	75
Riparian	124	-24	0	0	-24	100
Canals (all)	1,778	-117	-72	-215	-404	1,374
TOTAL	**1,998**	**-148**	**-76**	**-225**	**-449**	**1,549**

(b)

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Alfalfa	371	0	0	0	0	371
Non-rice crops	16,686	-4,663	-325	-1,529	-6,517	10,169
Grassland	886	-427	0	-134	-560	325
Pasture	674	-23	-22	-101	-147	527
Rice	22,693	-970	-1,541	-5,577	-8,087	14,606
TOTAL	**41,310**	**-6,083**	**-1,888**	**-7,341**	**-15,311**	**25,998**

Table 10. Anticipated change in the amount of potential white-faced ibis habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Alfalfa	371	0	0	0	0	371
Ponds and seasonally wet areas	96	-7	-4	-10	-21	75
Rice	22,693	-970	-1,541	-5,577	-8,087	14,606
Canals (all)	1,778	-117	-72	-215	-404	1,374
TOTAL	**24,938**	**-1,097**	**-1,617**	**-5,802**	**-8,512**	**16,426**

Table 11. Anticipated change in the amount of potential bank swallow habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Alfalfa	371	0	0	0	0	371
Grassland	886	-427	0	-134	-560	325
Non-rice crops	16,686	-4,663	-325	-1,529	-6,517	10,169
Pasture	674	-23	-22	-101	-147	527
Ponds and seasonally wet areas	96	-7	-4	-10	-21	75
Rice	22,693	-970	-1,541	-5,577	-8,087	14,606
Riparian	124	-24	0	0	-24	100
Canals (all)	1,778	-117	-72	-215	-404	1,374
TOTAL	**43,308**	**-6,231**	**-1,964**	**-7,566**	**-15,760**	**27,547**

Table 12. Anticipated change in the amount of potential northwestern pond turtle habitat (acres) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Ponds and seasonally wet areas	96	-7	-4	-10	-21	75
Rice	22,693	-970	-1,541	-5,577	-8,087	14,606
Riparian	124	-24	0	0	-24	100
Canals (all)	1,769	-117	-72	-215	-404	494
TOTAL	**24,691**	**-1,118**	**-1,617**	**-5,802**	**-8,536**	**16,155**

Table 13. Anticipated change in the amount of habitat (acres) most likely to support habitat of the valley elderberry longhorn beetle (elderberry shrubs [*Sambucus* spp.] with stems greater than one inch diamter) in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values are based upon data available in the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Oak groves	98	-6	-2	0	-8	89
Riparian	124	-24	0	0	-24	100
Tree groves	106	-10	-23	0	-33	73
TOTAL	**328**	**-40**	**-25**	**-0**	**-65**	**262**

Table 14. Anticipated change in the amount of habitat (acres) most likely to support habitat of the vernal pool fairy shrimp, vernal pool tadpole shrimp, midvalley fairy shrimp, western spadefoot toad, Colusa grass, Sacramento Orcutt grass, slender Orcutt grass, legenere, and Bogg's Lake hedge-hyssop in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values are based upon data available in the Draft NBHCP EIR/EIS.

Habitat Class	Baseline	City of Sacramento	Sutter County	Total Change	Future Condition
Ponds and seasonally wet areas	96	-7	-10	-17	75
Grassland	886	-427	-134	-561	325
TOTAL	**982**	**-434**	**-144**	**-578**	**400**

Table 15. Anticipated change in the amount of habitat (acres) most likely to support Sanford's arrowhead and Delta tule pea in the Natomas Basin as a result of implementing the Natomas Basin Habitat Conservation Plan. Acreage values were obtained from the Draft NBHCP EIR/EIS.

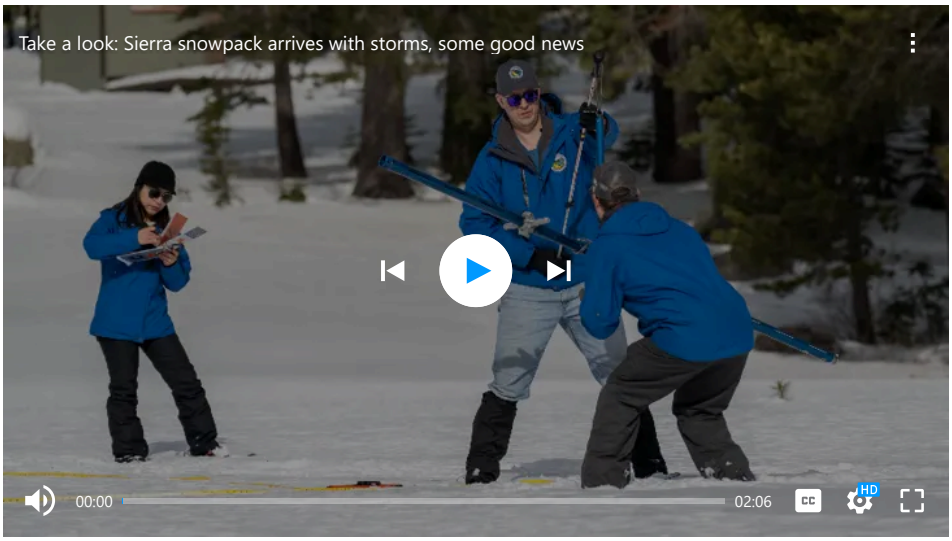
Habitat Class	Baseline	City of Sacramento	Metro Air Park	Sutter County	Total Change	Future Condition
Ponds and seasonally wet areas	96	-7	-4	-10	-21	75
Canals (all)	1,778	-117	-72	-215	-404	1,374
TOTAL	**1,874**	**-124**	**-76**	**-225**	**-425**	**1,449**

CAPITOL ALERT

New research warns of major threats to Sacramento's water supply

By **Chaewon Chung**

Updated January 15, 2026 2:32 PM | Gift Article



California Sierra Nevada snowpack grows after late December storms, but Northern California water supplies remain below average, snow survey on Dec. 30, 2025 finds. By David Caraccio and California Dept. of Water Resources

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Warming temperatures and shifting precipitation patterns will reshape the American, Bear and Cosumnes river watersheds, intensifying snowpack loss and placing greater strain on California's water supply, a two-year study has found.

A draft watershed resilience report by the Regional Water Authority reviewed by The Sacramento Bee projects earlier snowmelt, shifting runoff patterns, and more water lost to evaporation due to climate change.

The report, expected to be released by the end of March, noted an average of 6.3 degrees of warming by the end of the century compared with temperatures from 1981 and 2010, with the Sierra region expected to warm even faster, and the American River area projected to face an average of 39 additional extreme heat days each year.

It also predicts snow water equivalent measurement at 7.2 inches on average — a 66% decrease compared with historical data — by the mid-century period, between 2041 and 2070, and 4.6 inches — a 79% decrease — by the end of the century for the American River region.

"We could have the same amount of water coming, but we're going to have less water supply because we have infrastructure that has to be focused on addressing flood risks when the water is coming, instead of water supply," said Ryan Ojakian, government relations manager at the Regional Water Authority.

The crux of the problem lies in how California's water system was created for an old climate. Reservoirs were designed to collect snowmelt that gradually trickled down from the mountains through spring and early summer, providing a steady water supply long after the rainy season.

But now, warmer winters cause snow to melt earlier and storms to deliver more rain than snow, so much of that water arrives in short, powerful bursts. Because reservoir operators must keep a portion of reservoir space empty to reduce flood risk during major storms, this poorly timed influx of water could force releases instead of storage, leaving less water available later in the year.

Historically, peak runoff occurred around May, but the study predicts it will move to roughly March by the end of the century. As more water arrives in winter rather than being spread across the spring months, the system would no longer work as intended — and without new ways to capture that water, much of it would be lost, Ojakian said.

“We’re going to have this increased threat of reduced water supply. The alternative is, we could live at a higher risk of flooding, which we don’t want to do.”

From less snow to bigger storms

A common misconception about climate change, RWA officials said, is that it’s only reflected in hot, dry conditions. In reality, climate change amplifies both extremes, making wet seasons wetter and hot seasons hotter, and drives more intense, frequent, and unpredictable weather events.

In other words, the impacts of climate change are showing up not only in declining snowpack, but also in surges of flood events, and sharper swings between wet and dry conditions.

The draft showed that, compared with historical data, average extreme precipitation for the region is projected to increase by 15% in the mid-century period and by 18% by the end of the century. Floods that last three days are expected to get bigger, about 11% higher on average between 2016 and 2065, and about 20% higher between 2051 and 2100.

Northern California saw several days of heavy storms earlier this month, pushing water supplies beyond full capacity. But snowpack water across the region remains below average, at 61% of the seasonal average and just 28% of the April 1 average as of Wednesday.

Jim Peifer, executive director at the Regional Water Authority, emphasized the analysis isn’t about a single event but averages over time, showing the projected impacts of climate change over decades.

“We can adapt to climate change, but it’s going to take appropriate investment to make sure that we have a livable community,” Peifer added.

The study also found that rising temperatures and declining runoff will increase the risk of severe droughts, with average drought probability rising 4% between 2016 and 2065 and 5% by the end of the century, compared with 1961 to 2010. As conditions dry, the region’s wildfire risk is also expected to rise, with the average probability of wildfires reaching 32% by the end of the century compared with late 20th- and early 21st-century data.

Storing more water underground

The local water officials urged a push to better manage groundwater, arguing it is one of the most practical ways to safeguard the region’s future water supply.

RWA officials said that during wet winters, agencies can rely more on river water and reduce groundwater pumping, giving aquifers a chance to refill instead of being constantly drained.

They also highlighted two tools to boost groundwater recharge — one is spreading extra river water onto special fields or basins, allowing it to soak into the soil and replenish the aquifer. The other is using aquifer storage and recovery wells, which can both pump groundwater out and inject surface water back in, effectively turning underground basins into a savings account for drier periods.

“My biggest fear is that we’re not ready for whatever that is, being a flood event, a drought event, a wildfire event,” Ojakian said.

“Because the shame is, if we weren’t sitting here today, we know that we could have been ready for that event, and that investment today will be far less expensive than we’re building from that event if we didn’t make those investments prior to it occurring.”

This story was originally published January 14, 2026 at 3:14 PM.

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Garden Highway Community Association (GHCA)

info@gardenhwy.org

The Garden Highway Community Association (GHCA) represents residents, homeowners, business owners, and private property owners along Garden Hwy, from the City of Sacramento, through Sacramento County, into Sutter County

TO: Sacramento County Planning Commission

RE: Opposition to the Partially Recirculated Environmental Impact Report for the Upper West Side Project (UWSP)

FROM: Ryan Friedman, Esq., GHCA President

DATE: January 26, 2026

While the modest revisions in the Partially Recirculated Draft Environmental Impact Report (PRDEIR) are acknowledged, the GHCA continues to oppose the UWSP. In addition to our previous opposition dated August 19, 2025 (attached and incorporated by reference), the revisions fail to resolve the project's serious and significant traffic impact. In addition, the proposed water source has not been secured, will require modifications to existing federal contracts, approval by the State Water Resources Control Board, will adversely impact the surrounding community, and will continue to threaten species, wildlife, and the environment.

249-1

1. Traffic

It is noted that the Revised Circulation Network (RCN) eliminates all connecting roads from the project to the Garden Hwy, except for Radio Rd, for emergency use only. (Plate ALT 5-3.) The Fehr & Peers Technical Memorandum (Memorandum) outlines a traffic calming plan to create a traffic circle on San Juan Rd and a speed limit reduction to 20 mph.

249-2

Notwithstanding these revisions, the average daily traffic is estimated to increase by **12,500** vehicles per day. (Memorandum, Table 2.) There are no plans to widen the Garden Hwy from its existing 24 feet with a six-foot shoulder. (Memorandum Table 3.) In fact, the Garden Hwy cannot be widened due to the re-engineered adjacent levee. The PRDIER will not eliminate unacceptable operations along West El Camino, El Centro, and San Juan. (Memorandum Table 3.) Although the PRDEIR estimates a decrease in peak hour traffic volumes, there remains significant traffic increases and congestion on the I-80 and I-5 ramps. (Memorandum Table 4.) In normal commute and traffic patterns, let alone an emergency, the PRDIER fails to mitigate the increased pressure on existing evacuation routes posed by the UWSP.

249-2 cont.

The PRDEIR fails to mitigate the serious safety issues the UWSP will superimpose on those presently existing on the Garden Hwy and Power Line Rd which connects Garden Hwy to El Centro Rd. Currently vehicles travel at excessive speeds on Garden Hwy, some "clocked" at over 100 MPH along what is a two-lane rural roadway. Additionally, despite being disallowed by current traffic regulations both Garden Hwy and Power Line Rd are frequented by commercial tractor trailer traffic trying to avoid congestion on I-5. Similarly, Traffic Apps such as Waze and Google divert traffic to Power Line Rd. and Garden Hwy. Neither Power Line Rd. nor Garden Hwy, atop the levee, can be widened to accommodate the current traffic, let alone an increase of over 12,000 vehicles per day. Furthermore, the levee Garden Hwy sits atop, and the adjacent reengineered super-levee, were engineered to protect Natomas from historic flooding. They were not designed to carry the load and impact of an additional 12,000 vehicles per day. It is likely this additional vehicle volume could damage the structural integrity of the newly built levee.

249-3

These safety issues which cannot be mitigated, together with increased pollution, noise, congestion, traffic delays, and potential damage to our new super-levee and the associated flood risk to the Natomas Basin, warrant a decision by the Commission to **NOT** certify the PRDEIR.

249-4

2. Water Source/Treatment

The PRDIR identifies the Natomas Central Mutual Water District (Natomas Central) as a potential domestic water supply source which will require amendments to existing federal contracts and building an 8+ acre water treatment facility on San Juan Rd. The PRDIER acknowledges that " [T]o ensure year-round raw water deliveries, the delivery schedule of the USBR

249-5

Contract entitlements would have to be modified for year-round diversions and deliveries. It should be noted that delivery of wholesale raw water from NCMWC to the UWSP area would also require a wholesale agreement between NCMWC and Sacramento County Water Agency (SCWA) to allow service of Municipal and Industrial (M&I) water to the proposed UWSP development. (PRDEIR p. 2-34.)

249-5 cont.

In addition, converting from agricultural to municipal use would require obtaining authority from the State Water Resources Control Board (SWRCB). This process will no doubt invite statewide opposition from conservation and environmental protection groups and their attorneys. None of the agreements or approvals needed to allow municipal delivery have been secured, and no approvals have been obtained to convert raw Sacramento River water into potable municipal water.

249-6

Additionally, there is serious question as to whether the potential source (Sacramento River) will be adequate. The Memorandum estimates that there will be sufficient water from the Sacramento River and its tributaries even in drought years. This conclusion is questionable, however, given the SWRCB report that in the 2022 drought year, Natomas Central received only 18% of its full supply, an historic low. https://www.waterboards.ca.gov/drought/sacramento_river/docs/2022-sac-tmp-final.pdf.

249-7

The Memorandum also does not consider the impact the proposed diversions will have on the vital role the Sacramento River plays in the California Water Project, the Delta's delicate ecosystems, and other downstream water needs, both agricultural and municipal.

249-8

Moreover, the PRDIER and the underlying UWSP continue to violate existing habitat protection agreements with the Federal Government and other governmental entities. The plan threatens species, habitat, and the surrounding environment. Table ALT 5-2 identifies six species of fish that will be **highly** affected by the proposal: Green Sturgeon, White Sturgeon, Steelhead, and three varieties of Chinook Salmon. Pacific Lamprey, Sacramento Splittail, Hardhead, and Central California Roach will be moderately impacted. These species are in addition to the terrestrial species threatened by the loss of vital habitat to the footprint of the overall project and the associated pollution, traffic, noise, and light pollution.

249-9

For these reasons, together with those previously expressed, the GHCA continues to oppose the Upper West Side Project and urges the Planning Commission to **reject** the PRDIER. The GHCA joins with the comments by ECOS, the City of Sacramento, the Natomas Basin Conservancy, and the Friends of the Swainson's Hawk in asking that the Planning Commission **not** certify the PRDIER. 249-10

Enclosure:

Comments on August 20, 2025, Board of Supervisors Meeting

Agenda Item No. 3, Upper Westside Specific Plan (PLNP2018-00284)

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August 19, 2025

SENT VIA EMAIL
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Board of Supervisors
County of Sacramento
700 H Street, Suite 2450
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RE: Comments on August 20, 2025, Board of Supervisors Meeting Agenda Item No. 3, Upper Westside Specific Plan (PLNP2018-00284)

Dear Chair Serna and Members of the Board:

On behalf of Environmental Council of Sacramento ("ECOS") and Friends of Swainson's Hawk ("FOSH"), and the Garden Highway Community Association, this letter provides comments regarding the Final Environmental Impact Report ("FEIR") for the Upper Westside Specific Plan ("Project"). This letter also transmits expert comments by Shawn Smallwood (Exhibit 1), Dan Smith (Exhibit 2) and Ralph Propper and Earl Withycombe (Exhibit 3), which are incorporated by reference.[1]

I. THE RESPONSES TO COMMENTS AND FEIR FAIL TO REMEDY THE LEGAL DEFICIENCIES OF THE CEQA ANALYSIS FOR PROJECT

As the CEQA lead agency for the Project, the County of Sacramento ("County") must evaluate comments on the draft environmental impact report ("EIR") and prepare written responses in the FEIR. (Pub. Resources Code, § 21091, subd. (d).) The FEIR must include a "detailed" written response to all "significant environmental issues" raised by commenters. As the court stated in *City of Long Beach v. Los Angeles Unified School District* (2009) 176 Cal.App.4th 889, 904:

> The requirement of a detailed written response to comments helps to ensure that the lead agency will fully consider the environmental consequences of a decision before it is made, that the decision is well informed and open to

[1] Additional scientific/technical reports and reference materials expressly cited and otherwise supporting our comments and those by the above-referenced experts will be hand-delivered to the County on a flash drive.

public scrutiny, and that public participation in the environmental review process is meaningful.

The FEIR's responses to comments must be detailed and must provide a reasoned, good faith analysis. (Cal. Code Regs., tit. 14, § 15088, subd. (c).) Failure to provide a substantive response to comments render the EIR legally inadequate. (*Rural Landowners Association v. City Council* (1983) 143 Cal.App.3d 1013, 1020). If the public suggests a feasible mitigation measure or alternative, the agency may only decline to implement it if it provides substantial evidence that the mitigation measure or alternative is infeasible. (*Covington v. Great Basin Unified Air Pollution Control District* (2019) 43 Cal.App.5th 867.)

The responses to comments on a draft EIR ("DEIR") must state reasons for rejecting suggested mitigation measures and comments on significant environmental issues. "Conclusory statements unsupported by factual information" are not adequate responses. (Cal. Code Regs., tit. 14, § 15088, subds. (b), (c); *Cleary v. County of Stanislaus* (1981) 118 Cal.App.3rd 348; *Environmental Protection Information Center v. Johnson* (1985) 170 Cal.App.3d 604, 628 ["Non-specific, general, or conclusory responses unsupported by empirical information, scientific authorities or explanatory information 'fail to crystallize issues'"]; *People v. County of Kern* (1974) 39 Cal.App.3d 830, 841 [Responses to comments must "set forth in detail the reasons why the particular comments and objections were rejected . . . ."].) The need for substantive, detailed response is particularly appropriate when comments have been raised by experts or other agencies. (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1367; *People v. Kern* (1976) 72 Cal.app.3d 761 [*Berkeley Keep Jets*].) A reasoned analysis of the issue and references to supporting evidence are required for substantive comments raised. (*California Oak Foundation v. Santa Clarita* (2005) 133 Cal.App.4th 1219.)

The FEIR fails to meet these legal standards as it is riddled with conclusory and false statements lacking any factual support or analysis. Further, the FEIR repeatedly fails to comply with the duty of good faith by deploying a strategy of piecemealing public comments and the associated responses in order to avoid addressing the overall point of each comment. This is why our letter groups various FEIR responses together for discussion. Another avoidance strategy generally deployed, and explained more fully below, is to not directly respond to individual specific comments by instead directing the reader to either "master responses" or other individual responses that raise related but different issues. This additional avoidance strategy is deployed in an attempt to sweep troublesome problems under the rug.

- **Master Response LU-2 and Responses to Comments 19-34 and 19-35**

Whether intentional or not, the DEIR egregiously fails as an informational document by simply ignoring the County's Land Use Policy LU-127. Rather than comply with CEQA by revising and recirculating a DEIR that properly addresses this critical County environmental and land use policy, the FEIR takes the absurd position that it may ignore LU-127 itself because "The Draft EIR fully evaluates the physical environmental effects . . . including the substantive analysis that the Board may use to inform its consideration of Policy LU-127 criteria related to the physical environmental effects that could result with implementation of the proposed UWSP [Upper Westside Specific Plan]." This attempt to avoid any mention, much less analysis, of consistency with LU-127 is necessarily based on the FEIR's repeated statement that "CEQA does not consider inconsistency with land use plans and policies to be a physical effect on the environment unless the plan or policy was adopted for the purpose of avoiding or mitigating a significant environmental effect." (FEIR, pp. 14-1, 14-17, 14-22, 26-537, 26-617, 26-790.)

Tellingly, the FEIR never affirmatively asserts—in Master Response LU-127 or anywhere else—that LU-127 was not "adopted for the purpose of avoiding or mitigating a significant environmental effect." We can certainly understand why the County would be unwilling to affirmatively make this assertion. The FEIR's failure to directly analyze LU-127 implicitly means this is the County's position. Assuming, arguendo, that the County's position is that LU-127 is not a policy that "was adopted for the purpose of avoiding or mitigating a significant environmental effect," a reviewing court will very likely disagree—even under a deferential standard of review.

First, the plain language of LU-127 unquestionably demonstrates that its purpose is to avoid environmental impacts from proposed urban sprawl development outside the urban service boundary ("USB") and urban policy area ("UPA"):

The County ***shall not expand the Urban Service Boundary unless***:

- There is inadequate vacant land within the USB to accommodate the projected 25 year demand for urban uses; and
- The proposal calling for such expansion can satisfy the requirements of ***a master water plan*** as contained in the Conservation Element; and
- The proposal calling for such expansion can satisfy the requirements of the ***Sacramento County Air Quality Attainment Plan***; and

- The area of expansion does not incorporate ***open space areas*** for which previously secured open space easements would need to be relinquished; and
- The area of expansion does not include the development of ***important natural resource areas, aquifer recharge lands or prime agricultural lands;***
- The area of expansion does not preclude implementation of a Sacramento County-adopted ***Habitat Conservation Plan***;

OR

- The Board approves such expansion by a 4/5ths vote based upon on finding that the expansion would provide extraordinary environmental, social or economic benefits and opportunities to the County.

(LU-127, emphasis added.)

"In determining intent, we look first to the language of the statute, giving effect to its 'plain meaning.'" (*Kimmel v. Goland* (1990) 51 Cal.3d 202, 208-209.) Here, the plain language of LU-127 reveals that its purpose is to avoid significant environmental impacts in the areas of agricultural resources, biological resources, open space, water supply, air quality, and water quality resulting from urban sprawl outside the USB or UPA. To the extent there is any confusion regarding this purpose (there is not), the County's General Plan itself demonstrates this intention with clarity:

> **A Sustainable Growth Management Program**
> The 2030 General Plan continues to pursue the vision of the 1993 General Plan: promote efficient use of land, encourage economic vitality and job growth, ***reduce urban sprawl and its impacts, preserve habitat and open space, and protect agricultural and rangeland operations***. Two growth boundaries are identified to help implement this vision: the Urban Services Boundary (USB) and the Urban Policy Area (UPA). The USB is the ultimate growth boundary for the unincorporated area. The UPA defines the area within the USB expected to receive urban services in the near term. Together, ***the UPA and the USB promote orderly growth and the efficient extension of infrastructure and the provision of urban services. They also seek to preserve agriculture and rangelands, critical habitats and natural resources***.

(County General Plan of 2005-2030 Executive Summary, p. 12, emphasis added.)

Third, the effect of LU-127, namely to prevent urban sprawl outside of the USB or UPA that would have significant environmental impacts, is consistent with other County policies that the FEIR contends do have the purpose of mitigating or avoiding significant environmental effects. [Compare LU-127 with County policies listed on FEIR, pp. 14-21 – 22.) As just one example, it is simply nonsensical to contend (as the FEIR implicitly does) that LU-15 ["Planning and development of new growth areas should be consistent with Sacramento County-adopted Habitat Conservation Plans and/or other efforts to preserve and protect natural resources"] has the purpose to avoid or mitigate significant environmental impacts whereas LU-127 does not.

Fourth, the FEIR tellingly provides no analysis or supporting citation whatsoever for its implicit position that LU-127 was not adopted with the purpose of avoiding or mitigating significant environmental effects. Our DEIR comment letter plainly asserted:

> Finally, the informational deficiency resulting from the DEIR's wholesale failure to mention LU-127 is not limited to agricultural impacts. ***On its face, LU-127 is intended to protect agricultural production as well as biological resources*** that rely on agricultural lands for habit and water quality since agricultural lands also facilitate groundwater recharge.

(FEIR, p. 26-368, emphasis added [Comment 19-35].)

The FEIR's Response to Comment 19-35, Response to Comment 19-34, or Master Response LU-127, conspicuously never disputes that LU-127 has this purpose, much less support that disagreement with analysis or supporting authority. This violates CEQA's mandate for the FEIR to address comments "in detail giving reasons why specific comments and suggestions were not accepted." (Cal. Code Regs., tit. 14, § 15088, subd. (c).)

In short, the DEIR fails as an informational document regarding the Project's consistency with LU-127; the FEIR fails to provide the missing analysis and also fails to provide good faith responses for why it need not analyze consistency with LU-127.

- **Responses to Comments 19-1 through 19-6, and 19-66**

The responses to comments brush aside the concerns and legal errors raised in our comments largely by relying on the assertion that our comments either go to the merits of the Project or that our comments fail to trigger specific conditions for recirculation. (FEIR, p. 26-341.)

One of the County's legal errors in its review of the Project is the failure to be objective, and neutral with respect to the Project and provide a clear justification for the Project objectives separate from the Project proponent's interests. (CEQA Guidelines, § 15124, subd. (b).)[2] When a lead agency is committed to or favors an applicant's proposal before environmental review is complete it commits legal error. (*Citizens for Ceres v. Superior Court* (2013) 217 Cal.App.4th 889, 918 [*Ceres*].)

As we described in our previous comment letter, the Project would require extension of the County's urban service boundary, which is contrary to County General Plan policy LU-127.[3] The master response provided in the FEIR fails to provide any facts making the necessary showing why there is inadequate vacant land within the USB that would be needed to accommodate urban uses equivalent to the Project. (FEIR, p. 26-20, Master Response LU-2.) Similarly, the master response does not make the alternative showing why the Project would offer "extraordinary environmental, social or economic benefits and opportunities to the County."[4] The Project objectives recited in the FEIR, and referenced in the responses to comments, fail to provide the necessary showing why the Project's considerable environmental impacts are warranted, considered against the gross inconsistency with LU-127 (FEIR, p. 2-13 [Project objectives]; FEIR, p. 26-343 [discussion of the Project objectives].) These deficiencies, in turn, fail to make the requisite showing why the Project is in the best interests of the County, as required by law. (*Ceres*, *supra*, 217 Cal.App.4th at 918.)

- **Response to Comments 19-7**

The response provided to comment 19-7 recites the points of consistency between the consideration of alternatives and CEQA Guidelines section 15126.6. The response, however, fails to describe why alternatives that do not require extension of the USB, contrary to County General Plan Policy LU-127, were not developed and considered in any detail. (CEQA Guidelines, § 15126.6, subd. (f)(1) [general plan consistency is relevant to the issue of project feasibility].)

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[2] Title 14 of California Code of Regulations, section 15000 et seq. provides the "CEQA Guidelines."

[3] 2022, County of Sacramento, County of Sacramento General Plan, Land Use Element, p. 144.

[4] *Ibid.*

- **Response to Comment 19-8**

Our prior comments identified the County's deviation from the Natomas Joint Vision Memorandum of Understanding and the County's commitments to protection of open space and environmental resources. The County's response simply recites General Plan Policy LU-114 as if that policy supported the County's consideration of a project that is not warranted based on its environmental consequences and policy inconsistency. (FEIR, p. 26-349.) The plain language of LU-114 contradicts the County's consideration of a project that would leave only a sliver of agricultural land along the western boundary and bring urban development into close proximity with protected lands, because LU-114 emphasizes that both development and open space preservation occur in a comprehensive and cohesive manner, rather than leaving isolated remnants of farmland as a perfunctory nod to conservation.[5] The Project, as proposed, would place low residential and other developed land uses adjacent to lands dedicated to habitat functions immediately to the north and west of the Project and separated only by a thin buffer, which is contrary to LU-114. (FEIR, p. 2-29 [Plate PD-13].)

- **Responses to Comments 19-9 and 19-10**

The County's responses to comments 19-9 and 19-10 sidestep discussing or justifying one of the FEIR's fundamental flaws: the failure to provide a project objective that justifies extension of the USB contrary to County General Plan Policy LU-127.

As previously explained in our DEIR comment letter, a discussion of project objectives should not merely mirror the applicant's goals or provide a thin justification for why the proposed land uses are "needed," but should instead describe the underlying objective of the project. (CEQA Guidelines, § 15124, subd. (b).) The project objectives provide a baseless post-hoc rationalization of the project by stating it is necessary to accommodate "the County's share of future regional population growth." (FEIR, p. 3-1.) As previously stated in our October 28, 2024 comment letter, this objective is not supported by substantial evidence showing <u>why this Project is needed in this location to further that goal</u>. The County's responses in Response 19-9 and 19-10 fail to provide any evidence that the Project is necessary to accommodate regional population growth. (FEIR, pp. 26-350 – 26-351.) This, in turn, fails to demonstrate why the Project can be justified under County General Plan Policy LU-127, which only states that the USB shall be extended if it is needed to accommodate Project demand for urban use or there are extraordinary economic, social, or environmental benefits.[6]

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5 *Id.*, p. 123.
6 *Id.*, p. 144.

The County's response to comment 19-10 states that "[w]hile the question of the capacity of the County to absorb the housing proposed in the UWSP is one that the County will consider, it is not an issue that is required to be addressed in the EIR." (FEIR, p. 26-352.) The discussion above explains why this response is nonsense since the issue relates directly to (i) whether substantial evidence supports the EIR's project objective, (ii) the feasibility of offsite alternatives, and the Project's consistency with the County's General Plan vis-a-viz Land Use Policy LU-127.

- **Responses to Comments 19-11 through 19-30**

These comment responses provide a justification of the project alternatives that is not directly relevant to the question the County apparently will not and cannot answer, which is "why do the project objectives amount to a post-hoc rationalization for the project description, contrary to CEQA Guidelines, section 15124?" The comments also provide references to previous and insufficient comment responses that fail to provide facts or clarity regarding the County's objectives (which should be distinct from the project applicant's objectives) in carrying forward the Project.

- **Response to Comment 19-31 through 19-32**

The County's response to comment 19-31 fails to justify what "phasing" means when the necessary project approvals are considered. The FEIR states that the necessary project approvals consist of, among other actions, adoption of the specific plan and annexation by the Sacramento Local Agency Formation Commission. (FEIR, p. 2-61.) None of these approvals are limited to any particular set of phases. In addition, the Project depends upon extension of the USB. These approvals apply to the entirety of the Project area. The "phasing" concept thus amounts to a vague justification for a project that grants significant changes in land use designation to the entirety of the Project while deferring analysis for the environmental consequences of these actions.

The County acknowledges, for example, that its project-level biological resource study addresses only a 568.7-acre portion of the Project area. (DEIR Appendix BIO-2, pp. 6, 24 [all surveys were restricted to the 568.7-acre "survey area"]; Appendix BIO-1, p. 20 [detailed or protocol level surveys only conducted in the 568.7-acre "survey area"].) The County has thus deferred project-level biological studies for the balance of the Project area based on a "phasing plan" even though the County would provide project-level land use approvals based upon this EIR. In other words, the vast majority of the Project site would receive project-level land use approvals based only upon a

programmatic-level (i.e., nonexistent) of biological analysis. So-called "phasing" cannot be used to justify improperly deferring project-level analysis for project-level approvals.

Similarly, the County relies heavily on "phasing" to support deferring mitigation necessary to support buildout of constituent parts of the Project. (FEIR, p. 26-366 [future CEQA review would be required to support zoning actions as phases are built out over time].) Again, this language is nonsensical because later "phase" land use entitlements are exactly the same as purported "first phase" entitlements. An example of the comprehensive set of land use changes that apply to the entire Project based on this EIR is found in the Draft Specific Plan document itself, which states that:

> "[*t]he UWSP establishes land uses for the Plan Area and its primary implementation tool is the Upper Westside Development Standards and Design Guidelines (DS&DGs).*"

(Draft Specific Plan, p. 1-16.)

The Draft Specific Plan goes on to state:

> "[a]s *the primary regulatory tool to evaluate development projects, the DS&DGs* ***take precedence over the County's Zoning Code*** *with an intent of achieving the vision described by the UWSP.*"

(Draft Specific Plan, p. 1-16 [emphasis added].)

Because the Project includes modifying the USB to encompass the entire Project area, and is adopting DS&DGs that apply to the entire Project area that take precedence over the zoning code, the County would be issuing project-level land use approvals for the entire Project site (i.e., including future "phases") based upon analysis set forth in this EIR and therefore requires project-level CEQA review for the entire Project area. (CEQA Guidelines, § 15161 [project EIR required for project-level approval].)

- **Response to Comment 19-33**

The County's response to the comment avoids meaningful engagement with the issue raised in our letter. We previously noted the DEIR's deficiency associated with revising the countywide policy favoring mitigation of agricultural land loss within the County. This policy change applies to the entire County yet no analysis of impacts outside the Project area is provided.

A cursory review of Appendix PD-1 reveals that the Project still includes reducing the barrier to use of agricultural mitigation land outside of the County. Where these lands also provide habitat function (as distinct from habitat lands used for mitigation), using lands outside of the County reduces ecological connectivity for affected species. The County's response to comments simply states that our comment identifies no specific effects, and that agricultural impacts are analyzed in the DEIR. The FEIR agricultural resources section contains no analysis of lost habitat connectivity associated with the use of spatially disparate agricultural lands. The County must analyze all relevant environmental effects, even if those effects are not specifically contemplated in the CEQA Guidelines Appendix G thresholds. (*Joshua Tree Downtown Business Alliance v. County of San Bernardino* (2016) 1 Cal.App.5th 677, 689.)

- **Response to Comment 19-36**

The County provides no substantive response to the issues raised in our comment letter or the comments of the Sacramento County Farm Bureau. The Sacramento County Farm Bureau specifically stated that the agricultural buffer will fail to reconcile incompatible land uses due to its narrow width and provided specific facts that the proximity of a proposed school is inconsistent with typical agricultural practices such as pesticide application. (FEIR, p. 26-159.) The County brushes aside this comment based on an asserted lack of "specific evidence." (FEIR, p. 26-159.) The master response AR-2 fails to clarify how agricultural land uses directly west of the proposed school site, occurring on the large parcels in that area, would be reconciled with school operations.

- **Response to Comment 19-37**

The County's response fails to engage with the problem raised in the comment. Our comment specifically flags the potential that buildout of the Project will contribute to combined loss of land in the Natomas Basin that will exceed thresholds at which jeopardy to listed species would occur. Because state and federally listed species occur in the Project area, take authorization will inevitably be required. (FEIR Table BR-2, p. 7-13 [species occurring in the Project area]; Fish & G. Code, § 2080 [take authorization required for state-listed species].)

The failure to analyze and disclose related permitting processes and impacts on resources relevant to those processes is an informational deficiency. (*Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 936 [*Banning Ranch*].) Our previous comment raises the issue that development in the Natomas Basin exceeding 17,500 acres creates a risk of jeopardy. (FEIR, p. 26-370.) Take may not be authorized under the California Endangered Species Act where the take would cause jeopardy to a

listed species. (Cal. Code Regs., tit. 14, § 783.4, subd. (b).) The responses to comments refer to future permitting processes as the primary reason jeopardy would be avoided in circular logic that fails to engage with the problem that those permits require a showing that the project will not result in jeopardy. (FEIR, p. 26-205; Cal. Code Regs., tit. 14, § 783.4, subd. (b) [permits applications must show why jeopardy would be avoided].)

These responses fail to satisfy CEQA's requirement that where a project affects environmental resources subject to related permitting processes, the impacts on those resources and the project's viability under future permitting should be fully described. (*Banning Ranch*, *supra*, 2 Cal.5th at 936.) Since the Project would contribute to loss of acreage that is necessary to satisfy the goals of the Natomas Basin Habitat Conservation Plan ("NBHCP") and avoid jeopardy to listed species, that effect and the impact on the viability of future permitting processes must be disclosed in the EIR. The FEIR utterly fails to correct this flagrant violation of CEQA's disclosure mandates. The County's approach to consideration of take authorization for species listed under the federal and California Endangered Species Act consists of simply stating that take authorization will be obtained. (FEIR, p. ES-23 [state and federal take authorization for giant garter snake shall be obtained]; FEIR, p. ES-43 [an incidental take permit "may" be required for the Project for Swainson's hawk].)

- **Response to Comment 19-38 through 19-42**

The County's responses to these comments both fail to substantiate why existing intersections cannot be improved to meet required levels of service ("LOS"), and why new intersections that would be constructed will also fail to meet required LOS, consistent with County General Plan Policy CI-9, which requires LOS E.[7]

First, in explaining why physical improvements needed to meet required LOS for existing roads cannot be made, the County repeats the conclusory approach of the DEIR, only stating that such improvements would be detrimental to pedestrians or bicycle traffic or would result in downstream "vehicle weaving areas." (FEIR, p. 26-373.) No studies or analysis are cited in support of these conclusions, contrary to the required content for responses to comments. (*League to Save Lake Tahoe v. County of Placer* (2022) 75 Cal.App.5th 63, 160; CEQA Guidelines, § 15088, subd. (c) [conclusory information in the response to comments provided in an EIR absent factual support violates CEQA].) As just one example, the FEIR fails to explain what level of "detriment[] to pedestrians or bicycle traffic" results in an "infeasibility" finding. The same is true regarding "vehicle weaving areas."

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[7] Sacramento County 2020. Circulation Element, Amended October 6, 2022, p. 23.

The FEIR also fails to substantiate why intersections that do not even exist yet will fail to meet LOS. The County provides only a conclusory response to explain why new intersections will fail to meet LOS E, contrary to General Plan Policy CI-9. (DEIR Appendix TR-2, p. 139, Table 21.) The response, 19-41, only refers to other comment responses that "explain" why existing intersections will fail to meet adequate LOS, without even reaching the issue of why new intersections will also perform worse than LOS E. This failure to design new facilities that meet acceptable LOS thus demonstrates a failure to satisfy the County's duty to mitigate environmental impacts. (Pub. Resources Code, § § 21002.1 [duty to mitigate].)

- **Response to Comments 19-43 through 19-47**

Our prior comment letter raised the issue of informational sufficiency related to transportation impacts, noting that while the Project assumes the creation of a total of 3,576 transit-based trips, the proposed mitigation measure TR-1b only describes how the project applicant will coordinate with the County and transit providers to "provide the additional transit facilities and services assumed in the transportation analysis" to accommodate the addition of 3,576 additional transit riders per day. (FEIR, p. 18-29 [3,576 transit-based trips per day]; FEIR, p. ES-126 [mitigation measure TR-1b].) The mitigation measure and related analysis of impacts under impact TR-1 fails to describe the nature or effects of the additional facilities and associated improvements. When a mitigation measure will create environmental effects, those effects must be described in the EIR. (CEQA Guidelines, § 15126.4, subd. (a)(1)(d).) The substantial improvements needed to accommodate an additional 3,576 daily transit trips will necessarily create additional environmental impacts that remain unanalyzed and undisclosed in the City's FEIR. For these reasons, the FEIR still fails as an informational document with respect to disclosing the impacts of mitigation.

- **Response to Comments 19-48 through 19-52**

Our previous comments noted that the County is not relying on a lawful water supply assessment ("WSA") as required under Water Code section 10910. The City's response misstates the applicable law. For projects subject to the duty to prepare a WSA, the lead agency may only rely on the urban provider's urban water management plan ("UWMP") if the demand "associated with the proposed project" subject to environmental review was accounted for in the UWMP. (Wat. Code, § 10910, subd. (c)(2).) The County's response evades this specific analysis and simply states that because the water demand projections in the City of Sacramento's most recent UWMP can accommodate the total demand of the Project, the WSA is lawful. (FEIR, p. 26-379.)

This is not the same as a showing that the Project specifically included and accounted for the demand of the proposed Project, which is the plain meaning of Water Code section 10910, subdivision (c)(2).

