

Sacramento County Climate Action Plan

Communitywide Greenhouse Gas Reduction and Climate Change Adaptation (Communitywide CAP)



**Public Workshops (Round 2)
February 2017**

Welcome and Introductions

- County Staff:
 - Surinder Singh, Principal Planner
 - John Lundgren, Senior Planner
 - Todd Taylor, Associate Planner/Project Manager
 - Judy Robinson, Sustainability Manager
- Consultants: Ascent Environmental
 - Erik de Kok, Senior Planner/Project Manager
 - Elizabeth Boyd, Public Outreach Specialist

Meeting Purpose

- Provide background on the County's Communitywide CAP efforts to date
- Present and discuss climate change vulnerability assessment results
- Present and discuss climate adaptation strategies
- Receive community input

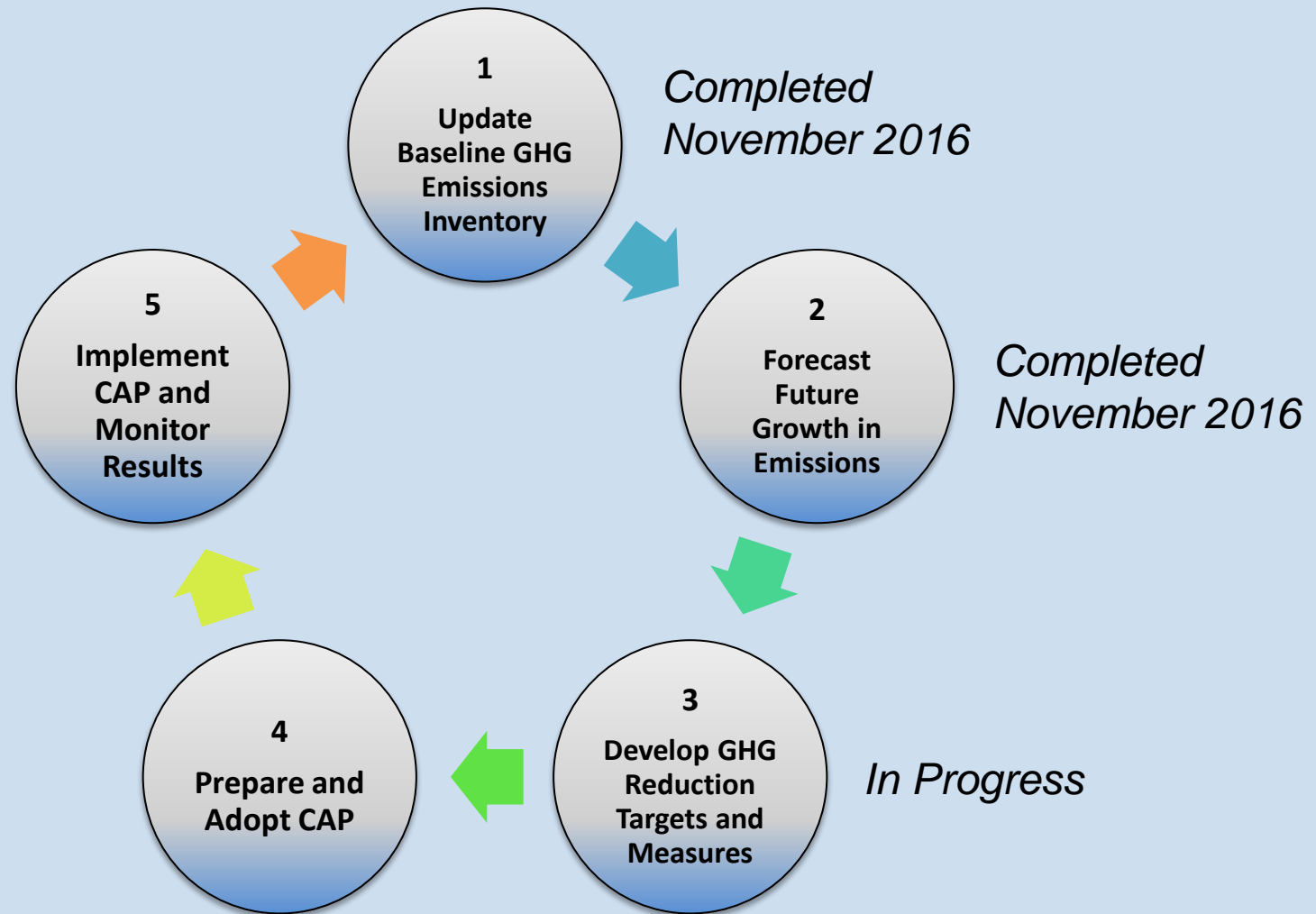
Agenda

- Welcome and Introductions
- Overview of CAP Process, Efforts to Date
- Review Climate Vulnerability Assessment Results and Draft Adaptation Measures
- Large Group Discussion / Q&A
- Next Steps

CAP Overview

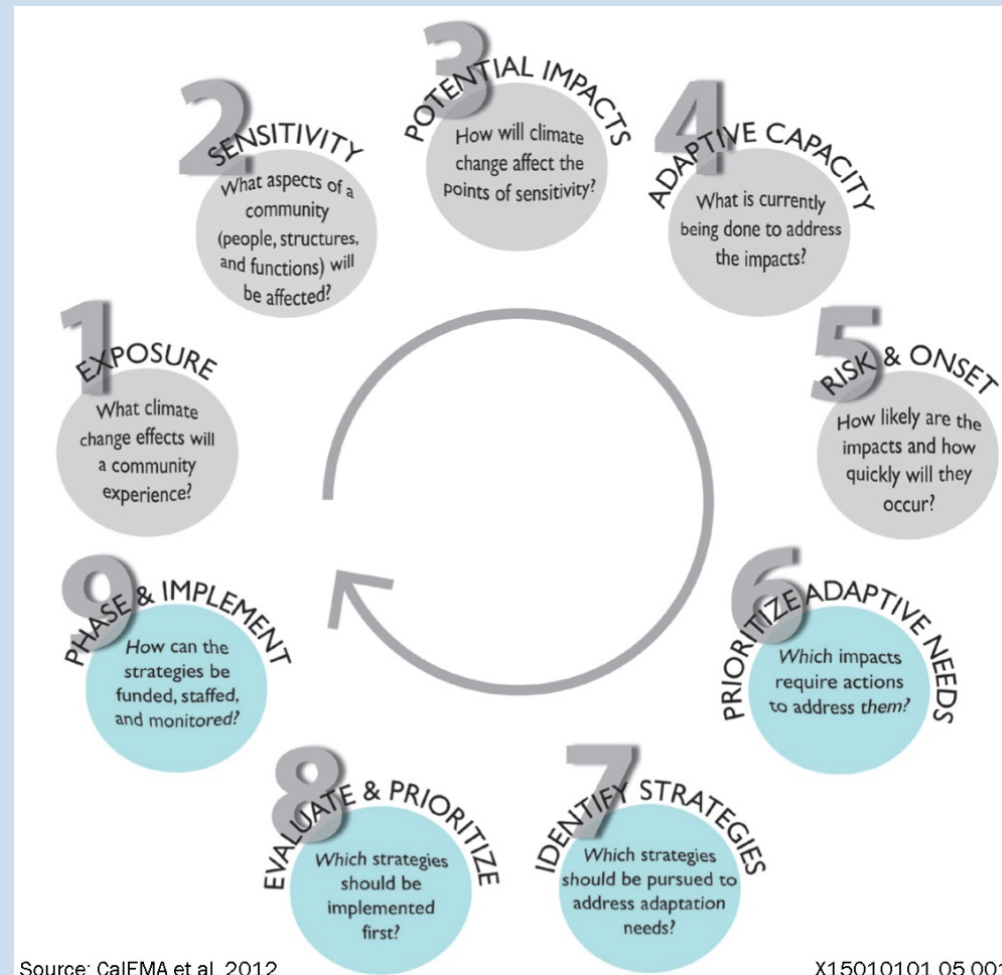
- Communitywide CAP Goals
 - Reduce greenhouse gas (GHG) emissions
 - Climate adaptation and resilience
- CAP Focus
 - Communitywide (unincorporated County)
 - County government operations