Neither response to comments 19-43 through 19-47 nor response 15-65 make the requisite showing that the UWMP specifically included the Project. The failure to include a lawful WSA is an informational deficiency that constitutes legal error for failing to proceed as required by law that constitutes abuse of discretion. (Pub. Resources Code, § 21168.)

- **Response to Comments 19-53 through 19-57**

The County's revisions in the FEIR fail to address the DEIR's informational deficiencies associated with human health impacts resulting from air emissions. A primary issue that the County fails to characterize correctly is that the health effects associated with ultrafine particles are distinct from and more severe than particles between PM 2.5 and the ultrafine range of particles.[8] In addition, concentrations of PM 2.5 are not an adequate proxy for or indicator of ultrafine particle levels.[9] Thus the lumping of ultrafine particles with PM 2.5 analytically fails to account for the levels of ultrafine particles and health effects that the Project would generate, as further explained below. This informational deficiency is similar to, but more egregious than the legal error found when the County of Fresno failed to disclose the health effects that would occur from and could be inferred from ozone levels. Here, the County has failed in the first instance to analyze or disclose ultrafine levels that the Project would generate by instead lumping those emissions with PM 2.5, which is not an adequate proxy. (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 510 [*Sierra Club*] [County was required to and failed to make disclosures regarding pollutant emissions and health effects].) To the extent that ultrafine levels can feasibly be analyzed and correlated with health impacts the County has a legal duty to describe this information to the public and decisionmakers. (*Sierra Club*, *supra*, 6 Cal.5th at p. 510.)

Ultrafine particles have distinct and different health effects than larger particles in the PM2.5 range due to the manner in which these particles navigate and cross the small bronchioles of the lung and enter the body.[10] Concentrations of ultrafine particles are

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[8] See Exhibit 3, expert comments from Ralph Propper and Earl Withycombe; see also Dean E. Schraufnagel. 2020. The Health Effects of Ultrafine Particles. Experimental and Molecular Medicine, Vol. 52, pp. 311-317 ("*Schraufnagel*").

[9] *Schraufnagel*, p. 312 [ultrafine and PM 2.5 levels are not correlated].

[10] *Schraufnagel*, p. 311.

much higher near major road corridors such as Interstate 80, which abuts the Project on one side, than background levels.[11] Rural concentrations of airborne ultrafine particles average 2,610 particles per cubic centimeter (cm^3), whereas roadside concentrations may be up to 48,180/ cm^3 (almost 20 times higher).[12] Studies show that whereas PM 2.5 tends to deposit in the terminal bronchioles of the lungs, ultrafine particles cross the lung barrier and enter the human body where they may be transported throughout the body, further reinforcing the conclusion that ultrafine particles cannot be analytically "lumped" with PM 2.5.[13] In addition, ultrafine particles induce a stronger inflammatory response, with the response severity increasing with relatively smaller particles.[14] Ultrafine particles may have a greater influence on mortality.[15] PM generally induces inflammation and atherosclerosis with recent studies showing that ultrafine particles have a far greater effect than larger particles. Multiple studies also demonstrate an association between ultrafine particles and heart disease.[16] Children are particularly susceptible to the health effects of air pollution even while in utero. Mothers with exposure to ultrafine particles show increased risk for low birthweight, especially when they are living within 50 meters (164 feet) of heavy traffic.[17] PM is mutagenic and tumorigenic (i.e., causes genetic mutations and tumor growth), with finer particles inducing more severe effects.[18]

Thus, CEQA requires a separate analysis of the Project's ultra fine emissions and resulting human health impacts separate from PM2.5 emissions and health impacts. (*Visalia Retail*, *LP v. City of Visalia* (2018) 20 Cal.App.5th 1, 13 [*Visalia Retail*] [an EIR must analyze every issue for which the record contains substantial evidence supporting a "fair argument" of significant impact]; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1109 [*Amador Waterways*]).

The FEIR makes a few different arguments in its attempt to justify the DEIR's failure to address ultrafine emissions. All these arguments are contrary to CEQA. First, the FEIR asserts, "the cancer risk associated with the proposed project was found to be significant." (FEIR, p. 26-383.) But simply labeling the impact as significant and unavoidable does not excuse the agency from meaningfully assessing the severity of the impact. (*Berkeley Keep Jets*, *supra*, 91 Cal.App.4th at 1371 ["The EIR's approach of

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11 *Schraufnagel*, p. 312.
12 *Schraufnagel*, p. 312.
13 *Schraufnagel*, p. 312.
14 *Schraufnagel*, p. 313.
15 *Schraufnagel*, p. 313.
16 *Schraufnagel*, p. 314.
17 *Schraufnagel*, p. 315.
18 *Schraufnagel*, p. 316.

simply labeling the effect 'significant' without accompanying analysis of the project's impact on the health of [] employees and nearby residents is inadequate to meet the environmental assessment requirements of CEQA"].) Second, and importantly, finding a significant impact to cancer risk is irrelevant since, as explained above, ultrafine emissions have human health impacts that are distinct from cancer.

The FEIR next argues, "[T]he Sacramento Metropolitan Air Quality Management District (SMAQMD), which is the expert air quality agency with jurisdiction in the Project area, does not have established significance thresholds or methods specifically for analysis of PM2.5 concentrations that include ultrafines." (FEIR, p. 26-383.) However, the law is well settled that the absence of an existing significance threshold does not excuse an agency from analyzing an impact. (*Visalia Retail*, *supra*, 20 Cal.App.5th at 13; *Amador Waterways*, *supra*, 116 Cal.App.4th at 1108-1109.) Further, a CEQA lead agency is required to determine whether it is feasible to analyze an impact even when one regulatory agency has not adopted a methodology to analyze an impact. (*Berkeley Keep Jets*, *supra*, 91 Cal.App.4th at 1370 [agency was required "to do the necessary work to educate itself about the different methodologies that are available"].)

Third, the FEIR attempts to dismiss the handful of scientific studies transmitted along with our prior comment letter. The FEIR asserts, "For clarification, the studies cited in the comment (presented as Exhibits 12 through 15) appear to be inconclusive and/or demonstrate a correlation between ultrafine particulates and health outcomes like mortality, but they do not offer proof of causation." This is not a legitimate basis to avoid analysis. The *Sierra Club* decision does not require "proof of causation." Rather, our Supreme Court in *Sierra Club* only requires an EIR to "correlate" air emissions to human health impacts if it is feasible to do so. Here, the FEIR acknowledges that these few studies "demonstrate correlation between ultrafine particulates and health outcomes." *Berkeley Keep Jets* requires the County to research whether methodologies are available to study the human health impacts, and *Sierra Club* requires the County to "correlate" these ultrafine emissions to identified human health impacts unless the FEIR affirmatively shows that it is infeasible to do so. The FEIR has utterly failed to comply with its duty to analyze and disclose serious human health impacts potentially resulting from the Project.

In addition to the DEIR and FEIR's failure to provide analysis and disclosure of ultrafine particle effects, the mitigation approach fails to adopt feasible mitigation identified in previous comments and fails to account for scientific information relevant to the efficacy of the proposed approach. The FEIR states that for future proposed sensitive land uses within 1,000 feet of I-80, the project applicant shall install, operate and maintain in good working order a central HVAC system or other air intake system in the

building, or in each individual unit, that meets or exceeds a minimum efficiency reporting value of 13 or higher. (FEIR, p. 6-51.) This mitigation approach falls short of what is required.

The ability to capture ultrafine particles in high-exposure environments depends on both the quality of the filter medium,[19] and the number of air changes per hour,[20] and the degree to which the building envelope is airtight.

The response to comments states that ensuring airtight building envelopes (a design standard necessary to ensure the efficacy of mitigation) would be cost prohibitive and economically infeasible. (FEIR, p. 26-386.) This response provides no factual support or analysis to substantiate this conclusion and thus fails to provide substantial evidence for the conclusion that additional mitigation is not feasible. While ventilation systems in private homes, unlike institutional settings, are operated at the discretion of the occupants, the County could provide advisory information to future residents to encourage compliance.

In addition, relative to standard methods for mitigation of air pollution, there is additional analysis and mitigation that is required. For example, the efficacy of filtration for indoor air quality depends in part on air changes per hour.[21] The absence of any analysis using these metrics to ensure that adequate levels of filtration are utilized to protect indoor air quality leaves an information gap regarding additional mitigation that may be required.

In response to our comment 19-56 that mitigation measure AQ-4a is not enforceable, the FEIR purports to revise it. (FEIR, p. 26-387.) However, the revised mitigation measure remains unenforceable because it provides, "The specific plan design guidelines and development standards of the proposed UWSP shall include

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[19] Parham Azimi, Dan Zhao, Brent Stephens. 2014. Estimates of HVAC filtration efficiency for fine and ultrafine particles of outdoor origin. Atmospheric Environment 98 (2014).

[20] United States Environmental Protection Agency. 2025. *How Much Ventilation Do I Need in My Home to Improve Indoor Air Quality?* Available: https://www.epa.gov/indoor-air-quality-iaq/how-much-ventilation-do-i-need-my-home-improve-indoor-air-quality ["[H]omes receive 0.35 air changes per hour but not less than 15 cubic feet of air per minute (cfm) per person as the minimum ventilation rates in residential buildings in order to provide IAQ that is acceptable to human occupants and that minimizes adverse health effects."] ["USEPA, 2025."]

[21] USEPA, 2025.

recommendations in land use siting as applicable using CARB's 'Strategies to Reduce Air Pollution Exposure Near High Volume Roadways' Technical Advisory and the AQMD's 'Mobile Sources Air Toxics Protocol' or applicable AQMD guidance to establish buffer distances." (FEIR, p. 26-387, emphasis added.) Thus, even the revised mitigation measure only requires the Project planning documents to merely "recommend[s]" the referenced buffer distances; it does not actually require the Project to actually adopt the buffer distances. The mitigation measure remains ineffective and unenforceable.

In summary, the County has thus failed to disclose the unique levels of and substantially more severe health effects of ultrafine particles that will occur from the Project due to proximity to Interstate 80, in violation of CEQA. (*Sierra Club*, *supra*, Cal.5th 502 at p. 510 [failure to disclose health impacts or adopt mitigation measures with clear enforceable performance criteria violated CEQA].)

- **Response to Comments 19-58 through 19-65**

The County provides a lengthy set of responses to issues raised in our previous comments regarding deficiencies in the consideration of alternatives. (FEIR, pp. 26-391 to 26-395.) Notably, the consideration of Alternatives in Section 3 of the FEIR is devoid of any strikethrough indicating text revisions to address previously identified deficiencies. The County's responses fail to remedy the previously described deficiencies in the consideration of alternatives.

First, the purpose of comparing alternatives is to identify ways to reduce environmental effects. (CEQA Guidelines, § 15126.6, subd. (a).) Second, while there are factors the County may consider when rejecting alternatives based on feasibility, "[n]o one of these factors establishes a fixed limit on the scope of reasonable alternatives." (CEQA Guidelines, § 15126.6, subd. (f)(1).) CEQA requires thus a balancing of the extent and degree to which alternatives would meaningfully reduce significant impacts relative to the factors that purportedly make an alternative feasible or infeasible as well as their ability to achieve project objectives. The County's dismissal of alternative locations relies on speculative assertions that are not grounded in any factual discussion of discrete properties or locations or identified resources at those locations.

An example of the factual deficits in the County's analysis may be found in the bare assertion that alternative sites would potentially have greater air quality and greenhouse gas emissions impacts relative to the Project. (FEIR, p. 3-4.) This assertion is not based on any facts substantiating these impacts nor is grounded in a comparison of how specific alternative locations would fare when all the potential impacts are compared

against the myriad of significant and unavoidable impacts of the Project. In other words, the County has failed to provide a specific comparison of concrete impacts associated with particular alternative locations relative to the many significant and unavoidable impacts acknowledged in the FEIR for the proposed Project.

In a similar fashion, the FEIR, like the DEIR, concedes that alternative locations could feasibly achieve most of the Project objectives, but dismisses these for lack of proximity to a major transportation corridor. (FEIR, p. 3-5.) CEQA requires factual support for a lead agency's conclusions; "[c]onclusory statements unsupported by factual information will not suffice." (*League to Save Lake Tahoe v. County of Placer* (2022) 75 Cal.App.5th 63, 160; CEQA Guidelines, § 15088, subd. (c) [conclusory information in the response to comments provided in an EIR absent factual support violates CEQA].)

One specific example of the FEIR's failure to provide specific responses to comments concerns the FEIR's rejection of offsite alternatives based on Mr. Gidaro's failure to "control" offsite properties. (FEIR, 26-392.) Our prior comment letter questioned the logic of this justification since Mr. Gidaro only controls 1.53 percent of the Project area. (FEIR, 26-393.) We explain:

> In other words, Mr. Gidaro <u>does not control the vast majority</u> (either 98.47 percent or 86 percent) of the Project area. This is critical because ***the DEIR fails to explain how zero percent control makes a project infeasible whereas 1.53 percent (or 14 percent) control somehow makes a project feasible. In both instances the vast amount of contemplated development is wholly outside the control of the project applicant***.

(FEIR, p. 26-393, emphasis added.)

The FEIR completely ignores this point by asserting it is addressed in a response to another comment. (FEIR, p. 26-393.) It is not. Thus, the FEIR simply ignores how it is reasonable to reject an offsite alternative due to lack of "control" when the project applicant "controls" only 1.53 percent of the Project site.[22]

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[22] We also noted that the DEIR provided no information supporting its assertion that Mr. Gidaro controlled up to 14 percent of the Project area vis-a-viz so-called "participating" properties. (FEIR, p. 26-348) The FEIR failed to provide any explanation or evidentiary support for how Mr. Gidaro "controlled" these "participating" properties, which would bring his control up to 14 percent ownership. (FEIR, pp. 26-348, 393.)

While the FEIR disclaims that it rejected offsite alternatives due to "control" by Mr. Gidaro, that is plainly false. (See, FEIR, p. 26-392.) Indeed, the FEIR reiterates that it rejected offsite alternatives from consideration because "planning applications for these lands have already been filed with the City of Sacramento and the County of Sacramento." (FEIR, 26-348.) This is just another way of rejecting offsite alternatives without consideration because the planning application were not submitted by Mr. Gidaro. We addressed this very point in our DEIR comments, explaining:

> Finally, that planning applications for these alternative locations have already been filed by developers other than Mr. Gidaro is of no consequence since CEQA does not provide guarantees to any specific developer. (*Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1179 ["Ownership of the land used and the identity of the developer are factors of lesser significance"] [*Goleta I*].)

(FEIR, p. 26-392.)

Yet again, the FEIR completely ignores this important point. (FEIR, p. 26-393.) The only relevant consideration is whether these alternative planning applications would satisfy the stated project objectives and not the identity of the party submitting the application, and the FEIR concedes that certain offsite alternatives "could feasibly achieve many of the project objectives." (FEIR, p. 26-348.)

Finally, implicitly acknowledging the DEIR's dismissive treatment of alternative project locations, the FEIR attempts to shore up that inadequacy by referencing purported "8,900 on-site jobs" that would be created by the Project." (See, e.g., FEIR, pp. 3-5, 3-8.) Setting aside that these jobs are sheer speculation, the FEIR's attempt to reject alternative locations on this basis violates CEQA because the EIR's project objectives do not require the creation of 8,900 jobs. (FEIR, pp. 2-13 – 14.) The FEIR's attempt to bolster the DEIR's flawed alternatives analysis therefore fails.

In sum, the EIR's analysis of alternatives violates the "rule of reason," which is the standard that a reviewing court will employ when assessing the FEIR's analysis of alternatives, and the FEIR's wholesale failure to address this critical issue violates CEQA's mandate to provide a good faith response.

II. THE DEIR'S PROJECT DESCRIPTION IS DEFICIENT

The CEQA Guidelines unambiguously require that an EIR identify the major components of the project, including any "supporting public service facilities." (CEQA

Guidelines, § 15124, subd. (c).) This content in turn supports the EIR's function as an "informational document" that informs the public and decisionmakers of the significant effects of the project. (CEQA Guidelines, § 15121, subd. (a).)

The stability and accuracy of the project description is in turn necessary to support the analysis of means of minimizing environmental effects, consistent with the requirements of CEQA. (Pub. Resources Code, § § 21002.1; CEQA Guidelines, § 15121, subd. (a).) CEQA case law reinforces this rule. (*Vineyard Area Citizens for Responsible Growth*, *Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 442 [*Vineyard*] [when a lead agency relies on information that is not clearly presented in an EIR in support of a decision it fails to proceed as required by law].)

At a recent meeting of the Sacramento County Planning Commission, staff for County stated that a "backup" water supply for the Project would be provided by Natomas Mutual Water Company if the City of Sacramento cannot provide water to the Project. The only reference to Natomas Mutual Water Company in the FEIR occurs in a comment stating that Natomas Mutual Water Company does not supply water suitable for municipal use due to arsenic contamination and that the State of California has not approved that entity for supplying domestic users. (FEIR, p. 26-624.) The City's only response regarding water supply is to reaffirm the belief that the City of Sacramento will in fact supply the Project. (FEIR, p. 26-625.)

Because the treatment plant needed to support the contingency in which Natomas Mutual Water Company supplies the Project is not described in the EIR, the EIR's project description and attendant analysis of environmental impacts is legally deficient. It fails to put both the decision makers and public on notice regarding the nature and effects of the Project and also fails to satisfy the duty of the County to mitigate environmental consequences. (Pub. Resources Code, § 21002.1; CEQA Guidelines, § 15121, subd. (a); *Vineyard*, *supra*, 40 Cal.4th at 442.)

III. VIOLATIONS OF THE PLANNING AND ZONING LAW

The Project's patently gross inconsistency with County General Plan Policy LU-127 and LU-120 constitutes a violation of California's Planning and Zoning law, and CEQA, as described below. (Pub. Resources Code, § 21000 et seq.; Gov. Code, § 65000 et seq.) The County has yet to identify the Project's inconsistency with County General Plan Policy LU-127 in any impact discussion in the FEIR. The FEIR only identifies this issue in response to comments. (FEIR, p. 26-20.) The failure to disclose this impact and put the decision makers and public on notice regarding this policy inconsistency remains

an informational deficiency that constitutes an abuse of discretion due to a failure to proceed as required by law. (*Sierra Club*, *supra*, 6 Cal.5th at 510.)

California law also requires that each city and county adopt a general plan that governs long term planning. (Gov. Code, § 65300.) No specific plan may be adopted unless it is consistent with the general plan. (Gov. Code, § 65454.) The adoption or amendment of a general plan is a legislative act that is reviewable under section 1085 of the California Code of Civil Procedure. (Gov. Code, § 65301.5 [Section 1085 provides for a traditional writ of mandate as a means of compelling compliance with California law].) The FEIR acknowledges that a General Plan amendment to extend the UPA and USB would be required. (FEIR, p. 2-14.) Under Sacramento County General Plan Policy LU-120 an extension of the UPA must meet ten criteria, PC-1 through PC-10.[23] PC-9 requires consideration of consistency with local planning efforts including habitat conservation plans.[24]

The County is not currently a permittee under the NBHCP.[25] The Project is also outside the NBHCP "Permit Area"—i.e., the area in which permitted entities may engage in take of state of federally listed species.[26] Previous comments have flagged the issue that development outside the permit area has dire consequences for the efficacy of the NBHCP. (FEIR, p. 26-183, Comment 15-20, citing *National Wildlife Federation v. Norton*, Civ-S-04-0579 DFL JFM (E.D. Cal. Sep. 8, 2005) [pg. 30 of the decision states development in the Natomas Basin outside the 17,500-acre permit area would significantly impact efficacy of the NBHCP and covered species and would potentially result in jeopardy].) The County's master response to this question fails to provide a meaningful analysis of the potential for jeopardy caused by additional development the Project would cause outside the permit area. (FEIR, p. 26-11 to 16-12.) This in turn means that the County is not making the required showing to satisfy County General Plan Policy LU-120 and the requirements of PC-9 [consistency with adopted plans].) The County is thus building a record for adoption of the Project that demonstrates

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[23] 2022. Sacramento County. Sacramento County General Plan, Land Use Element, p. 132.

[24] *Schraufnagel*, p. 136.

[25] Natomas Basin Conservancy. 2003. *Natomas Basin Habitat Conservation Plan, Plan Implementation*, p. VI-1. Available: https://natomasbasin.org/wp-content/uploads/natomas-basin-habitat-conservation-plan/8nbhcpplanimplementation2006_a11y.pdf.

[26] Natomas Basin Conservancy. 2003. Figure 2. Land Use Agencies Permit Areas. https://natomasbasin.org/wp-content/uploads/2014/05/fig02_hcp.pdf

inconsistency with the General Plan, in violation of Government Code section 65454, which requires that specific plans be consistent with the General Plan.

* * *

The DEIR remains woefully inadequate as an informational document, and the FEIR now compounds the County's violations of CEQA by failing to provide good faith responses to public comments highlighting the DEIR's numerous defects. Further, the Project flagrantly violates numerous County policies designed to avoid or mitigate the significant environmental impacts from the urban sprawl manifested by the Project.

Thank you for the opportunity to comment.

Very truly yours,

SOLURI MESERVE
A Law Corporation

By:
Patrick M. Soluri

cc (via email):

County of Sacramento Board of Supervisors:
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County of Sacramento, Department of Community Development Planning and Environmental Review Division, CEQA@saccounty.gov

Attachments:

Exhibit 1, Comments from Shawn Smallwood, Phd
Exhibit 2, Comments from Daniel T. Smith Jr., P.E.
Exhibit 3, Comments from Ralph Propper & Earl Withycombe

Flash drive with additional scientific/technical reports and reference materials to be separately transmitted to County

EXHIBIT 1

Shawn Smallwood, PhD
3108 Finch Street
Davis, CA 95616

Attn: Julie Newton, Environmental Coordinator
County of Sacramento
Department of Community Development
Planning and Environmental Review Division
827 7th Street, Room 225 Sacramento, California 95814

16 August 2025

RE: Upper Westside Specific Plan DEIR

Dear Ms. Newton,

I write to reply to the County of Sacramento's responses to my 25 October 2024 comments on the DEIR prepared for the proposed Upper Westside Specific Plan project. In my replies below, I further separate some responses by letter. I do this for responses to multiple comments or issues under one response number.

Response 19-67a: …The environmental setting in the UWSP meets the requirements of CEQA and was based on the best available data at the time the Draft EIR was written. Sources are outlined on pages 7-2 and 7-3 and noted in Table BR-2: Special-Status and NBHCP and MAP HCP Covered Species Evaluated for Potential Occurrence in the UWSP Area in the UWSP Draft EIR. This approach is consistent with the requirements of CEQA Guidelines Section 15125.

Rebuttal: If the environmental setting is inaccurately described, then it might do more harm than good to the CEQA process. The DEIR insinuates that the project area is of low value to wildlife, which is an inaccurate and misleading characterization of the environmental setting. Furthermore, the DEIR does not provide its supporting survey details needed to fully interpret survey findings, and it does not qualify its insinuation of low habitat value, especially in light of the fact that its supporting surveys detected 103 species of vertebrate wildlife.

Response 19-67b: …Table 1 indicates that the commenter's biologist recorded species that were observed in surveys conducted by Bargas and/or Helix in support of the Draft EIR, as well as a few species that were observed by the commenter but not observed in the Bargas and/or Helix surveys.

Rebuttal: Sixteen species is more than a "few species," especially considering that four of these 16 species were special-status species. One of these species was the California Threatened tricolored blackbird. That the Applicant's consultants failed to detect tricolored blackbirds is not an insignificant miss.

The County's dismissive responses in Response 19-67 and Response 19-93 prompted me to return to the project site for another survey. I initiated a visual-scan survey on Radio Road at 18:56 hours, and I continued the survey into the night by switching to use of a Petterson M500 acoustic bat detector that was cabled down a 30-foot pole to my computer. On my computer was Sonobat Live, which identifies species of bats detected by their sonograms. My daylight visual-scan survey lasted 1.15 hours, and my nocturnal survey lasted 2.18 hours. The sky was clear with 8 mph south winds, and the starting and ending temperatures were 87 and 71 F.

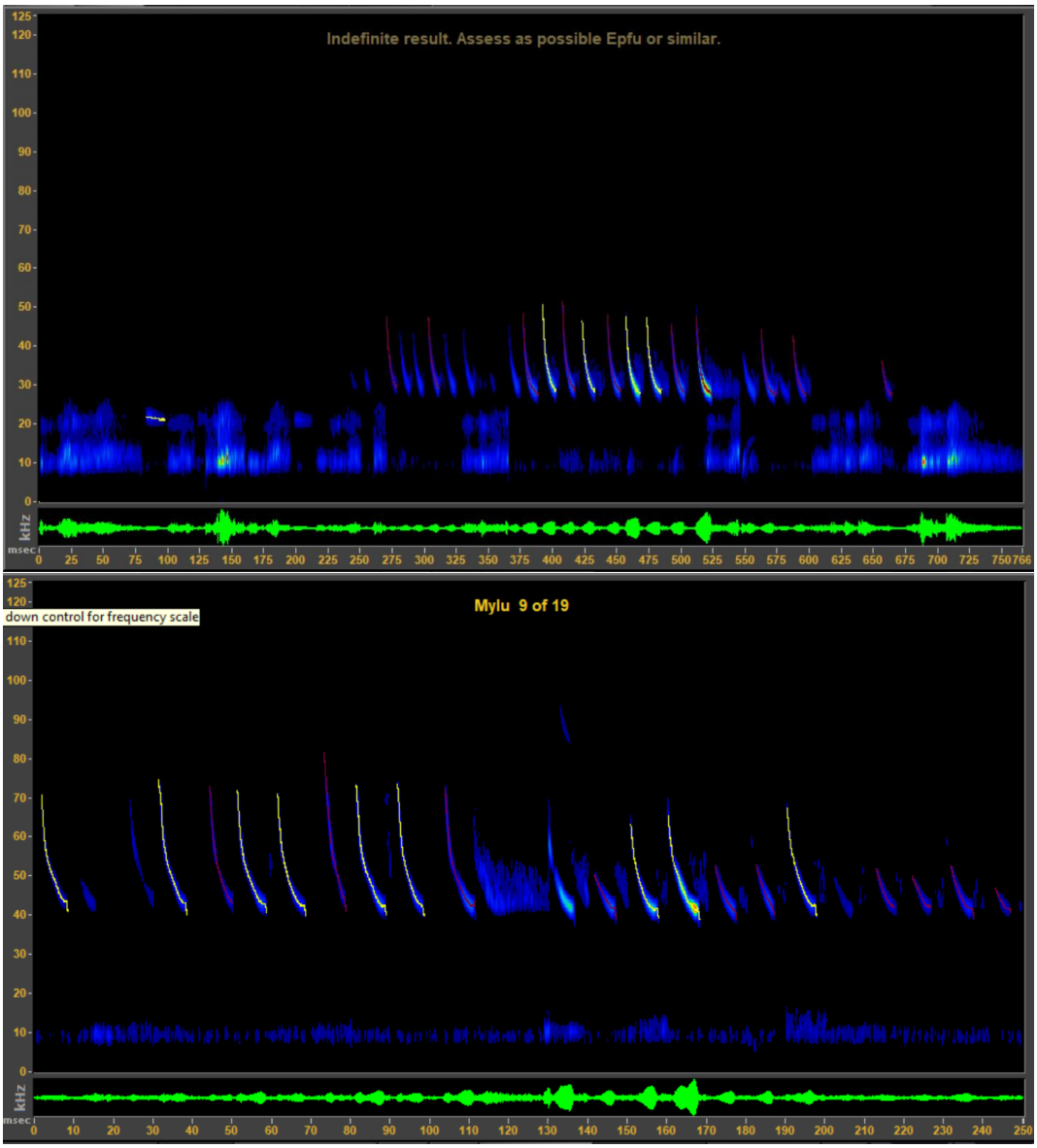
I detected 22 species of vertebrate wildlife that I had not previously detected, bringing my total on the project site to 95 (Table 1). Of these 22 species, 6 or 7 were special-status species, the uncertainty of the 7th depending on whether I truly detected pallid bat. Pallid bat was identified as possibly present, but Sonobat Live did not obtain a sufficiently clear sonogram to confirm the identity. These latest detections bring my total detections of special-status species to 23 or 24 on the project site (e.g., Figures 1-6).

In my second survey effort I detected another 16 species of vertebrate wildlife that had not been detected by the Applicant's consultants. This doubles my total to 32 species that I detected but the consultants did not. Most of the species I detected but the consultants did not were nocturnally active species including a barn owl and seven or eight species of bats, the number depending on the veracity of the pallid bat identification. The Applicant's consultants obviously did not survey for wildlife at night.

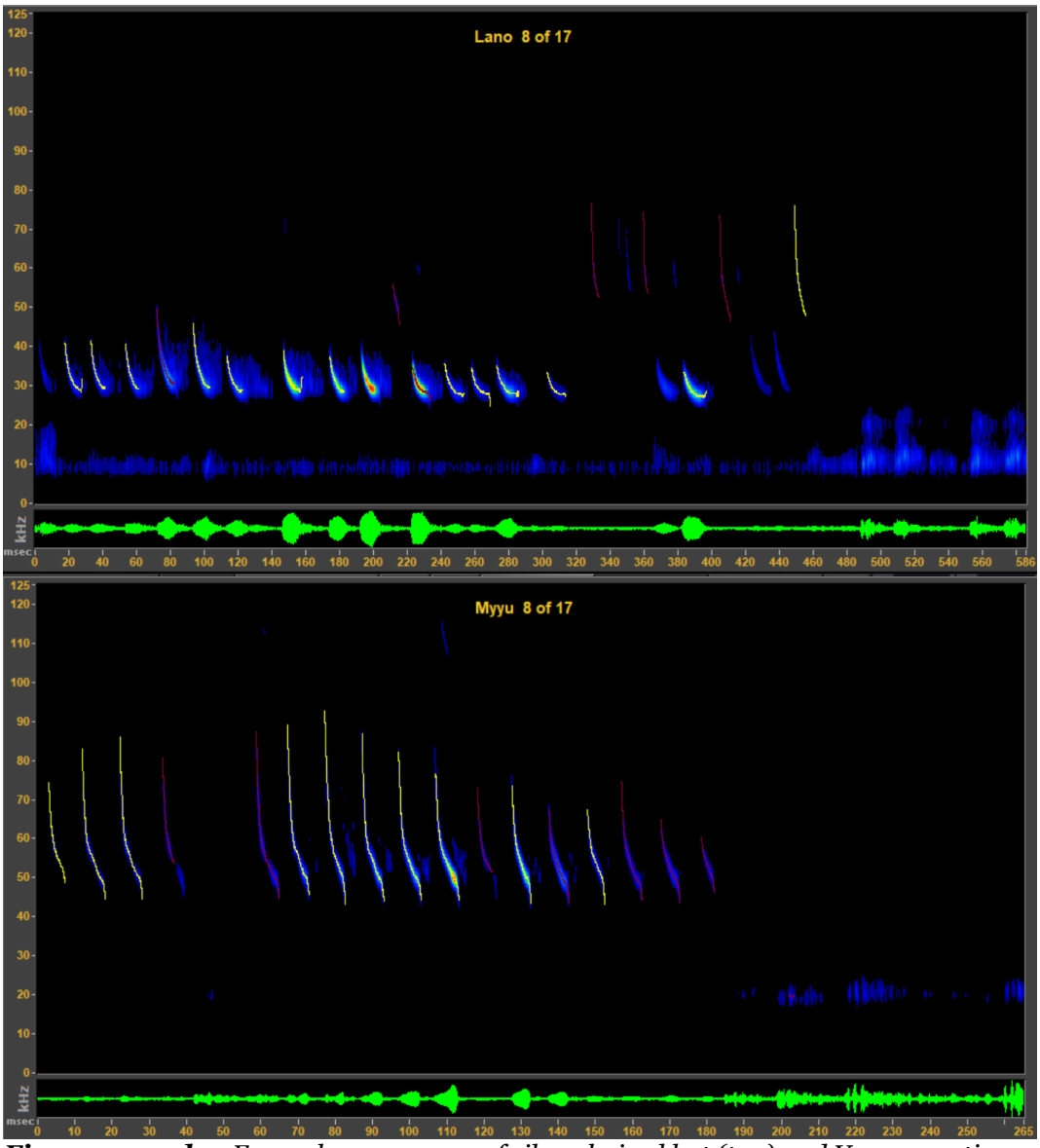
My rate of species detections in the daylight portion of the evening exceeded the upper bound of the 95% confidence interval estimated from evening surveys I have completed at 12 other sites in the Sacramento Valley (Figure 7). This finding is consistent with my higher rate of species detections I realized during my morning survey on 23 October 2024 (see Figure 1 in my 25 October 2024 comment letter). And although I detected seven or eight bat species in my nocturnal survey, a nonlinear model fit to my data predicts I would have detected 13 species of bats with an increased survey effort on the night of 14 August 2025 (Figure 8). I need to add that the bat activity I detected on the project site. I detected 106.3 bat passes per hour on the project site. Compared to 23 other sites where I measured bat passages, the bat passages I measured at the project site was the second highest behind a site in Goleta, California, where I measured 140 bat passages/hour while stationed next to stream with riparian vegetation. The passage rate I measured at the project site far exceeded the mean 19.8 bat passes/hour measured elsewhere, and it also far exceeded the upper bound of the 95% confidence interval, which was 32.8.

The consultants' surveys and mine combined, we have detected 135 species of vertebrate wildlife on the Specific Plan area, including 34 or 35 special-status species. But these 135 species are not the only species that occur on the project area. Applying my daylight detections of wildlife species to the same analytical bridge to a larger research site that I made use of on pages 17-18 of my 25 October 2024 comment letter, my predicted number of diurnally active species on the site increases to 279. Adding the 13 species of bats predicted in Figure 8, and the number of wildlife species predicted to occur on the

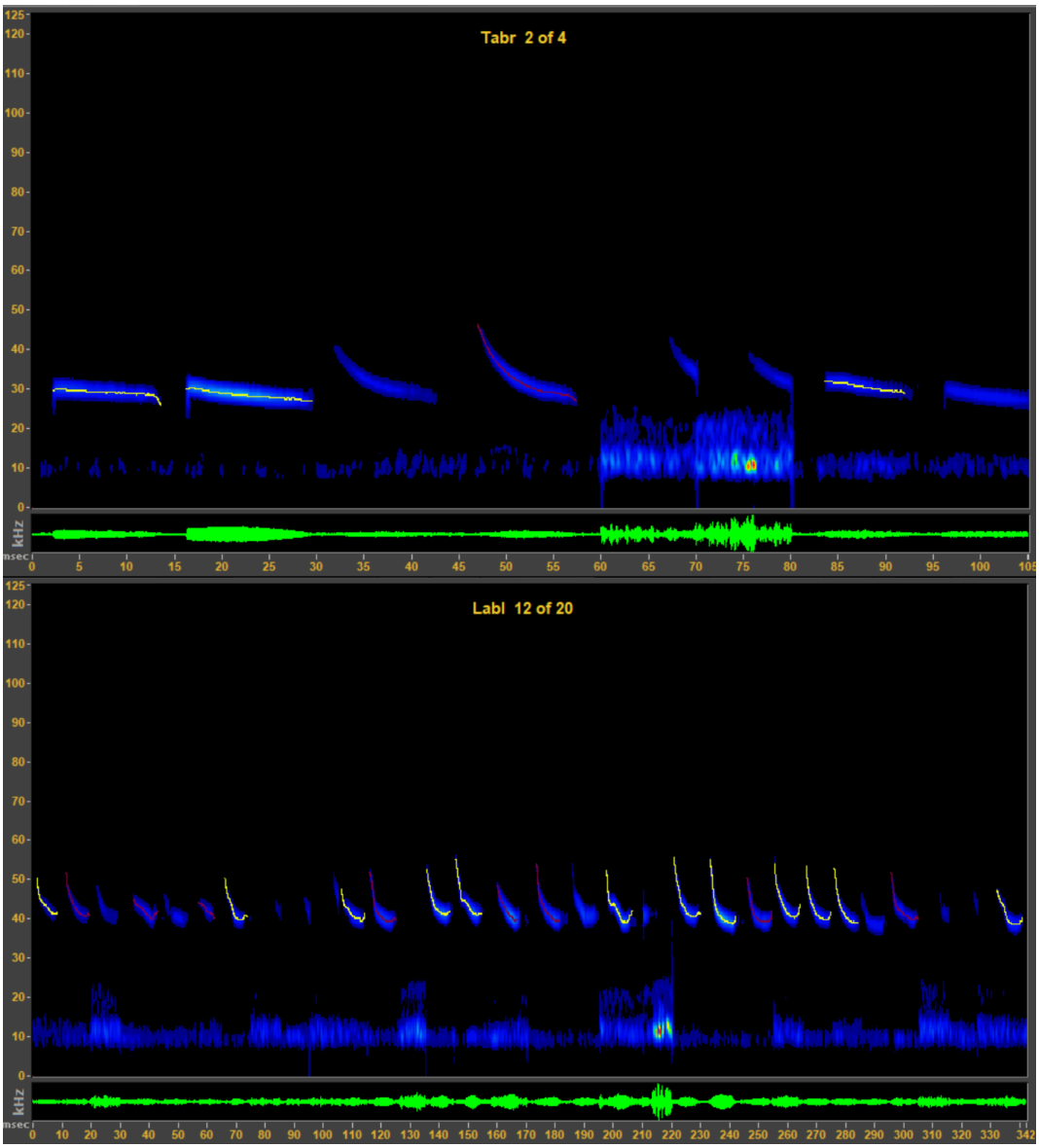
site is 292. But there are more species yet, and these could be detected through additional survey efforts including trapping.



Figures 1 and 2. *Example sonograms of big brown bat (top) and little brown bat (bottom) on the project site, 14 August 2025, as recorded by a Petterson M500 bat detector and identified to species by Sonobat Live.*



Figures 3 and 4. *Example sonograms of silver-haired bat (top) and Yuma myotis (bottom) on the project site, 14 August 2025, as recorded by a Petterson M500 bat detector and identified to species by Sonobat Live.*



Figures 5 and 6. *Example sonograms of Mexican free-tailed bat (top) and western red bat (bottom) on the project site, 14 August 2025, as recorded by a Petterson M500 bat detector and identified to species by Sonobat Live.*

The survey evidence, if processed and analyzed appropriately, reveals that an exceptionally rich wildlife community is present on the Specific Plan area. If the fields were not disked as frequently and if the canal banks were managed to allow more vegetation growth, the species richness and overall wildlife abundance would be much greater. But if any of the NBHCP's conservation strategy was to extend to the Specific

Plan area through land protection as mitigation or as additional reserves or enhanced connectivity, the positive effects on wildlife would be explosive. The capacity is very high for conserving wildlife in this area by restoring habitat.

Response 19-67c: Such variability is to be expected in random surveys as seasonality of species activity and survey methods are reasonably expected variables. Such variability does not invalidate the surveys upon which the environmental setting was based.

Rebuttal: The response misrepresents my comments, and I disagree that any of the surveys were "random." In no way did I suggest that the consultants' surveys should be considered invalid. I asserted that they were incompletely reported, and their findings were incompletely and misleadingly interpreted.

Response 19-67d: Furthermore, the potential to occur tables in the EIR are not based solely on observations, but on habitat suitability and geographic range of species as well.

Rebuttal: This response seems out of place. Regardless, it perpetuates a fundamental error of the DEIR. The error is in using a California Natural Diversity Data Base (CNDDB) query to screen out of the analysis of occurrence likelihoods every species that lacks occurrence records within whatever distance from the project site the query extended (the spatial extent of the query is not recorded). Because these species that did not come up in the CNDDB query would have been immediately omitted from further consideration, they unlikely underwent habitat assessment. There is no evidence in the DEIR that these species were considered for the presence of habitat and geographic range overlap with the project. And as an aside, the term habitat suitability is redundant because there is no such thing as unsuitable habitat. If a place provides a species with habitat, how can the habitat be unsuitable?

Response 19-67e: Most of the species that were observed by the commenter, but which were not identified in the surveys conducted by Bargas and/or Helix were common species that are not considered sensitive, such as Northern shoveler, raccoon, coyote and striped skunk.

Rebuttal: To be exact, 12 of the 16 species I detected in addition to those detected by the consultants were not special-status species. To characterize these species as "common" is misleading as well as unqualified. Perhaps the County meant to characterize these species as not assigned special status, but characterizing these species as "common" is misleading, as some of the species are common while many others are rare. The response also implies that these species are irrelevant to environmental review, but they are not.

Table 1. *Species of wildlife observed by Bargas during 40 surveys from March 2019 to July 2021, by Helix on 7 and 8 March 2023, and by myself (KSS) 3.83 hours on the morning of 23 October 2024 (X) and again for 3.33 hours starting at 18:56 hours on 14 August 2025 (XX).*

Common name	***Species name***	**Status[1]**	**Bargas**	**Helix**	**KSS**	**Notes**
American bullfrog	*Lithobates catesbeianus*	Non-native			XX	
Western fence lizard	*Sceloporus occidentalis*		X			
Red-eared slider	*Trachemys scripta elegans*	Non-native	X	X		
Giant gartersnake	*Thamnophis gigas*	FT, CT	X[2]			
Snow goose	*Anser caerulescens*		X			
Canada goose	*Branta canadensis*		X	X	X	Low-flying flocks
Cinnamon teal	*Spatula cyanoptera*		X			
Northern shoveler	*Anas clypeata*				X	Just off site
Gadwall	*Mareca strepera*		X			
Mallard	*Anas platyrhynchos*		X	X	X	
California quail	*Callipepla californica*		X		XX	
Wild turkey	*Meleagris gallopavo*		X			
Ring-necked pheasant	*Phaianus colchicus*	Non-native	X			
Pied-billed grebe	*Podilymbus podiceps*		X		XX	
Rock pigeon	*Columba livia*	Non-native	X	X	X	Hundreds
Band-tailed pigeon	*Patagioenas fasciata*				X	
Eurasian collared-dove	*Streptopelia decaocto*	Non-native	X		X	
Mourning dove	*Zenaida macroura*		X	X	X	
White-throated swift	*Aeronautes saxatalis*		X			
Anna's hummingbird	*Calypte anna*		X		X	
Rufous hummingbird	*Selasphorus rufus*	BCC	X			
American coot	*Fulica americana*		X		X	
Virginia rail	*Rallus limicola*				XX	Just off site
Black-necked stilt	*Himantopus mexicanus*				X	Just off site
Killdeer	*Charadrius vociferus*		X		X	
Whimbrel	*Numenius phaeopus*		X			
Short-billed dowitcher	*Limnodromus griseus*	BCC			XX	
Greater yellowlegs	*Tringa melanoleuca*				X	Just off site
Caspian tern	Hydroprogne caspia				XX	

Common name	***Species name***	**Status[1]**	**Bargas**	**Helix**	**KSS**	**Notes**
Western gull	*Larus occidentalis*	BCC			X	
Double-crested cormorant	*Nannopterum auritum*	TWL	X	X	X	
American white pelican	*Pelacanus erythrorhynchos*	SSC1	X	X		
American bittern	*Botaurus lentiginosus*		X			
Green heron	*Butorides virescens*				XX	
Great blue heron	*Ardea herodias*		X	X	X	
Great egret	*Ardea alba*		X	X	X	
Snowy egret	*Egretta thula*		X	X	X	
White-faced ibis	*Pledagis chihi*	TWL			X	Hundreds
Turkey vulture	*Cathartes aura*	BOP	X	X	X	
Osprey	*Pandion haliaetus*	TWL, BOP	X	X		
White-tailed kite	*Elanus leucurus*	CFP, BOP	X		X	Two pairs
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	X		X	Harassed by yellow-headed blackbirds
Cooper's hawk	*Accipiter cooperii*	TWL, BOP	X	X	X	
Red-shouldered hawk	*Buteo lineatus*	BOP	X	X		
Swainson's hawk	*Buteo swainsoni*	CT, BOP	X			
Red-tailed hawk	*Buteo jamaicensis*	BOP	X	X	X	
Rough-legged hawk	*Buteo lagopus*	BOP	X			
American barn owl	*Tyto furcata*	BOP			XX	
Great horned owl	*Bubo virginianus*	BOP	X		X	
Belted kingfisher	*Ceryle alcyon*		X			
Acorn woodpecker	*Melanerpes formicivorus*		X	X	X	
Downy woodpecker	*Dryobates pubescens*		X			
Nuttall's woodpecker	*Picoides nuttallii*	BCC	X	X	X	
Northern flicker	*Colaptes auratus*		X	X	X	
American kestrel	*Falco sparverius*	BOP	X		X	Several
Peregrine falcon	*Falco peregrinus*	BOP			X	Foraging
Prairie falcon	*Falco mexicanus*	TWL, BOP	X			
Western kingbird	*Tyrannus verticalis*		X		X	
Black phoebe	*Sayornis nigricans*		X	X	X	
Say's phoebe	*Sayornis saya*		X	X	X	

Common name	***Species name***	**Status[1]**	**Bargas**	**Helix**	**KSS**	**Notes**
California scrub-jay	*Aphelocoma californica*		X	X	X	
Yellow-billed magpie	*Pica nuttalli*	BCC	X	X	X	
American crow	*Corvus brachyrhynchos*		X	X	X	Many
Common raven	*Corvus corax*		X	X	X	
Oak titmouse	*Baeolophus inornatus*	BCC	X	X	X	
Horned lark	*Eremophila alpestris*		X		X	Many
Tree swallow	*Tachycineta bicolor*		X	X		
Violet-green swallow	*Tachycineta thalassina*			X		
Northern rough-winged swallow	*Stelgidopteryx serripennis*		X		XX	
Barn swallow	*Hirundo rustica*		X		XX	
Cliff swallow	*Petrochelidon pyrrhonota*		X		XX	
Bushtit	*Psaltriparus minimus*		X		X	
Ruby-crowned kinglet	*Regulus calendula*		X		X	
Golden-crowned kinglet	*Regulus satrapa*		X			
Cedar waxwing	*Bombycilla cedrorum*		X		X	
Phainopepla	*Phainopepla nitens*			X		
White-breasted nuthatch	*Sitta carolinensis*		X	X	X	
Bewick's wren	*Thryomanes bewickii*		X	X		
House wren	*Troglodytes aedon*		X			
Northern mockingbird	*Mimus polyglottos*			X	X	
European starling	*Sturnus vulgaris*	Non-native	X	X	X	
Western bluebird	*Sialia mexicana*		X	X	X	
American robin	*Turdus migratorius*		X	X		
House sparrow	*Passer domesticus*	Non-native	X		X	
American pipit	*Anthus rubescens*		X		X	
House finch	*Haemorphous mexicanus*		X	X	X	
Lesser goldfinch	*Spinus psaltria*		X	X	X	
American goldfinch	*Spinus tristis*		X		X	
Lark sparrow	*Chondestes grammacus*		X			
Dark-eyed junco	*Junco hyemalis*		X		X	
White-crowned sparrow	*Zonotrichia leucophrys*		X	X	X	Many

Common name	***Species name***	**Status[1]**	**Bargas**	**Helix**	**KSS**	**Notes**
Golden-crowned sparrow	*Zonotrichia atricapilla*		X		X	
Savannah sparrow	*Passerculus sandwichensis*		X		X	
Modesto song sparrow	*Melospiza melodia*	SSC3	X		X	
Lincoln's sparrow	*Melospiza lincolnii*		X		X	
California towhee	*Melozone crissalis*		X			
Spotted towhee	*Pipilo maculatus*		X			
Yellow-headed blackbird	*X. xanthocephalus*	SSC3	X		X	Many
Western meadowlark	*Sturnella neglecta*		X	X	X	
Hooded oriole	*Icterus cucullatus*		X			
Bullock's oriole	*Icterus bullockii*	BCC	X			
Red-winged blackbird	*Agelaius phoeniceus*		X	X	X	
Tricolored blackbird	*Agelaius tricolor*	CT, BCC, SSC1			X	Multiple small flocks
Brown-headed cowbird	*Molothrus ater*		X			
Brewer's blackbird	*Euphagus cyanocephalus*		X	X	X	
Great-tailed grackle	*Quiscalus mexicanus*		X		X	Flock
Orange-crowned warbler	*Oreothlypis celata*				X	
Nashville warbler	*Vermivora ruficapilla*				X	
Common yellowthroat	*Geothlypis trichas*		X			
Yellow warbler	*Setophaga petechia*	SSC2	X			
Yellow-rumped warbler	*Setophaga coronata*		X	X	X	Many
Black-headed grosbeak	*Pheucticus melanocephalus*		X			
Blue grosbeak	*Passerina caerulea*		X		XX	
Mexican free-tailed bat	*Tadarida brasiliensis*	WBWG:L			XX	
Big brown bat	*Episticus fuscus*	WBWG:L			XX	
Silver-haired bat	*Lasionycteris noctivagans*	WBWG:M			XX	
Yuma myotis	*Myotis yumanensis*	WBWG:LM			XX	
Western red bat	*Lasiurus blossevillii*	SSC, WBWG:H			XX	
California myotis	*Myotis californicus*	WBWG:L			XX	
Canyon bat	*Parastrellus hesperus*	WBWG:L			XX	
Little brown bat	*Myotis lucifugus*	WBWG:M			XX	

Common name	***Species name***	**Status[1]**	**Bargas**	**Helix**	**KSS**	**Notes**
Pallid bat	*Antrozous pallidus*	SSC, WBWG:H			XX	
Black-tailed jackrabbit	*Lepus californicus*		X	X	X	
Desert cottontail	*Sylvilagus audubonii*				X	One a roadkill
Eastern fox squirrel	*Sciurus niger*		X			
California ground squirrel	*Otospermophilus beecheyi*		X		X	
Raccoon	*Procyon lotor*				X	One a roadkill
Striped skunk	*Mephitis mephitis*				X	
American mink	*Neovison vison*		X			
River otter	*Lontra canadensis*		X			
North American beaver	*Castor canadensis*		X			
California vole	*Microtus californicus*				XX	
Bobcat	*Lynx rufus*				X	
Coyote	*Canis latrans*				X	
Gray fox	*Urocyon cinereoargenteus*				X	

[1] Listed as FT or FE = federal threatened or endangered, CT or CE = California threatened or endangered, CFP = California Fully Protected (CFG Code 3511), SSC = California Species of Special Concern, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern with priorities 1, 2 and 3, TWL = Taxa to Watch List (Shuford and Gardali 2008), and BOP = Birds of Prey (California Fish and Game Code 3503.5). [2] Eric Hansen detected eDNA on site.

Figure 7. *Actual and predicted relationships between the number of vertebrate wildlife species detected and my elapsed survey time during the daylight portion of my evening survey on 14 August 2025.*

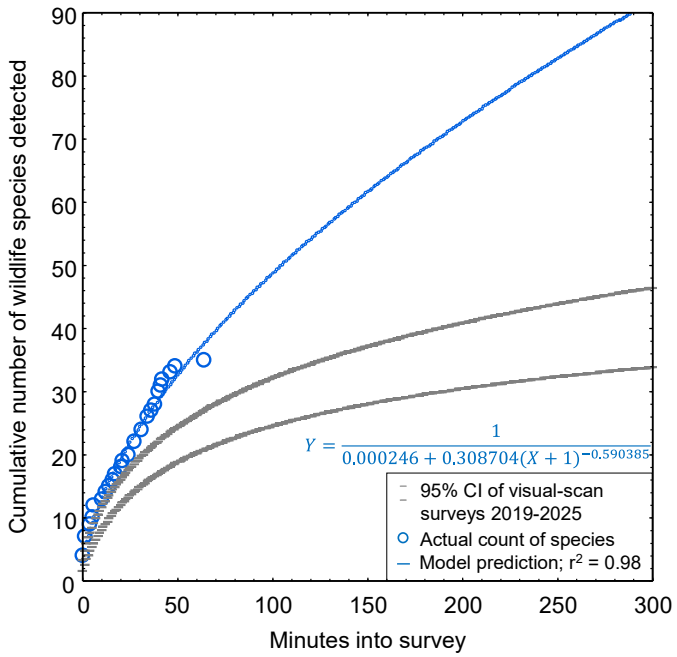
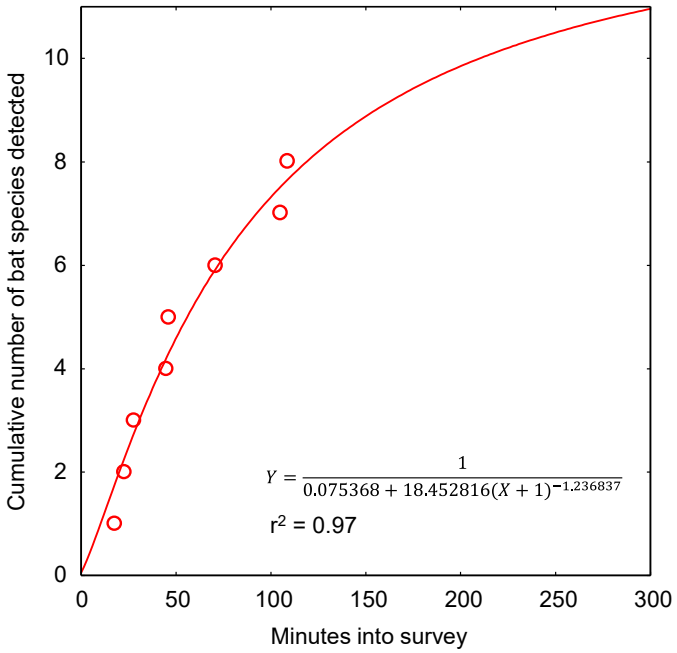


Figure 8. *Actual and predicted relationship between the number of bat species detected and my elapsed survey time during the nocturnal portion of my evening survey on 14 August 2025.*



Most environmental reviews pursuant to the California Environmental Quality Act (CEQA) focus on special-status species because CEQA's Checklist Evaluation of Environmental Impacts specifies that such evaluation includes potential impacts to

special-status species. However, an important policy of CEQA is "to prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history." Pub. Res. Code § 21001(c). This policy is not restricted to special-status species, but applies to wildlife populations and plant and animal communities. In fact, the CEQA Guidelines Section 21155.1 defines wildlife habitat as "the ecological communities upon which wild animals, birds, plants, fish, amphibians, and invertebrates depend for their conservation and protection." This definition is consistent with the scientific definition of habitat, which is that portion of the environment that is used by members of a species for survival and reproduction (Hall et al. 1997). An essential portion of the environment used by any special-status species is composed of the collection of other species of plants and wildlife, because these species are forage, provisioners of refugia and nest substrates, and ecological mutualists; no special-status species can exist in a vacuum of other wildlife. The CEQA Checklist Evaluation assigns priority to special-status species to balance information and cost, but it does not exclude the need to evaluate environmental impacts to other species, which, after all, are members of the very communities within which special-status species inter-depend for survival and reproduction.

Response 19-67f: The commenter indicates that s/he observed two special status species that were not identified in the surveys conducted for the Draft EIR;

Rebuttal: There were four species: western gull, white-faced ibis, peregrine falcon, and tricolored blackbird.

Response 19-67g: each of these species, however, was identified as a potential species and addressed in the Draft EIR impact analyses. Tricolored blackbird is identified in Table BR-3 as having suitable habitat present. Potential impacts to special status bird species were addressed in Draft EIR Impact BR 5 and measures that would avoid or reduce the magnitude of impacts to insignificance include Mitigation Measures BR-1, BR-2a, and BR-5.

American peregrine falcon, a protected raptor, was observed by the commenter but not in the Bargas or Helix surveys. Nevertheless, similar to Tricolored blackbird, potential impacts to special status bird species were addressed in Draft EIR Impact BR-5 and measures that would avoid or reduce the magnitude of impacts to insignificance include Mitigation Measures BR-1, BR-2a, and BR-5.

Rebuttal: The response is inaccurate and misleading. Western gull is not identified in the DEIR as potentially occurring.

Whereas the DEIR and Bargas (2022) assign moderate occurrence potential to white-faced ibis, Helix (2024) concludes it is not expected to occur. As I reported, white-faced ibis does occur.

The DEIR assigns peregrine falcon only a low likelihood of occurrence, which is obviously inaccurate.

Whereas the DEIR and Bargas (2022) assign moderate occurrence potential to tricolored blackbird, Helix (2024) says it "may occur." All these occurrence likelihoods are inaccurate, especially that of Helix (2024). Peregrine falcon, like the three preceding species, certainly occurs on the project site.

The response adds that certain mitigation measures would result in less-than-significant impacts, anyway, as if to suggest that these measures can cover for any mistakes in the habitat assessments. However, this is a poor foundation for environmental review. If the baseline study is inaccurate in its characterization of the wildlife community, then its basis for predicting impacts and formulating mitigation measures is unsound.

Response 19-67h: These examples demonstrate that while the surveys that were undertaken to characterize the environmental setting have a to-be-expected degree of variability, the analysis of impacts was based on the types of habitats that exist and the types of species that would be expected to be present in those habitats, and not just observed species. This methodology is conservative and protective of biological resources that could be adversely affected by the implementation of the proposed project. The evidence provided in this comment validates and reinforces the adequacy of the assessment of impacts to biological resources presented in Chapter 7, Biological Resources, of the Draft EIR.

Rebuttal: The exact opposite is true. Speculated occurrence likelihoods repeatedly under-estimate the likelihoods of occurrence of special-status species. Observations from greater survey effort have proven this to be the case, and not just for these four special-status species but also for double-crested cormorant. I also detected multiple special-status species on the project site that the DEIR omitted from its occurrence likelihood analysis due to its misuse of the CNDDB. These species include oak titmouse, yellow-billed magpie, turkey vulture, red-tailed hawk, great horned owl, Nuttall's woodpecker, and American kestrel. The most effective method of habitat analysis is survey to detect as many of the species as reasonably possible, because detections bring certainty to habitat determinations. Unless detection survey protocols were followed or unless reconnaissance surveys were repeated so many times as to be exhaustive, the absence of detections leaves the analyst uncertain about whether the site provides habitat. Where there is this uncertainty, the prudent assessment is to assume presence, consistent with the precautionary principle in risk analysis involving rare or precious resources (National Research Council 1986).

To further make my point, I updated Table 2 from my 25 October 2024 comment letter, adding species detections following my 14 August 2025 survey. The update reveals 36 or 37 special-status species documented on the project site. This revised number includes one species – little brown bat – that not even I considered likely to occur, but this goes to show the need to actually survey for wildlife rather than to speculate. Nineteen of these species did not survive the DEIR's screening of species with its inappropriate use of the CNDDB, and three were assigned occurrence likelihoods that were proven wrong.

Table 2. *Occurrence likelihoods of special-status bird species at or near the proposed project site, according to eBird/iNaturalist records (https://eBird.org, https://www.inaturalist.org) and on-site survey findings, where 'Very close' indicates within 1.5 miles of the site, "nearby" indicates within 1.5 and 4 miles, and "in region" indicates within 4 and 30 miles, and 'in range' means the species' geographic range overlaps the site. Entries in Bold identify species I detected.*

Common name	***Species name***	**Status[1]**	**Occurrence potential**			
			Bargas 2022	**Helix 2024**	**DEIR**	**Data base records, Site visits**
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Absent	Won't occur	Not expected	In range
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Low	Won't occur	Low	In region
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Absent	Won't occur	Not expected	In region
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Low	Not expected / Habitat present	Moderate	In region
Monarch	*Danaus plexippus*	FC		Won't occur		Very close
Crotch's bumble bee	*Bombus crotchii*	CCE		Won't occur	Not expected	In region
Northwestern pond turtle	*Emys marmorata*	SSC	High	May occur / Habitat present	Moderate	Very close
Giant gartersnake	*Thamnophis gigas*	FT, CT	Low	Present / Habitat present	High	On site
Brant	*Branta bernicla*	SSC2				In region
Cackling goose (Aleutian)	*Branta hutchinsii leucopareia*	WL	Moderate	Won't occur	Low	Nearby
Redhead	*Aythya americana*	SSC2				Nearby
Barrow's goldeneye	*Bucephala islandica*	SSC				Very close
Western grebe	*Aechmophorus occidentalis*	BCC				Nearby
Clark's grebe	*Aechmophorus clarkii*	BCC				Nearby
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, CE	Absent	Won't occur	Not expected	In region
Black swift	*Cypseloides niger*	SSC3, BCC				Nearby

Common name	*Species name*	Status[1]	Occurrence potential			
			Bargas 2022	**Helix 2024**	**DEIR**	**Data base records, Site visits**
Vaux's swift	*Chaetura vauxi*	SSC2				Very close
Calliope hummingbird	*Selasphorus calliope*	BCC				Very close
Rufous hummingbird	*Selasphorus rufus*	BCC				On site
Allen's hummingbird	*Selasphorus sasin*	BCC				Nearby
Lesser sandhill crane	*Antigone canadensis canadensis*	SSC3				In region
Greater sandhill crane	*Antigone canadensis tabida*	CT, FP			Low	In region
Mountain plover	*Charadrius montanus*	SSC2, BCC		Not expected	Low	In region
Snowy plover	*Charadrius nivosus*	BCC				Nearby
Western snowy plover	*Charadrius n. nivosus*	FT, SSC	Absent	Won't occur	Not expected	In region
Long-billed curlew	*Numenius americanus*	WL				Very close
Marbled godwit	*Limosa fedoa*	BCC				Nearby
Pectoral sandpiper	*Calidris melanotos*	BCC				Nearby
Short-billed dowitcher	*Limnodromus griseus*	BCC				Very close
Lesser yellowlegs	*Tringa flavipes*	BCC				Very close
Willet	*Tringa semipalmata*	BCC				Nearby
Franklin's gull	*Leucophaeus pipixcan*	BCC				Nearby
Western gull	*Larus occidentalis*	BCC				**On site**
California gull	*Larus californicus*	BCC, WL				On site, ebird
California least tern	*Sternula antillarum browni*	FE, CE, FP				In region
Black tern	*Chlidonias niger*	SSC2, BCC				Nearby
Common loon	*Gavia immer*	SSC				Very close
Double-crested cormorant	*Phalacrocorax auritus*	WL		Won't occur	Not expected	**On site**
American white pelican	*Pelacanus erythrorhynchos*	SSC1	Present		High	On site

Common name	*Species name*	Status[1]	Occurrence potential			
			Bargas 2022	**Helix 2024**	**DEIR**	**Data base records, Site visits**
California brown pelican	*Pelecanus occidentalis californicus*	FP				In region
Least bittern	*Ixobrychus exilis*	SSC2				Very close
White-faced ibis	*Plegadis chihi*	WL	Moderate	Not expected / Habitat present	Moderate	**On site** ebird
Turkey vulture	*Cathartes aura*	BOP				**On site**
Osprey	*Pandion haliaetus*	WL, BOP		Present	Present	On site
White-tailed kite	*Elanus luecurus*	CFP, BOP	Present	High / Habitat present	High	**On site**
Golden eagle	*Aquila chrysaetos*	BGEPA, CFP, BOP, WL				Very close
Northern harrier	*Circus cyaneus*	BCC, SSC3, BOP	Present	Present	Present	**On site**
Sharp-shinned hawk	*Accipiter striatus*	WL, BOP				Very close
Cooper's hawk	*Accipiter cooperii*	WL, BOP		Present / Habitat present	Present	**On site**
Bald eagle	*Haliaeetus leucocephalus*	CE, BGEPA, BOP				Very close
Red-shouldered hawk	*Buteo lineatus*	BOP				On site
Swainson's hawk	*Buteo swainsoni*	CT, BOP	Present	High / Present	High	On site
Red-tailed hawk	*Buteo jamaicensis*	BOP				**On site**
Ferruginous hawk	*Buteo regalis*	WL, BOP		Not expected	Low	Very close
Rough-legged hawk	*Buteo lagopus*	BOP				On site
Barn owl	*Tyto alba*	BOP				On site, eBird; **On site**
Western screech-owl	*Megascops kennicotti*	BOP				Very close
Great horned owl	*Bubo virginianus*	BOP				**On site**

Common name	*Species name*	Status[1]	Occurrence potential			
			Bargas 2022	**Helix 2024**	**DEIR**	**Data base records, Site visits**
Burrowing owl	*Athene cunicularia*	BCC, SSC2, BOP	Moderate	May occur / Habitat present	Moderate	On site
Long-eared owl	*Asio otus*	BCC, SSC3, BOP				In region
Short-eared owl	*Asia flammeus*	BCC, SSC3, BOP				Nearby
Northern saw-whet owl	*Aegolius acadicus*	BOP				Nearby
Lewis's woodpecker	*Melanerpes lewis*	BCC				Very close
Nuttall's woodpecker	*Picoides nuttallii*	BCC				**On site**
American kestrel	*Falco sparverius*	BOP				**On site**
Merlin	*Falco columbarius*	WL, BOP		Not expected	Low	Very close
Peregrine falcon	*Falco peregrinus*	BOP			Low	**On site**
Prairie falcon	*Falco mexicanus*	WL, BOP				On site
Olive-sided flycatcher	*Contopus cooperi*	BCC, SSC2				Very close
Willow flycatcher	*Empidonax trailii*	CE				Very close
Vermilion flycatcher	*Pyrocephalus rubinus*	SSC2				Nearby
Least Bell's vireo	*Vireo bellii pusillus*	FE, CE	Absent	Won't occur	Not expected	In region
Loggerhead shrike	*Lanius ludovicianus*	SSC2	High	High / Habitat present	High	Very close
Yellow-billed magpie	*Pica nuttalli*	BCC				**On site**
Oak titmouse	*Baeolophus inornatus*	BCC				**On site**
Bank swallow	*Riparia riparia*	CT	Moderate	Won't occur	Low	Very close
Purple martin	*Progne subis*	SSC2		May occur / Habitat present	Moderate	On site, eBird
Wrentit	*Chamaea fasciata*	BCC				Very close
California thrasher	*Toxostoma redivivum*	BCC				Nearby
Cassin's finch	*Haemorhous cassinii*	BCC				In region
Lawrence's goldfinch	*Spinus lawrencei*	BCC				Nearby

Common name	*Species name*	Status[1]	Occurrence potential			
			Bargas 2022	**Helix 2024**	**DEIR**	**Data base records, Site visits**
Grasshopper sparrow	*Ammodramus savannarum*	SSC2		Won't occur	Low	Nearby
Modesto song sparrow	*Melospiza melodia mailliardi*	SSC3		High / Habitat present	High	On site
Black-chinned sparrow	*Spizella atrogularis*	BCC				In region
Gray-headed junco	*Junco hyemalis caniceps*	WL				In region
Oregon vesper sparrow	*Pooecetes gramineus affinis*	SSC2				In range
Yellow-breasted chat	*Icteria virens*	SSC3				Very close
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	SSC3	High	May occur / Habitat present	Moderate	**On site**
Bullock's oriole	*Icterus bullockii*	BCC				On site
Tricolored blackbird	*Agelaius tricolor*	CT, BCC, SSC1	Moderate	May occur / Habitat present	Moderate	**On site**
Virginia's warbler	*Leiothlypis virginiae*	WL, BCC				In region
Yellow warbler	*Setophaga petechia*	SSC2	High		High	On site
Summer tanager	*Piranga rubra*	SSC1				In region
Yuma myotis	*Myotis yumanensis*	WBWG:LM				**On site**
Small-footed myotis	*Myotis ciliolabrum*	WBWG: M				In range
Little brown bat	*Myotis lucifugus*	WBWG:M				**On site**
Canyon bat	*Parastrellus hesperus*	WBWG:M				**On site**[2]
Silver-haired bat	*Lasionycteris noctivagans*	WBWG:M			Low	**On site**
Hoary bat	*Lasiurus cinereus*	WBWG:M			Low	Nearby
Western red bat	*Lasiurus blossevillii*	SSC, WBWG:H				**On site**
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC, WBWG:H				In range

Common name	*Species name*	Status[1]	Occurrence potential			
			Bargas 2022	**Helix 2024**	**DEIR**	**Data base records, Site visits**
Pallid bat	*Antrozous pallidus*	SSC, WBWG:H		May occur / Habitat present	Moderate	**Possibly on site**[3]
American badger	*Taxidea taxus*	SSC		Won't occur	Not expected	In region

[1] Listed as FT or FE = federal threatened or endangered, FC = federal candidate for listing, BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern, CT or CE = California threatened or endangered, CCT or CCE = Candidate California threatened or endangered, CFP = California Fully Protected (California Fish and Game Code 3511), SSC = California Species of Special Concern (not threatened with extinction, but rare, very restricted in range, declining throughout range, peripheral portion of species' range, associated with habitat that is declining in extent), SSC1, SSC2 and SSC3 = California Bird Species of Special Concern priorities 1, 2 and 3, respectively, WL = CDFW's Taxa to Watch List, and BOP = protected by Birds of Prey (CFG Code 3503.5), and WBWG = Western Bat Working Group with priority rankings, of low (L), moderate (M), and high (H).

[2] Species identification is probable, according to Sonobat Live.

[3] This bat was indefinite in its species identification by Sonobat Live, so it possibly occurs on site.

Response 19-67i: The fact that the comment includes a survey approach and statistical analysis that differs in some fashion from the approach undertaken for the Draft EIR does not invalidate the analysis in the Draft EIR. CEQA Guidelines section 15151 states that "[d]isagreement among experts does not make an EIR inadequate," and "courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." The discussion of the environmental setting for biological resources in the Draft EIR meets this standard.

Rebuttal: My comments go to "…adequacy, completeness, and a good faith effort at full disclosure." To meet these standards, the DEIR needs to disclose the survey methods that the reader needs to appropriately interpret the survey findings. The DEIR also needs to report the survey findings in a manner that the reader needs to understand the implications. The reader needs to understand the limitations of the surveys, and whether more species could have been found had the surveys started earlier in the day or had they lasted longer. Recording the time into the survey of each new species detection gives the reader the means to assess how many more species could have been detected with more biologists or longe survey duration. A comparison of survey findings to the findings of surveys completed elsewhere can provide context for interpreting the survey findings. Are the survey outcomes at the project site unusual? The same as everywhere? This is why my survey results include confidence intervals, which are based on surveys at the same time of day at other sites in the region. The consultants' surveys are not reported with any of this; they are missing essential methodological details, details about results that are needed for interpreting the results, and context. Without these attributes, there is no way the DEIR's supporting surveys meet the standards of adequacy, completeness, and good faith effort at full disclosure

Response 19-68: The survey findings, as presented by Bargas (2020) and Helix (2024), along with other best available existing data on special-status species (including species occurrence data within the CNDDB and an analysis of habitat suitability), was used to establish the biological setting and to form the basis of the analysis of species' potential to occur in the UWSP area, as described under the Special-Status Species discussion on pages 7 10 to 7-12 of the Draft EIR. This meets the requirements of CEQA. Please also see Response 19-67 above.

Rebuttal: The response skips over my comments, and it is conclusory. My comments pointed out the lack of disclosure of baseline study limitations, the lack of reporting of essential survey methodological details, no explanation over why or how Helix (2024) detected so many fewer species than did Bargas (2022), and the lack of a coherent description of the wildlife community including a list of the species that compose the community. I also commented on the DEIR's insinuation that the project site provides only low habitat value to wildlife.

Response 19-69a: CEQA does not require any particular method of characterization of the environmental setting, and does not require or recommend presence/absence surveys be conducted in support of the Biological Resources Environmental Setting discussion.

Rebuttal: The CEQA requires an EIR to determine whether any of the following conditions would be significant: "(1) The project has the potential to*:* substantially degrade the quality of the environment*;* substantially reduce the habitat of a fish or wildlife species*;* cause a fish or wildlife population to drop below self-sustaining levels*;* threaten to eliminate a plant or animal community*;* substantially reduce the number or restrict the range of an endangered, rare or threatened species…" One of CEQA's primary objectives is that the environmental review be informative of the current environmental setting and potential project impacts. Another objectives is for the lead agency to publicly disclose potential environmental impacts of a proposed project so that decision-makers and the public can make more informed decisions over whether and how to proceed with a proposed project. (Another is to consider public comment for the purpose of identifying issues and feasible alternative mitigation measures.) The primary CEQA objective regarding biological resources is to analyze potential project impacts to special-status species and their habitats. At §15147, the CEQA Guidelines require "The information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public."

Over decades of environmental review pursuant to the CEQA, the resource agencies, the scientific community, and the courts have worked out methods for most efficiently developing the information needed to meet the CEQA's requirements and objectives. The methods developed thus far remain far from perfect with respect to wildlife, partly because it has been understood that information value must be balanced by cost, but there are affordable methods that are more scientific and that are more effective than others, and considering the CEQA's requirements and objectives, the more effective methods are the methods that need to be used. Certainly, CEQA discourages speculation, so any method that minimizes the need for speculation and remains affordable is preferable. And certainly, the CEQA's flexibility over survey methods does not condone the misuse of the CNDDB to screen many special-status species from further habitat assessment.

My comments go to inappropriate conclusions of low habitat value that were drawn from cursory surveys that could not have possibly achieved anywhere close to representing the species inventory of the wildlife community. My comments go to determinations of species absences or of low likelihoods of occurrence that could not be supported by protocol-level detection surveys because no such surveys were completed. My comments go to the DEIR's misuse of the CNDDB, which the response does not address directly. Nor does the response address my comments that special-status species occurrence likelihoods are inconsistent among Bargas (2022), Helix (2024) and the DEIR, and they often fail to comport with the evidence in survey outcomes and the proximities of occurrence records.

Many of the questions that need to be answered to achieve the CEQA's requirements and objectives start with the question of whether a particular special-status species is present, and there are two ways to address this question. One is to assume presence in the face of uncertainty consistent with the precautionary principle. The other is to

perform surveys to determine presence/absence; these surveys are known as detection surveys. In the case of some special-status species, reconnaissance surveys can detect the species and hence confirm presence without incurring more cost. For this reason, I recommend conducting multiple reconnaissance-level surveys at day and night to detect as many of the species as reasonably feasible. In the case of other special-status species, protocol-level detection surveys are needed. The resource agencies have formulated detection survey protocols for many of these species, and lead agencies are expected to use them when needed. In the cases of listed species and species that are candidates for listing, detection surveys are necessary for the purpose of obtaining an incidental take permit.

If for any special-status species whose geographic range overlaps the project site and for which environmental conditions at the site are plausibly consistent with conditions where the species is found, then an EIR that concludes it is absent or of low likelihood to occur without having first conducted a detection survey is at risk of losing credibility. It is widely known to consulting biologists that detection survey protocols are available and the experts who formulated the protocols expect the protocols to be used. The CDFW has posted many of the protocols on its website: https://wildlife.ca.gov/Conservation/Survey-Protocols. The alternative for maintaining credibility is to refrain from concluding that a special-status species is absent or of low likelihood to occur without having completed a detection survey. The CEQA does not require that absence of evidence needs to be misinterpreted as the absence of the species.

Response 19-69b: Table BR-2: Special-Status and NBHCP and MAP HCP Covered Species Evaluated for Potential Occurrence in the UWSP Area (PTO Table) incorporates all species included in the Bargas and Helix PTO tables, as well as NBHCP and MAP HCP Covered Species, and the NBHCP Area Biological Effectiveness Monitoring Report 2022 Annual Survey Results. As described under the Special-Status Species discussion on pages 7-10 to 7-12, the Draft EIR incorporates, but does not adopt, the results of the Biological Resources Assessments written by Bargas (2020) and Helix (2024) in the analysis of which species have potential to occur in the Draft EIR study area. This approach is consistent with CEQA Guidelines section 15125.

Rebuttal: I do not know what this part of the response has to do with my comments.

Response 19-69c: If approved, the proposed UWSP would be built in phases over perhaps several decades. Prior to construction, implementation of pre-construction surveys (BR-1, BR-2c, BR-3, BR-4, BR-5, BR-6, BR-7, BR-8, BR-9, BR-10a) will be conducted to assess presence of sensitive biological resources and inform the implementation of Avoidance and Minimizations Measures as needed.

Rebuttal: The response implies that preconstruction surveys would make up for any deficiencies of the reconnaissance surveys and desktop review and for not having completed any detection surveys. However, preconstruction surveys are unlike any of these other types of investigation, as preconstruction survey is a mitigation measure while the other investigations are intended to aid in accurately characterizing the

wildlife community as the basis for predicting impacts and formulating mitigation strategies.

Response 19-69d: Please also see Response 19-67 above.

Rebuttal: Why see Response 19-67?

Response 19-70: Please see Master Response 1: Conflict with the Natomas Basin Habitat Conservation Plan and Metro Air Park HCP.

Rebuttal: According to Master Response BR-1, "The Draft EIR carefully considered existing approved developments, their mitigation strategies, and the regional conservation context through a comprehensive analysis of the effects of the proposed UWSP. This included evaluating whether the proposed UWSP would conflict with the ability for the TNBC to implement the overall Conservation Strategy under the NBHCP and MAP HCP." If this summary was true, then I would not have commented on the DEIR's analysis. As I reminder, I commented that the DEIR lacks the analysis of whether the Specific Plan would require a reevaluation of the NBHCP and new incidental take permits (ITPs) issued with a new conservation strategy. I shared a quote from a letter from County Staff: "Staff recognizes that any new development in the Natomas Basin above the 17,500 acres already approved and permitted by the Natomas Basin and Metro Air Park HCPs will require careful coordination and consideration of existing approved developments, their mitigation strategies, and the regional conservation context." I noted that development was frontloaded in the NBHCP, and that only 5,185.78 acres of mitigation land remained available in the Natomas Basin as of 2023. I also noted that the numerical trend of the giant gartersnake is predictive of extirpation from the Natomas Basin within 20 years, and that the Upper Westside Specific Plan's elimination of the capacity to pursue the NBHCP's conservation strategy would hasten extirpation. These issues would warrant a re-evaluation of the NBHCP's conservation strategy because these issues jeopardize its success.

Master Response BR-1 speculates that by incorporating Alleghany Reserve into the project's agricultural buffer, and by the adjacency of Cummings Reserve to the agricultural buffer, the NBHCP's conservation strategy would be unimpeded. However, the response fails to address my point that the project would eliminate the capacity for the NBHCP conservation strategy to acquire more mitigation land needed to fulfil its requirement. The response also fails to address my point that there is no more room for mistakes regarding giant gartersnake; this species is clearly headed towards extirpation. The project's potential interference with the NBHCP warrants more that wishful speculation that the agriculture buffer would avoid interference. The agricultural land that would compose the agricultural buffer already exists, and the giant gartersnake is declining despite the existence of this land. Designating this land an agricultural buffer would add no conservation benefit to giant gartersnake while the project would eliminate the capacity for the NBHCP's conservation strategy to establish reserves in this part of the Basin.

Master Response BR-1 addresses the question of whether NBHCP covered species would persist despite the project going forward. The Response lists resources that were put to use in the desktop review in support of the DEIR. However, the review of these resources does not qualify as an analysis in itself, and as I have commented, these resources were misused and misinterpreted. The Response then explains how the County determines whether covered species are present on the project area, but again I commented at length about how these determinations are flawed and inaccurate. Specifically, the County has misused species occurrence records to determine absences and low likelihoods of occurrences simply because occurrence records were unavailable. Moreover, in the cases of multiple NBHCP-covered species, the Response reiterates that the DEIR reports their absence due to lack of habitat, but this is a condition that the NBHCP's conservation strategy intends to reverse with the acquisition of mitigation lands and the establishment of connectivity between them. Again, the project would eliminate the capacity for the NBHCP's conservation strategy to do this.

Master Response BR-1 continues on to claim that mitigation measures BR-1, BR-2a, and BR-5 would reduce impacts to less than significant levels for any NBHCP-covered species determined in the DEIR to have a moderate likelihood of occurrence. However, worker awareness surveys, baseline preconstruction surveys and the establishment of no-disturbance buffers around bird nests would provide very little conservation benefit to NBHCP-covered species, and they would not avoid the permanent destruction of 1,532 acres of habitat. Furthermore, the mitigation language of mitigation measure BR-5 allows a single individual to make a subjective decision, outside the public's view, to determine the no-disturbance buffer area for any given species. This measure lacks objective criteria, and it would be unenforceable.

Response 19-71a: Please see Master Response 1: Conflict with the Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan.

Rebuttal: Please see my rebuttal argument to Response 19-70, which also applies to Master Response BR-1.

Response 19-71b: Draft EIR Chapter 7, Biological Resources, Table BR-2, page 7-20, notes that "[c]anals in the UWSP area provide marginally suitable habitat that is connected to higher quality habitat. Recent trapping surveys in the UWSP area entailing 40,703 total trap days yielded no giant garter snake captures (HELIX 2024). Canals in the UWSP area likely support the species on a transitory basis based on positive eDNA samples for the species at one location in the study area and three locations in ditches surrounding the study area over two years (HELIX 2024)." Draft EIR Impact BR-3 acknowledges a potentially significant impact on giant garter snake habitat. As noted in the EIR, proposed mitigation for giant garter snake contained in Mitigation Measures BR-2a and BR-3, are consistent with CDFW and USFWS guidelines, including securing authorization from the USFWS and CDFW for the incidental take of giant garter snake, avoidance and minimization of impacts on giant garter snake, and compensatory mitigation within the American Basin Recovery Unit for permanent impacts on giant garter snake habitat. Implementation of these measures would reduce the potential impact to giant garter snake habitat to insignificance.

Please also see Master Response 3: Impacts on Giant Garter Snake Habitat, and Response 15-26. Please also see Response 19-67 above regarding disagreement among experts.