GHG Reduction Planning

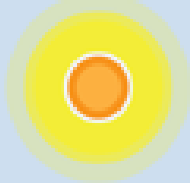


Climate Adaptation Planning

- Vulnerability Assessment
 - Technical study of climate change effects and impacts on local population, infrastructure, and resources
 - *Completed January 2017*
- Develop Adaptation Measures
 - Actionable policies, programs, and implementation steps to address vulnerabilities
 - *In Progress*



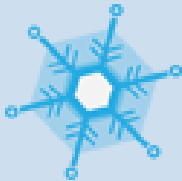
Climate Change Effects



Increasing Temperatures



Changes in Precipitation Patterns



Loss of Snowpack / Water Supply



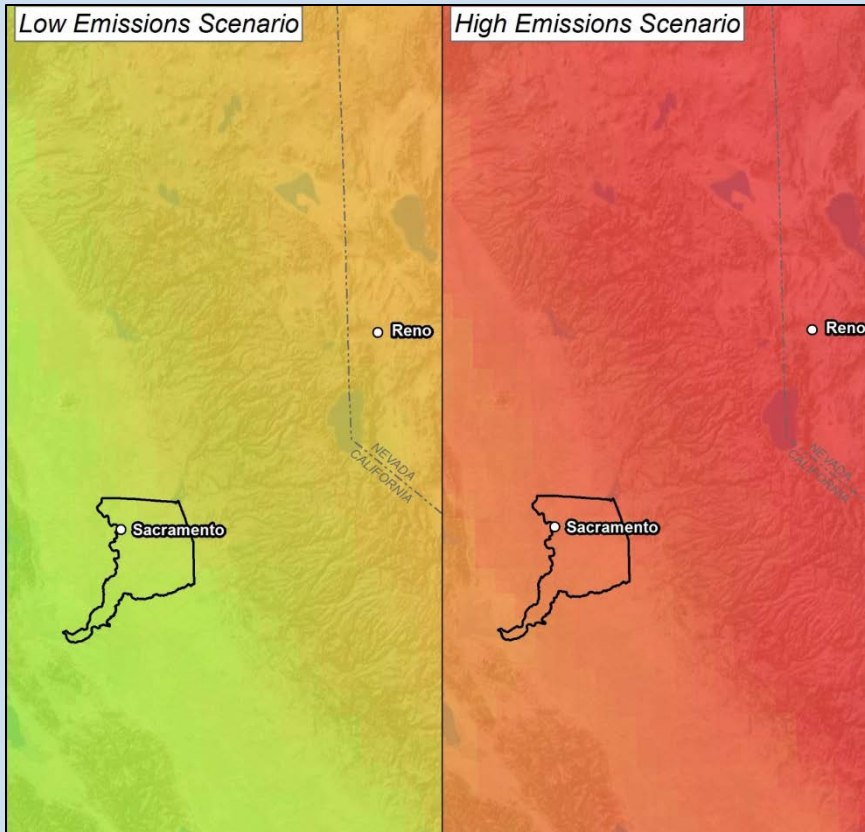
Increased Wildfires



Sea-Level Rise and Increased Flood Risk



Increasing Temperatures



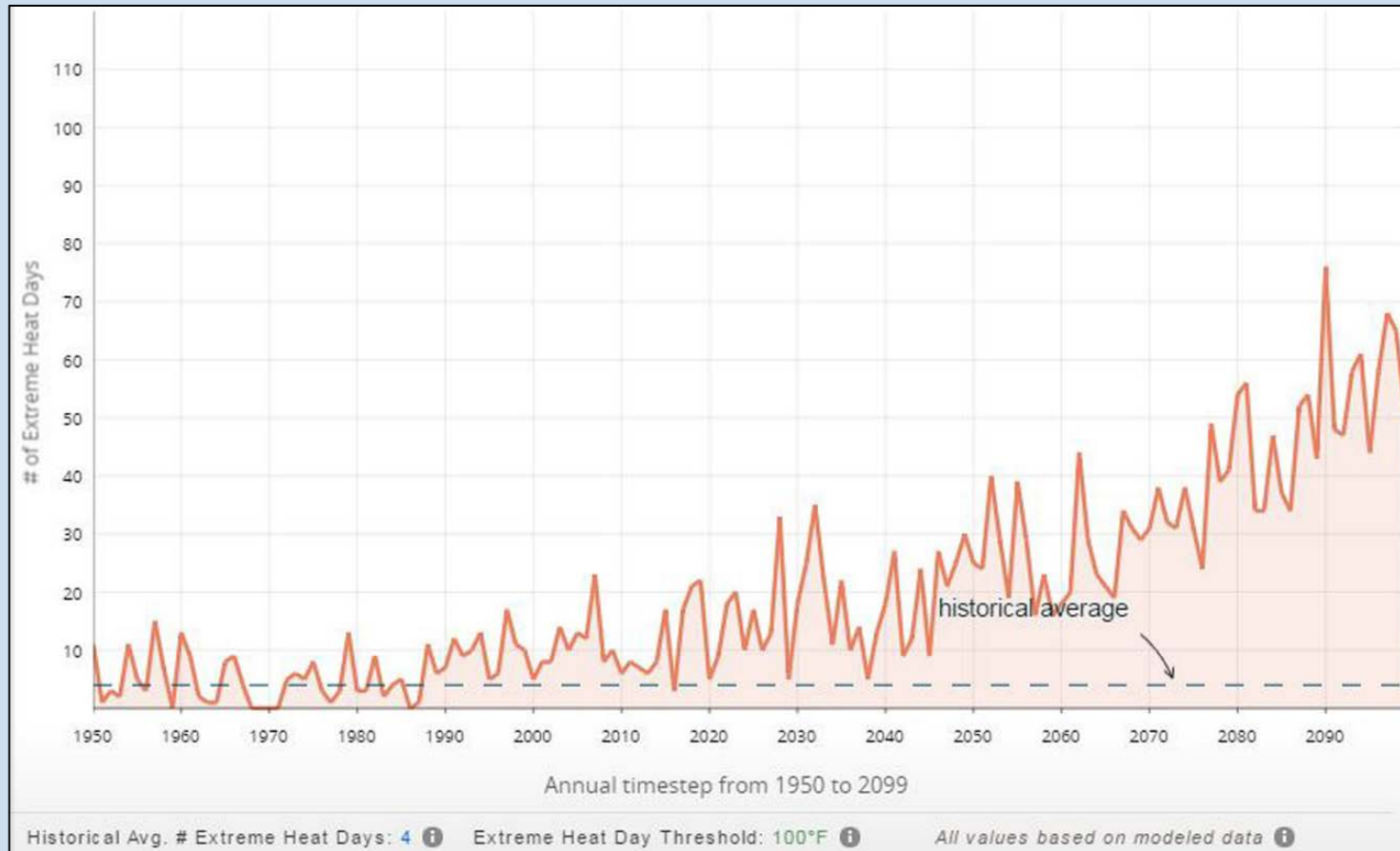
Changes in Annual Average Temperature by 2099

- Annual average temps
+1.5 to 4.5 F by 2050
+3.5 to 6.2 F by 2099
- Annual average low temps
+1.6 to 6.0 F by 2099
- Annual average high temps
+3.1 to 7.2 F by 2099