Rebuttal: The response, including Master Response BR-3, merely repeats the analysis of the DEIR. The response does not directly address my comment that the West Drainage Canal has been identified as giant gartersnake habitat and likely important to the NBHCP's conservation strategy, nor does it say anything about the population trend depicted in Figure 4 of my 25 October 2024 comment letter. The only new argument is that the project's 1:1 mitigation ration would be greater than the NBHCP's 0.5:1 ratio, but this conclusion ignores the context of the NBHCP's planning scope versus the project's localized scope, and only speculates that the doubled mitigation ratio would yield net conservation benefits. As I commented, the declining population of giant gartersnakes in the Natomas Basin leaves no room for mistakes. Wishful speculation is prone to mistakes. What would be needed is a re-evaluation of the NBHCP and the issuance of new ITPs with a new conservation strategy.

Response 19-72a: The commenter opines that the reproductive capacity of Swainson's hawk in Natomas Basin may have been reached and is limited by the availability of forage, rather than the availability of nesting sites/territories, and that build-out of the proposed UWSP will result in nearby breeding Swainson's hawks foraging near breeding pairs in other areas of the Basin.

Rebuttal: I concluded that the Swainson's hawk's productive capacity has been reached in the Natomas Basin. The monitoring data combined with my knowledge of Swainson's hawk territory maintenance clearly reveals that productive capacity has been reached (see Figures 5 through 7 of my 25 October 2025 comment letter). Nest productivity has declined 36% over 25 years, and will soon reach a decline of 50%, while the number of unsuccessful nests has begun to oscillate wildly. Given the conditions available in the Natomas Basin, breeding capacity has been exceeded not by the limitations of nest substrate but by the limitations of forage, and as evidenced by the wild oscillations of the number of unsuccessful nests.

Response 19-72b: The commenter also states that more habitat is needed within and outside of the Basin, especially San Joaquin County and Yolo County. As described in Response 15-27 and Master Response BR-4: Impacts on Swainson's Hawk Zone, Mitigation Measure BR-7b will be modified accordingly (added text underlined):

"…Prior to the approval of either grading permits or building permits, whichever is first, project applicants for each construction phase shall compensate for permanent loss of foraging habitat through the preservation of foraging habitat. ~~This compensatory mitigation shall be at a ratio of at least 1:1 (mitigation habitat to permanently lost habitat). Mitigation sites shall be located outside, and within 10 miles of, the Natomas Basin~~ Mitigation sites shall be located outside, and within 10 miles of, the Natomas Basin. Compensatory mitigation located at mitigation sites within 1 mile of the Sacramento River or Feather River shall be at a ratio of at least 0.75:1 (mitigation

habitat to permanently lost habitat). Compensatory mitigation for mitigation sites greater than 1 mile from the Sacramento River and Feather River shall be at a ratio of at least 1:1 (mitigation habitat to permanently lost habitat), or of equal or greater ecological value as established in separate authorizations or permits by the USFWS and/or CDFW.

By establishing foraging habitat mitigation on sites outside, and within 10 miles of, the Natomas Basin, the mitigation sites would be expected to remain within the foraging habitat range of breeding Swainson's hawk nesting pairs that could be currently foraging within the UWSP project area. Furthermore, the compensatory mitigation ratios in the revised mitigation measure incentivize siting Swainson's hawk foraging habitat mitigation lands within one mile of suitable nesting habitat along the Sacramento and/or Feather rivers.

In addition, the opportunities for compensatory mitigation under Mitigation Measure BR 7b, Compensate for Permanent Impacts on Swainson's Hawk Foraging Habitat, as amended above, include more than 8,000 acres of highest quality foraging habitat (i.e., alfalfa, pasture, field crops, wheat, grain and hay, truck crops, young perennial, and annual grassland) outside, and within 10 miles of, the Natomas Basin. This acreage includes lands near the Sacramento River and Feather River.

Rebuttal: The response, including Master Response 4, fails to address my comment on mitigation measure BR-7b. It only slightly changes the mitigation ratio to incentivize protection of foraging habitat within 1 mile of the River, but which ultimately protects less habitat than did the original measure. Moreover, no site is identified where this measure would apply, and it remains speculative whether the acreage needed to fulfil the measure could be protected.

Response 19-72c: The comment also addresses the commenters' observations and analysis of the effectiveness of the NBHCP. An HCP is a plan for avoiding legal jeopardy to a species over time as a result of actions of the permittee parties. An HCP can be distinguished from EIR which is an evaluation of the potential significant impacts of a particular proposed project and includes measures that can avoid or reduce to insignificance the potential project-level and cumulative significant impacts of that project. Beyond the specific impacts of a project, a relevant question under CEQA is whether a proposed project would conflict with an adopted HCP. In the Draft EIR that question is addressed in Impact BR-14 as well as in the cumulative impact analysis presented in Chapter 22, Cumulative Impacts. In each case, the Draft EIR concludes, based on substantial evidence in the record, that the proposed project would not have a significant adverse impact on the NBHCP or the MAP HCP. Please also see Master Response 1: Conflict with the Natomas Basin Habitat Conservation Plan and Metro Air Park HCP.

Rebuttal: The response fails to address my comments. It discusses purported differences between an HCP and an EIR, but this has nothing to do with the issues I raised.

Response 19-73: Please see the Master Response 1: Conflict with the Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan.

Rebuttal: Master Response BR-1 does not address my comments. Master Response BR-1 does not even mention the wildlife species or the groups of wildlife species at issue in my comments.

Response 19-74a: As described in the Draft EIR, Chapter 7, *Biological Resources*, environmental setting section for biological resources, protection of movement corridors and habitat linkages are tied to reducing the adverse effects of habitat fragmentation. Analysis of the effects of development of the UWSP area on wildlife movement, in particular that of giant garter snake and migratory birds, is addressed in the Draft EIR under Impact BR-12. In summary, the Draft EIR identifies potential impacts to wildlife movement of both types of wildlife, and concludes that the impacts would be mitigated to a less-than-significant level through implementation of Mitigation Measures BR-2a (Worker Environmental Awareness Program), BR-3 (Compensate for Permanent Impacts to Giant Garter Snake Habitat), and BR-6 (Avoid and Minimize Impacts on Nesting Birds).

Rebuttal: This part of the response seems out of place, as it has nothing to do with my comments at issue.

Response 19-74b: The comment addresses potential effects on nesting birds. An analysis of potential impacts to nesting birds is included in the Draft EIR under Impacts BR-5, BR-6, and BR-7, focuses on bird species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, by the CDFW or USWFS. The analyses in the Draft EIR determined that impacts to special status bird species, including burrowing owl and Swainson's hawk, birds protected by the Migratory Bird Treaty Act, and Nesting Raptors would be potentially significant. With implementation of Mitigation Measures BR-5, BR-6, BR-7a, BR-7b, and BR-7c, the Draft EIR concluded that all of these impacts would be reduced to less than significant.

Rebuttal: The response simply repeats the findings of the DEIR, but otherwise fails to address my comments.

Response 19-74c: While the comment includes an alternative method of examining the question of effects of the project on habitat fragmentation and associated wildlife movement, the comment does not present evidence that the analysis in the Draft EIR is inaccurate or that the mitigation measures identified would be inadequate. Please also see Response 19-67 above regarding disagreement among experts.

Rebuttal: The response is misleading. I did not present evidence that the analysis in the DEIR is inaccurate, because the DEIR presents no analysis of the number of birds that would no longer be produced on the project site. The proposed mitigation measures could not possibly offset the loss of production of 52,055 birds per year.

Response 19-75a: The analysis of potential impacts to well-understood wildlife corridors, such as the Pacific Flyway and waterways, and species movement was addressed in the Draft EIR under Impact BR-12, which analyzes substantial interference with movement of wildlife species utilizing the network of agricultural ditches and with established migratory corridors (e.g., the Pacific Flyway). The analysis explained that

> Construction-related direct impacts on migratory birds could result from the removal of vegetation while an active bird nest is present. In addition, earthmoving, operation of heavy equipment, and increased human presence could result in noise, vibration, and visual disturbance. These conditions could indirectly result in nest failure (disturbance, avoidance, or abandonment that leads to unsuccessful reproduction), or could cause flight behavior that would expose a migratory adult to predators. These activities could cause birds that have established a nest before the start of construction to change their behavior or even abandon an active nest, putting their eggs and nestlings at risk for mortality.

This analysis concluded that without mitigation, the impact on wildlife movement could be significant. As required under CEQA, all feasible mitigation measures were identified, including Mitigation Measures BR-2a, BR-3, and BR-5. These measures include implementation of a Worker Environmental Awareness Program training to avoid construction impacts to special status species, avoidance and minimization measures for nesting birds, and compensatory mitigation for long-term impacts to giant garter snake habitat. With the implementation of these measures, the potential impacts would be less than significant. Please also see Response 19-67 above regarding disagreement among experts.

Rebuttal: The reproduced paragraph only supports the issues I raised in my comment letter. The paragraph does not address potential project impacts to wildlife movement in the region. The appearance of the term “migratory” in “migratory birds” does not make the paragraph about wildlife movement in the region, but rather refers to a type of bird of which most birds in California are included. The paragraph is about direct impacts to nesting birds. My comments stand; the DEIR provides no analysis of potential project impacts to wildlife movement in the region. There was no field investigation or program of observation directed toward characterizing how wildlife move across the project site, or to determine how important the project site is to wildlife movement in the region.

Response 19-75b: Project phasing is described in the Project Description and a Preliminary Phasing Plan is shown on Plate PD-22. Phase I would primarily be developed in the southern portion of the UWSP and includes the build-out of backbone systems supporting water delivery for the entire UWSP area. Irrespective of construction phasing, the UWSP includes an agricultural buffer between the Sacramento River, which is a very likely movement corridor for volant and terrestrial wildlife, and the western edge of UWSP.

Rebuttal: This part of the response is only speculative.

Response 19-76a: The comment raises concerns about adverse effects of domestic cat predation on wildlife. The urban development on the UWSP project site would result in a corresponding increase in the presence of domestic animals in an area where few currently exist. Dogs and cats, as well as urban adapted wildlife species (e.g., raccoons) can disturb nesting or roosting sites and disrupt the normal foraging or movement activities of wildlife. Feral cats and house cats can cause substantial damage to the species composition of natural areas, including the populations of special-status species, through predation. A recent article published in the Frontiers of Veterinary Science (Turner, 2022) concluded that "published studies purporting to show that cats are a main culprit for the disappearance of endemic wildlife on the species level, on the continents as opposed to small oceanic islands, should be questioned." The article indicated that the studies that have pointed to domestic cats were not sufficient to draw conclusions about effects of domestic cat predation on native habitat. Key points included: …

Rebuttal: I was able to find Turner (2022) despite the response having provided no reference for it. What the response does not report is that Turner's paper is an opinion piece that is identified by the journal as an "OPINION article." It is not based on a study or on data or on anything other than the author's opinions. It was reviewed by a political scientist.

According to Turner (2022), "Among the various studies they [Loss et al. 2014, which is the paper I relied on in my comment letter] considered many lacked a correction for prey eaten or left when away from home, different methods of gut analysis, no control for habitat where the data were collected (suburban, city, farmland), or other causes of prey decimation (e.g., habitat destruction)." None of these purported problems would have lessened Loss et al.'s (2013) estimate of cat depredation of wildlife. Turner (2022) then levels the following criticism: "But the most serious criticism of all such studies is that none of them even mentions a rough estimate of the total population size of a prey species (supposedly being threatened by cat predation) or of the yearly reproduction and replacement of lost individuals." But again, the total population size of affected prey species has nothing to do with Loss et al.'s (2013) estimate of cat depredation. And I add that this final criticism is misdirected at Loss et al. (2013), who did indeed contextualize the depredation estimates by total population size; one just needs to examine the Supplemental Materials Table S3 to see this consideration of total population size.

In concluding remarks, Turner (2022) writes "The author does not deny that free-ranging cats affect wildlife populations and it is important that field researchers continue to monitor their effect." Turner then explains that the author's principal concern was how the news media reacted to Loss et al. (2013), but this concern is not a scientific concern. Loss et al. (2013) was rigorously prepared and peer reviewed. Having co-authored a paper with Loss, I can attest to his cautious approach, and I concur with his follow-up paper (Loss et al. 2018) that Loss et al. (2013) was conservative in estimating cat depredation rates on wildlife. I note, also, that Turner did not cite Loss et al. (2018), which was titled, "Responding to misinformation and criticisms regarding United States cat predation estimates."

Response 19-76b: Other studies have suggested that the movement range of domestic cats depends on the health of the coyote population in the surrounding area and that, where coyotes are present, cats are still likely to cause impacts on wildlife within 100 to 200 feet of the urban/wildland edge. Cats that range farther than 100 to 200 feet from the urban edge are more likely to be killed by coyotes than those that stay close to residential yards. It is worth noting that the commenter's own observations of the study area indicated the presence of coyote, bobcat, and fox, all of which are known to predate on domestic cats when given the opportunity. Thus, given the evidence of populations of coyote, fox and bobcat in the project area, it is not unlikely that such predators would predate on domestic cat populations.

Rebuttal: What studies? This part of the response looks like a lot of speculation, and it is highly unlikely that the speculated predators of cats would alter the findings of Loss et al. (2013) in any way.

Response 19-76c: Further, in Sacramento County owners of cats over the age of 4 months must spay or neuter their cat. Sacramento County Code section 8.24.030(b) states

> No owner shall possess or harbor within the county any dog or cat over the age of four (4) moths that has not been sterilized, unless such person holds an unaltered license, unaltered license with reduced fee, or is otherwise exempted as set forth in Section 8.08.030 or 8.24.030(m). Upon written certification of a veterinarian that a dog or cat has been surgically sterilized, the amount of license fee shall be one-half or less than the fee established for intact dogs or cats.

This regulation has a positive effect in reducing the number of feral cats that live in urban areas.

Rebuttal: Similar code is presumably in place at all locations where the studies that Loss et al. (2013) relied upon were conducted; that is, the response does not make the case that there is anything special about Sacramento County's Code that would reduce the number of cats relative to the cat populations where Loss et al.'s studies were conducted.

Response 19-76d: The analysis put forth in the comment is not based in any evidentiary-based analysis that could tie cat predation to effects on the species that are the focus of the analyses in the EIR. To the extent that domestic cats may predate in the future on common local urban species, it would not constitute a significant impact. To conclude that cats in the future UWSP would predate in a material way on special status species is entirely speculative.

Rebuttal: This part of the response claims that the issue I raise is only speculative because I bring no evidence that house cats have killed any of the special-status species at issue. In my comment letter, based on Loss et al.'s (2013) conservative estimate of depredation rates, I predict the project's 11,254 new cats would kill 1,373,027 vertebrate wildlife per year. It is not reasonable to assume that none of these 1,373,027 wild

animals would be special-status species. In a position statement, The Wildlife Society (2011) writes: "Extensive popular debate over absolute numbers or types of prey taken by feral and free-ranging cats is not productive. The number of cats is undeniably large. Even if conservative estimates of prey taken are considered, the number of prey animals killed is immense. The supplemental feeding of cats does not deter them from killing wildlife; often they do not eat what they kill." And "but negative individual impacts clearly occur in an extremely wide range of species." But all this said, it is well known that house cats have been predated burrowing owls in the Bay Area. Miller (2024:89, 120) identifies cat predation as one of the primary factors affecting the viability of burrowing owl populations in California. Special-status species of birds potentially vulnerable to cat predation, and which would be at issue in west Sacramento County, have been identified as Double-crested Cormorant, California gull, Mountain Plover, willet, long-billed curlew, marbled godwit, burrowing owl, willow flycatcher, loggerhead shrike, yellow-breasted chat, vesper sparrow grasshopper sparrow, and song sparrow (would apply to Modesto song sparrow) (Blancher 2013).

Response 19-77a: As is discussed on Draft EIR page 7-1, the UWSP project area is located within the Pacific Flyway, one of the four major bird migration routes in North America. … In the context of extensive habitat areas to the west, north and south, neither the UWSP project area nor the adjacent developed, urbanized portions of the Sacramento region provide important habitat for migrating birds in the Pacific Flyway.

Rebuttal: According to this part of the response, the project site as located within one of the greatest bird migration routes in North America, but it lacks important habitat for migrating birds. This characterization, however, does not comport with observation. For example, on 14 August 2025, I saw and photographed a large flock of white-faced ibises (Photo 1). The white-faced ibis is listed on CDFW's Taxa to Watch List, and it is migratory. In this one flock I estimate 300 white-faced ibises, and it was one flock of several that flew onto the project area in the last hour of daylight on 14 August 2025.

In another example, on 14 August 2025, I estimated between 60 and 80 bushtits along 335 m of one of the farm roads. This many bushtits in such a short space must be one of the highest densities of bushtits I have ever encountered. I saw a large flock of band-tailed pigeons, which are migratory, and I saw hundreds of mourning doves, which are migratory. Many of the bats I detected were likely migratory, especially the one little brown bat (*Myotis lucifugus*), which I did not expect to find there. In fact, this species is so far out of its normal range, or at least the range that biologists have assumed for it, that I did not initially include it in my list of special-status species with potential to occur on the site (see Table 2 of my 25 October 2024 comment letter). It is likely that little brown bat migrates through the area, but it certainly occurs on the project site.

The response is inaccurate.

Photo 1. *A flock of about 300 white-faced ibises on the project site, 14 August 2025, with the fore of the flock in the upper photo, the middle of the flock in the center photo, and the tail end of the flock in the lower photo.*

Response 19-77b: Draft EIR Impact BR-5, on pages 7-52 through 7-54, addressed potential impacts of the proposed project on special-status bird species that have the potential to nest and/or forage in the UWSP area including tricolored blackbird, loggerhead shrike, song sparrow ("Modesto" population), purple martin, yellow warbler, yellow-headed blackbird, American white pelican, norther harrier, and white-tailed kite. The analysis further considered the effects of the proposed project on active nests and nesting birds protected by the Migratory Bird Treaty Act, or MBTA, and California Fish and Game Code, or CFGC, that have potential to occur in the UWSP area, including species like Cooper's hawk, osprey, white-faced ibis, and many other species of songbirds, waterbirds, and waterfowl. Impact BR-5 concluded that with the implementation of Mitigation Measures BR-2a and BR-5 the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on special status bird species, birds protected by the Migratory Bird Treaty Act, and nesting raptors.

Rebuttal: This part of the response does not address bird-window collision mortality, and therefore does not address my comments.

Response 19-77c: As such, following a thorough description of the biological characteristics of the project site, and a detailed analysis of potential impacts of the

proposed project on biological resources, including avian species, the Draft EIR concluded that there would be no significant impacts on bird species as a result of the construction and operation of the proposed project.

Rebuttal: This part of the response does not address bird-window collision mortality, and therefore does not address my comments.

Response 19-77d: In addition, the Draft EIR addresses the effects of project construction activities on wildlife movement, including those of migratory bird species. The analysis concludes that removal of vegetation during earthmoving could result in the removal of vegetation while an active bird nest is present. In addition, the analysis notes that increased human presence could result in noise, vibration and visual disturbance to such species.

Rebuttal: This part of the response does not address bird-window collision mortality, and therefore does not address my comments.

Response 19-77e: The comment provides information related to effects on birds of urban buildings with windows based on studies that have been undertaken over the last 35 years that document bird mortality associated with collisions with the built environment. The studies cited in the comment, along with many other available studies, document the frequency of bird mortality from window collisions. The data provided by the commenter is general in nature, and is not calibrated to the location and conditions of the project area, the species of birds that are in documented to be in the area, or the specific designs of structures that would be developed within the project area.

Rebuttal: This part of the response characterizes the data I presented in my comments as over-generalized and uncalibrated to the project site. However, the breadth of locations and conditions from where the data originated is an positive attribute because it increases the robustness of my bird-window collision mortality prediction. The response insinuates that the project's built structures would differ from the range of buildings that have been measured for bird-window collision mortality, but the insinuation is nothing more that that, as the response provides no evidence that the project's structures would differ.

Response 19-77f: The most recent study cited in the comment reported on a study in northern California. This study is unique among the cited studies in that it examined bird strikes in the Pacific Flyway. Among other things, that study validated that migratory species were more likely than local resident species to be involved in fatal bird-window collisions. It also validated that there were more bird-window collisions in large windows than smaller windows, stating that in the study "large paned windows have almost 17 times higher strike rate per unit glass than small paned windows." Similar results from multiple studies are also cited by the American Bird Conservancy. Based on this information, the construction of new buildings with reflected glazed surfaces (e.g., windows) could increase the potential for bird-window collisions and

related mortality of birds, including potentially special status species and birds protected under the Migratory Bird Treaty Act.

As such, the following text below is added to Impact BR-12 and a new mitigation measure, Mitigation Measure BR-12, would avoid and minimize potential impacts associated with bird-window collisions in the proposed UWSP project.

Draft EIR, Chapter 7, Impact BR-12, page 7-75, the first full paragraph is revised to read:

> The UWSP area is within the Pacific Flyway, and as such supports some migratory bird species. Construction-related direct impacts on migratory birds could result from the removal of vegetation while an active bird nest is present. In addition, earthmoving, operation of heavy equipment, and increased human presence could result in noise, vibration, and visual disturbance. These conditions could indirectly result in nest failure (disturbance, avoidance, or abandonment that leads to unsuccessful reproduction), or could cause flight behavior that would expose a migratory adult to predators. These activities could cause birds that have established a nest before the start of construction to change their behavior or even abandon an active nest, putting their eggs and nestlings at risk for mortality. ~~Without mitigation, this impact on migratory birds is potentially significant.~~
>
> The development of new buildings with glazed surfaces and night-lighting could result in operational impacts on movement of migratory birds. Although it is not possible, and would be speculative, to accurately predict the precise number or species of birds affected, recent studies in other locations, including studies within the Pacific Flyway, support the conclusion that there would be an increase in bird-window collisions as a result of development of buildings with large glazed surfaces and/or high visibility night lighting near dark areas in the UWSP project area. It is possible that some of the affected birds could be special status species or birds protected under the Migratory Bird Protection Act.
>
> Despite the current lack of certainty of nest locations or the propensity of special status birds to strike windows, or ability to predict whether the effects on such species would be substantial, for the purposes of this EIR without mitigation this impact would be considered a potentially significant.

Draft EIR, Chapter 7, Impact BR-12, page 7-75, the second full paragraph is revised to read:

> Previously identified Mitigation Measures BR-2a and BR-5 would reduce the potential impact on nesting birds by requiring the provision of environmental training for construction personnel; limiting construction to the non-nesting season when feasible or, if avoiding the nesting season is not feasible, conducting pre-construction surveys for nesting birds and establishing no disturbance buffers around any active nests to ensure they are not disturbed by construction;

and repeating the pre-construction surveys when work resumes after being suspended for seven days.

In addition, Mitigation Measure BR-12 would ensure that new structures built in close proximity to agricultural lands that may be attractive to nearby resident or migratory bird populations are designed to avoid the potential for significant bird-window collisions and that highly visible up lighting is prohibited in these areas. In addition, buildings with large-scale uninterrupted glazed surfaces include treatments that increase their visibility to birds. These measures would minimize the potential for bird window collisions.

As a result, with the implementation of these mitigation measures, the impact on migratory birds would be less than significant.

Rebuttal: This part of the response, as implemented in the FEIR, would be an improvement over the DEIR, but only so long as the word "shall" is inserted into the sixth line to read, ""In addition, buildings with large-scale uninterrupted glazed surfaces shall include treatments …," and only if the dimensions of large-scale uninterrupted glazed surfaces are specified, and only if the measure is applied to all new structures built in the project. As written to this point, this added measure lacks objective criteria, and it would be unenforceable.

Response 19-77g: Draft EIR, Chapter 7, Impact BR-12, page 7-75, the following is added after Mitigation Measure BR-5:

BR-12 Implement Standards for Bird-Safe Buildings

- Except as provided for residential buildings below, all buildings within 300 feet of land designated on the General Plan Land Use Diagram as General Agriculture, Agricultural Cropland, Natural Reserve, Agricultural Urban Reserve, or Recreation, apply bird-safe building treatments to glazed segments of the façade facing the designated land-use up to 60 feet from grade.
    - For glazed segments measuring less than 24 square feet, 90% of the surface shall be treated.
    - For uninterrupted glazed segments 24 square feet or larger, 100% of the surface shall be treated.
- Bird-Safe Glazing Treatment may include fritting, netting, patterned window films (but not decals or tape which are not permanent), frosted glass, exterior screens, physical grids placed on the exterior of glazing or UV patterns visible to birds. To qualify as Bird-Safe Glazing Treatment, vertical elements of window patterns should be at least 1/4 inch wide at a maximum spacing of 4 inches or horizontal elements at least 1/8 inch wide at a maximum spacing of 2 inches.
- Residential buildings that are less than 45 feet in height and have an exposed facade facing the designated land use comprised of less than 50% glass are exempt from facade glazing requirements. Bird-Safe Glazing

Treatment, including permanent exterior screens, may be used to reduce the amount of untreated glass to less than 50% for purposes of satisfying this measure.

- Residential buildings that are less than 45 feet in height but have a facade facing the designated land use with surface area composed of more than 50% unscreened glass, shall provide Bird-Safe Glazing Treatments as described below for 95% of all large, unbroken glazed segments that are 24 square feet and larger.
- In buildings within 300 feet of land designated on the General Plan Land Use Diagram as General Agriculture, Agricultural Cropland, Natural Reserve, Agricultural Urban Reserve, or Recreation minimal lighting shall be used. Lighting shall be shielded. No uplighting shall be used.

Several communities around the country have adopted standards based on the best practices of the USFWS Division of Migratory Bird Management. Example cities in northern California include San Francisco, San Jose, Cupertino, Mountain View, Alameda, Oakland, Richmond, and others. Outside of California, such bird-safe standards have been adopted in New York City, Highland Park (Illinois), Madison (Wisconsin), Portland (Oregon), Washington D.C., and others.

The provisions of Mitigation Measure BR-12 are generally consistent with the Standards for Bird-Safe Buildings adopted in the City of San Francisco in 2000, and area consistent with the LEED Bird Collision Deterrence credit system, and the USFWS Division of Migratory Bird Management best practices. Implementation of Mitigation Measure BR-12 would reduce the potential for operational impacts on resident or migratory bird species to less than significant.

Rebuttal: The County needs to explain how the measures of BR-12 would be consistent with the implementation of bird-safe window prescriptions. The prescriptions of BR-12 would apply to a small subset of windows in the project – those that face the agricultural buffer and those that face any reserves, and only those larger 24 square feet. The County only speculates that birds are at risk of collision mortality at windows that face designated open spaces, and it relies too much on the findings of one study. I suggest adopting the totality of bird-safe recommendations and not just the portions that minimize cost to the project. If the project was to go forward with BR-12 as written, then I recommend adding a monitoring component to the mitigation strategy to measure collision mortality at treated versus untreated windows. Measurement of impact of untreated windows should be tied to additional mitigation such as additional window treatments or compensatory mitigation.

Response 19-77h: The addition of clarifying and amplifying language in the discussion of Impact BR-12 and the addition of Mitigation Measure BR-12 do not require recirculation of any part of the Draft EIR. Pursuant to Public Resources Code section 21092.1 and CEQA Guideline section 15088.5 establish that recirculation is only required where "significant new information" is added to the EIR after circulation of the Draft EIR. Pursuant to Guidelines section 15088.5, the following would constitute significant new information:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
2. A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
3. A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
4. The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (*Mountain Lion Coalition v. Fish and Game Com.* (1989) 214 Cal.App.3d 1043).

The added language enhances the discussion of effects of the proposed UWSP on migratory birds that already exists in the discussion of Impact BR-12. The mitigation measure BR-12 would be adopted if the proposed project is approved. Because none of the conditions outlined in Guideline section 15088.5 would occur, there is no requirement to recirculate the Draft EIR.

Rebuttal: The project is very large, and it would add a very large area of windows to a portion of the Sacramento Valley that is very important to a great number of birds. The impact of bird-window collision mortality was not addressed in the DEIR, and the FEIR adds BR-2, which would improve the safety of a very small proportion of the project's windows. Unfortunately, the response fails to better inform the public about just how many windows would be added to the environment, and in what size distribution. The EIR remains so fundamentally and basically inadequate as to prevent a prediction of bird-window collision mortality with anything other than an assumed mean area of windows per residential unit.

Response 19-78: The comment opines that the Draft EIR is inadequate because it does not address the impacts to wildlife from animal-vehicle collisions. The comment includes an analysis of animal-vehicle collisions based on a study of animal mortality on Vasco Road, which connects the cities of Brentwood and Livermore through rural Contra Costa County. Vasco Road through most of its length, is a high-speed two-lane road carrying high levels of traffic and is surrounded by open wildlands. It has few, if any, street lights and a speed limit of 55 miles per hour over a majority of its length.

Conversely, the new roads that would be developed within the proposed UWSP would be a combination of local thoroughfares, arterials, arterial/collectors, and residential streets. In all cases, these streets would be built to urban standards, as described in the draft UWSP, including sidewalks, street lights, and would be largely in an urbanized setting with typical speed limits of 20-35 miles per hour. To the extent that additional traffic would be travelling on existing arterial streets such as El Centro Road and San Juan Road, these roads exist today, but in some ways similar to Vasco Road, are largely unlit and travel through open lands. With the additional improvements to El Centro Road shown in Figures 4-4 to 4-6 and 4-10 of the draft UWSP, it is likely that animal-vehicle collisions may decrease.

The data and methodology in the comment is not relevant to evaluation of streets planned to be part of an urban community. Further, any attempt to tie animal-vehicle collisions to the thresholds of significance in the EIR is speculative. It is impossible to predict any increase in mortality rates of special status or other protected species as a result of collisions with vehicles. As such, any assessment of the significance of impacts associated with animal-vehicle collisions would be entirely speculative.

Rebuttal: It is not impossible to predict collision mortality resulting from project-generated traffic. Proof that it is not impossible is in my 25 October 2024 comment letter, in which I made a prediction. My prediction might be inaccurate, which is a possibility my comment letter acknowledges, but it is certainly possible to predict wildlife collision mortality, and it is better than not predicting any sort of impact from project-generated traffic. Ironically, the DEIR makes many predictions of project impacts on wildlife that would be less than significant, and all the DEIR's predictions are based on speculation; not one of them points to evidence of that similar predictions proved accurate at other similar projects.

Environmental review is intended to provide the foundation for predicting a project's potential impacts on the environment, and then for actually making the predictions. Predictions are necessary because measuring the impacts directly could not happen until after the impacts occur, and this type of measurement would prevent the formulations of avoidance and minimization strategies that are prioritized by the CEQA. Simply put, impact predictions are necessary and expected as part of the environmental review. The accuracy of the predictions of impacts and their significance ultimately relies on the degree of accuracy in the characterization of the existing environmental setting (Figure 9).

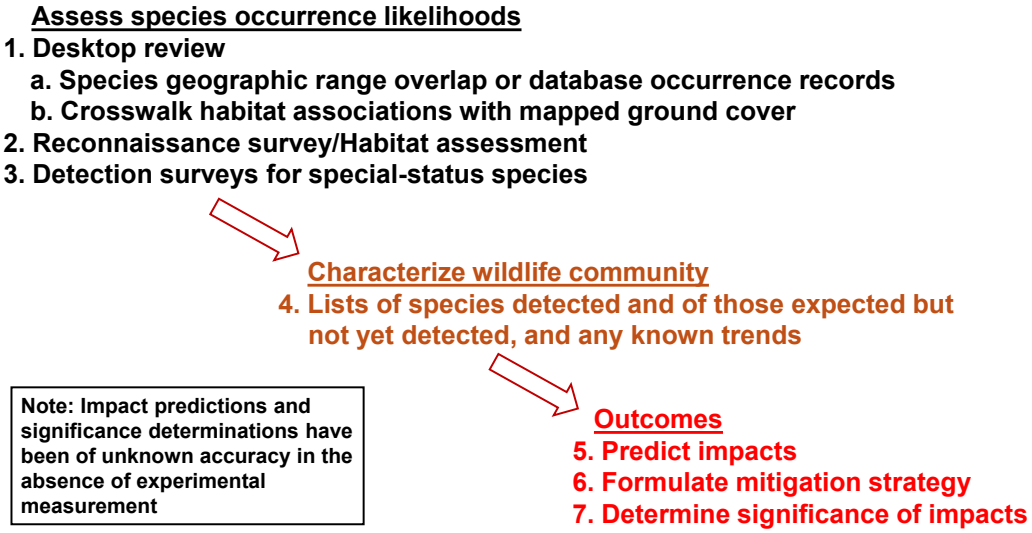


Figure 9. *General flow of information from the gathering stage through the*

characterization of the existing environment to predictions of impacts and their significance.

Impact predictions can derive from speculation or from some level of experience (Figure 10). Speculation is repeatedly discouraged in the CEQA Guidelines, and for good reason because prediction accuracy improves with experience. But the experience that can be brought to bear on impact predictions ranges from anecdotes to careful use of scientific inference. Any type of experience is usually better than relying on speculation, but careful scientific inference, especially inference drawn from experiments, has proven most effective. An analogy would be predicting the boiling temperature of water at a certain place with a known atmospheric pressure after having measured it hundreds of times at other places under various atmospheric pressures. The experience of measuring the boiling temperature at all these other places would certainly result in a more accurate prediction of the boiling point as compared to a speculative prediction. We know that use of inference in this example is more predictive, and not potentially more predictive, because we have a long successful history with the application of this type of experimentation to draw predictive inference.

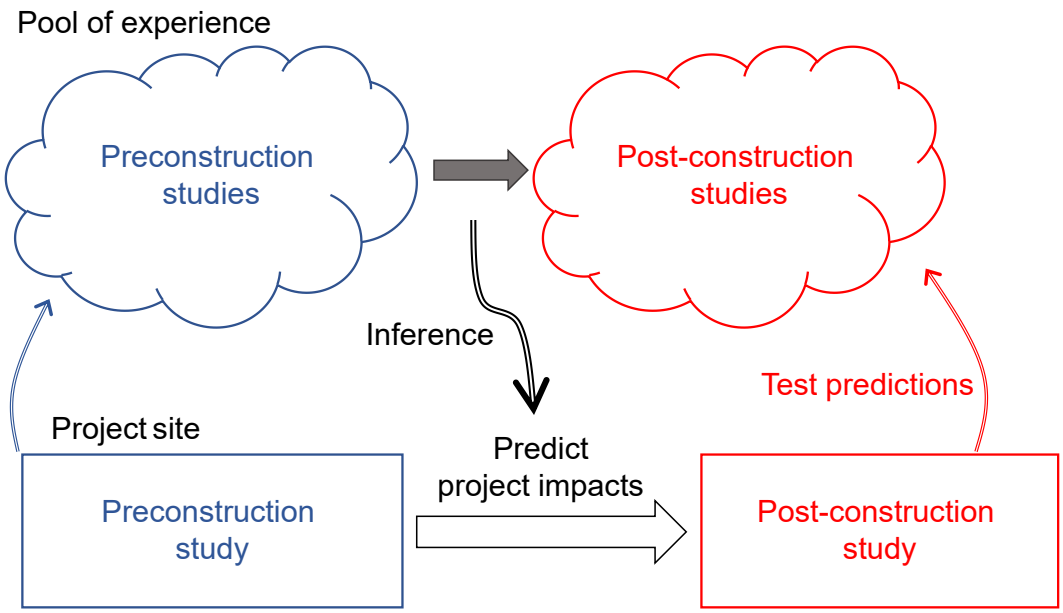


Figure 10. *A framework for arriving at predicted project impacts based on experience with other project sites. Ideally, there is a pool of similar projects in similar circumstances where predicted impacts were compared to realized impacts, and into which the proposed project can also contribute to experience.*

The County's assertion that "any assessment of the significance of impacts associated with animal-vehicle collisions would be entirely speculative" conflates scientific inference with speculation. As illustrated in Figure 10, inference is drawn from

experience, and there has been ample experience with animal-vehicle collisions to support the use of inference. I surveyed for wildlife mortality on roads since 1989, including along roads north of the Upper Westside Specific Plan area, and for four years I surveyed the same Vasco Road transect as the Mendelsohn et al. (2009) study and roads between there and Davis, California. In the urban environment of Davis, I am one week away from completing one year of near-daily pedestrian searches of 2.7 km of urban roads for wildlife fatalities. This transect is linked to a larger City-wide pedestrian search for road fatalities, and the findings of these searches are calibrated to the findings along the core 2.7-km road transect. Along the 2.7-km core transect, I have so far found 317 fatalities representing 31 species of vertebrate wildlife. Many of the victims are very small, including Sierran treefrogs, deer mouse, western fence lizards and other species whose carcasses quickly disappear from the roadway. To estimate mortality from the found fatalities will require large adjustments for the proportions of fatalities never found due to removals of carcasses by scavengers (American crows and wild turkeys patrol the roads every morning) and by the tires of cars and trucks. I have yet to estimate mortality from this study, but it looks like the overall wildlife-vehicle mortality will be about 20% of the estimate from Vasco Road in Contra Costa County. Besides my study there are many others, and everywhere these studies have been conducted, fatalities have been found. One does not need to speculate to assess the significance of impacts associated with animal-vehicle collisions.

Response 19-79a: The comment oversimplies and confuses the analysis of cumulative impacts related to biological resources, and the commenter's conclusion that the Draft EIR does not provide mitigation for the proposed project's contribution to cumulative impacts on biological resources is incorrect.

Rebuttal: The response fails to explain how I oversimplified and confused the DEIR's analysis of cumulative impacts related to biological resources

Response 19-79b: The cumulative effect on biological resources is discussed Draft EIR pages 2-20 and 2-21, wherein it states that

> Cumulative development within the Natomas Basin (see Table CI-1 and Plate CI-1) would result in the permanent loss of annual grasslands, annual croplands, and other upland habitat that serve as habitat for a range of special status species found in the Natomas Basin and broader Sacramento region, including Swainson's hawk, giant garter snake, and northwestern pond turtle.

Rebuttal: The excerpted statement is not much of an analysis. It is highly generalized. There is no contextualization of the permanent habitat loss, such as how much of the annual grasslands have been lost and at what rate. There is no tabulation of other projects that are taking, or are planned or foreseen to take, additional annual grassland in the Natomas Basin. All it does is acknowledge cumulative environmental impacts.

Response 19-79c: The cited plans and regulations relevant to the proposed UWSP's potential impacts to sensitive biological resources, including the Sacramento County General Plan, Sacramento County's Swainson's Hawk Impact Mitigation, as well as the

relevant State and federal regulations, permits and requirements are described in detail in the Regulatory Setting Section of the Draft EIR. Discussion of the potential for these plans, policies, and regulations to mitigate the effects of cumulative development does not mean that the Draft EIR assumed that their presence would avoid any impacts. In fact, the Draft EIR cumulative analysis goes on to state that

> the implementation of previously approved and reasonably foreseeable future development projects listed in Table CI-3 are expected to result in permanent conversion of annual grasslands, agricultural areas, and other biologically significant upland habitat within the Natomas Basin. As shown in Table CI-3, more than half of the 53,537-acre footprint of the Natomas Basin is either already developed or approved for development. Furthermore, reasonably foreseeable future projects listed in Table CI-3 are anticipated to result in approximately 7,600 acres of development in the Natomas Basin, including annual grasslands and agricultural areas that are potentially existing suitable habitat for special status species such as Swainson's hawk. The cumulative impact of the development within the Natomas Basin summarized in Table CI-3 on special status species would be potentially significant.

Rebuttal: This part of the response fails to seriously address my comments, which summarizes the results of a study (Smallwood and Smallwood 2023) that measured the direct and cumulative impacts of recent development projects on wildlife species richness and abundance. Discussing cumulative impacts in terms of acreage is not equivalent to discussing them in terms of species persistence, numerical abundance or any other term that is meaningful to wildlife impacts. Again, I provided the County with the means to draw inference from scientific experience, but the County merely repeats its shallow analysis that appears in the DEIR. What do the 7,600 acres of development mean in terms of cumulative effects on wildlife? Would giant gartersnake continue to exist? Swainson's hawk? The County needs to disclose to the public what this acreage means to wildlife.

Response 19-79d: Pursuant to CEQA Guidelines section 15130(a), "[a]n EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." The term "cumulatively considerable" is defined in CEQA Guidelines section 15065(a)(3), which states: "'Cumulatively considerable' means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Finally, CEQA Guidelines section 15130(a)(3) states that "An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant."

Rebuttal: This part of the response cites the CEQA Guidelines without explaining how it supports the County's lack of analysis of the project's potential contribution to cumulative impacts on wildlife.