Extreme Heat Days

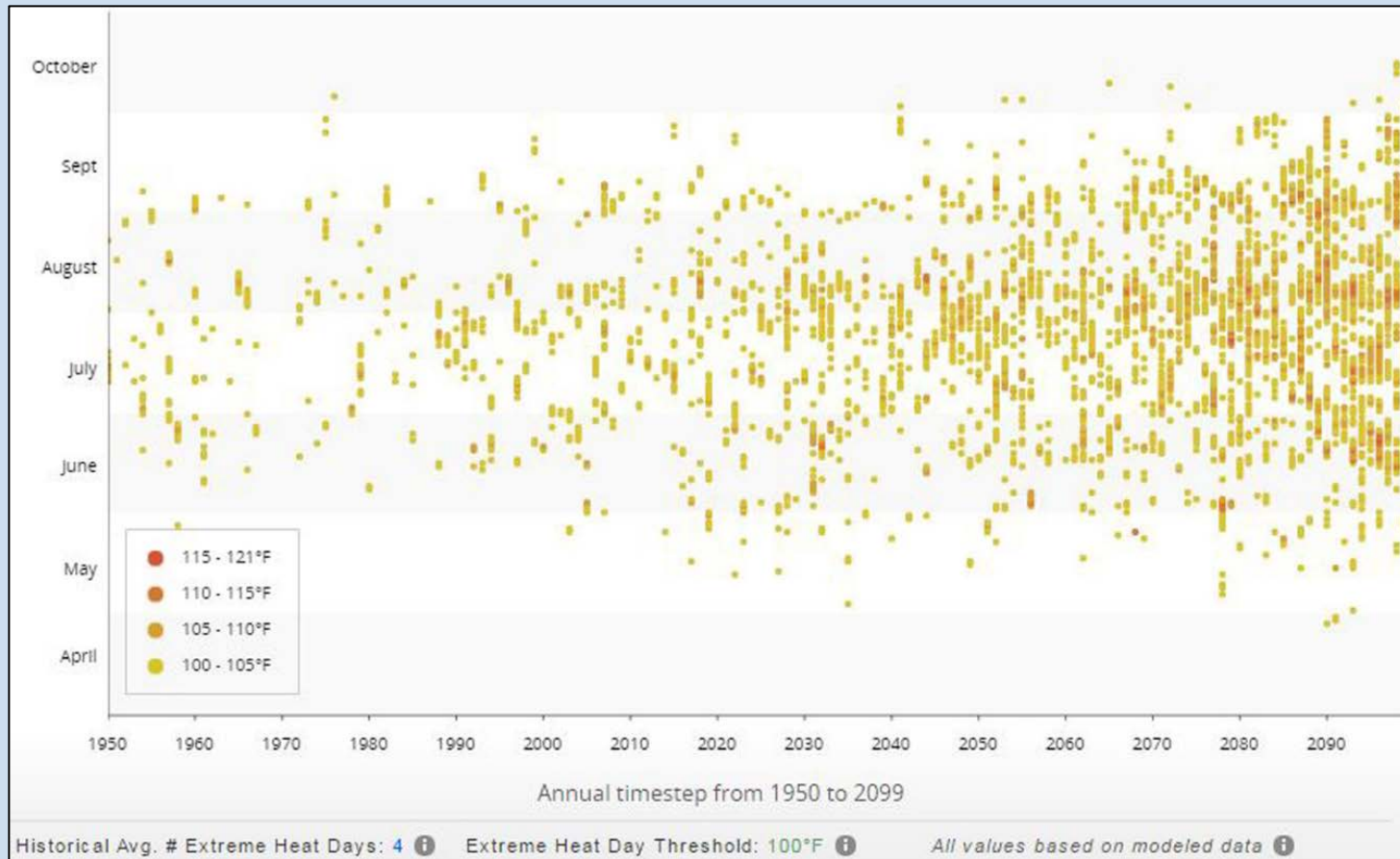
Number of Extreme Heat Days under the High-Emissions Scenario by 2099





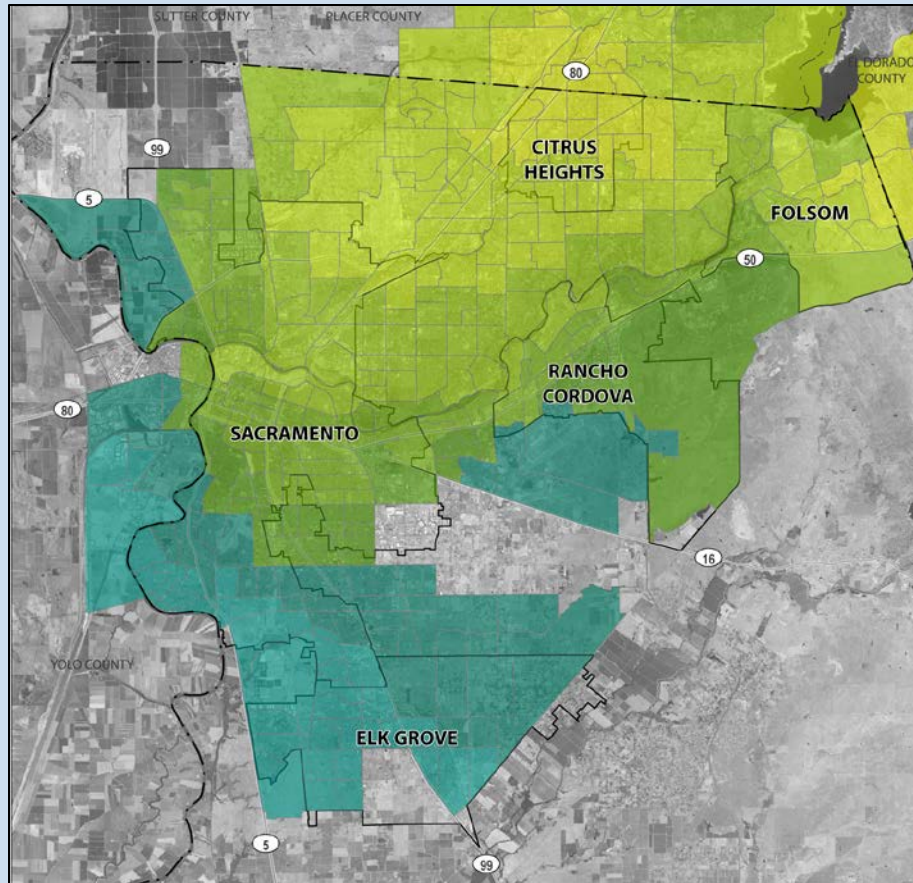
Extreme Heat Days

Timing of Extreme Heat Days under the High-Emissions Scenario by 2099





Urban Heat Island (UHI)



CalEPA Urban Heat Island Index

- What causes the UHI?
 - Heat-absorbing surfaces
 - Heat-generating activities
 - Absence of vegetation
- UHI Index Map
 - Existing Conditions
 - Measures urban heat island intensity over time



Temperature Impacts

■ Population

- Heat-related illness and mortality
- Worsening air quality
- Vulnerable populations: elderly, children, low-income, homeless, outdoor workers

■ Functions and Structures

- Utilities: Electricity demand increase, supply constraints, grid instability
- Infrastructure: Damage to pavement, bridges, rail, other
- Economic: Business impacts from heat stress and power outages
- Agriculture and Natural Resources: Farmworker heat exposure, reduced crop yields, crop shifting (i.e., loss of winter chill), species and habitat