Response 19-79e: The Draft EIR describes the nature and significance of the proposed project's cumulative impact on biological resources, …

Rebuttal: No, the DEIR projects 7,600 acres of cumulative development, but acres carry very different meaning to different species. An acre can support entire populations of some species and compose a tiny portion of the home range of others. And some acres are more important than others to wildlife, as exemplified by my comparison of bat passage rates on the project site as compared to 23 other sites I surveyed around California and Arizona. The DEIR comes nowhere close to describing the nature and significance of cumulative impacts on wildlife.

Response 19-79f: … the analysis on pages 22-21 through 22 24 addresses the extent to which the mitigation measures that are identified in Chapter 7, Biological Resources, Mitigation Measures BR1 through BR-9b would reduce the proposed project's contribution to the cumulative impact. This discussion is consistent with the impact and mitigation discussions provided in Chapter 7 under Impacts BR-1 through BR-14 that describe how each mitigation measure would avoid, minimize and compensate for the project's impacts on sensitive biological resources. In some cases, implementation of the mitigation would avoid impacts. Mitigation Measures BR-3 and BR-7b would compensate for impacts to giant garter snake and Swainson's hawk, respectively; these measures would offset losses of habitat for those species resulting from development of the UWSP area. In some cases, compliance with State or federal regulations and permit requirements are an articulated component of a mitigation measure, but the measures do not defer to the State or federal government the responsibility for mitigating the contribution of the proposed UWSP to cumulative impacts; under CEQA that is the responsibility of the County and is contained in the language of the mitigation measures cited above. The conclusion of the analysis is that "[w]ith implementation of these mitigation measures, the proposed UWSP's contribution to cumulative impacts to special-status species would not be cumulatively considerable, and the cumulative impact associated with the proposed UWSP with respect to special status species would be less than significant."

Rebuttal: The County only speculates on the outcome of its mitigation strategy. The response fails to cite any examples of where mitigation measures BR-1 through BR-9b, or BR-1 through BR-14, would reduce impacts to less than significant levels. The County's assertion that these measures would be effective follows the same unfounded assertions that preceded the development projects studied by Smallwood and Smallwood (2023), and which nevertheless resulted in measured impacts that were very substantial and significant. If the project goes forward, a worker environmental awareness program ought to be implemented per mitigation measure BR-2a, but the County should refrain from claiming that this measure is going to minimize the project's direct impacts on wildlife, let alone cumulative impacts.

The response argues that the mitigation measures in the DEIR would minimize, reduce and compensate cumulative impacts, but they are only intended to mitigate the project's direct impacts. Assuming for the sake of argument that the project is able to fully mitigate its direct impacts on wildlife, it would still fall short of mitigating its contributions to cumulative impacts. The DEIR includes no specific measures to mitigate the project's contributions to cumulative impacts. My comment letter of 25

October 2024 included recommended mitigation measures that could mitigate the project's contribution to cumulative impacts, especially the measures on landscaping with native vegetation and committing to no use of pesticides, but the County's responses to them were dismissive in the vein of "comment noted."

Response 19-80: The project would be built in phases, likely over decades, during which time conditions are reasonably expected to change from the conditions described in the environmental setting whether or not the project is approved and constructed. As such, the Draft EIR reflects the County's understanding that the presence or absence of any particular species at the time of surveys in support of the preparation of the Draft EIR is insufficient to properly mitigate the proposed project's effects on biological resources. Mitigation Measure BR-1 ensures that sensitive biological resource baseline information for each development phase is current and appropriately informs implementation of the subsequent avoidance and minimization measures (BR-2 through BR-14).

The Draft EIR does not improperly defer mitigation. The mitigation measures in Chapter 7, *Biological Resources*, are described in detail, including concrete implementation and verification as part of the building permit review process. Under CEQA, where a significant impact of the proposed project is identified, the EIR is required to "describe feasible measures which could minimize significant adverse impacts." CEQA Guidelines section 15126.4(a)(1)(B) states that "[f]ormulation of mitigation measures shall not be deferred until some future time," but:

> *The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure.*

Mitigation Measure BR-1 requires that a pre-construction Baseline Biological Resources Report be prepared for each phase of development documenting current land cover, land use, plant and wildlife habitat, and the locations of potential jurisdictional aquatic resources, native and non-native trees, and any other biological resources relating to any of the subsequent mitigation measures in the Biological Resources chapter. The County would not deem phase-specific development applications complete until it receives the Baseline Biological Resources Report. The specific performance standard the measure achieves is the documentation of any biological resources that would trigger implementation of any mitigation measure described in the Final EIR. The potential action that would feasibly achieve the performance standard is the pre construction survey that would inform the Baseline Biological Resources Report.

Rebuttal: Thank you for the explanation, which clarifies the intent of the mitigation measure BR-1. I would just add that there is nothing preventing the implementation of an adequate baseline study at this stage of the planning of the Upper Westside Specific

Plan. In fact, completing an adequate baseline study at this initial stage would greatly increase the capacity of baseline studies performed for each future stage of development. An adequate study now would provide comparative context to next-phase studies in terms of which species occurred where, and how many of each species existed. Nothing in the CEQA Guidelines discourages an adequate baseline study for the Specific Plan area at this time, and the CEQA's objectives only encourage it.

The studies completed to date remain inadequate. Each time I visit the project area for a simple reconnaissance survey, I find many additional wildlife species that had not previously been detected, similar to the patterns of accumulating species detections I experienced at a site in Rancho Cordova along the American River (Figure 11). At the Rancho Cordova site, it took me about 20 hours to accumulate the same numbers of species as had been tallied by the applicant's consultants on the Upper Westside Specific Plan area, but more surveys produced detections of substantially more species. I note that I have accumulated detections of 95 species of wildlife in only 7.16 hours of survey time. My rate of accumulation of wildlife species detections on the Upper Westside Specific Plan area has been two to three times faster than depicted in Figure 11. An adequate baseline study effort needs to be completed on the Upper Westside Specific Plan area.

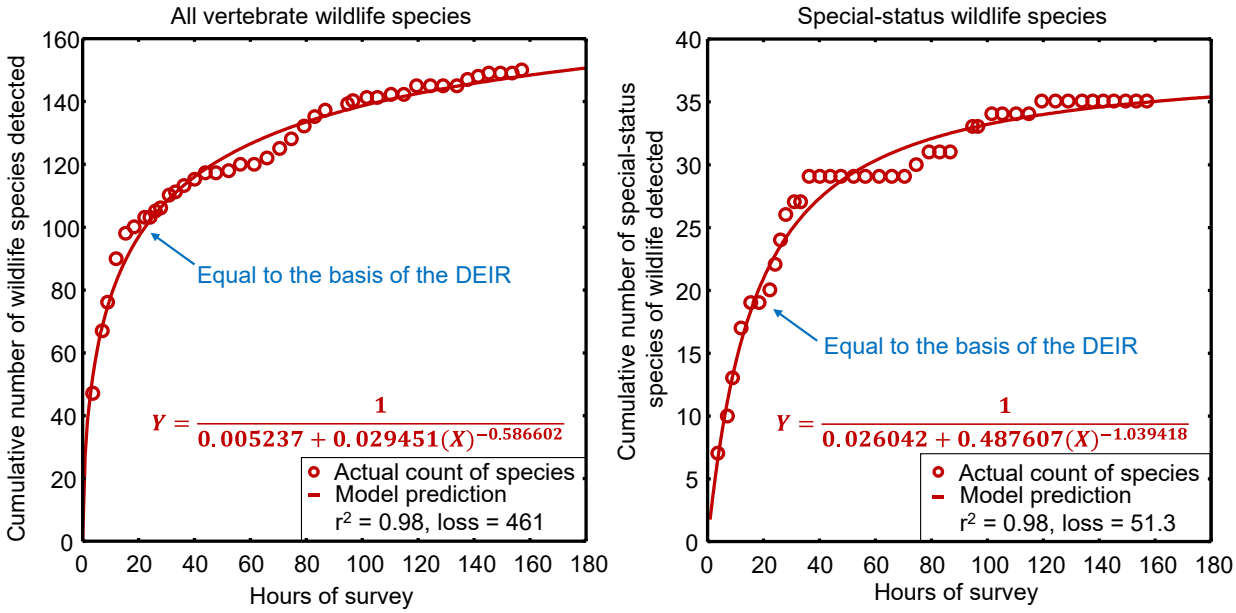


Figure 11. *Cumulative numbers of all wildlife species (left graph) and special-status species of wildlife (right graph) detected by sequential surveys totaling 41 surveys at a site in Rancho Cordova, California, 2021-2024. The arrows point to the same number of species detected by the consulting biologists who surveyed for wildlife on the Upper Westside Specific Plan area. The consultants did not report the time it took them to detect this many species, but it took me about 20 person-hours on the Rancho Cordova site.*

Response 19-81: The comment is an opinion and does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: My comment is indeed an opinion, but it is much more likely to be accurate than the County's opinion that a worker awareness program would mitigate project's permanent impacts affecting hundreds of thousands and likely millions of wild animals. Worker awareness programs are common, and they undoubtedly were implemented in many of the projects of which my co-investigator and I measured very substantial impacts on wildlife (Smallwood and Smallwood 2023). I once trained workers to be aware of an endangered species at issue in a construction project, but regardless of my training the workers had to destroy the species' habitat. The only member of the species salvaged was one I trapped and relocated, but it still lost its home range and its habitat.

In my experience, construction workers need to be focused on their work, because their work is often hazardous. Construction workers operate heavy machinery and work where other machines are moving. The County should not expect that workers made aware of the species at issue are going to pay any attention to these species. Workers need to remain focused on the effectiveness and safety of their work.

It is hard to imagine how a worker environmental awareness program, which would apply only to workers engaged with the project's brief periods of construction, would avoid or minimize the annual loss of production of a predictable 52,055 birds per year, a predictable bird-window collision mortality of 23,253 per year, and the predictable animal-vehicle collision mortality of somewhere between 10,000 and 100,000 vertebrate animals per year. It is hard to imagine how a worker environmental awareness program would offset the project's interference with wildlife movement in the region and with the Natomas Basin HCP's conservation strategy.

Response 19-82: The comment is an opinion and does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: The County's opinion is that pulling weeds is going to mitigate the project's impacts on wildlife. The County has not explained the basis of its opinion, but mine is based on having seen this mitigation measure required for other projects where I measured substantial declines in wildlife species richness and abundance (Smallwood and Smallwood 2023).

Response 19-83: The CDFW (2018) rare plant survey guidelines are the standard survey protocol used for pre-construction rare plant surveys to determine whether rare plants are present and where to inform subsequent avoidance and minimization steps as outlined in BR-2c, and is an effective method to detect and therefore minimize impacts to rare plants.

Rebuttal: The response is inaccurate. I suggest that County Staff read CDFW (2018), the first paragraph of which states the following: "The purpose of these protocols is to facilitate a consistent and systematic approach to botanical field surveys and assessments of special status plants and sensitive natural communities so that reliable information is produced and the potential for locating special status plants and sensitive natural communities is maximized. These protocols may also help those who prepare and review environmental documents determine when botanical field surveys are needed, how botanical field surveys may be conducted, what information to include in a botanical survey report, and what qualifications to consider for botanical field surveyors. These protocols are meant to help people meet California Environmental Quality Act (CEQA)1 requirements for adequate disclosure of potential impacts to plants and sensitive natural communities."

CDFW (2018) was not formulated to serve as a preconstruction survey protocol; it is a protocol for characterizing the existing environmental setting and for publicly disclosing potential project impacts.

Response 19-84: The Draft EIR is not required to, nor does it, evaluate past effectiveness of the NBHCP. …

Rebuttal: As I commented in my letter of 25 October 2024, this is a major failing of the DEIR. The efficacy of mitigation measures BR-3 is speculated, as it is based on no assessment of how the measure has performed at other projects or as part of the NBHCP. To ignore experience is assured an inadequate environmental review (see Figures 9 and 10). And this is a serious shortfall of the DEIR because the giant gartersnake is rapidly declining in the Natomas Basin with extirpation predicted by 2045.

Response 19-85: As described in the EIR, if present in the UWSP area, suitable northwestern pond turtle nesting habitat would be limited to the periphery of irrigation ditches, and would be of limited quantity and quality relative to the aquatic and associated upland mitigation habitat required under Mitigation Measure BR-3 for giant garter snake. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: The response is inaccurate. Northwestern pond turtles are not limited to the periphery of irrigation ditches as breeding sites. This species is known to travel up to 400 m into upland areas to deposit eggs in cavities such as ground squirrel or pocket gopher burrows (Buskirk 2002). Furthermore, pond turtles travel over upland areas to reach water bodies after the water bodies they inhabited dry down. The County pigeon-holes this species into an unrealistically narrow portion of its habitat, and it simultaneously treats my comment as "comment noted."

I thought the CEQA's caselaw established that "comment noted" is no longer acceptable, and that the lead agency must address expert comments with facts and good-faith analysis including reasons why the comment is rejected.

Response 19-86: Mitigation Measure BR-5 does not ignore the habitat of ground-nesting special-status bird species. The measure requires pre-construction surveys for "suitable habitat" of "any active passerine" and "any active raptor nests". The pre-construction survey would be triggered by ground disturbance and tree work associated with construction of development within the proposed UWSP. Because some of the relevant species are ground-nesters, the required surveys would necessarily include surveying for active nests of ground nesting birds.

Rebuttal: The very first bullet of measure BR-5 defines the circumstances under which the measure applies as the removal of trees and vegetation. My comment points out that some birds nest on bare ground. The response says that BR-5 would apply to ground-nesters, but this is not what BR-5 states.

Furthermore, the mitigation language of mitigation measure BR-5 allows a single individual to make a subjective decision, outside the public's view, to determine the no-disturbance buffer area for any given species. This measure lacks objective criteria, and it would be unenforceable.

Response 19-87: Bird behaviors vary substantially from species to species and individual to individual. For example, some individual birds are highly sensitive to urban noise, and other individuals can be readily observed foraging or nesting within the immediate vicinity of major freeways and high-volume throughfares. Rather than assuming a singular behavior pattern within a species or category of birds, which could be over- or under protective, Mitigation Measure BR-5 requires that a qualified wildlife biologist use their observations of a particular bird or nest, and based on their professional experience and scientific understanding of the species' life history requirements and tolerance for human disturbance, recommend site-specific measures to protect nesting birds.

Mitigation Measure BR-5 includes clear performance criteria based on which the County can determine whether or not the measure has been fully and properly implemented. As an example, the measure:

- Specifically identifies the timeframe for implementation of the survey: within 7 days of start of construction during the established breeding season of February 1 through August 31;
- No construction activities within the established no-disturbance zone.

This approach is appropriate under CEQA.

Rebuttal: The response assumes a skill set that no individual biologist possesses in the face of the variation among species and induvial birds that the response acknowledges. More than a lifetime of experience would be needed to understand how each species responds to construction-related disturbances. As written, BR-5 would be vulnerable to egregious errors of judgment that to nesting attempts could prove fatal. A more appropriate approach would be to disallow construction during the breeding season. If

this approach is unacceptable, then the appropriate approach would be to err on the side of caution by requiring no-disturbance buffers that likely exceed the distances at which construction disturbances would affect any bird. This buffer could be established by consulting behavioral ecologists who specialize on birds.

Response 19-88: Mitigation Measure BR-5 is a standard measure that CDFW regularly approves to minimize impacts to the species. Please also see Response 19-87 above. The comment is an opinion and does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP.

Rebuttal: My comment is not just an opinion. It is based on many years of research experience involving birds. The County's opinion is based on a fantasy over why birds attempt to breed amid construction activity. Scientists know why this happens, and it is because of nest site fidelity. There exists a large scientific literature on nest site fidelity, but I cannot recall any literature in support of the notion that birds attempt to nest among construction activities because they habituated to it.

As for what CDFW regularly approves, CDFW recommends specific no-disturbance buffers around raptor nest sites and the nest sites of other birds. For example, see CDFW's own standards for no-disturbance buffers for specific species and groups of species at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=73979 or at https://ia.cpuc.ca.gov/environment/info/ panoramaenv/fulton-fitch/Application/ Appendix_E_Birds.pdf

Response 19-89: Mitigation Measure BR-5 requires that a qualified wildlife biologist use their professional knowledge, experience, observations, and understanding of the species' life history requirements and tolerance for human disturbance to protect nesting birds, whose behaviors vary substantially from species to species and individual to individual. This is a common approach to protecting nesting birds during construction projects. The measure would be enforceable as articulated under the third bullet of BR-5, which requires that the surveying biologist submits the findings of the pre-construction survey to the County for review and approval prior to initiation of construction within the no disturbance zone during the nesting season.

If the proposed UWSP is approved, the implementation and enforcement of mitigation measures would be overseen and recorded by the County pursuant to an approved Mitigation Monitoring and Reporting Program that is required by Public Resources Code 21081.6(a)(1) and CEQA Guideline section 15097. Please also see Response 19-87 above.

Rebuttal: See my rebuttal comments to Response 19-87. Also see Smallwood and Smallwood (2023), which reports on measured reductions in species richness and abundance following the construction of many projects that likewise required qualified biologists use their professional knowledge to judge construction disturbance effects on birds. I have seen no evidence that this measure is effective. If the County has evidence, then it should cite it.

Response 19-90: Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (Staff Report), published March 7, 2012, is the standard protocol for conducting burrowing owl preconstruction surveys that are required under Mitigation Measure BR-6. Under CEQA, there is no requirement that protocol-level surveys are required to characterize the environmental setting for biological resources. CEQA Guidelines section 15125(a) states that "[a]n EIR must include a description of the physical environmental conditions in the vicinity of the project." It goes on to qualify the level of detail required by stating that "[t]he description of the environmental setting shall be no longer than is necessary to provide an understanding of the significant effects of the proposed project and its alternatives." The level of detail required is addressed in CEQA Guidelines section 15151, which states that "[a]n evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible," and that "[t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." The surveys and other research upon which the environmental setting for biological resources is established and documented are sufficient and meet the requirements of CEQA.

The second part of this comment raises neither new significant environmental issues nor specific questions about the analyses or information in the Draft EIR that would require response pursuant to CEQA Guideline section 15088. The comment will be included as a part of the record and made available to the decision makers prior to making a final decision on the proposed project.

As described under Response 3-5, the burrowing owl's listing status has been amended in Table BR-2: Special-Status and NBHCP and MAP HCP Covered Species Evaluated for Potential Occurrence in the UWSP Area, and Mitigation Measure BR-6 has been amended to include the potential need for an incidental take permit for burrowing owl.

Rebuttal: The response misrepresents the survey protocol of CDFW (2012), and in particular misrepresents App. D of CDFW (2012). There are three types of surveys recommended and described in the CDFW's (2012) survey and mitigation guidelines: (1) Habitat assessment, (2) Detection surveys, and (3) Preconstruction survey. The habitat assessment is intended to evaluate the likelihood that the site supports burrowing owls, and to decide whether detection surveys should be performed. The detection surveys, otherwise described as either or both breeding-season or non-breeding-season surveys, are intended to detect whether the site actually does presently support burrowing owls, and if so where and how many. The preconstruction survey, otherwise known as a take-avoidance survey, is intended to determine whether burrowing owls immigrated to the site since completion of the detection survey, or whether they returned to the site since passive or active relocations were performed as mitigation. The three types of survey carry distinct but inter-related purposes, and they are to be completed in chronological order.

The first two types of survey support impacts analysis, whereas the third type of survey is a mitigation measure. Burrowing owls can be determined absent based on evidence derived from the habitat assessment or detection survey, but only if the surveys achieved

the minimum standards of CDFW (2012). Whereas an absence determination naturally follows from the negative findings of properly performed detection surveys, the following three questions must be answered negatively to determine absence based on the habitat assessment:

A) Are there occurrence records nearby the project site?
B) Is the site's vegetation cover and height typical of where burrowing owls are found?
C) Are there fossorial mammals present which typically construct burrows useable by burrowing owls, or are there surrogate cavities that can serve as nest sites?

If the answers to these questions are compellingly negative, then detection surveys are not necessary, but they could be implemented to make certain the site is absent of burrowing owls. If the answers to these questions are affirmative or not compellingly negative, then it should be assumed that burrowing owl habitat exists on the site until detection surveys prove otherwise.

To question A, there are burrowing owl occurrence records very close to the project site. To question B, the vegetation on site is typical of the area, and is typical of vegetation often used by burrowing owls. To question C, ground squirrels are known to occur on the project site. Ground squirrels construct burrows used by burrowing owls, and these two species mutually alarm-call for predators and survive better together (K. S. Smallwood, unpublished data). The answers to all three questions are affirmative. Therefore, breeding-season detection surveys are needed, and these surveys are not to be confused with preconstruction take-avoidance surveys. Breeding-season detection surveys are needed to publicly disclose potential impacts on the burrowing owl, which is a candidate for listing under the California Endangered Species Act.

Due to its candidate status, the survey guidelines of CDFW (2012) need to be implemented. Moreover, to meet the CEQA's objectives, which I cited earlier, the survey guidelines of CDFW (2012) need to be implemented.

Response 19-91: The comment expresses an opinion of concurrence with Mitigation Measure BR-71. Please see the Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan, and Master Response BR-4: Impacts on Swainson's Hawk Zone.

Rebuttal: It is my opinion, and my reasons for standing by it are detailed in my comment letter of 25 October 2024. The productivity of Swainson's hawk in the Natomas Basin has been declining for 25 years.

Response 19-92: Please see the Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan, and Master Response BR-4: Impacts on Swainson's Hawk Zone.

Rebuttal: See my rebuttals to Response 19-70 and Response 19-72.

Response 19-93: A draft EIR should usually include a description of the physical environmental conditions at the time the Notice of Preparation was filed. The Environmental setting in the UWSP meets the requirements of CEQA and was based on the best available data at the time the Draft EIR was written. Please also see Response 19-90 above.

Rebuttal: No bat surveys were conducted at the time when they were needed, and that was prior to the public circulation of the DEIR. The County needs to disclose potential project impacts to bats. Because no surveys were completed, I conducted my own brief bat survey. Within two hours I accumulated 232 bat passes within about 30 feet of one acoustic bat detector, and these passes represented seven or eight species, including a possible detection of palled bat. Special-status species of bats now known to occur on the project site include western red bat, silver-haired bat, little brown bat, Yuma myotis, and canyon bat. Based on my survey outcome, it is my opinion that the project site hosts an exceptionally rich and abundant bat community, and it needs to be understood.

Postponing the needed bat surveys to preconstruction periods is inappropriate, and doing so fails to achieve the CEQA's objectives.

Response 19-94: In response to the comment regarding translocations/plantings of elderberry shrubs, BR-9b is amended as follows, consistent with the Bay Delta Conservation Plan Conservation Guidelines for the Valley Elderberry Longhorn Beetle (1999) and the USFWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (2017b).

BR-9b Transplant Elderberry Shrubs

- If elderberry plants cannot be avoided, or if project activities will result in the death of stems or the entire shrub, they shall be transplanted during the dormant season (November 1 to February 15) to an area protected in perpetuity and approved by the USFWS.
- Exit-hole surveys shall be completed immediately before transplanting. The number of exit holes found, GPS location of the plant to be relocated, and the GPS location of where the plant is transplanted shall be reported to the Service and to the California Natural Diversity Database (CNDDB).
- A qualified biologist shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.
- The elderberry shrub ~~will~~ **shall** be cut back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1 inch or greater in diameter at ground level will be replanted. Any leaves remaining on the plant will be removed.
- A hole ~~will~~ **shall** be excavated of adequate size to receive the transplant.
- The elderberry shrub ~~will~~ **shall** be excavated using a Vermeer® spade, backhoe, front-end loader, or other suitable equipment, taking as much of the root ball as possible, and will be replanted immediately. The plant will only be moved by the root ball. The root ball will be secured with wire and wrapped

with damp burlap. The burlap will be dampened as necessary to keep the root ball wet. Care will be taken to ensure that the soil is not dislodged from around the roots of the transplant. Soil at the transplant site will be moistened prior to transplant if the soil at the site does not contain adequate moisture.

- The planting area shall be at least 1,800 square feet for each elderberry transplant. The root ball should be planted so that its top is level with the existing ground. Compact the soil sufficiently so that settlement does not occur. As many as five (5) additional elderberry plantings (cuttings or seedlings) and up to five (5) associated native species plantings (see below) may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting shall have its own watering basin measuring at least three (3) feet in diameter. Watering basins shall have a continuous berm measuring approximately eight (8) inches wide at the base and six (6) inches high.
- The soil shall be saturated with water. Fertilizers or other supplements shall not be used, nor shall the tips of stems be painted with pruning substances since the effects of these compounds on the beetle are unknown.
- Transplanted shrubs shall be monitored to ascertain if additional watering is necessary. If the soil is sandy and well-drained, plants may need to be watered weekly or twice monthly. If the soil is clayey and poorly-drained, it may not be necessary to water after the initial saturation. However, most transplants require watering through the first summer. A drip watering system and timer is ideal. However, in situations where this is not possible, a water truck or other apparatus may be used.
- Trimming shall occur between November and February and shall minimize the removal of branches or stems that exceed 1 inch in diameter.
- Replacement seedling plants shall be provided at a ratio of 2 to 1 to 5 to 1 depending on the extent of valley elderberry longhorn beetle utilization of the plants moved or lost. An 1,800-square-foot area shall be provided for each transplanted elderberry shrub or every five elderberry seedling plants.

In response to the comment regarding wildlife movement corridors, Mitigation Measure BR-12 has been amended to include avoidance and minimization of impacts on birds related to building collisions, as described in Response 19-77.

Rebuttal: The mitigation language related to elderberry shrubs is improved. However, there is still no requirement to assess efficacy of the measure in terms of the Valley elderberry longhorn beetle. As I commented, translocations of occupied shrubs do not necessarily result in successful translocation of the beetle. The status of the beetle needs to be monitored, and any failures of the translocations need to be followed by alternative mitigation prescriptions.

Response 19-95: Please see the Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan.

Rebuttal:

Response 19-96: Please see Response 19-75 above. The comment is a recommendation that does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: See my rebuttals to Response 19-70 and Response 19-72.

Response 19-97: Draft EIR, Impact BR-1 and Mitigation Measure BR-1, page 7-40, require pre construction surveys prior to construction-phase development applications are complete. Regarding the suggestion that a revised Draft EIR be recirculated, please see Response 19-1 above which explains why there is no significant new information that has been added to the Draft EIR and thus there is no requirement for recirculation of a revised Draft EIR.

The comment is a recommendation that does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal:

Response 19-98: Please see the discussion of Conservation Strategy for Upland Habitat in Draft EIR Impact BR-14 and Master Response BR-1: Conflict with Natomas Basin Habitat Conservation Plan and Metro Air Park Habitat Conservation Plan for discussion of compensatory mitigation and requirements for 1:1 mitigation ratios.

Regarding mitigation for wetland habitats, please see Mitigation Measure BR-11, Draft EIR pages 7-71 to 7-74, as well as Mitigation Measure BR-3, which provides for inclusion of upland habitat for giant garter snake in creation, restoration, enhancement, or preservation and management-related mitigation or compensatory mitigation.

The comment is a recommendation that does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: Of course my comment is a recommendation, but it does raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis. Detection surveys are needed to accurately characterize the memberships of special-status species as part of the wildlife community. The occurrences of special-status species on the project site need to be appropriately disclosed to the public and decision-makers.

Response 19-100: Please see Response 19-76 above. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: Please see my rebuttal argument to Response 19-76.

Response 19-101: Please see Response 19-77 above.

Rebuttal: Please see my rebuttal argument to Response 19-77.

Response 19-102: Please see Response 19-78 above.

Rebuttal: Please see my rebuttal argument to Response 19-78.

Response 19-103: The comment is a recommendation that does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: My comment does raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis. The DEIR includes no requirement to fund the wildlife rehabilitation facilities in the region which are inevitably going to receive inured animals for care as a result of this project, should the project go forward as currently planned.

Response 19-104: The comment is a recommendation that does not raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis of the proposed UWSP. The comment will be included as a part of the record and made available to the decision makers prior to a final decision on the proposed project.

Rebuttal: My comment does raise specific issues pertaining to the adequacy, accuracy, or completeness of the Draft EIR's analysis. The DEIR includes no requirement to mitigate the project's contributions to cumulative impacts on wildlife, should the project go forward as currently planned.

Thank you for your attention,

_____

Shawn Smallwood, Ph.D.

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EXHIBIT 2

SMITH ENGINEERING & MANAGEMENT

August 19, 2025

Mr. Patrick Soluri, Esq.
Soluri Meserve
510 Eighth Street
Sacramento, CA 95814

Subject: Upper Westside Specific Plan FEIR Comment

P24005

Dear Mr. Soluri:

Per your request, I reviewed the Final Environmental Impact Report (the "FEIR") for the Upper Westside Specific Plan Project (the "Project") in the County of Sacramento (the "County"). My review is with respect to transportation and circulation considerations. I previously reviewed and commented on the Draft Environmental Impact Report (the "FEIR") for the Project in a letter dated October 25, 2024. My letter is attached in your own letter of comment that the FEIR now labels Comment Letter 19.

My qualifications to perform this review are thoroughly documented in my letter of October 25, 2024 and my professional resume is attached thereto.

My comments on the FEIR follow.

Master Response TR-1: Transit

Master Response TR-1 begins with a sketchy overview of regional transit service in the Sacramento area but diverts to a seriously misleading characterization of the Project area as being similar to the Oak Park neighborhood southeast of downtown Sacramento. The sole element of truth in this characterization is the fact that the two highly different areas are similarly distant from downtown Sacramento (or as stated in public hearings, the linear distance from City Hall. Otherwise, there is absolutely no resemblance. Oak Park was developed in the late 1800s and early 1900s and has evolved as a vibrant neighborhood with mixed uses in the community. It has a history of transit service dating back to the

days of horse-drawn streetcars. There are no river barriers between it and downtown. Although elevated freeways came later, much of the local street grid maintains continuity beneath the freeway alignments. Hence there is ready accessibility to downtown and nearby neighborhoods without reliance on freeway interchanges.

The contrast with the Upper Westside Project area is stark. Upper Westside is a largely undeveloped agricultural area with a small number of riverfront residences along Garden Highway and a few farmsteads. Upper Westside is separated from downtown by the American and Sacramento rivers with just a few congested crossings. It is also separated from areas to the west by the Sacramento River barrier. To the east, only Garden Highway, West El Camino Avenue, San Juan Drive, Arena Boulevard and Del Paso Road are continuous across the alignments of I-5, I-80 or both. All but San Juan Drive have congested interchanges with one of the freeways, but San Juan drive is only one lane in each direction. This freeway and congestion barrier exists over a distance of 4.5 miles from Garden Highway to the point where I-5 and Routes 70-99 diverge. In reality, Oak Park neighborhood is well connected to the surrounding community and downtown whereas Upper Westside is highly isolated. This portion of Master Response TR-1 is false and misleading.

In response to comments to the effect that presumed transit service will not be in place until full build-out provides the requisite ridership, Master Response TR-1a states "*Transit service is expected to continue to expand as project buildout occurs. As more residences, office space, schools, and retail are added, transit ridership will grow, furthering the need for increased transit service coverage and bus frequencies."* To be accurate, however, the response should acknowledge and disclose t that initial transit services to the early stages of development will be limited in terms of frequency and destinations served.

Master Responses TR-1d and TR-1e concern the adequacy of transit mitigation and the funding of it. Although the Master Response asserts the transit mitigation services provided and the funding of it will be adequate, two problems are evident.

- The financing plan assumes that the Project will contribute approximately $12.8 million to the transit component of the Sacramento County Transportation Development Fee fund. While this superficially seems a significant amount of capital, when one realizes that a typical 40-foot zero emissions transit coach costs between $1.4 and $1.6 million (that is, the $12.8 million could buy just 8 or 9 buses),the concern for adequacy of funding remains very real.
- The financing plan also assumes that the project area will be annexed to a County Service Area or form a transportation services district through which the ultimate occupants of the project can vote to tax themselves to

provide transit service operations. Since success of any such vote by currently unknown future occupants is speculative, transit mitigations are not presently enforceable and so the transit impact must be classified as Significant and Unavoidable.

Master Response TR-2: Garden Highway Safety

Master Response 2 is a safety analysis of Garden Highway. Two issues stand out. One is that the response does not consider the increased difficulty of safely accessing and egressing the driveways of the riverfront homes that line the west side of Garden Highway under increased traffic pressure along that roadway.

The second is that the response notes that the Street 9 connection to Garden Highway is being contemplated for removal by the project applicant. The FEIR must make clear whether the Street 9 connection is or is not being removed, otherwise the project description is shifting and unstable.

Master Response TR-3: Traffic Congestion

This master response summarizes the findings of the Local Transportation Analysis that was carried out for the Project, Identified as Appendix TR-2 in the DEIR. As noted in the master response, although congestion-based assessments are no longer a CEQA matter, it is still relevant to the development review process. It identifies deficiencies that are inconsistent with General Plan operational standards and the improvements needed to provide conformance. While the deficiencies and effectiveness of the necessary improvements, if feasible, are not relevant to the adequacy of the CEQA document, they are highly relevant to General Plan consistency and thus whether the governing body may approve the Project.

As the master response points out, by the EIR preparers own estimates, the Project would generate over 100,000 daily trips external to the Project site. The Local Transportation Analysis ("LTA") identifies numerous locations where improvements would be needed at numerous locations under jurisdiction of the County, the City of Sacramento or Caltrans. Although the LTA suggests possible improvements, in most cases, because of conflicts in policies and goals, right-of-way limitations, unconventional designs and compounding circumstances, the necessary improvements are infeasible.

What Master Response TR-3 fails to state is that approval of the Project would leave massive congestion on County, City and Caltrans facilities unmitigated.

Comment and Response 19-105

Our comment states that in light of the extensive and significant operational and safety deficiencies related to excessive freeway off and on ramp queues at several interchanges in the Project vicinity that the DEIR discloses, the Project should not be approved until there is clear agreement among the agencies having jurisdiction as to what the actual mitigation plans are, how full funding would be accomplished and when construction will take place.

The response attempts to evade the issues in the comment, stating that it is unrealistic to expect all applicable agencies to agree in advance of the project's approval to the precise mitigation, cost, and how full funding will be achieved. Caltrans typically does not become involved in these types of discussions until a proposed improvement is formally initiated through the Caltrans project development process.

While what the response states is typically true of Caltrans, in this case both Caltrans and the City of Sacramento have commented extensively concerning the operational and safety issues the Project causes that necessitate transportation improvements. For example, in the case of the I-80 / West El Camino interchange, Caltrans in comment 4-16 expresses skepticism regarding the unconventional Class 1 path through the interchange on the north side of West El Camino as part of the interchange reconstruction and the City, as part of Comment 12-24, notes that because the interchange is outside the County of Sacramento, thus precluding the County from serving as lead agency, and Sacramento County cannot compel the City and Caltrans to approve and allow construction of the specified improvements. The City also notes the same is true for the ramps at the interchange of I-5 with Garden Highway.

Comment and Response 19-106

This comment inquired what mitigation was proposed for the I-5 southbound off ramp at J Street which experiences excessive queuing. The FEIR responds by reference to its response to Caltrans comment 4-5. That response introduces a new analysis of the situation, which blames the queuing on backspill from a ramp farther south and also claims the queues on the J Street ramp have been reduced by the prevalence of working remotely caused by the pandemic. But the FEIR admits this condition occurred following the Project's baseline conditions, which the FEIR concedes are pre-pandemic conditions. Thus, post-pandemic conditions are irrelevant here. And while lead agencies are sometimes allowed to base their CEQA analysis on future conditions, the EIR asserts that project build out will occur over several decades. The temporary pandemic conditions that existed in in 2021 and 2022 have already started to be reversed as more and more workers are required to report to their normal job stations.

Comment and Response 19-107

This comment concerned mitigation of excessive queuing at the I-5 interchanges with Arena Boulevard, and with Del Paso Road Garden Highway, the DEIR concludes that the excessive off ramp queuing is caused by backups from adjacent cross-street intersections that impair movements from the exit ramps. The DEIR proposes at DEIR page 22-68 to pay fair share funds toward improvements to the intersections of Arena with El Centro and Arena with East Commerce Way which, according to the analysis, would allow the off ramps to operate without hazardous queue spill-backs onto the I-5 mainline.

The text on DEIR page 22-68 continues as follows:

> "With respect to the off-ramp queues at the two remaining study interchanges (I-5/Arena Boulevard[1] and I-5/Garden Highway) a variety of potential surface street improvements were tested along the roadways leading to this [sic] facility. This involved collaboration with staff from the City of Sacramento regarding the viability of certain improvements. Improvements such as lane restriping, adding lanes or modifying signal phasing were either found to not to be effective or could also cause the need for additional right-of –way. At both interchanges the following conclusions were reached. First, there are no known improvements planned at either interchange. Second, the feasibility of any surface street improvements that could reduce off-ramp queuing is not known."

Now, FEIR response states "In summary, the recommended mitigation measures are more targeted, more cost efficient, and would more effectively address the queuing issues than adding more off-ramp vehicle storage, since the queuing on the off-ramp is not due to the capacity of the off-ramp but due to the capacity of adjacent surface street intersections.

The FEIR fails to explain what changed. How did the feasibility of any surface street improvements that could reduce off-ramp queuing go from being *not known* to being more targeted, more cost efficient and more effectively address the queuing issues? No new analysis is indicated.

We also note the City of Sacramento's Comment 12-24 includes the following statements. "The DEIR continues to rely on fair share contributions toward roadway widening projects within City limits without adequately addressing our concerns about implementation responsibility. ..The DEIR does not propose alternative mitigation approaches that avoid placing implementation responsibility on the City, nor does it explain how these projects would be fully funded and executed given the City's financial constraints." The EIR therefore fails to provide

[1] We think the authors meant to say I-5/Del Paso Road here.

adequate information demonstrating that proposed "fair share" funding will be effective.

Comment and Response 19-108

This comment concerned excessive on-ramp queues at the I-5 southbound loop on ramp from Garden Highway[2] and the diagonal on ramp to southbound I-5 from Del Paso Road. The Response clarifies details and elements of confusion. However, we note the City of Sacramento's previously cited comments regarding reluctance to commit to paying fair share costs or commit to being lead agency for the improvements remain applicable.

Comments and Responses 19-109 and 19-110

This comment concerned queues on the southbound I-5 off ramp to Del Paso extending north past the merge point between I-5 and Routes 70/99. The Response points out that cumulative deficiencies exist both with and without the Project and Project traffic is not projected to add to these queues. Although this is not a condition the Project may be responsible for mitigating, it constitutes one of the conditions that contributes to diversions described in Comment 19-112

Comment and Response 19-111

This comment concerned issues along Garden Highway. The response is by reference to Master Response TR-2 which has been previously discussed in this letter.

Comment and Response 19-112

This comment expresses concern that, given the congestion forecast along I-5 and at surface street locations, significant numbers of knowledgeable travelers would choose to divert to a calming drive in the pleasant, scenic surroundings of Garden Highway, even though a tense drive on the congested routes might remain faster. This product of human preference could result in considerably more impactful traffic on Garden Highway than predicted in transportation models that tend to assign traffic to the fastest routes.

The response claims that the comment offers no basis for the forecast worsening congestion on I-5. However, the DEIR itself provides extensive evidence of queuing and lane blocking on I-5. For instance, see Comment and response 19-109 and 19-110. While it is true that most trucks and long distance travelers will stick to the freeways, in the modern era many drivers rely on GPS-based

[2] Queues on the diagonal ramp from Garden Highway to I-5 northbound also exceed capacity in the existing and cumulative conditions but the Project is not projected to add any traffic to this movement.

cellphone software to obtain real-time routings that avoid heavy congestion and delay. The response is simply a denial of present reality.

Comment and Response 19-113

This comment expressed concern that by understating the Project's external trip generation. it avoids disclosing the full extent of the severity of the Project's VMT and congestion impacts. The response avoids directly responding to the three paragraphs of comment it labels Comment 19-113 by mischaracterizing it a general comment and moving onto respond to sections it labels 19-114 through 19-117. In so doing, the FEIR evades directly responding in good faith to the issue that the DEIR presents no statistical evidence that the project offers a greater mix of land uses, greater overall density, greater walkability, bikeability and transit accessibility that would make it likely to have more internal and fewer external motor vehicle trips than recently developed, comparably sized developed areas to the north and east of the Project site. Consequently there is no justification for the DEIR's transportation analysts adjusting initial trip generation estimates for the Project based on data from the Institute of Transportation Engineers formerly authoritative publication *Trip Generation Manual, 10th Edition*,[3] by applying a procedure called MXD+ that is purported to account for the special qualities of travel in mixed use developments.

Comment and Response 19-114

This comment observed that the current version of MXD+ was recalibrated to 2019 data from 12 mixed use sites and that the size of the Upper Westside Specific Plan dwarfs the sites used in the calibration in terms of acreage, dwelling units, retail and office space. The Technical Appendix to DEIR Appendix T-1 also describes validation of the MXD+ process to 4 additional mixed use developments. The validation sites ranged in size from 4 acres to 3,000 acres with 3 of the 4 sites being less than 80 acres. Although the 3,000 acre site contains 7704 dwelling units, most are single family and the quantities of other uses (office, retail, grocery, restaurants) are very small.

Response 19-114 presents clouds of information about the development and validation of the original MXD. But the nearly two pages of information about the original MXD do not rebut the fact that the 16 sites used in the 2019 MXD+ recalibration and revalidation are, with just one exception (and in that one case solely based on acreage) are all much, much smaller developments than Upper Westside. There is every reason to believe that the MXD+ process is biased toward the travel characteristics of much smaller mixed use projects with

[3] We say 'formerly authoritative' because in September, 2021 the Institute released *Trip Generation Manual, 11th Edition* that supersedes the 10th Edition.

predominantly multi-family housing as opposed to the scale and balance of housing types in the subject UWSP Project.

Comment and Response 19-115

This comment drew attention to the DEIR finding at page 18-30, Table TR-2, that when the UWSP project data is processed through the SACOG SACSIM19 regional transportation model, the results indicate that 15.4 percent of the Projects residential trips would be internal to the Project. If processed through the MXD+ process, the result is 22.9 percent internal trips. This difference suggests the DEIR's transportation analyst's choice to of the more favorable to the Project MXD+ results rather than those of the SACSIM tour-based mode is not consistent with CEQA's requirement of a good faith effort to disclose impact. This choice causes a critical understatement of the Project's VMT per capita analysis. If the more conservative and likely more reliable SACSIM19 output is relied upon, the resultant VMT per capita for the Project would be 15.41 miles per capita instead of 14.34. Since 15.41 is above the significance threshold of 14.83 miles per capita, the Project would be found to have significant VMT impact and require mitigation.

Response 19-115 asserts that the difference in VMT is misleading because MDX+ considers all trips including those that are non-home-based, school trips etc., which are often internal to a project area, while implying that SACSIM does not. This is a false implication. SACSIM tours consider seven categories of activities that could be non-home-based trips and does consider school trips. SACSIM19 also includes a commercial vehicle trip module. The response is inadequate and misleading.

Comment and Response 19-116

This comment concerned possible double counting of trip deductions for internal trips and attracted passerby trips. The point is that since there is virtually no existing traffic on most of the Project streets, any attracted passers-by would have to be internally generated trips. Since the analysis already deducts internal trips, taking a further deduction for attracted passers-by is a double counting of the same people.

The response explains that in its process, internal trips are deducted from the allowable numbers of attracted passers-by suggested by the Institution of Transportation Engineers' publication *Trip Generation Handbook.* This is a credible adjustment. However, the analysts should determine whether there is sufficient non-internally generated traffic passing by to sustain the remainder of the assumed passerby deduction.

Comments and Responses 19-117 and 19-118

These comments concern the use of *Trip Generation Manual, 10th Edition* rather than the 11th Edition which became available in September, 2021. The response notes that the technical work was well under way already in June 2021,in plenty of time for the DEIR analysts to have relied on it for the UWSP work. Since the technical analysis process is highly computerized, we doubt if the task of making changes in the trip generation rates would have been quite as onerous as the response makes it seem. However, we do appreciate the calculated comparisons of the differences in net trip generation which the response provides.

Conclusion

Given the concerns above, and the serious comments made by Caltrans and the City of Sacramento, we believe the County should pause the EIR and reject the Project.

Sincerely,

Smith Engineering & Management
A California Corporation

Daniel T. Smith Jr., P.E.
President

EXHIBIT 3

August 19, 2025

Patrick Soluri
Soluri Meserve, A Law Corporation
510 8th Street
Sacramento, CA 95814

RE: Comments on Upper Westside Project and its Final Environmental Impact Report and Response to Comment 19-54

Mr. Soluri,

The assertion that airborne concentrations of ultrafine particles (UFP) may be inferred from measurements of fine particles (PM2.5) is incorrect. For example, the published research article "Land use regression model for ultrafine particles, fine particles, and black carbon in Southern California" (Science of the Total Environment, Volume 699, 10 January 2020), reports on a measurement campaign for these pollutants in the Los Angeles metropolitan area, at 215 sites across three seasons. It concludes, "UFP and PM2.5 measurements (r=0.001) and predictions (r=0.05) were uncorrelated at the sites." This article also states, "UFP may be more toxic [than PM2.5] due to unique physiochemical properties that increase their potential for adsorption and interaction with tissues and cellular targets (Health Effects Institute, 2013). Importantly, … they are not well represented by measurements of other PM size fractions including PM10 and PM 2.5." It also states "the major UFP exposure source is traffic, especially emissions from heavy-duty diesel trucks", and found that "UFP concentrations were highest at the downwind sites closest to the roadway (50-150 m)". The authors include respected University of Southern California Professor Constantinos Sioutas, whose research I managed when I was an Air Pollution Research Specialist at the California Air Resources Board's Air Quality and Science Research Section, focusing on near-road air pollution and its health effects.

Furthermore, several recent research studies show that the health risk from UFP exposure exceeds that from fine particle exposure. For example,

- "Unlike PM2.5, UFPs may have much more impacts on human health" ('Beyond PM2.5: The role of ultrafine particles on adverse health effects of air pollution', Biochimica et Bioophysica Acta, December 2016)
- "Harmful systemic health effects of PM10 or PM2.5 are often attributable to the UFP fraction." ('Ultrafine particles: unique physicochemical properties relevant to health and disease', Experimental & Molecular Medicine, Vol. 52, 2020)
- "For respiratory mortality, we found … that the smallest UFP fractions showed the largest effects." ('Impact of Ambient Ultrafine Particles on

Cause-Specific Mortality in Three German Cities', American Journal of Respiratory Critical Care Medicine, Vol. 10, May 2023)

- "UFPs deposit readily in the airways and centriacinar regions of the lung and induce and incite airway diseases such as asthma and COPD [chronic obstructive pulmonary disease] and respiratory diseases. Oxidant-mediated cellular damage including the production of reactive oxygen species (ROS) and oxidative stress can lead to PM-mediated diverse health effects." 'Mechanisms of ultrafine particle-induced respiratory health effects', Experimental & Molecular Medicine Vol. 52, 2020)

"There is a growing body of evidence suggesting UFP may play a bigger role inflicting adverse health effects than has been recognized, and in this perspective, we highlight effects on the brain, particularly of young individuals." 'Air Pollution, Ultrafine Particles, and Your Brain', Environmental Science and Technology, 2022, Vol. 56, by Alberto Ayala [Executive Officer, Sacramento Metropolitan Air Quality Management District])

Sincerely,

Earl Withycombe	Ralph Propper

Attachments:
Résumés of Earl Withycombe and Ralph Propper

Résumé

Earl Withycombe

Education

1970, B.S., Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts

1989, Certificate in the Management of Hazardous Materials, University of California, Davis, California

Professional Experience

8/06 to 12/22 Air Resources Engineer
California Air Resources Board

Served as the planning liaison to the South Coast Air Quality Management District, facilitating coordination between ARB and the District in the development of the 2007 8-hour ozone and $PM_{2.5}$ State Implementation Plan for the South Coast Air Basin. Served as the planning liaison to the Sacramento Metropolitan region, the Mountain Counties Air Basin, and Eastern Kern County. Provided technical oversight to windblown dust issues at Owens Lake, Mono Lake, and the Salton Sea. Served as a member of the Oceano Dunes State Vehicle Recreation Area Scientific Advisory Group, and as a member of the Salton Sea Task Force's Science and Air Quality Committees.

5/93 to 6/06 Partner
Sierra Research

4/88 to 5/93 Senior Engineer
Sierra Research

Worked as a partner and project manager in a consulting firm specializing in air quality analysis and management. Experience included management of regulatory development and project evaluation services for governmental clients; management of process, control, and instrumentation design; emission and impact evaluation; and compliance strategy services for private clients. Technical contributions included air quality modeling, combustion modeling, control equipment design and analysis, ambient air quality analysis, ambient and stack sampling project design, screening risk assessment, permit development, and particulate matter and fugitive dust emission factor development services for a variety of projects, including those related to power production, cogeneration, industrial boilers, geothermal activities, mineral extraction and processing, lumber production, toxic waste treatment, fugitive dust, and Superfund remediation.

7/75 to 4/88 Air Basin Engineer
Mountain Counties Air Basin,
Lake Tahoe Air Basin

Established and managed a consulting practice providing exclusive and comprehensive technical services to an association of nine county air pollution control districts in the Sierra Nevada region of California. Drafted numerous amendments to the air basin plan in implementing federal and state mandates and responding to new local problems. Developed annual budgets for a number of districts. Developed ozone nonattainment plans for El Dorado and Mariposa Counties. Drafted and implemented the first local Prevention of Significant Deterioration program in rural California. Analyzed compliance with emission limits and ambient air quality standards for all major and many minor new and modified source applications within the nine county region. Developed comprehensive stationary and area source emission inventories for the Mountain Counties Air Basin (1977) and for the Lake Tahoe Ozone Nonattainment Plan (1981). Certified all test plans and oversaw all stationary source testing in the Air Basin.

Served as the Co-Chairman of the CAPCOA-ARB New Source Review Rule Committee that developed the 1982 CAPCOA NSR rule which served for many years as a model regulation for the permitting of new sources by districts. Drafted and successfully lobbied several legislative bills amending the relationship between districts and the California Air Resources Board and authorizing experimental programs seeking innovative solutions to air quality problems. Drafted language and lobbied for passage of AB 3374 (1986), the second Calderon landfill testing bill, which refocused priorities on active landfills and adopted more cost effective monitoring protocols for small rural landfills.

8/73 to 1/75 Air Pollution Control Officer
County of Sierra

Served as the program manager of a rural county air pollution control district. Developed and implemented compliance plans for two timber processing facilities. Managed the accounting, budget, reporting, permit review, and air quality monitoring functions of the agency. Developed the technical justification for formation of the Mountain Counties Air Basin to supplant the mountain portions of the Sacramento and San Joaquin Valley Air Basins. Drafted major portions of the first Air Basin Plan and related regulations.

Credentials, Memberships, and Awards

Qualified Environmental Professional, Air Pollution; Institute of Professional Environmental Practice
Registered Civil Engineer, California
Member, Air and Waste Management Association
Outstanding Individual, 1994 Summer Smog Season Campaign, Partners for Clean Air, Sacramento, California
Clean Air Award, American Lung Association of Sacramento-Emigrant Trails, 1996
Environmentalist of the Year Award, Environmental Council of Sacramento, 1997
Pottenger Award for Volunteer Service, American Lung Association of California, 2002

Résumé of
RALPH PROPPER

Education

BA Chemistry, Brandeis University
PhD Chemistry (all but dissertation), University of Chicago
MPH Environmental Health, Boston University Medical School

Professional Experience

Toxicology research assistant:
MIT, Stanford University, UC Berkeley, UC San Francisco

Air Pollution Research Specialist, CA Air Resources Board 1984-2015
Focus: Diesel Exhaust regulation, air toxics control

Chemistry Professor, UC Davis and Sacramento City College 2015-2018

Current Board Member, and past board president of both:
* Breathe California Sacramento Region, and
* Environmental Council of Sacramento

Publication

Propper, R., Wong, P., Bui, S., Austin, J., Vance, W., Alvarado, Á., Croes, B., & Luo, D. (2015). Ambient and Emission Trends of Toxic Air Contaminants in California. *Environmental science & technology*, 49(19), 11329–11339. https://doi.org/10.1021/acs.est.5b02766

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File No. 82581.00001

January 23, 2026

VIA E-MAIL
CEQA@saccounty.gov

Sacramento County
Department of Community Development,
Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Re: Partially Recirculated Draft Environmental Impact Report for the Upper Westside Specific Plan (State Clearinghouse No 2020100069, County Control Number PLNP2018-00284)

To Whom It May Concern:

This law firm represents the Natomas Basin Conservancy ("Conservancy") as its general counsel, and submits this comment letter on the Conservancy's behalf. The Conservancy appreciates the opportunity to submit these comments regarding the Partially Recirculated Draft Environmental Impact Report ("PRDEIR") for the Upper Westside Specific Plan ("Specific Plan") that has been prepared by the County of Sacramento ("Sacramento County") for public review pursuant to the California Environmental Quality Act (Cal. Pub. Res. Code §§ 21000–21189.3) ("CEQA"). Interested parties are encouraged to submit input regarding "the adequacy and thoroughness of the environmental analysis" related to the Specific Plan. PRDEIR at 1-3. The Conservancy respectfully submits that the environmental analysis pertaining to the Specific Plan's new water supply option as described in the PRDEIR ("New Water Supply Option") is wholly inadequate and lacks the thoroughness required under CEQA. The Conservancy is highly concerned that the PRDEIR and Final Environmental Impact Report ("FEIR") will negatively impact protected species and existing habitat conservation plans in the Natomas Basin.

250-1

The Conservancy's comments address five primary concerns regarding the environmental analysis contained in the PRDEIR and related FEIR:

1. The PRDEIR and FEIR fail to analyze potentially significant impacts that the New Water Supply Option will have on agricultural land that is critical for conservation in the Natomas Basin;

2. The PRDEIR and FEIR fail to consider and adhere to specific orders issued by the federal court that upheld the existing habitat conservation plans in the Natomas Basin;

3. The PRDEIR and FEIR fail to analyze potential impacts on terrestrial species protected under state and federal law;

4. The Specific Plan as described in the PRDEIR and FEIR threatens to interfere with contractual obligations of parties to the agreement implementing existing habitat conservation plans in the Natomas Basin; and

5. New information in the PRDEIR on potential environmental impacts requires recirculation of the FEIR in its entirety.

250-1 cont.

I. STATEMENT OF INTEREST

a. Background on the Natomas Basin Conservancy

The Conservancy was incorporated on October 21, 1994, as a California non-profit public benefit corporation and has operated since February of 1999. The Conservancy's primary purpose is to implement two habitat conservation plans, the Natomas Basin Habitat Conservation Plan ("NBHCP") and the Metro Air Park Habitat Conservation Plan ("MAPHCP") (together referred to as the "HCPs" or the "Plans"). In this role, the Conservancy acquires and manages land to fulfill the objectives of the HCPs. Its work also includes incorporating acquired land to advance objectives of the Plans through habitat enhancement, marsh and wetland management, biological monitoring and data collection, and on-the-ground experiments to support conservation throughout the Natomas Basin.

Under the HCPs, habitat mitigation fees and acquired mitigation lands are held by the Conservancy to advance mitigation objectives for the benefit of protected species in the Natomas Basin. To date, the Conservancy has acquired more than 5,300 acres of land to fulfill these mitigation requirements. In addition, substantial financial investments have been made toward implementation of the HCPs totaling more than $139 million in fees and fee-related income. *See*, *The Natomas Basin Conservancy, 2024 Implementation Annual Report* (June 24, 2025), available at https://natomasbasin.org/reports/annual-reports/. These investments are in addition to the significant commitments made by HCP proponents/permittees — the City of Sacramento and Sutter County — to achieve and maintain compliance with the Plans under state and federal law.

250-2

b. Formulation of the Plans

The development of the HCPs spanned more than fifteen years and involved numerous iterations and several legal challenges. The resulting 50-year plan encompasses 53,537 acres of land historically used for agriculture. The HCPs and associated permits cover twenty-two listed or candidate species under the federal Endangered Species Act ("ESA") (16 U.S.C. §§ 1531–1544) and the California Endangered Species Act ("CESA") (Cal. Fish & Game Code §§ 2050–2116).

250-3

The Plans are designed to promote the long-term conservation of these covered species while accommodating authorized and limited urban development. In 2003, the parties to the NBHCP — the Conservancy, the City of Sacramento, Sutter County, the U.S. Fish and Wildlife Service ("USFWS"), and the California Department of Fish and Wildlife ("CDFW") — entered into an Implementation Agreement establishing the mechanisms for carrying out the NBHCP.

The Plans authorize development of up to 17,500 acres within the Natomas Basin in the City of Sacramento and the Sutter County. Under the NBHCP and the Implementation Agreement, the City of Sacramento agrees not to approve more than 8,050 acres of development, and Sutter County agrees not to approve more than 7,467 acres of development within their respective designated "Permit Areas."[1] The Plans establish a comprehensive, long-term conservation program — implemented by the Conservancy as plan operator — for the twenty-two covered species, while allowing for limited development to proceed within the Permit Areas.

250-3 cont.

The NBHCP and Implementation Agreement establish the terms and conditions necessary to support issuance of incidental take permits ("ITPs") by USFWS under Section 10(a)(1)(B) of the ESA and CDFW under Section 2081 of CESA. The ITPs issued to the City of Sacramento and Sutter County authorize incidental take of the covered species within the Permit Areas. To support issuance of these permits, the NBHCP and Implementation Agreement require substantial mitigation measures, including acquisition of mitigation lands at a ratio of 0.5 acre of protected habitat for every 1 acre of land converted to development. Under these requirements, the Conservancy is responsible for the permanent preservation of 8,750 acres of land to be managed as wildlife reserves. This includes 4,375 acres that will remain in rice cultivation under the Conservancy's management to benefit protected species.

c. Federal Court Order

The NBHCP was upheld as satisfying the requirements of the ESA by a federal court order issued on September 7, 2005. *Nat'l Wildlife Fed'n v. Norton*, No. CIV-S-04-0579, 2005 WL 2175874 (E.D. Cal. Sept. 7, 2005) ("Federal Court Order"). A central premise of the court's decision was that any development beyond the 17,500 acres authorized under the Natomas Basin HCP would require additional assessment to ensure consistency with the Plan. Any project that threatens protected species and the HCPs must therefore be carefully scrutinized under the Federal Court Order.

250-4

Specifically, the Federal Court Order requires that any further development necessitates a "new evaluation" of impacts to protected species and a "reevaluation of [the] efficiency of the NBHCP in light of proposed development." *Id*. at *11. In addition, the court emphasized that "[f]urther federal review will be required under any scenario that could impact the efficacy of the NBHCP." The Federal Court Order anticipated comprehensive review of any development

[1] An additional 1,983 acres of development is allocated to the Metro Air Park project in Sacramento County under the MAPHCP and is analyzed within the NBHCP.

proposed outside the Permit Areas, noting that "[i]f and when a concrete development proposal is put forth, it will be the subject of additional federal and state environmental review." *Id*. at 11–12.

A key footnote in the Federal Court Order describes the Court's reasoning and conclusions in upholding the NBHCP:

> The court notes, however, that the [U.S. Fish and Wildlife] Service and those seeking an ITP in the future will face an **uphill battle** if they attempt to argue that additional development in the Basin beyond 17,500 acres will not result in jeopardy. The NBHCP, BiOp, EIR/EIS, and Findings and Recommendations are all predicated on the assumption that development in the Basin will be limited to 17,500 acres and that the remaining lands will remain in agricultural use.

Id. at *12 (emphasis added).

In short, under the Federal Court Order, any expansion of development requires full analysis of environmental impacts under state and federal law, including an evaluation of impacts on protected species.

250-4 cont.

The PRDEIR and related FEIR for the Specific Plan propose development of 2,066 acres that is outside the Permit Areas and in addition to the 17,500 acres authorized under the Plans. The Federal Court Order therefore requires the impacts of the Specific Plan — notably its potential impacts on the efficacy of the HCPs — to be carefully evaluated.

The obligation to carefully evaluate impacts of further development on the efficacy of the Plans falls not on the signatories and permittees of the two adopted HCPs. These entities have already committed and continue to invest significant time and resources into those Plans. Rather, proponents of additional development must themselves demonstrate — through the environmental review process — that proposed plans for further development will not impact the efficacy of the HCPs or that these impacts are adequately mitigated. *See,* Federal Court Order at *10 (emphasizing that "further development or action by any other entity would require additional federal approvals").[2] Through independent environmental review, project proponents — not HCP signatories and permittees — have the responsibility of proving that additional development will not negatively impact the efficacy of the Plans.

250-5

Moreover, it is critical that third-party project proponents and lead agencies such as Sacramento County recognize that HCP permittees have vested reliance interests in the state and

250-6

[2] It is important to note that while the Federal Court Order emphasizes the federal approval process, state environmental review also requires full analysis of the potentially significant impacts that a project may have on applicable regional plan including existing habitat conservation plans and natural community conservation plans. *See,* Cal. Code Regs. tit. 14, § 15125.

federal issued ITPs. To the extent that proposed development may affect these permits — including through potentially significant impacts on protected species and habitat covered under the Plans — these impacts must be thoroughly evaluated through the environmental review process. As further described below, CEQA specifically mandates a finding of significance where a project threatens to substantially reduce the habitat of a protected species or jeopardize the integrity of an adopted habitat conservation plan. *See*, Cal. Code Regs. tit. 14, §§ 15065, 15125.

250-6 cont.

The Conservancy is highly concerned with the PRDEIR's inadequate environmental analysis, which fails to satisfy what is required under state and federal law. If deficiencies of the PRDEIR and related FEIR are not addressed, they may impair the Conservancy's ability to fulfill its obligations under the Plans in a manner that maintains consistency with the Federal Court Order.

II. COMMENTS

a. The PRDEIR fails to analyze the significant environmental impacts of removing agricultural land from production

CEQA requires analysis of the potentially significant impacts that a project may have on applicable regional plans including existing habitat conservation plans and natural community conservation plans. Cal. Code Regs. tit. 14, § 15125. In addition, CEQA requires an evaluation of the potentially significant impacts of the conversion of farmland to non-agricultural use. Cal. Code Regs. tit. 14, § Div. 6 Ch. 3 App. G. The PRDEIR and FEIR fall short in their analysis of the effects of the Specific Plan on the existing HCPs in the Natomas Basin and fail to adequately address impacts resulting from urbanization of farmland.

Instead of providing an analysis of these impacts, the FEIR incorrectly concludes that the Specific Plan does not conflict with the existing Natomas Basin HCPs, and the PRDEIR reiterates this unsupported conclusion. Urbanization of agricultural land in the Natomas Basin — in a manner that is inconsistent with the HCPs and for which sufficient environmental review has not been conducted – threatens the Conservancy's ability to ensure implementation of the Plans consistent with the ITPs, Implementation Agreement, and the Federal Court Order.

250-7

i. Importance of agricultural land under the HCPs

The PRDEIR and FEIR fail to acknowledge that the conservation of agricultural land is a central component — perhaps *the* central component — of the HCPs. As noted above, the Conservancy is responsible for the permanent preservation of 8,750 acres of land to be managed as wildlife reserves, including 4,375 acres that will remain in rice cultivation under the Conservancy's management to benefit protected species. The proposed urbanization of agricultural land would be significantly advanced by the changes contemplated under the New Water Supply Option described in the PRDEIR, which is in direct conflict with the management goals established under the Plans. Because the PRDEIR and FEIR do not analyze the anticipated impacts of converting agricultural land to urban uses, they fall short of CEQA's requirements.

ii. Urbanization of agricultural land under the New Water Supply Option

Under the New Water Supply Option of Alternative 5, the Sacramento County Water Agency would enter into an agreement for wholesale purchase of raw water from the Natomas Central Mutual Water Company ("NCMWC"). NCMWC sources its surface water supply from the Sacramento River through a settlement agreement ("Settlement Agreement") with the U.S. Bureau of Reclamation ("Reclamation").

NCMWC currently provides surface water from the Sacramento River for agricultural uses in the Natomas Basin. PRDEIR at 2-34. The New Water Supply Option in the PRDEIR contemplates that NCMWC would convert water historically used for agricultural purposes to delivery for municipal uses to serve new development under the Specific Plan. PRDEIR at 2-6. This would require NCMWC to request modification of its Settlement Contract with Reclamation and seek amendments to its state water rights permits to change from strictly agricultural uses — as currently authorized under the Settlement Contract and permits — to include municipal and industrial uses. PRDEIR at 2-34. 250-8

Importantly, the central idea of the New Water Supply Option under Alternative 5 is that existing agricultural land uses would convert to developed land uses. PRDEIR at 2-40. However, despite clear direction under CEQA, the PRDEIR neglects to analyze the environmental impacts of the shift in land use from agricultural to municipal. Rather than analyze these impacts, the PRDEIR simply states that impacts related to agricultural resources "would be like those described for the proposed UWSP, as the same amount of farmland within the UWSP area would be converted to urban uses," thus relying on the FEIR's inadequate analysis of impacts on agricultural resources. *See*, PRDEIR at 2-49.

The Supreme Court of California has held that a conclusory discussion of a potentially significant environmental impact is not adequate under CEQA. *See*, *Sierra Club v. Cnty. of Fresno*, 6 Cal. 5th 502, 514, 431 P.3d 1151, 1160 (2018) (describing that a "conclusory discussion of an environmental impact that an EIR deems significant can be determined by a court to be inadequate as an informational document without reference to substantial evidence").

The FEIR's discussion of impacts on agricultural land was cursory at best and wholly inadequate to satisfy requirements under CEQA. In its conclusory finding that impacts on agricultural resources would be less than significant, the FEIR relies on the fact that the Specific Plan contemplates the gradual transition of residential uses towards an "agricultural buffer zone" that would provide 542 acres for continued agricultural use within the Specific Plan area. *See*, FEIR at 5-25. 250-9

The agricultural buffer zone is insufficient to mitigate the significant impacts of urbanizing agricultural land in the Natomas Basin, as contemplated under the Specific Plan. Conserving 542 acres is meager when compared to the 2,066 acres of farmland proposed for development. This imbalance would result in the development of approximately four acres for every one acre conserved. Notably, the federal court upheld the NBHCP based on the expectation that one acre

of land would be conserved for every two acres developed. *See*, Federal Court Order at *1. The PRDEIR's conclusion that impacts on agricultural resources will be less than significant due to the agricultural buffer zone fails to meet CEQA's requirement for a thorough evaluation of potentially significant impacts.[3]

250-9 cont.

Moreover, mitigation cannot be deferred unless an agency commits to specific permit conditions, agreements, or other enforceable mechanisms. *See*, Cal. Code Regs. tit. 14, § 15126.4 (requiring that "[m]itigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instrument"). To the extent Sacramento County plans to rely on deferred mitigation where the loss of agricultural land is mitigated on a project-by-project basis at a later date, it is important to note that this approach is not authorized under CEQA.

250-10

In addition, it is important to fully consider the reality that each acre of the NCMWC service area removed from agricultural production has the impact of raising costs for all other shareholders of the mutual organization, who will experience a considerable financial burden. That is, fixed costs (non-water usage component of water rates) must be spread over a decreased shareholder base. The PRDEIR and FEIR fail to consider these impacts, and this deficiency must be addressed. The analysis must fully evaluate how the impacts of removing agricultural land from production will be addressed so that the Specific Plan's negative externalities do not burden the remaining NCMWC shareholders.

250-11

In short, the New Water Supply Option described in the PRDEIR directly contradicts the conservation goals of two adopted HCPs in the Natomas Basin and would negatively impact agricultural land that is critical for habitat of protected species in the basin. CEQA requires these impacts to be addressed. Moreover, as described below, the Specific Plan's impacts on habitat for protected species and the availability of agricultural land in the Natomas Basin is in clear conflict with the Federal Court Order upholding the HCPs.

250-12

b. The PRDEIR fails to consider the Federal Court Order that establishes limitations development in the Natomas Basin

The HCPs cover the entire Natomas Basin and provide concrete mitigation measures to minimize the impacts of the 17,500 acres of planned development on twenty-two covered species. The Specific Plan contemplates development of an additional 2,066 acres, which could permanently disturb or degrade habitat and foraging areas essential to species protected under the Plans. This proposal presents potentially significant impacts on the long-term implementation and success of the Plans, with or without the mitigation measures contemplated by Sacramento County.

250-13

[3] In addition to the agricultural buffer zone, the FEIR contemplates that a "project proponent shall mitigate the loss of farmland within the plan area, except as otherwise specified in General Plan Policy AG-5 (as amended with UWSP approval), based on a 1:1 ratio through the specific planning process or individual project entitlement requests to provide in-kind or similar resource value protection (such as easements for agricultural purposes)." This project-by-project approach provides no concrete plans for conservation of agricultural land or other forms of mitigation. Without any commitment to conserve agricultural land outside of the agricultural buffer zone, the PRDEIR and FEIR offer no assurance to impacted parties that the significant loss of farmland contemplated under the Specific Plan will actually be mitigated.

The Conservancy is deeply concerned that the proponent has dismissed — in a conclusory manner — all comments regarding the potential for the Specific Plan to impede implementation of the existing NBHCP and MAPHCP. Moreover, the PRDEIR and Specific Plan fail to address potential issues related to compliance with the Federal Court Order. 250-13 cont.

i. Conflict with the Federal Court Order

The Specific Plan described in the PRDEIR and related FEIR directly conflicts with the Federal Court Order, which establishes clear limitations on the urbanization of agricultural land in the Natomas Basin. *See*, Federal Court Order at *12 (stating that "[t]he NBHCP, BiOp, EIR/EIS, and Findings and Recommendations are all predicated on the assumption that development in the Basin will be limited to 17,500 acres and that the remaining lands will remain in agricultural use"). The Federal Court Order makes clear that the remaining agricultural lands in the Natomas Basin are intended to support the conservation goals of the Plans. Urbanization of 2,066 acres of farmland proposed for development under the Specific Plan is in direct conflict with these judicially recognized limitations on development. 250-14

In addition, as noted above, the Federal Court Order describes the "uphill battle" that developers will face for any project that would urbanize additional agricultural land in the Natomas Basin beyond the 17,500 acres contemplated under the Plans. Federal Court Order at *12. Despite these clear guardrails from the federal court, Sacramento County has characterized comments regarding the Federal Court Order as "not relevant." *See*, FEIR at 26-184. Sacramento County fails to recognize that the environmental analysis for the Specific Plan — including the analysis of the New Water Supply Option under Alternative 5 — must be evaluated in light of the Federal Court Order. Sacramento County's dismissal of the Federal Court Order as not relevant demonstrates that its approach to environmental analysis in the PRDEIR and FEIR is not only inadequate under CEQA but also inconsistent with the requirements of federal law. 250-15

ii. Land availability in the Natomas Basin

As noted above, a key component of the Plans is the ability of the Conservancy to acquire sufficient conservation land within the defined Natomas Basin area to meet the 8,750 acres of land that will be maintained as wildlife reserve. In upholding the NBHCP, the federal court specifically noted that this HCP is premised on the "requirement…that the NBC will never be unable to find and acquire mitigation lands…." Federal Court Order at *3. The Specific Plan as described in the PRDEIR and FEIR puts this premise as risk by urbanizing 2,066 acres of farmland that could otherwise be preserved for mitigation and thus inhibiting the Conservancy's ability to find and acquire agricultural land suitable for preservation. The PRDEIR and related FEIR fail to adequately consider the impacts that the Specific Plan will have in the overall context of the limited acreage of land available for mitigation in the Natomas Basin. 250-16

iii. Connectivity of habitat for protected species

The Federal Court Order recognizes that habitat connectivity is an essential component of the NBHCP and emphasizes the importance of "provisions of the NBHCP that preserve 250-17

connectivity." Federal Court Order at *14. The Specific Plan jeopardizes the effectiveness of the habitat connectivity, a core and foundational element of the HCPs. *See*, U.S. Department of the Interior, Fish and Wildlife Service, *Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to the City of Sacramento and Sutter County for Urban Development in the Natomas Basin, Sacramento and Sutter Counties, California* ("Biological Opinion") (June 24, 2023) (stating that "[o]ne of the primary goals of the NBHCP is to ensure connectivity between individual reserves, and connectivity between reserves and surrounding agricultural lands").

Habitat connectivity enables the necessary mobility of species within their ranges and is essential to ensuring the long-term viability of wildlife populations in the basin. *Id*. at 33. USFWS has highlighted the importance of connectivity, noting that land acquisitions by the Conservancy are specifically aimed at reducing fragmentation and isolation of habitat reserves for key protected species such as the giant garter snake. *Id.* at 34. For key protected species under the Plans, such as the giant garter snake, USFWS determined that the loss and subsequent fragmentation of habitat is the primary threat, stating:

> At the time of listing, habitat loss as a result of urbanization and conversion of wetlands was recognized as the primary Factor A threat to the giant garter snake. **Today, habitat loss and fragmentation due to urbanization and changes in the levels and methods of rice production are the largest threat to the giant garter snake**.

U.S. Fish & Wildlife Service, *Recovery Plan for the Giant Garter snake (Thamnophis gigas)*, Pacific Southwest Region ("Giant Garter Snake Recovery Plan") (Sept. 28, 2017) (emphasis added).

The Conservancy is highly concerned that the proposed action could adversely impact its responsibilities under the HCPs by impeding habitat connectivity, the importance of which has been highlighted by USFWS and emphasized in the Federal Court Order.

Importantly, the Specific Plan would result in substantial development located adjacent to existing mitigation lands acquired under the HCPs. The introduction of urbanization and associated high-traffic corridors in the vicinity of these mitigation lands threatens to degrade the biological value of the existing conservation lands acquired and managed under the HCPs. The PRDEIR and FEIR fail to consider or analyze impacts on habitat connectivity and therefore not only fall short of CEQA requirements but also are inconsistent with a key aspect of the Federal Court Order.

250-17 cont.

iv. Negative externalities on parties who have made substantial investments towards the success of the Natomas Basin HCPs

Implementation of the Natomas Basin HCPs has resulted in more than $100 million in mitigation investments for these regional plans. Additionally, the two HCP proponents/permittees — Sutter County and the City of Sacramento — have dedicated substantial resources to acquiring mitigation lands, defending the Plans, and maintaining compliance with state and federal law under their respective ITPs. Proposed development without adequate compensatory mitigation places these public investments and the parties' commitments under the HCPs at significant risk.

The federal court that upheld the NBHCP recognized the importance of these public investments and acknowledged the intent that public investments would be protected in part through regulatory scrutiny of any additional development in the Natomas Basin by non-permittees. *See*, Federal Court Order at *10 (emphasizing that "further development or action by any other entity would require additional federal approvals"). The PRDEIR and related FEIR prepared by Sacramento County — an entity that opted not to participate in the HCPs — fail to account for the negative externalities the proposed project would impose on the parties that have invested in the HCPs and on the general public that benefits from their successful implementation.

Moreover, CEQA specifically requires a regional perspective of impacts on external parties. An EIR "must include a description of the physical environmental conditions in the vicinity of the project…from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." Cal. Code Regs. tit. 14, § 15125. California courts have interpreted this CEQA Guideline broadly in order to "afford the fullest possible protection of the environment." *See*, *Kings Cnty. Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692, 720 (1990). The intent of CEQA's regional perspective is to ensure the EIR's analysis of significant effects is as accurate as possible. *Friends of the Eel River v. Sonoma Cnty. Water Agency*, 108 Cal. App. 4th 859, 874 (2003).

Here, the PRDEIR fails to consider impacts of the Natomas Basin from a regional perspective — including the negative externalities on interested parties that have made substantial investments into the existing HCPs — as required under CEQA. This deficiency must be addressed to ensure compliance with CEQA's requirement to ensure a regional perspective and the Federal Court Order's recognition of the need to protect public investments made by interested parties in the region.

250-18

c. The PRDEIR and FEIR fail to adequately evaluate potential impacts on protected terrestrial species

As noted above, the HCPs establish a multi-species conservation program designed to mitigate the expected loss of habitat values and the incidental take of species protected under state and federal law. These Plans have been effective in preserving, restoring, and enhancing habitat values in the Natomas Basin while allowing urban development to proceed in accordance with local land use plans.

250-19

Importantly, the HCPs provide the basis for issuance of ITPs under Section 10(a)(1)(B) of the ESA and Section 2081 of CESA. Section 10(a)(1)(B) of the ESA allows incidental take of endangered or threatened species subject to its permit requirements. Similarly, Section 2081 of the California Fish and Game Code allows CDFW to enter into management agreements that allows activities which may otherwise result in habitat loss or take of individuals of a state-listed species.

The HCPs and their associated permits authorize covered activities that may result in incidental take of twenty-two protected species that are critical to the ecological health of the Natomas Basin. Coverage under the Plans applies only to the activities of the proponents/permittees (i.e., Sutter County and the City of Sacramento), who must comply with the comprehensive species-protection requirements established under the Plans. As noted above, Sacramento County is not a permittee and therefore has an independent obligation — outside the HCPs — to ensure compliance with state and federal endangered species laws.

The PRDEIR is insufficient in its evaluation of effects on protected endangered species because it arbitrarily limits the analysis to impacts on aquatic habitat and species. This narrow scope is highly concerning to the Conservancy and, as described below, must be addressed to ensure compliance with not only CEQA but also state and federal endangered species law.

250-19 cont.

i. CEQA requires an evaluation of impacts on protected species

CEQA requires analysis of whether a project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species. Cal. Code Regs. tit. 14, § Div. 6 Ch. 3 App. G. A project may have a significant effect on the environment where it threatens to substantially reduce habitat of a protected fish or wildlife species. Cal. Code Regs. tit. 14, § 15065. CEQA Guidelines describe that an impact may be considered significant if the project or alternative includes any of the following:

> A substantial adverse effect, either directly or through habitat modification, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS; or
>
> Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Cal. Code Regs. tit. 14, § 15000 app. G (2025).

250-20

Despite this clear direction under CEQA, the PRDEIR fails to analyze the potentially significant impacts on any terrestrial species. Instead, it limits its review to "the potential effects of diverting water from the Sacramento River at the Riverside Pumping Plant on aquatic habitat and species that may be present in the river" and asserts that "terrestrial biological resources that could be affected by the proposed UWSP were addressed in Draft EIR Chapter 7, Biological Resources." PRDEIR at 2-6.

The New Water Supply Option described in the PRDEIR contemplates changes that could affect the habitat of a variety of terrestrial species protected under state and federal law. As the PRDEIR explains, this option would increase pumping and annual diversions from the Sacramento River and alter the seasonality of those diversions compared to existing conditions. *See*, PRDEIR at 2-6 (stating that the "change in the use of diverted water at the Riverside Pumping Plant would lead to an increase in annual diversions and a change in seasonality of diversions compared to existing conditions").

Despite acknowledges these changes, the PRDEIR fails to evaluate how an increase in annual diversions and changes in seasonality could result in adverse habitat impacts for all candidate, sensitive, and special-status species, *including terrestrial species*. Simply concluding that only aquatic species warrant consideration is wholly inadequate to satisfy CEQA's requirements.

250-20 cont.

In particular, the Conservancy is concerned about potentially significant impacts on the habitat of the twenty-two species covered under the HCPs. While it is imperative to consider potential impacts on aquatic species in the Natomas Basin, it is equally imperative that Sacramento County fully evaluate the impacts the Specific Plan may have on each of the species covered under the HCPs. The giant garter snake, for example, has specific habitat requirements that include summer aquatic habitat for foraging, bankside basking areas, and wetlands with high-quality vegetation. *See*, Giant Garter Snake Recovery Plan at (iii). Increased annual diversions and changes in seasonality of pumping as contemplated under the New Water Supply Option could have potentially significant effects on these essential habitat components.

The PRDEIR's conclusory statement that terrestrial species are not impacted is a clear deficiency that must be addressed. The PRDEIR fails to consider the potential impacts that changes in water diversions and seasonality could have on habitat for terrestrial species. This issue is particularly important because the Specific Plan anticipates that these changes will occur in areas adjacent to mitigation lands established under the HCPs. At the minimum, it is necessary for the PRDEIR to include an evaluation of the actions that may be necessary to sustain habitat conditions for the twenty-two species covered under the NBHCP and MAPHCP.

ii. State and federal endangered species law requires an independent assessment of potential impacts on protected species

250-21

Section 9 of the ESA prohibits the "take" of federally endangered or threatened wildlife species. *See*, 16 U.S.C. § 1538(a)(1)(B). Similarly, Section 2080 of CESA prohibits the take of state-listed threatened and endangered species. *See*, Cal. Fish & Game Code § 2080. As noted

above, the HCPs provide the basis for issuing ITPs under Section 10(a)(1)(B) of the ESA and Section 2081 of CESA. These permits authorize incidental take to a defined extent and only for activities covered under the Plans. The Conservancy and the HCP proponents/permittees actively coordinate with state and federal wildlife agencies to ensure compliance with these permits and the successful implementation of the conservation programs.

The plan for the New Water Supply Option under the PRDEIR is highly concerning to the Conservancy because the document contains an inadequate analysis of compliance with state and federal endangered species law. As noted above, changes in diversions and seasonality could affect habitat for species protected under the ESA and CESA. Such impacts may result in unauthorized take of protected terrestrial species. In turn, unauthorized take could undermine the efficacy of the HCPs and impede the Conservancy's ability to fulfill its responsibilities under the Plans. Indeed, the federal court that upheld the HCPs emphasized the need for careful review of any action that may affect implementation of these Plans. *See*, Federal Court Order at *11 (noting that "further federal review will be required under any scenario that could impact the efficacy of the NBHCP").