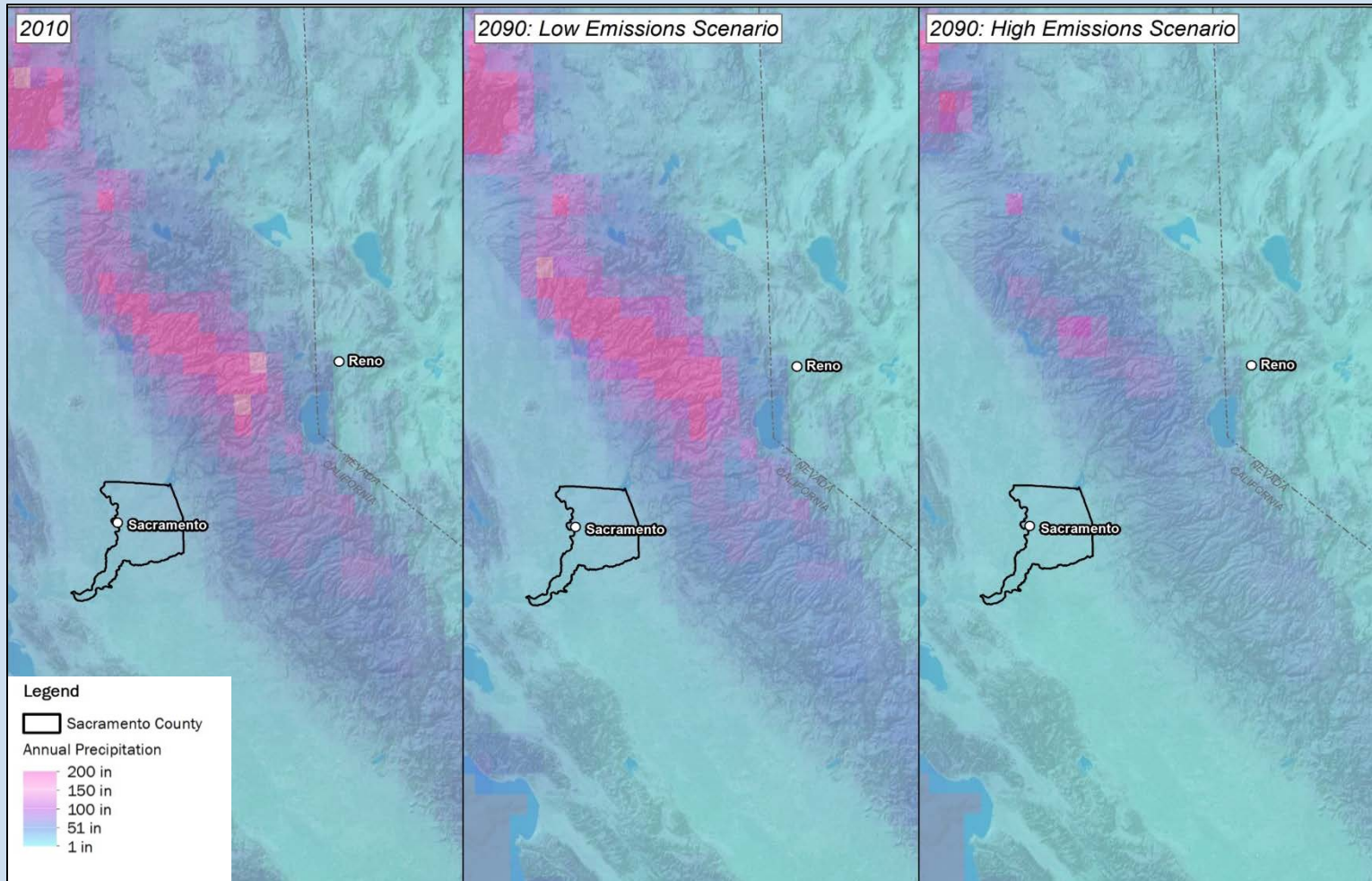


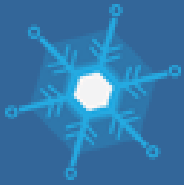
Temperature Adaptation Measures

- Emergency response (e.g., cooling centers)
- Utility assistance programs
- Low-income weatherization programs
- Energy efficiency and conservation programs
- Renewables and backup power
- Cool roofs, cool pavement, high-reflectivity materials
- Tree canopy, vegetation, reduction of hardscape
- Protection of critical infrastructure