250-21 cont.

The PRDEIR contains no discussion of the potential for "take" of terrestrial species protected under the ESA and CESA. In addition, the PRDEIR provides no detail regarding avoidance or mitigation measures that may be necessary to protect habitat for these species, nor does it identify any concrete mitigation commitments. These omissions are particularly concerning to the Conservancy with respect to the twenty-two species covered under the HCPs, and these deficiencies must be addressed to ensure compliance with state and federal endangered species law.

iii. Endangered species law requirements must be integrated into the CEQA process

CEQA requires that federal and state endangered species laws are integrated *during* the process, not postponed for a later date when permits are sought. *See*, Cal. Code Regs. tit. 14, § 15124 (requiring that "the lead agency should integrate CEQA review with these related environmental review and consultation requirements"). Here, Sacramento County has ignored its obligation to integrate CEQA review with the requirements of the ESA and CESA, giving little to no consideration to permits required under these laws. Rather than include the required analysis, the description of the potential impacts of the New Water Supply Option on protected species simply states that its impact analysis "assumes that implementation of Alternative 5 would comply with existing applicable regulatory and permitting requirements." PRDEIR at 2-24.

250-22

This approach falls short of CEQA requirements. The California Supreme Court has held that CEQA specifically calls for consideration of relevant regulatory requirements, such as the ESA and CESA, when discussing project alternatives such as the New Water Supply Option under Alternative 5. *See, Banning Ranch Conservancy v. City of Newport Beach*, 2 Cal. 5th 918, 936, 392 P.3d 455, 467 (2017) (stating that "CEQA Guidelines specifically call for consideration of related regulatory regimes…when discussing project alternatives"). The PRDEIR's failure to fully

consider and integrate the requirements of the ESA and CESA is a deficiency that must be addressed. 250-22 cont.

d. The PRDEIR and FEIR threaten to directly interfere with contractual obligations of parties to the Implementation Agreement

The Implementation Agreement for the NBHCP is a contractual agreement among the Conservancy, USFWS, CDFW, City of Sacramento, and Sutter County. It establishes specific rights, obligations, and assurances governing how habitat conservation and development must be carried out in the Natomas Basin. In particular, the Implementation Agreement outlines measures to avoid and minimize "take" of covered species, as well as mitigation requirements, including conservation of agricultural lands that provide essential habitat for protected species. The PRDEIR and related FEIR — in advancing urbanization of agricultural areas without regard to the limited acreage of farmland in the basin — risk undermining and interfering with the Conservancy's contractual obligations under the Implementation Agreement.

The Supreme Court of California has long recognized that contractual interference claims may arise due to a party's performance being made more costly or burdensome. *See*, *Pac. Gas & Elec. Co. v. Bear Stearns & Co*., 50 Cal. 3d 1118, 1129 (1990) ("We have recognized that interference with the plaintiff's performance may give rise to a claim for interference with contractual relations if plaintiff's performance is made more costly or more burdensome"). 250-23

Here, the PRDEIR threatens not only the financial viability but also the fundamental feasibility of the Conservancy's obligations under the Implementation Agreement. By proposing a Specific Plan that would impede the acquisition of essential mitigation lands and allowing development within the protected Swainson's Hawk Zone, Sacramento County is creating conditions that directly obstruct the Conservancy's ability to meet its performance mandates under the HCPs. Such an interference with a contractually bound conservation framework constitutes a significant and unmitigated impact that must be addressed.

i. The Conservancy's obligation to acquire mitigation lands

The Implementation Agreement requires the Conservancy to "[a]cquire, locate, operate, and maintain Mitigation Lands" in accordance with the terms and conditions of the NBHCP and the Agreement. *See*, Implementation Agreement, subparagraph 3.2 at 7. This obligation must be fulfilled prior to the approval of any authorized development under the NBHCP, with an additional 200-acre "cushion" of mitigation lands required before development approval. Implementation Agreement, subparagraph 5.5 at 16. Issuance of the incidental take permits by USFWS and CDFW is expressly conditioned on meeting these contractual obligations, and so long as the NBHCP's terms are properly implemented, these agencies are prohibited from requiring additional mitigation measures. *See*, Implementation Agreement, subparagraphs 6.1 and 6.2 at 17-20. 250-24

The significant urbanization of agricultural land proposed in the PRDEIR and related FEIR threatens to frustrate the Conservancy's contractual obligation to acquire mitigation lands. The Conservancy is highly concerned that there may not be a sufficient amount of suitable agricultural

land remaining in the Natomas Basin to meet its obligations under the Implementation Agreement if the Specific Plan is approved. The PRDEIR and FEIR fail to assess whether the additional 2,066 acres proposed for development would compromise the acquisition of mitigation lands that is already required under the existing HCPs and binding upon the Conservancy under the Implementation Agreement. Without such an analysis, it is impossible to determine whether the Specific Plan would directly interfere with the Conservancy's contractual obligation to acquire mitigation land.

The Conservancy has a legal obligation to ensure it can fulfill its responsibilities under the existing HCPs and the Implementation Agreement, including the acquisition of mitigation lands. It is imperative that the PRDEIR and FEIR fully consider the Conservancy's contractual obligations with respect to acquiring and maintaining these mitigation lands.

250-24 cont.

ii. Swainson's Hawk One-Mile Buffer Zone

The NBHCP and Implementation Agreement prohibit development in a one-mile-wide strip of land adjacent to the Sacramento River, known as the Swainson's Hawk Zone. *See*, Implementation Agreement, subparagraph 3.1.2 at 4. This zone was explicitly established in the NBHCP to protect essential habitat for the Swainson's hawk, a threatened species under CESA. *See*, NBHCP, Chapter 9 at VII-11. Development within the Swainson's Hawk Zone is categorically prohibited under the existing NBHCP, with the sole exception of 252 acres approved for development by the City of Sacramento. *See*, Implementation Agreement, subparagraph 3.1.2(a) at 4.

The analysis in the PRDEIR and related FEIR for the Specific Plan indicates that significant portions of the proposed development would encroach into the Swainson's Hawk Zone. Such development would fundamentally conflict with the legal obligations of the parties to the NBHCP, which is premised on the exclusion of development within this zone. *See*, Implementation Agreement, subparagraph 3.1.2(c) at 4. The one-mile buffer was established through rigorous biological analysis and constitutes an indispensable component of the Plan's mitigation strategy. *See*, NBHCP, Chapter 9 at VII 11-20. Any action by Sacramento County to approve or allow development within the Swainson's Hawk Zone not only threatens the ecological effectiveness of the NBHCP but also directly conflicts with the enforceable obligations of the Implementation Agreement.

250-25

The parties to the NBHCP have clear legal obligations that explicitly prohibit development within the Swainson's Hawk Zone. These obligations are set forth in the Plan and are enforceable through the Implementation Agreement. As currently proposed, the PRDEIR and related FEIR threaten to directly interfere with these contractual obligations.

e. The addition of the New Water Supply Option in the PRDEIR requires recirculation of the FEIR in its entirety

250-26

CEQA requires recirculation of an EIR when significant new information is added after the close of the public comment period but before certification. Cal. Pub. Res. Code § 21092.1. The

California Supreme Court has held that this standard requires recirculation when new information demonstrates that the project will have a substantial increase in the severity of the environmental impact, when a project alternative is considerably different from other previously analyzed, or when the draft EIR was fundamentally and basically inadequate. *See*, *Laurel Heights Improvement Assn. v. Regents of Univ. of California*, 6 Cal. 4th 1112, 1114 (1993).

The New Water Supply Option described in the PRDEIR presents a fundamentally different environmental scenario that could increase the severity of environmental impacts associated with the Specific. Specifically, increases in water diversions and seasonality have the potential to significantly impact terrestrial species protected under state and federal law. In addition, the proposed change in water use from agricultural to municipal would advance urbanization of farmland in a manner that may inhibit implementation of the two existing HCPs in the Natomas Basin. These unexamined consequences associated with the PRDEIR could result in a substantial increase in the environmental impacts of the Specific Plan and therefore require recirculation of the full FEIR.

250-26 cont.

In addition, as described above, the FEIR's analysis of potential impacts on agricultural land and potential to inhibit the efficacy of the HCPs was cursory at best and conclusory to a point of dismissing comments regarding the Federal Court Order as not relevant. The inadequacy of the FEIR's analysis of environmental impacts warrants recirculation of the document in its entirety. For these reasons, under the standard described in *Laurel Heights*, recirculation of the full EIR is required.

III. CONCLUSION

The Conservancy appreciates your consideration of its comments on the PRDEIR. The Conservancy and the proponents/permittees of the NBHCP and MAPHCP remain committed to upholding the requirements of these Plans and sustaining the ecological health of the Natomas Basin. If you have any questions, please feel free to contact me at the email or phone number listed above.

Sincerely,

Ethan J. Walsh
of BEST BEST & KRIEGER LLP

EJW

cc: John Roberts

From:	PER-CEQA
To:	Newton, Julie
Subject:	FW: Upper Westside Specific Plan (Specific Plan) (State Clearinghouse No 2020100069, County Control Number PLNP2018-00284)
Date:	Wednesday, December 10, 2025 11:20:24 AM

From: Amanda Johnson <eden900573@gmail.com>
Sent: Wednesday, December 10, 2025 9:51 AM
To: Patten. Emma <pattene@saccounty.gov>; PER-CEQA <CEQA@saccounty.gov>
Subject: Upper Westside Specific Plan (Specific Plan) (State Clearinghouse No 2020100069, County Control Number PLNP2018-00284)

You don't often get email from eden900573@gmail.com. Learn why this is important

⚠ **EXTERNAL EMAIL:** If unknown sender, **do not** click links/attachments. ⚠
If you have concerns about this email, please report it via the Phish Alert button.

Hello,

I would formally like to file my complaint for the Westside Specific Plan.

Urban sprawl often leads to increased traffic congestion, longer commutes, and a higher cost of living. I don't want Sacramento to become Roseville or Elk Grove. Rather than expanding into our precious farmland, we should focus on building walkable, mixed-use neighborhoods. Only 38% of the world's land can be used for farmland. Sacramento is "farm to fork" and you want to get rid of our farms? 251-1

Preserving green spaces should also be a top priority. Green spaces improve our mental and physical well-being and offer vital habitats for animals. This is a flood zone, I know because I live here, this isn't the place to build more suburban development. By protecting these areas from development, we safeguard our environment, contribute to climate resilience, and provide sanctuary for wildlife that is increasingly displaced by unchecked growth. 251-2

Suburban developments once they are completed are the best they are ever going to be. After that they decay, they cost the city more because they never adapt or grow. Never allowing more people to move into a neighborhood. Encouraging mixed-use zoning for current existing areas would allow for affordable housing options that are sorely needed, especially for low-income residents who are often priced out of traditional suburban developments. Why expand when we can do better and make Sacramento less like Elk Grove and Roseville and more like downtown. 251-3

I ask you to protect Natomas' farmland and instead prioritize urban planning strategies that emphasize walkability, mixed-use development, affordable housing, public transportation, and environmental conservation. Let's create a city where people and nature thrive together, rather than one where unchecked development diminishes the quality of life for all. 251-4

Thank you,

Amanda Burnitt

2874 bendmill way 95833

From: PER-CEQA
To: Newton, Julie
Subject: FW: Attention: Julie Newton, Environmental Coordinator
Date: Wednesday, December 10, 2025 2:26:49 PM

From: myaussies@surewest.net <myaussies@surewest.net>
Sent: Wednesday, December 10, 2025 12:46 PM
To: PER-CEQA <CEQA@saccounty.gov>
Subject: Re: Attention: Julie Newton, Environmental Coordinator

You don't often get email from myaussies@surewest.net. Learn why this is important

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If you have concerns about this email, please report it via the Phish Alert button.

The issues are:

1. A high school being built directly behind houses which will then be a noise issue with any games or activities at the high school. Traffic from people coming and dropping off their kids will produce excessive noise and pollution as well as kids doing destruction to people property. Why does a High school have to be directly behind all of us and not put elsewhere. If I wanted to live by a school, i would have moved by a school. 252-1

2. traffic concerns. Emergency vehicles will have a difficult time getting to people with the increase in traffic, which will then account for loss of life as well as more injuries. People will not be able to get out of the developments to their job, shopping, etc. We will be stuck in our homes, just like Covid. 252-2

3. Water safety concerns - Putting more homes by levee's can and will cause structural issues with the levee system and why do canals when there is already a water danger. 252-3

4. wildlife - disrupting endangered animals and their habitat is a way to wipe them out of our lives. 252-4

5. Water issues - There are already issues with low water pressure in Natomas and how can another agency handle getting water when we don't have enough from our current agency. 252-5

The schools directly behind the houses already there is a huge issue with traffic and such. The wildlife will be disrupted and vanish, becoming extinct and people will be stuck in their houses because they won't be able to get out of their homes because there will be no room on the road. Also, the commercial building will be empty since most of Natomas has empty building, bad parking and no infrastructure to support this 252-6

type of land development. 252-6 cont.

Please vote no on letting a city the size of Galt be dropped into Natomas with 2 lane total roads, no infrastructure and levee breaks possible. 252-7

Thank you,
Justine Bradley
North Natomas resident

On Wed, 10 Dec 2025 14:24:05 -0500, myaussies@surewest.net wrote:

Hello,

I am writing to express my frustration with this Upper West Project, which the revisions are very minor. Nothing is being done or said about the endangered species that have their home and habitat there. I also am expressing my anger and disappointment to this proposal that does not take into account the people who are currently residing in the area. 252-8

The issues are:

1.

Sac County Dept of Community Dev,
Planning and Environmental Review
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

– please give the books to our Supervisors :)

Dear Ms. Newton,

Please do not add more cross-streets to the Garden Highway. The revisions made to the UWS are simply insignificant. Farm Rd, Radio Rd, etc. should never connect to suburbia. The expansion into Fargo Wildlife Refuge should not be considered. 253-1

The highway is already very dangerous. Adding more traffic congestion will only mean more death and destruction on a road that is simply not ready for more traffic. 253-2

Sincerely,

M. Herman

Melanie Herman
2295 Garden Hwy
Sacramento, CA 95833

cc: Phil Serna
Patrick Kennedy
Rich Desmond
Rosario Rodriguez
Pat Hume

1-3-16 (Can you believe it???)

Dear Sup. Desmond,

Thank you for your public service. It isn't easy to deal with the public and I admire people who manage it well.

This book is for you to read & digest. The maps tell the future as clearly as any crystal ball. The valley is going to flood. Please do not put even more people - families like yours - into harm's way.

The UWSP is an interesting project in the wrong place. Please work to move it elsewhere.

Melanie Herman

253-3

1-3-26

To Sup. Patrick Kennedy,

Youve been a responsible public servant and I appreciate it. I know you care about climate change. Please read this and ARKStorm 2.0. Here's a map. Its going to flood unless we build a dam across the Sac River to hold back the sea. Stop voting like last century and START thinking about 100-500 years from now. Dont let more Natomas sunken costs become your legacy. It is going to Flood.

Melanie Herman

253-4

1-5-26

To Sup. Rodriguez,

Please accept this book in the spirit in which it is given. (My hand is getting tired).

You should know the history of the Natomas Flood zone before you vote to put even more innocent families into harm's way.

It is going to flood. One levee breach will create a huge wave that will swamp Natomas.

Please stop the Upper Westside project. Serna is leaving. You have nothing to lose. Drive the Garden Hwy. It is unfit for more traffic. Those of us who live on the Garden Hwy look down on Natomas Roofs. We'll be ok but all those families won't. Vote as if Climate Change is real. Melanie Herman

253-5

1-3-26.

To Sup. Hume,

In January, 2023 there were levee breaches along the Cosumnes river that caused some pretty significant flooding. Now imagine that the entire City of Galt flooded to the rooftops. Imagine the cost of cleanup and all the funerals you'll have to attend.

Those of us who live on the Garden Highway are hyper-aware of the power of the river. We look at Natomas roof tops. One Breach. Just one.

Besides the fact that the Garden Hwy is unfit for even the amount of traffic it gets now, Imagine a flood emergency with only 2 ways out & enough people to equal another Galt trying to get out all at once!

Please vote as if climate change is real. Vote no on the Upper Westside Project.

Melanie Herman

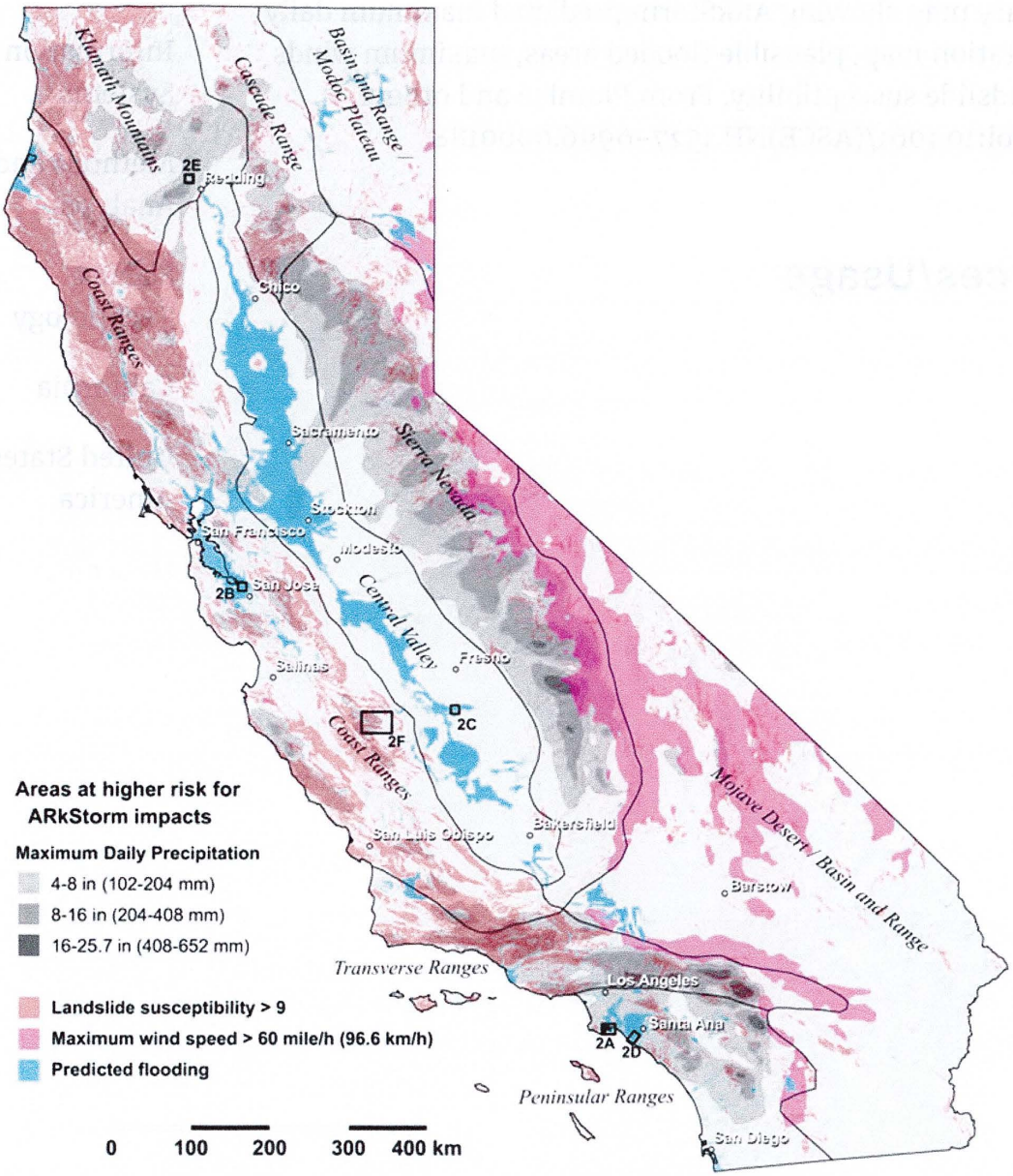
≈≈ **Battling**

253-6

USGS
science for a changing world

Summary map showing ARkStorm predictions for California

By Geology, Geophysics, and Geochemistry Science Center JANUARY 12, 2017



RECEIVED
DEC 22 2025
County of Sacramento
Department of Community Development
Planning and Environmental Review Division

Sacramento County Department of Community Development
Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Dear Ms. Newton,

I just looked at the revised EIR for the Upper Westside project. The developer's revisions do not resolve the most dangerous condition on Garden Highway: the lack of shoulders on a two-lane road carrying increasing volumes of traffic. Removing a connection on Radio Road simply pushes more vehicles onto Garden Highway for longer distances. A traffic circle on San Juan Road discourages cut-through traffic but again leaves Garden Highway as the unavoidable route. 254-1

Traffic calming elsewhere does not make Garden Highway safer. When a vehicle is disabled, emergency access is compromised, cyclists and pedestrians are trapped, and collisions cascade. These revisions fail to address the road's physical limitations. 254-2

This seems to be a project in need of a different location. The Garden Highway is more like a country lane than something that anyone would envision as a "highway". It should be renamed Garden Lane!! 254-3

Have a good day,

Thank you for listening,
Melissa Fazarro
6047 Garden Hwy
Sacramento CA 95837

RECEIVED
DEC 22 2025
County of Sacramento
Department of Community Development
Planning and Environmental Review Division

December 18, 2025

Sacramento County,
Department of Community Development, Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

To whom it may concern,

I am writing to oppose the claim that the proposed revisions to the traffic circulation network will meaningfully reduce traffic or improve safety on Garden Highway. Closing the regular vehicular connection on Radio Road and adding a traffic calming circle on San Juan Road may shift routes on paper, but they do not change the underlying problem: Garden Highway is a narrow, two-lane road with no shoulders and no margin for error.

When even one vehicle stalls, is struck, or slows unexpectedly, traffic immediately backs up in both directions. These revisions do nothing to address that reality. All project-generated traffic still funnels onto Garden Highway, which remains the sole north–south spine in the area. Concentrating traffic rather than dispersing it increases risk, not safety.

This highway simply cannot tolerate even more traffic than it has right now. Vote NO on this development!

255-1

Sincerely,
W. Wayne Herman

Wayne Herman
2295 Garden Hwy
Sacramento, CA 95833

Farm Road Also needs To be Blocked/ Restricted. This goes directly between El Centro Rd and Garden Hwy!

From: PER-CEQA
To: Newton, Julie
Subject: FW: Partially Revised DEIR: Upper West Side
Date: Monday, January 26, 2026 6:16:56 AM

From: Harriet Steiner <steinerstern@gmail.com>
Sent: Sunday, January 25, 2026 4:32 PM
To: PER-CEQA <CEQA@saccounty.gov>
Subject: Partially Revised DEIR: Upper West Side

You don't often get email from steinerstern@gmail.com. Learn why this is important

⚠ **EXTERNAL EMAIL:** If unknown sender, **do not** click links/attachments. ⚠
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I have reviewed the Partially Revised Draft EIR. I view the proposed changes suggested by the Revised DEIR as small bandaids on a large sore that cannot be fixed. The Upper West Side Project has numerous adverse impacts that cannot be mitigated as set forth in the DEIR and through public comments, among these are traffic on Garden Highway and in the surrounding community, as well as on the arterials and the interstates. As we know, Garden Highway is on the levee and cannot be widened. Increased traffic on Garden Highway is one horrible and life threatening impact of this Project and there are many more traffic related adverse impacts that also need to be addressed but, in fact , cannot be mitigated. While is may be beneficial to try to ameliorate the impact of traffic from the Project on Garden Highway I do not think that this minor change, if it is successful, is sufficient to mitigate or off set the adverse impacts on traffic from this project; nor will this proposed minor alteration of traffic patterns actually improve traffic impacts overall. Therefore, I think that this Revised EIR merely tries to hide the major adverse impacts that cannot be mitigated on Garden Highway and on all the other roads that this project will use that cannot be modified to hold the traffic that will come from this project. The no project alternative is still the best alternative.

256-1

Furthermore, adding an additional water source will also not migigate the many adverse impacts of this project on water and other utilities, as set forth in the City's prior letters and by others. This land was set aside for agriculture conservation and open space and should not be considered for

256-2

urban dense development causing multiple adverse impacts that cannot be mitigated. I also object to the idea of constructing this Project outside the jurisdiction of the City. This Revised EIR again highlights that problems with divided governance; the County should live up to the promises that it made years ago not to develop on this property. An additional unproven water source does not address the myriad on problems with this proposed development. Natomas was developed and sized with the underlying promise that this property would stay in agricultural and open space uses. Further, adopted plans assume that any changes to a more urban land use would take place, if absolutely necessary, within the City so that all the residents of Natomas, including this area, live under the same form of governance, have the same elected officials that can address future issues, and pay for and benefit from the same or similar improvements. Approval of this project with divided and different service providers in different jurisdictions will exacerbate all of the impacts of this project and will hamstring future and current residents from addressing any future issues. this is another reason why the no project alternative remains the only reasonable and proper alternative for this project and the Project should be denied.

256-2 cont.

This Revised EIR is inadequate because it addresses only slivers of the problems with this project without reopening the full EIR and addressing the adverse impacts and inadequacies addressed in the comments to the DEIR.

256-3

I request that the County decline to certify this Revised DEIR, reopen the EIR for this Project in its entirety and address all the comments submitted on the Draft EIR before considering this Project. I believe that if you do that it will be clear that this project is inconsistent with the County and the City's plans and will have so many adverse impacts that cannot be mitigated that this project should not go forward.

256-4

Thank you for considering these comments.

Harriet Steiner

Resident of North Natomas

2807 Rockaway Lane
Sacramento, CA 95835

From: PER-CEQA
To: Newton, Julie
Subject: FW: UPPER WESTSIDE PROJECT REVISED EIR
Date: Tuesday, January 27, 2026 8:02:06 AM

From: Steve Arditti <sarditti@att.net>
Sent: Monday, January 26, 2026 7:27 PM
To: PER-CEQA <CEQA@saccounty.gov>
Cc: melva arditti <maarditti@att.net>; GHCA Board <ghcaboard@gardenhwy.org>; Ryan Friedman <ryan@friedman-firm.com>; Melissa Brown <melissacheryl@icloud.com>; Matthew Ward <mjwa88@gmail.com>
Subject: UPPER WESTSIDE PROJECT REVISED EIR

You don't often get email from sarditti@att.net. Learn why this is important

⚠ **EXTERNAL EMAIL:** If unknown sender, **do not** click links/attachments. ⚠
If you have concerns about this email, please report it via the Phish Alert button.

I am writing to express our continued strong objection to the Upper Westside Development proposal and to the minimally revised EIR which has been submitted.
The proposed water source seems contingent on non-existent speculative private and governmental agreements; there appears to be no assurance that adequate water would be provided or that it would not come at the expense of other essential uses. And the proposed minimal traffic "mitigations" do nothing to reduce traffic and pollution or to meaningly improve safety.
The adverse impacts on animal species, farming, existing residential areas and scenic beauty of the original plan are unchanged. Simply put, this project is too much in the wrong place.
Importantly, there are vast areas of Natomas which have been approved for development but are yet unbuilt. There is thus no shortage of available development space.
Thank you for considering our views.
Respectfully,
Steve and Melva Arditti
3107 Garden Highway
Sacramento Ca.95833
(916) 922 1756.

257-1

From: PER-CEQA
To: Newton, Julie
Subject: FW: Upper West Side Specific Plan
Date: Tuesday, January 27, 2026 3:52:17 PM
Attachments: image001.png

From: tony_wall@profmortgage.com <tony_wall@profmortgage.com>
Sent: Tuesday, January 27, 2026 2:52 PM
To: PER-CEQA <ceqa@saccounty.gov>
Subject: Upper West Side Specific Plan

You don't often get email from tony_wall@profmortgage.com. Learn why this is important

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Sacramento County,
Department of Community Development, Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Dear Ms. Newton,

I am writing to oppose the claim that the proposed revisions to the traffic circulation network will meaningfully reduce traffic or improve safety on Garden Highway. Closing the regular vehicular connection on Radio Road and adding a traffic calming circle on San Juan Road may shift routes on paper, but they do not change the underlying problem: Garden Highway is a narrow, two-lane road with no shoulders and no margin for error.
When even one vehicle stalls, is struck, or slows unexpectedly, traffic immediately backs up in both directions. These revisions do nothing to address that reality. All project-generated traffic still funnels onto Garden Highway, which remains the sole north–south spine in the area. Concentrating traffic rather than dispersing it increases risk, not safety.

258-1

This highway simply cannot tolerate even more traffic than it has right now.
Vote NO on this development!

258-1 cont.

Sincerely,

Tony Wall

From:	PER-CEQA
To:	Newton, Julie
Subject:	FW: Upper West Side Specific Plan
Date:	Tuesday, January 27, 2026 3:52:38 PM
Attachments:	image001.png

From: tony_wall@profmortgage.com <tony_wall@profmortgage.com>
Sent: Tuesday, January 27, 2026 2:53 PM
To: PER-CEQA <ceqa@saccounty.gov>
Subject: Upper West Side Specific Plan

You don't often get email from tony_wall@profmortgage.com. Learn why this is important

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If you have concerns about this email, please report it via the Phish Alert button.

Sacramento County Department of Community Development
Planning and Environmental Review Division
Attention: Julie Newton, Environmental Coordinator
827 7th Street, Room 225
Sacramento, CA 95814

Sir or Madam,

As someone concerned about emergency response, I strongly disagree that the proposed circulation changes will reduce safety risks. Garden Highway has no shoulders. When a vehicle breaks down or an accident occurs, emergency vehicles cannot pass. It takes more time than it should - right now - for emergency vehicles to get to houses out here.
Closing Radio Road removes an alternate path that could relieve pressure during incidents. Discouraging San Juan Road use further concentrates traffic onto a road already operating at its limit. These revisions increase vulnerability during emergencies rather than reduce it.

259-1

Thank you for taking the time to read this note. Safety matters and, unless and until the Garden Highway gets upgraded to have shoulders, NO extra traffic should be added to it.

All the best,

Tony Wall

To: Sacramento County Department of Community Development

Attn: Julie Newton, Environmental Coordinator

Date: January 27, 2026

Subject: Formal Objection to the Upper Westside Specific Plan PRDEIR (PLNP2018-00284)

From: Arthur Gibson Howell, Natomas / Garden Hwy resident

1. Summary

This report identifies fundamental legal and technical inadequacies in the Upper Westside Partially Recirculated Draft Environmental Impact Report (PRDEIR). As currently drafted, the PRDEIR fails to meet the "substantial evidence" requirements of the California Environmental Quality Act (CEQA) and violates safety mandates under the Sacramento County General Plan. The project creates a systemic "failure state" by proposing 9,356 units within a constrained, two-exit bottleneck that is mathematically incapable of safe evacuation or acceptable traffic flow.

260-1

2. Inadequacy of Traffic Analysis (LOS F and System Saturation)

The PRDEIR admits that five intersections will operate at LOS F (failing) within a two-mile corridor. Under CEQA, the analysis is inadequate for the following reasons:

Failure of Mitigation: The PRDEIR relies on the Sacramento County Board of Supervisors to adopt a "Statement of Overriding Considerations" rather than feasible mitigation (per CEQA Guidelines Section 15093). However, CEQA requires that all feasible mitigation be adopted. This is essentially a legal "pardon" for traffic congestion. The County must formally admit the traffic will be a failure but argue that the project's benefits are more important. While it can be argued the County needs more housing, the proposed project is not realistically feasible in an area that is "locked in" by the Sacramento River on one side, I-80 on the other, and only 2 main methods of ingress and egress that will be at LOS F and gridlocked by design.

260-2

I-5 and I-80 Saturation: The "Cumulative Impacts" analysis is flawed because it treats regional freeway saturation as a background condition that should not impede the proposed development. When the freeway mainline is at LOS F, the internal road system becomes a storage reservoir. The PRDEIR fails to model the "Gridlock Effect" where surface street queues physically prevent emergency vehicles from reaching the site.

260-3

Their model also states traffic exiting I-80 at West El Camino will not flow back onto the freeway causing highway safety issues, however this is incorrect if the intersections these exits feed are gridlocked. Their own reports states not only those intersections will be at LOS F (oversaturated), but four others within 2 miles will be LOS F and therefore gridlocked by design. 260-4

Having five Level of Service (LOS) F intersections clustered within a two-mile stretch creates a compounding failure known as **network saturation** or **gridlock**. In traffic engineering, LOS F indicates that the flow has completely broken down, and the demand-to-capacity ratio (v/c) exceeds 1.0. 260-5

When these "failing" nodes are spaced so closely (averaging one every 0.4 miles), the following specific effects occur:

1. Queue Spillback and "Gridlock"

The most immediate effect is **queue spillback**. Because the intersections are less than half a mile apart, the line of waiting vehicles at one intersection will physically reach the preceding one.

- **Intersection Blockage:** Vehicles from the downstream "F" intersection spill back and block the upstream intersection, preventing side-street traffic from moving even when they have a green light.
- **Systemic Failure:** This transforms a local delay into a corridor-wide failure where movement ceases entirely across all directions. 260-6

2. Loss of Signal Progression

In a standard corridor, signals are timed for "green waves" so platoons of cars can hit consecutive green lights.

- At LOS F, the "green wave" is impossible. Even if the light turns green, there is no "pocket" or storage space for vehicles to move into because the next segment is already full.
- **Efficiency Drop:** Research suggests that each additional signal over two per mile can increase travel time by roughly **7%** under normal conditions; at LOS F, this delay becomes exponential. 260-7

3. Safety and Environmental Risks

- **Crash Rates:** High-density, stop-and-go traffic significantly increases **rear-end and "fender bender" collisions** due to constant braking and driver frustration. 260-8

- **Emissions:** Vehicles trapped in this two-mile "hot zone" produce significantly higher CO2 and NOx emissions due to prolonged idling and frequent acceleration/deceleration cycles. 260-9
- **Emergency Response:** Closely spaced failing intersections can create "hard" barriers for emergency vehicles, as there is often no physical room for cars to pull over and clear a path. 260-10

4. Psychological and Economic "Leakage" 260-11

- **Driver Frustration:** This level of congestion leads to "aggressive weaving" or drivers attempting to cut through residential side streets (rat-running), which pushes the LOS F problems into neighborhoods not designed for high volume.
- **Economic Impact:** A two-mile stretch of LOS F intersections can act as a barrier to local businesses, as the "cost" in time to access them exceeds the benefit for consumers. 260-12

5. Technical simulation profile 260-13

Based on the data provided in the **January 2026 Upper Westside Partially Recirculated EIR (PRDEIR)**. Using the intersection delay data and the "Alternative 5" circulation network, here is a model of how the two-mile stretch between I-80 West El Camino interchange and El Centro at Arena Blvd would function at peak capacity:

The "Gridlock" Simulation (2-Mile Corridor)

The Setup:

- **Distance:** 2.0 miles (I-80 West El Camino interchange to El Centro at Arena Blvd).
- **Nodes:** 5 intersections operating at **LOS F** (Delay > 80 seconds per vehicle).
- **Bottle-neck:** Only two primary exit paths (West El Camino to I-80 or El Centro to I-5).

Phase 1: The "Spillback" (T + 10 Minutes) 260-14

In a simulation, the first failure occurs at the **West El Camino / I-80 ramp meter**.

- Once the ramp meter slows to 1 car every 10 seconds, the queue extends backward.
- Because the next LOS F intersection is only ~0.4 miles away, the "tail" of the first queue physically enters the "box" of the second intersection.
- **Result:** Drivers on side streets (like those coming from the new 9,356 homes) have a green light but cannot move because the main road is blocked by the spillback.

Phase 2: The "Zipper Lock" (T + 20 Minutes) 260-15

The simulation shows the failure traveling upstream toward **Garden Highway**.

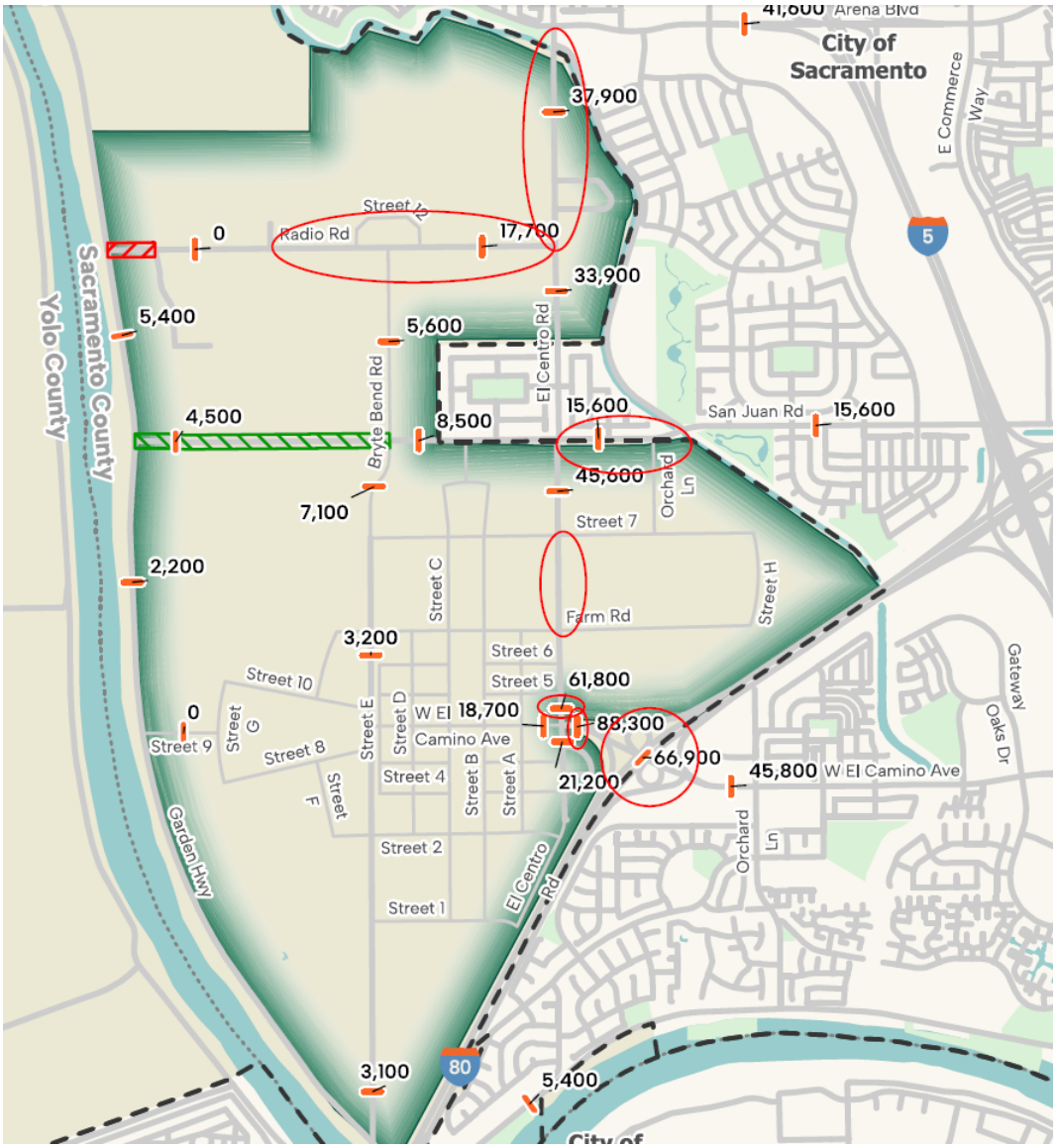
- The "Traffic Calming" measures on San Juan Road (Alternative 5) intended to slow cars now act as a physical dam.
- With the **Radio Road** connection restricted to "Emergency Only" or gated, the 25,000 residents are funneled exclusively into the two existing queues and Garden Hwy.
- **Result:** A "zipper lock" occurs. No intersection can "clear" its queue because there is no downstream "pocket" to receive vehicles. Average speed drops to **< 5 mph**.

260-15 cont.

Phase 3: The "Closed-System" Saturation (T + 45 Minutes)

- **I-5 and I-80 Saturation:** The freeways are now at LOS F. The on-ramps stop moving entirely.
- **Total Stasis:** The 2-mile corridor is now a continuous line of ~400–500 stationary vehicles per lane.
- **Response Failure:** A simulated ambulance attempting to reach a hospital (none of which are located within the project area) is blocked. With the two main exits oversaturated, no room to widen San Juan Road East of the proposed project due to existing housing, and Garden Hwy limited to two lanes with no shoulder, there is no physical space for cars to pull over, creating a "Hard Barrier" for emergency services. Similar simulations for Fire and Police response produce identical results.

260-16



PRDEIR Figure 1 – 5 LOS F (gridlocked) intersections circled, within 1.8 miles of each other + I-80 interchange with overall unknown LOS

260-17

Table 5: Comparison of Peak Hour Volumes at Critical Intersections

Intersection	Movement	AM (PM) Peak Hour Volume	
		Cumulative Plus Project (UWSP DEIR LTA)	Cumulative Plus Revised Project
West El Camino/El Centro Road	Eastbound Through	637 (872)	457 (683)
	Westbound Left	440 (707)	419 (720)
	Westbound Through	750 (759)	769 (763)
	Westbound Right	1,877 (2,241)	1,834 (2,266)
	Southbound Left	2,002 (2,090)	2,183 (2,205)
	Northbound Right	619 (419)	626 (473)
	Total & Percent Change	**7,003 (7,760)**	**6,912 (7,693) –1.3% (–0.9%)**
West El Camino/I-80 WB Ramps	Eastbound Through	1,836 (1,933)	1,854 (1,829)
	Eastbound Right	1,422 (1,520)	1,412 (1,546)
	Westbound Through	2,211 (2,683)	2,157 (2,685)
	Southbound Left (Off-ramp)	697 (313)	706 (307)
	Southbound Right (Off-ramp)	856 (1,038)	865 (1,064)
	Total & Percent Change	**7,209 (7,993)**	**7,183 (7,874) –0.4% (–1.5%)**
West El Camino/I-80 EB Ramps	Eastbound Through	1,829 (1,394)	1,832 (1,373)
	Eastbound Right	704 (852)	728 (763)
	Westbound Through	1,160 (1,655)	1,142 (1,593)
	Northbound Left (Off-ramp)	1,238 (1,534)	1,204 (1,535)
	Northbound Right (Off-ramp)	177 (339)	210 (338)
	Total & Percent Change	**5,724 (6,213)**	**5,650 (6,037) –1.3% (–2.8%)**
Arena Boulevard/El Centro Road	Westbound Left	411 (608)	406 (577)
	Northbound Through	886 (903)	990 (960)
	Northbound Right	485 (561)	475 (552)
	Southbound Through	994 (843)	1,035 (899)
	Total & Percent Change	**3,987 (3,988)**	**4,247 (4,161) +6.5% (+4.3%)**

Notes:
[3] Derived by using the same version of SACSIM model used in DEIR (and same forecasting techniques) to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

128 cars / min
2.1 cars / sec
131 cars / min
2.2 cars / sec
100 cars / min
1.6 cars / sec
71 cars / min
1.2 cars / sec

260-18

PRDEIR Table 5 – Peak Hour Volume averages per minute and second - showing physically impossible "storage space" for number or vehicles on I-80 on/off ramps and Arena Blvd / I-5 access

Peak Hour intersections with "impossible" levels of volume. San Juan at Garden Hwy shown since it does not reflect "real world" conditions, suggesting overall model is inaccurate.

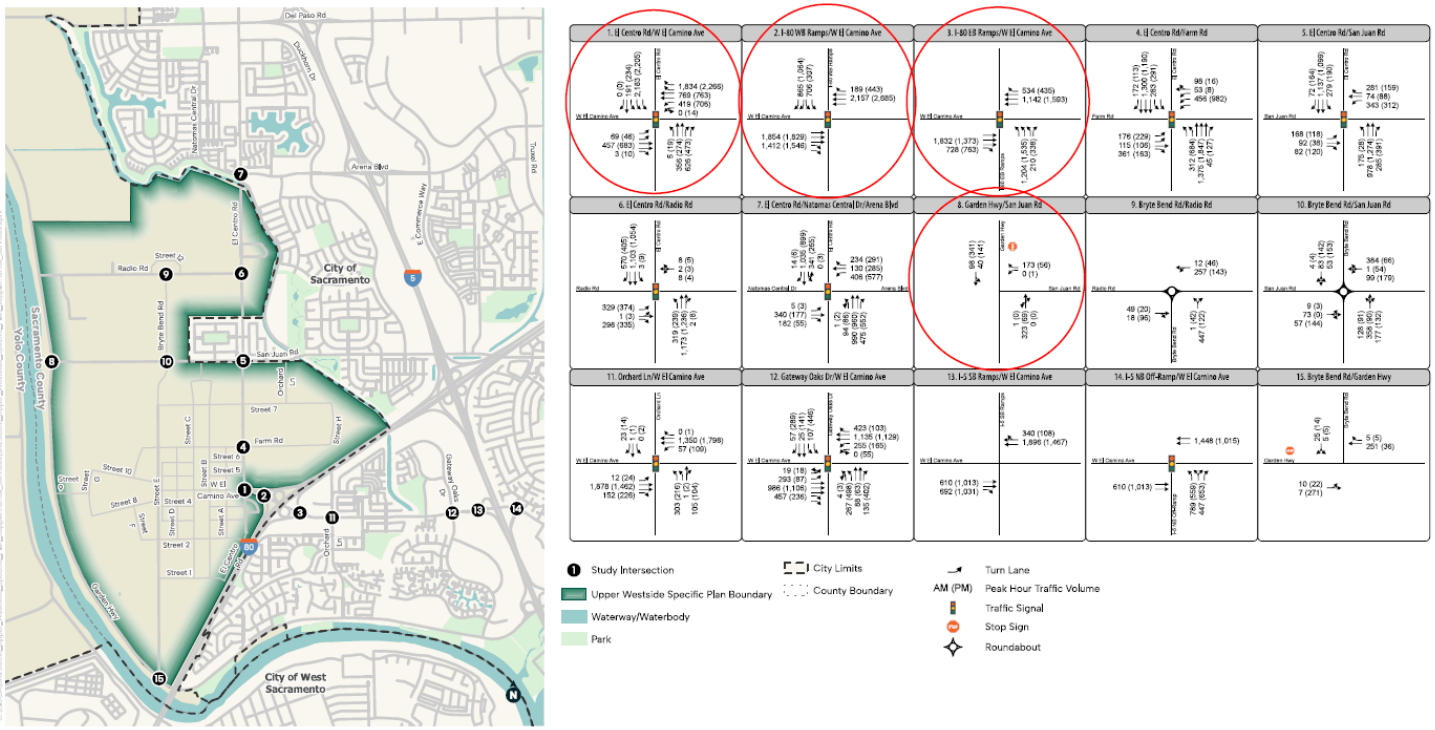


FIGURE 2

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions

3. Inadequacy of Transportation Mitigation: I-80/West El Camino Interchange

The PRDEIR identifies the widening and reconstruction of the **I-80/West El Camino interchange** as a core mitigation measure for the project's massive traffic impacts. However, this mitigation is "illusory" under CEQA for the following reasons:

260-20

Lack of CALTRANS Coordination and Funding

- **Unfunded Status:** The **Public Facilities Financing Plan (PFFP)** for the project relies on a "fair-share" transportation mitigation fee. However, the multi-hundred-million-dollar cost of a full interchange reconstruction is not fully funded by the project, nor is it currently programmed in the **CALTRANS District 3** or **SACOG** regional transportation priority lists.
- **Jurisdictional Conflict:** The County lacks jurisdiction over I-80. There is no formal **Project Study Report (PSR)** or **Cooperative Agreement** between Sacramento County and CALTRANS that guarantees the timing or design of this expansion. Without such an agreement, the PRDEIR cannot legally assume the mitigation will be built in time to serve the 25,000 projected residents.

260-21

- **Missing LOS Determination:** The PRDEIR fails to provide a comprehensive **Level of Service (LOS) determination** for the entire interchange complex. Analyzing ramp meters in isolation while the freeway mainline is at **LOS F** (saturation) ignores the "gridlock loop" that will occur when freeway back-ups prevent local traffic from even reaching the interchange.

260-22

4. Evacuation and Public Safety (The Two-Exit Bottleneck)

260-23

The most egregious failure of the PRDEIR is the Safety Element.

Inadequate Egress: Proposing a community of ~25,000 residents with only two primary outlets (El Centro Rd and W. El Camino Ave) creates a "funnel" that violates FEMA and Cal OES safety guidelines.

260-24

The "Trap" Geometry: Urban planners generally avoid "two-exit" designs for high-density areas specifically because they lack redundancy. Without a third or fourth high capacity "relief valve," the system has zero resiliency.

260-25

The Evacuation "Death Loop": In a regional emergency (like a flood or a fire in the foothills), I-80 and I-5 are the primary evacuation routes for the entire Sacramento region, not just the Upper Westside. Residents of the 9,356 new homes would be competing for space on the freeway with hundreds of thousands of people from Downtown, South Sacramento, and North

Natomas. If I-5 is saturated North/South and I-80 is saturated East/West, the "two ways in/out" of the development effectively become dead ends.

260-25 cont.

The EIR's Silence: The City of Sacramento has pointed out that the EIR does not sufficiently model a **"Simultaneous Regional Event."** If a flood or fire requires the evacuation of *all* of Natomas, the Upper Westside residents—who are at the furthest "end" of the funnel—would be physically unable to reach the freeways, even if they successfully navigated their own two-exit system.

260-26

Radio Road Paradox: The PRDEIR (Alternative 5) removes Radio Road as a public connection to "calm" traffic. Relying on a gated or "emergency-only" road for a mass evacuation of 9,000+ households is speculative. During a rapid-onset emergency (levee breach or wildfire), gated infrastructure and restricted routes consistently fail due to human panic and mechanical failure.

260-27

Unlawful Overriding: A "Statement of Overriding Considerations" can legally excuse traffic delay, but it cannot be used to override public safety and life-risk. The PRDEIR fails to provide a "Time-to-Clear" analysis for a total basin evacuation.

260-28

5. Garden Highway: The Illusion of "Traffic Calming"

The PRDEIR claims that "traffic calming" on San Juan Road will discourage through-traffic on Garden Highway. This is technically unsupported:

The "Traffic Calming" Paradox

The revised plan proposes "traffic calming" on San Juan Road to discourage through-traffic.

- **The Conflict:** Usually, you "calm" a road when there are alternative routes for traffic to take. In the Upper Westside project, there are only two main ways in or out.
- **The Reality:** If you slow down San Juan Road but don't provide a third or fourth high-capacity exit, you aren't "reducing" traffic; you are simply increasing the **delay** at those existing LOS F intersections. Drivers don't stop needing to leave the area; they just sit in longer queues.

260-29

Displaced Flow: In a two-exit system, drivers do not "disappear." If other exits are gridlocked, drivers will naturally seek the path of least resistance. Because Garden Highway remains a direct route to the I-5/I-80 interchange, the PRDEIR fails to account for the "Rat-Running" effect where residents will overwhelm the fragile, two-lane levee road regardless of signage, speed humps, or traffic circles.

260-30

Levee Integrity: Increased volume on Garden Highway poses a physical risk to the levee structure and those living, biking, and walking on the levee; an impact not adequately mitigated in the current PRDEIR.

260-31

6. Increased Vehicle Emissions and Climate Impacts

By forcing 9,356 households into a simi-permanent LOS F gridlock, the project creates a "Hot Spot" of criteria pollutants (CO, NOx, and PM2.5).

VMT vs. LOS: While the developers argue that the "internal" design is walkable (reducing Vehicle Miles Traveled), this doesn't help the "external" bottleneck. Once those 9,300 households need to leave for work, medical appointments, or errands, they hit the same two potentially gridlocked main exits.

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260-32

7. Speculative Water Supply: NCMWC and Water Rights Challenges

The PRDEIR introduces the **Natomas Central Mutual Water Company (NCMWC)** as a primary raw water provider. This proposal contains significant legal and environmental "red flags"

1. The "Agricultural Only" Gap

NCMWC's primary water source is the **Sacramento River Settlement Contract** with the U.S. Bureau of Reclamation. These contracts are designed for the "typical valley growing season" (April to October).

- **The Problem:** The Settlement Contracts do not traditionally provide water for municipal use during the winter. For the Upper Westside project to function, 9,356 homes need "M&I" (Municipal and Industrial) water 365 days a year.
- **Regulatory Hurdle:** Converting seasonal irrigation rights into year-round domestic rights requires a formal "Petition for Change" through the State Water Resources Control Board. This process is notoriously difficult, especially for the Sacramento River, which is already designated as "fully appropriated" during many months of the year.

260-33

2. Competition with Winter-Run Chinook Salmon

260-34

According to the **California Department of Fish and Wildlife (CDFW)** (January 13, 2026), the project aims to divert an additional **3,139 acre-feet per year**, with a majority of that diversion occurring between **September and March**.

- **The Conflict:** This winter diversion window overlaps directly with the migration and incubation periods of the **Sacramento River winter-run Chinook salmon** (an endangered species).
- **Survival Impact:** In dry or "critically dry" years, winter water levels are already dangerously low. New diversions during these months increase water temperatures and reduce the "cold water pool" at Shasta Reservoir, which federal agencies are mandated to protect.

260-34 cont.

3. Starving the Giant Garter Snake (GGS) Habitat

The Natomas Basin habitat depends on "managed marsh" and rice-land irrigation.

- **Ecological Theft:** CDFW has formally warned that if NCMWC prioritizes its limited winter water for urban residents, it may **deprive the Natomas Basin Conservancy** of the water needed to maintain aquatic mitigation for the Giant Garter Snake during drought years.
- **CEQA Violation:** The PRDEIR fails to explain how it will mitigate the loss of water to these protected species if the "urban" demand takes priority over "environmental" water during the winter.

260-35

8. Violation of Federal and State Species Protection

The Natomas Basin is a critical habitat for the Swainson's Hawk and the Giant Garter Snake (recently named California's state snake).

Habitat Fragmentation: The PRDEIR relies on the Natomas Basin Habitat Conservation Plan (NBHCP). However, the sheer scale of the Upper Westside project, combined with two other major Natomas developments (totaling 7,600+ acres), exceeds the "take" assumptions of the original 50-year plan.

260-36

Water Diversion: As noted by the California Dept. of Fish and Wildlife (CDFW) in January 2026, the project's new water source (NCMWC) may deprive the Natomas Basin Conservancy of the water needed to maintain aquatic habitats during drought, leading to a "Significant" impact on the Giant Garter Snake that the PRDEIR fails to mitigate.

260-37

7. Conclusion

The Upper Westside PRDEIR is legally deficient. It attempts to use housing goals to bypass fundamental laws of physics and public safety. Because the project cannot provide a third or fourth exit due to levee constraints, it is internally inconsistent with the Sacramento County General Plan.

260-38

Recommendation: The County must Decertify the PRDEIR

260-39

Thank you,

Arthur Gibson Howell

Former Garden Highway Community Association (GHCA) President

27 January 2026

Sacramento County Planning Commission
County of Sacramento
700 H Street, Suite 2450
Sacramento, CA 95814

Dear Members of the Sacramento County Planning Commission:

I submit this letter in opposition to the Partially Recirculated Draft Environmental Impact Report (PRDEIR) for the Upper Westside Specific Plan (UWSP). I do so as both a Garden Highway resident directly affected by the Project's traffic, safety, and environmental impacts, and as an agricultural stakeholder who has offered to purchase land within the Upper Westside planning area at fair-market value for continued agricultural use. 261-1

The farmland proposed for urban conversion under the UWSP is viable and in demand for agricultural production today. This Project is not responding to a lack of agricultural use, but rather displacing productive farmland in conflict with long-standing habitat protection, urban services, and interagency agreements. 261-2

1. Water Source and Treatment

The PRDEIR relies on a revised water supply concept that depends on a potential Sacramento River diversion through Natomas Central Mutual Water Company and a future, undefined treatment facility.

This approach relies on: 261-3

- An optional and unsecured water source
- No executed agreements guaranteeing supply, priority, or delivery
- Assumptions of reliability during drought and curtailment without clear allocation or operational limits

This creates significant uncertainty and shifts real risk to existing residents and river-dependent systems.

2. Biological Resources

The PRDEIR minimizes biological impacts from increased Sacramento River diversion and land conversion through generalized conclusions rather than site-specific analysis. The Project conflicts with existing habitat protection commitments and interagency agreements intended to preserve riverine, riparian, and agricultural buffer areas in the Upper Westside. 261-4

The PRDEIR does not explain how these conflicts are resolved or why those commitments should be set aside. 261-4 cont.

3. Transportation and Garden Highway Impacts

As a Garden Highway resident, I am directly affected by the Project's circulation impacts. While the PRDEIR proposes removing a standard Radio Road connection and adding traffic calming, it acknowledges that significant and unavoidable transportation impacts remain.

Project-related traffic is estimated to add approximately 12,500 daily vehicle trips, and the PRDEIR: 261-5

- Shifts traffic rather than reducing it
- Lacks enforceable protections against cut-through traffic on rural residential roads
- Does not adequately address emergency-only access enforcement or safety risks

Minor adjustments do not offset the overall increase in traffic burden placed on Garden Highway and surrounding roads.

4. Agricultural Resources

The PRDEIR treats farmland conversion as unavoidable despite clear evidence that: 261-6

- The land is suitable and available for continued agricultural use
- There is active market demand
- I have offered to purchase land at fair-market agricultural value to keep it in production

Urbanization here is a policy choice, not a necessity.

The PRDEIR relies on uncertain water supply assumptions, minimizes biological impacts, leaves major traffic and safety issues unresolved, and disregards long-standing agreements governing habitat protection and urban services. For these reasons, I respectfully request that the Planning Commission not recommend certification of the PRDEIR. 261-7

Sincerely,

Chris Rufer
4153 Garden Highway
Sacramento, CA 95834

To: Sacramento County Department of Community Development Attn: Julie Newton, Environmental Coordinator

Date: January 27, 2026

Subject: Formal Objection to the Upper Westside Specific Plan PRDEIR (PLNP2018-00284)

1. Executive Summary

This report identifies fundamental legal and technical inadequacies in the Upper Westside Partially Recirculated Draft Environmental Impact Report (PRDEIR). As currently drafted, the PRDEIR fails to meet the "substantial evidence" requirements of the California Environmental Quality Act (CEQA) and violates safety mandates under the Sacramento County General Plan. The project creates a systemic "failure state" by proposing 9,356 units within a constrained, two-exit bottleneck that is mathematically incapable of safe evacuation or acceptable traffic flow.

2. Inadequacy of Traffic Analysis (LOS F and System Saturation)

The PRDEIR admits that five intersections will operate at LOS F (failing) within a two-mile corridor. Under CEQA, the analysis is inadequate for the following reasons:

Failure of Mitigation: The PRDEIR relies on the Sacramento County Board of Supervisors to adopt a "Statement of Overriding Considerations" rather than feasible mitigation (per CEQA Guidelines Section 15093). However, CEQA requires that all feasible mitigation be adopted. This is essentially a legal "pardon" for traffic congestion. The County must formally admit the traffic will be a failure but argue that the project's benefits are more important. While it can be argued the County needs more housing, the proposed project is not realistically feasible in an area that is "locked in" by the Sacramento River on one side, I-80 on the other, and only 2 main methods of ingress and egress that will be at LOS F and gridlocked by design.

262-1

I-5 and I-80 Saturation: The "Cumulative Impacts" analysis is flawed because it treats regional freeway saturation as a background condition that should not impede the proposed development. When the freeway mainline is at LOS F, the internal road system becomes a storage reservoir. The PRDEIR fails to model the "Gridlock Effect" where surface street queues physically prevent emergency vehicles from reaching the site.

Their model also states traffic exiting I-80 at West El Camino will not flow back onto the freeway causing highway safety issues, however this is incorrect if the intersections these exits feed are

gridlocked. Their own reports states not only those intersections will be at LOS F (oversaturated), but four others within 2 miles will be LOS F and therefore gridlocked by design.

Having five Level of Service (LOS) F intersections clustered within a two-mile stretch creates a compounding failure known as **network saturation** or **gridlock**. In traffic engineering, LOS F indicates that the flow has completely broken down, and the demand-to-capacity ratio (v/c) exceeds 1.0.

When these "failing" nodes are spaced so closely (averaging one every 0.4 miles), the following specific effects occur:

1. Queue Spillback and "Gridlock"

The most immediate effect is **queue spillback**. Because the intersections are less than half a mile apart, the line of waiting vehicles at one intersection will physically reach the preceding one.

- **Intersection Blockage:** Vehicles from the downstream "F" intersection spill back and block the upstream intersection, preventing side-street traffic from moving even when they have a green light.
- **Systemic Failure:** This transforms a local delay into a corridor-wide failure where movement ceases entirely across all directions.

262-1 cont.

2. Loss of Signal Progression

In a standard corridor, signals are timed for "green waves" so platoons of cars can hit consecutive green lights.

- At LOS F, the "green wave" is impossible. Even if the light turns green, there is no "pocket" or storage space for vehicles to move into because the next segment is already full.
- **Efficiency Drop:** Research suggests that each additional signal over two per mile can increase travel time by roughly **7%** under normal conditions; at LOS F, this delay becomes exponential.

3. Safety and Environmental Risks

- **Crash Rates:** High-density, stop-and-go traffic significantly increases **rear-end and "fender bender" collisions** due to constant braking and driver frustration.
- **Emissions:** Vehicles trapped in this two-mile "hot zone" produce significantly higher CO2 and NOx emissions due to prolonged idling and frequent acceleration/deceleration cycles.

- **Emergency Response:** Closely spaced failing intersections can create "hard" barriers for emergency vehicles, as there is often no physical room for cars to pull over and clear a path.

4. Psychological and Economic "Leakage"

- **Driver Frustration:** This level of congestion leads to "aggressive weaving" or drivers attempting to cut through residential side streets (rat-running), which pushes the LOS F problems into neighborhoods not designed for high volume.
- **Economic Impact:** A two-mile stretch of LOS F intersections can act as a barrier to local businesses, as the "cost" in time to access them exceeds the benefit for consumers.

5. Technical simulation profile

Based on the data provided in the **January 2026 Upper Westside Partially Recirculated EIR (PRDEIR)**. Using the intersection delay data and the "Alternative 5" circulation network, here is a model of how the two-mile stretch between I-80 West El Camino interchange and El Centro at Arena Blvd would function at peak capacity:

The "Gridlock" Simulation (2-Mile Corridor)

The Setup:

- **Distance:** 2.0 miles (I-80 West El Camino interchange to El Centro at Arena Blvd).
- **Nodes:** 5 intersections operating at **LOS F** (Delay > 80 seconds per vehicle).
- **Bottle-neck:** Only two primary exit paths (West El Camino to I-80 or El Centro to I-5).

Phase 1: The "Spillback" (T + 10 Minutes)

In a simulation, the first failure occurs at the **West El Camino / I-80 ramp meter**.

- Once the ramp meter slows to 1 car every 10 seconds, the queue extends backward.
- Because the next LOS F intersection is only ~0.4 miles away, the "tail" of the first queue physically enters the "box" of the second intersection.
- **Result:** Drivers on side streets (like those coming from the new 9,356 homes) have a green light but cannot move because the main road is blocked by the spillback.

Phase 2: The "Zipper Lock" (T + 20 Minutes)

The simulation shows the failure traveling upstream toward **Garden Highway**.

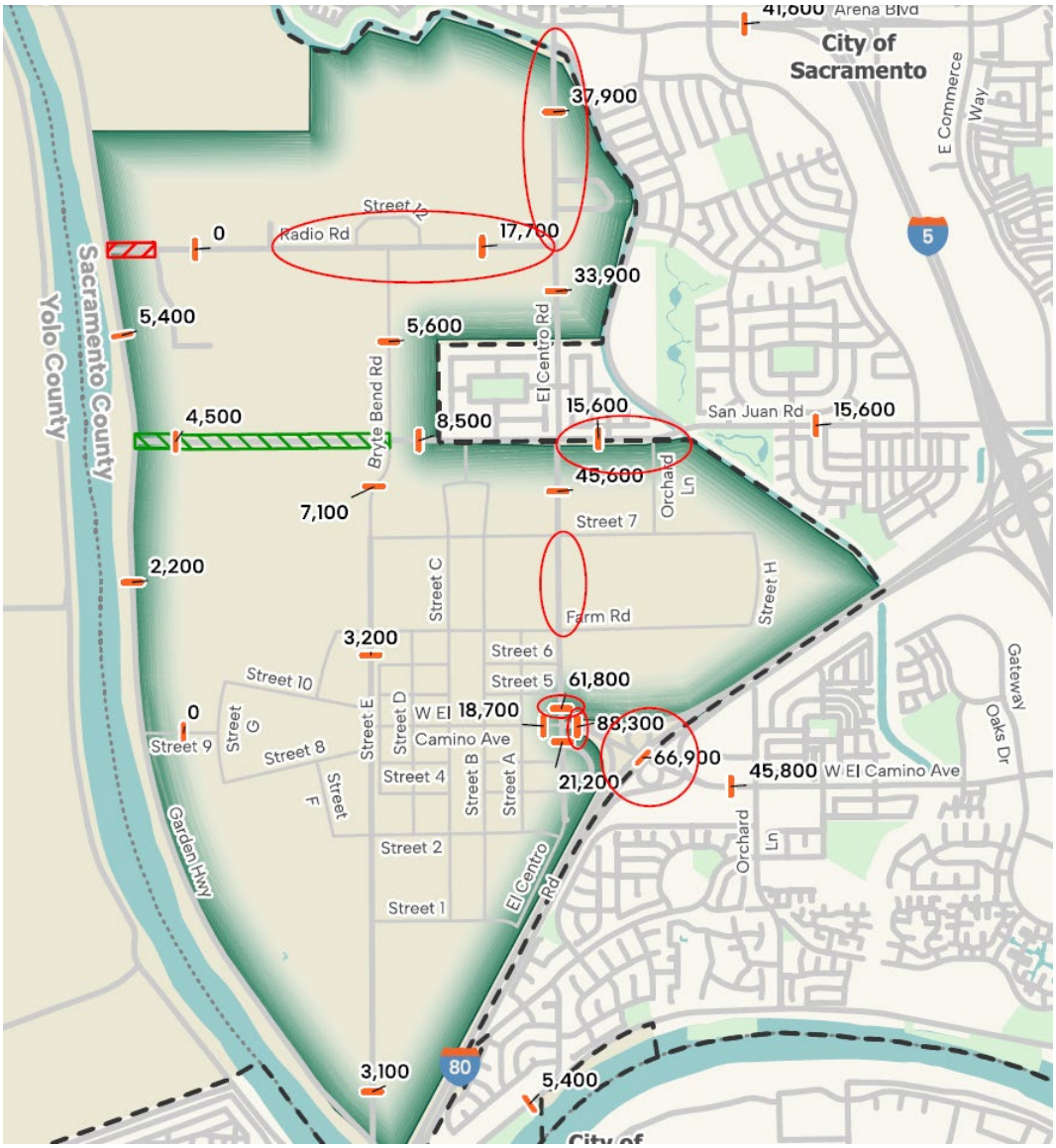
262-1 cont.

- The "Traffic Calming" measures on San Juan Road (Alternative 5) intended to slow cars now act as a physical dam.
- With the **Radio Road** connection restricted to "Emergency Only" or gated, the 25,000 residents are funneled exclusively into the two existing queues and Garden Hwy.
- **Result:** A "zipper lock" occurs. No intersection can "clear" its queue because there is no downstream "pocket" to receive vehicles. Average speed drops to **< 5 mph**.

Phase 3: The "Closed-System" Saturation (T + 45 Minutes)

- **I-5 and I-80 Saturation:** The freeways are now at LOS F. The on-ramps stop moving entirely.
- **Total Stasis:** The 2-mile corridor is now a continuous line of ~400–500 stationary vehicles per lane.
- **Response Failure:** A simulated ambulance attempting to reach a hospital (none of which are located within the project area) is blocked. With the two main exits oversaturated, no room to widen San Juan Road East of the proposed project due to existing housing, and Garden Hwy limited to two lanes with no shoulder, there is no physical space for cars to pull over, creating a "Hard Barrier" for emergency services. Similar simulations for Fire and Police response produce identical results.

262-1 cont.



PRDEIR Figure 1 – 5 LOS F (gridlocked) intersections circled, within 1.8 miles of each other + I-80 interchange with overall unknown LOS

262-1 cont.

Table 5: Comparison of Peak Hour Volumes at Critical Intersections

Intersection	Movement	AM (PM) Peak Hour Volume		
		Cumulative Plus Project (UWSP DEIR LTA)	Cumulative Plus Revised Project	
West El Camino/El Centro Road	Eastbound Through	637 (872)	457 (683)	128 cars / min
	Westbound Left	440 (707)	419 (720)	
	Westbound Through	750 (759)	769 (763)	
	Westbound Right	1,877 (2,241)	1,834 (2,266)	2.1 cars / sec
	Southbound Left	2,002 (2,090)	2,183 (2,205)	
	Northbound Right	619 (419)	626 (473)	
	Total & Percent Change	**7,003 (7,760)**	**6,912 (7,693) –1.3% (–0.9%)**	
West El Camino/I-80 WB Ramps	Eastbound Through	1,836 (1,933)	1,854 (1,829)	131 cars / min
	Eastbound Right	1,422 (1,520)	1,412 (1,546)	
	Westbound Through	2,211 (2,683)	2,157 (2,685)	
	Southbound Left (Off-ramp)	697 (313)	706 (307)	2.2 cars / sec
	Southbound Right (Off-ramp)	856 (1,038)	865 (1,064)	
	Total & Percent Change	**7,209 (7,993)**	**7,183 (7,874) –0.4% (–1.5%)**	
West El Camino/I-80 EB Ramps	Eastbound Through	1,829 (1,394)	1,832 (1,373)	100 cars / min
	Eastbound Right	704 (852)	728 (763)	
	Westbound Through	1,160 (1,655)	1,142 (1,593)	
	Northbound Left (Off-ramp)	1,238 (1,534)	1,204 (1,535)	1.6 cars / sec
	Northbound Right (Off-ramp)	177 (339)	210 (338)	
	Total & Percent Change	**5,724 (6,213)**	**5,650 (6,037) –1.3% (–2.8%)**	
Arena Boulevard/El Centro Road	Westbound Left	411 (608)	406 (577)	71 cars / min
	Northbound Through	886 (903)	990 (960)	
	Northbound Right	485 (561)	475 (552)	
	Southbound Through	994 (843)	1,035 (899)	1.2 cars / sec
	Total & Percent Change	**3,987 (3,988)**	**4,247 (4,161) +6.5% (+4.3%)**	

Notes:
[3] Derived by using the same version of SACSIM model used in DEIR (and same forecasting techniques) to analyze changes in travel demand associated with street modifications described above.
Source: Fehr & Peers, 2025.

262-1 cont.

PRDEIR Table 5 – Peak Hour Volume averages per minute and second - showing physically impossible "storage space" for number or vehicles on I-80 on/off ramps and Arena Blvd / I-5 access

Comment Letter 262

262-1 cont.

Peak Hour intersections with "impossible" levels of volume. San Juan at Garden Hwy shown since it does not reflect "real world" conditions, suggesting overall model is inaccurate.

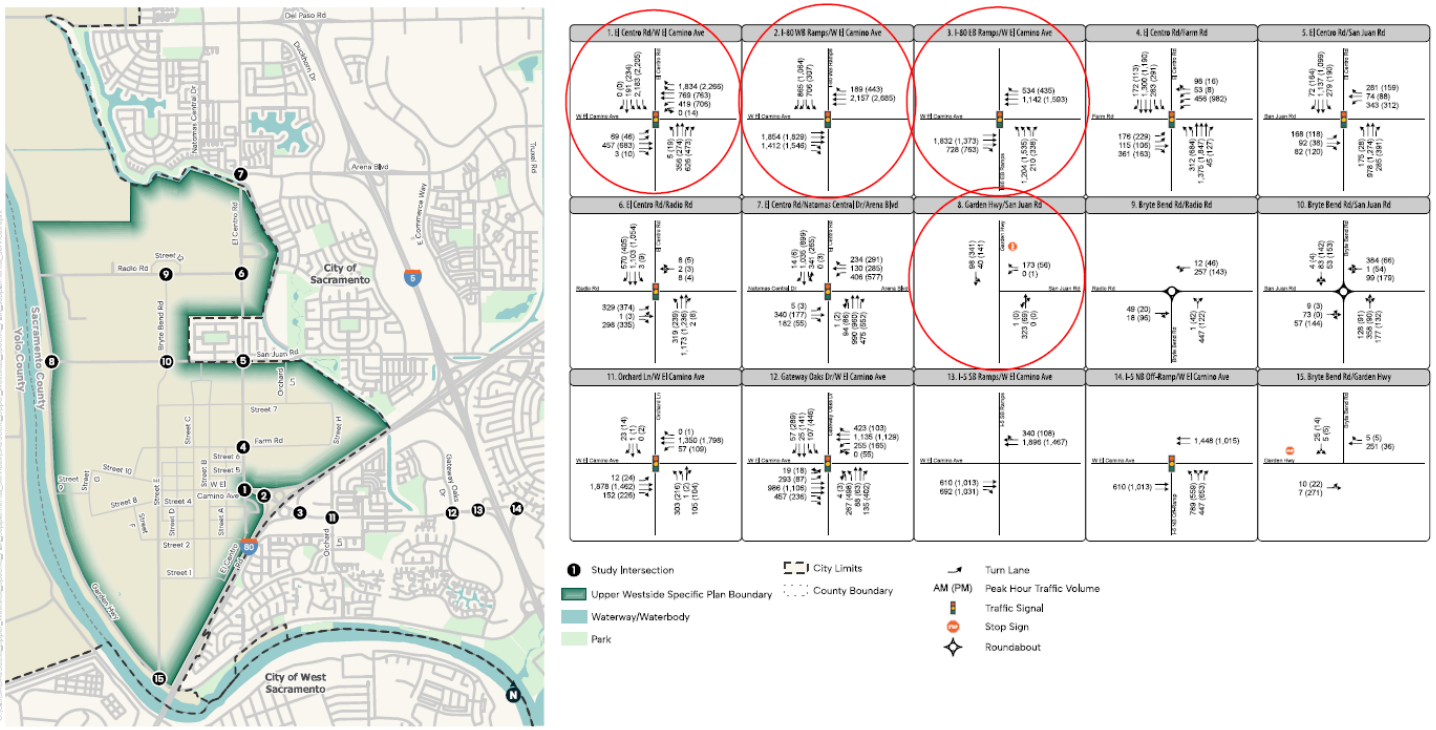


FIGURE 2

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions

3. Inadequacy of Transportation Mitigation: I-80/West El Camino Interchange

The PRDEIR identifies the widening and reconstruction of the **I-80/West El Camino interchange** as a core mitigation measure for the project's massive traffic impacts. However, this mitigation is "illusory" under CEQA for the following reasons:

Lack of CALTRANS Coordination and Funding

- **Unfunded Status:** The **Public Facilities Financing Plan (PFFP)** for the project relies on a "fair-share" transportation mitigation fee. However, the multi-hundred-million-dollar cost of a full interchange reconstruction is not fully funded by the project, nor is it currently programmed in the **CALTRANS District 3** or **SACOG** regional transportation priority lists.
- **Jurisdictional Conflict:** The County lacks jurisdiction over I-80. There is no formal **Project Study Report (PSR)** or **Cooperative Agreement** between Sacramento County and CALTRANS that guarantees the timing or design of this expansion. Without such an agreement, the PRDEIR cannot legally assume the mitigation will be built in time to serve the 25,000 projected residents.
- **Missing LOS Determination:** The PRDEIR fails to provide a comprehensive **Level of Service (LOS) determination** for the entire interchange complex. Analyzing ramp meters in isolation while the freeway mainline is at **LOS F** (saturation) ignores the "gridlock loop" that will occur when freeway back-ups prevent local traffic from even reaching the interchange.

262-1 cont.

4. Evacuation and Public Safety (The Two-Exit Bottleneck)

The most egregious failure of the PRDEIR is the Safety Element.

Inadequate Egress: Proposing a community of ~25,000 residents with only two primary outlets (El Centro Rd and W. El Camino Ave) creates a "funnel" that violates FEMA and Cal OES safety guidelines.

The "Trap" Geometry: Urban planners generally avoid "two-exit" designs for high-density areas specifically because they lack redundancy. Without a third or fourth high capacity "relief valve," the system has zero resiliency.

The Evacuation "Death Loop": In a regional emergency (like a flood or a fire in the foothills), I-80 and I-5 are the primary evacuation routes for the entire Sacramento region, not just the Upper Westside. Residents of the 9,356 new homes would be competing for space on the freeway with hundreds of thousands of people from Downtown, South Sacramento, and North

Natomas. If I-5 is saturated North/South and I-80 is saturated East/West, the "two ways in/out" of the development effectively become dead ends.

The EIR's Silence: The City of Sacramento has pointed out that the EIR does not sufficiently model a **"Simultaneous Regional Event."** If a flood or fire requires the evacuation of *all* of Natomas, the Upper Westside residents—who are at the furthest "end" of the funnel—would be physically unable to reach the freeways, even if they successfully navigated their own two-exit system.

Radio Road Paradox: The PRDEIR (Alternative 5) removes Radio Road as a public connection to "calm" traffic. Relying on a gated or "emergency-only" road for a mass evacuation of 9,000+ households is speculative. During a rapid-onset emergency (levee breach or wildfire), gated infrastructure and restricted routes consistently fail due to human panic and mechanical failure.

Unlawful Overriding: A "Statement of Overriding Considerations" can legally excuse traffic delay, but it cannot be used to override public safety and life-risk. The PRDEIR fails to provide a "Time-to-Clear" analysis for a total basin evacuation.

5. Garden Highway: The Illusion of "Traffic Calming"

262-1 cont.

The PRDEIR claims that "traffic calming" on San Juan Road will discourage through-traffic on Garden Highway. This is technically unsupported:

The "Traffic Calming" Paradox

The revised plan proposes "traffic calming" on San Juan Road to discourage through-traffic.

- **The Conflict:** Usually, you "calm" a road when there are alternative routes for traffic to take. In the Upper Westside project, there are only two main ways in or out.
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262-1 cont.

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262-1 cont.

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262-1 cont.

Recommendation: The County must Decertify the PRDEIR

Comment Letter 263

From: PER-CEQA
To: Newton, Julie
Subject: FW: Negative Comments on Upper Westside EIR
Date: Wednesday, January 28, 2026 4:35:57 PM

-----Original Message-----
From: David Brady <davb49@att.net>
Sent: Wednesday, January 28, 2026 4:03 PM
To: PER-CEQA <CEQA@saccounty.gov>
Cc: Heather Fargo <heatherfargo14@gmail.com>; Harriet Steiner <harrietsteiner53@gmail.com>; Edith Thacher <egthacher@gmail.com>; Karina Talamantes <ktalamantes@cityofsacramento.org>; lkaplan@cityofsacramento.org
Subject: Negative Comments on Upper Westside EIR

[You don't often get email from davb49@att.net. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

EXTERNAL EMAIL: If unknown sender, do not click links/attachments. If you have concerns about this email, please report it via the Phish Alert button.

These two proposed amendments to the EIR make a terrible project even worse.

The use of agricultural water for urban purposes is another attempt by the proponents of this project to exploit a loophole for their individual benefit at the expense of the rest of the community. The City of Sacramento objected to the Upper Westside Project for a number of reasons, including water supply, and their request was for the developers to engage in productive discussions with the city and county, not to attempt an end run by using water intended for agricultural purposes instead of connecting to the city's well-developed urban water supply. California and the Sacramento Region have scarce water resources, and the use of Natomas Central for domestic water is an abuse of those resources, creating negative impacts for residents, water quality, wildlife and the surrounding environment. 263-1

The second abuse to remove the vehicular traffic connection on Radio Road between Bryte Bend Road and Garden Highway and implement traffic calming on San Juan Road between Garden Highway and El Centro Road to discourage its use by through traffic is a concession to wealthy landowners along the Garden Highway that puts an increased burden and endangers the safety of thousands of current and future residents who must use the two lane El Centro Road and West El Camino freeway overpass for everyday transit and emergency services. The two-lane overpass at West El Camino and I-80 was originally designed to serve farmers in the surrounding fields. It was never intended to support 40,000 new residents, along with schools and commercial development. It does not meet the minimum Cal-Trans standards and needs to be replaced in its entirety. Traffic is currently gridlocked during morning and afternoon commutes, because it is the only way for existing residents on both sides of I-80 to get to work and schools. This creates an dangerous situation, because it prevents fire response from Sacramento Fire Stations 43 and 15 to emergencies on the other side of the freeway, as well as accidents on I-80 itself. In fact, it is not uncommon to rely on mutual aid from West Sacramento Fire to respond to accidents in this area of Sacramento County, because of the delayed response by units stationed in Natomas. It is extremely irresponsible for the developers of the Upper Westside project to suggest measures that will direct even more traffic flow down El Centro and across the West El Camino interchange. 263-2

Again, the amended traffic proposal is being proposed solely for the benefit of the land speculators and developers of the Upper Westside project, at the expense of neighboring residents and the entire region. Please reject these dangerous and ill-conceived EIR amendments, as well as the entire Upper Westside Project. 263-3

Thank you,
David Brady