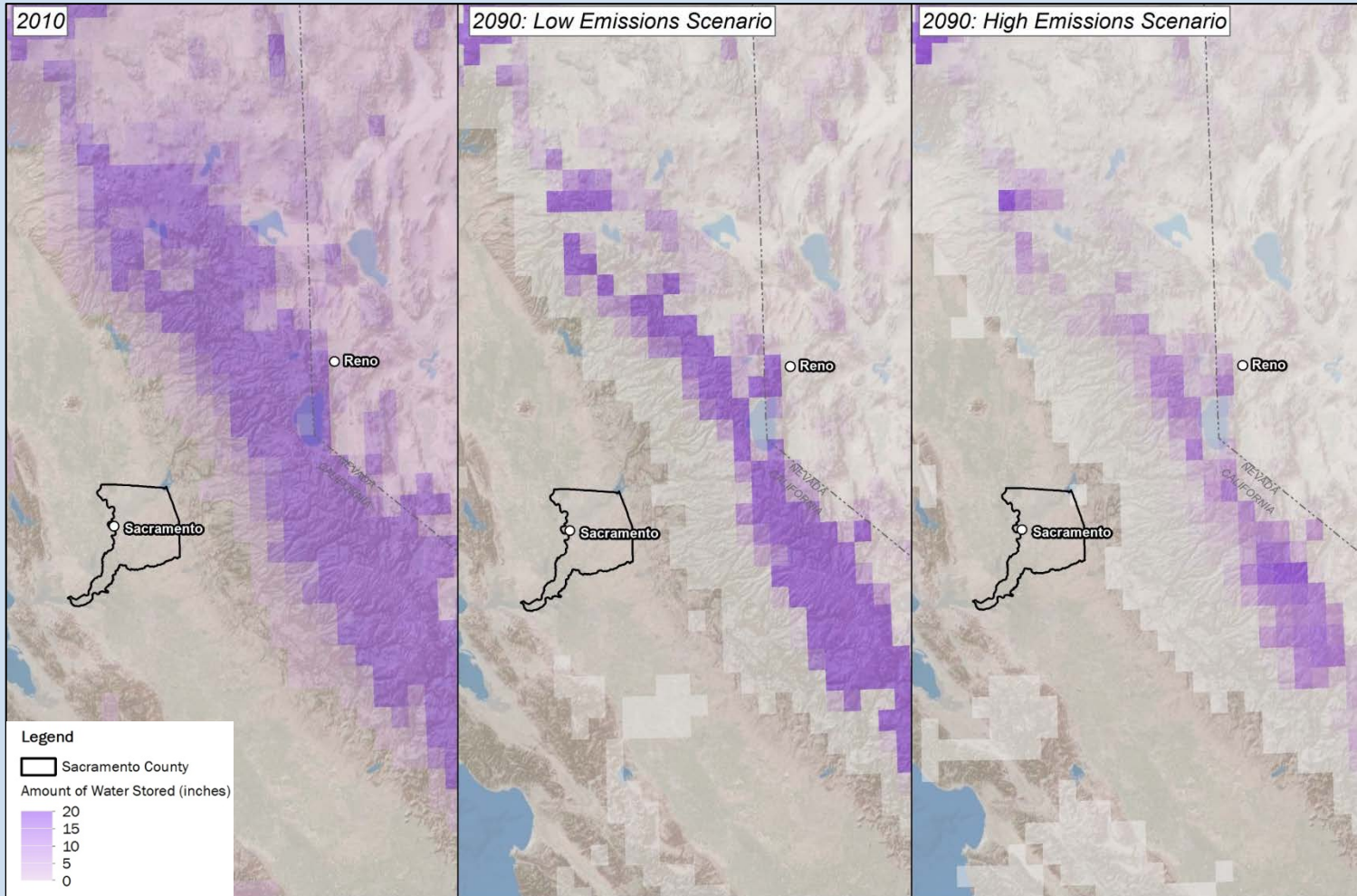


Changes in Precipitation



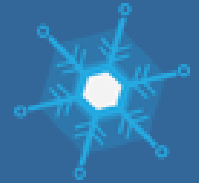


Loss of Snow Pack





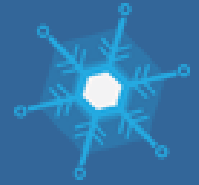
Changes in Precipitation Patterns



- Less snowpack, and earlier snowmelt
- Less predictability in timing and form of precipitation (rain vs. snow) in Sierras
- Less predictability in rainfall events, storms (e.g., atmospheric rivers)
- More frequent, severe periods of drought



Precipitation and Snowpack Loss Impacts



■ Population

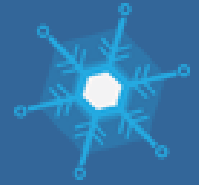
- Water supply impacts: surface and ground
- Flooding risk increase
- Vector-borne diseases

■ Functions and Structures

- Utilities: hydroelectric generation losses
- Infrastructure: water storage capacity, flooding
- Economy: snow loss, water supply loss, storm losses
- Agriculture: more severe water supply shortages and drought, species and habitat



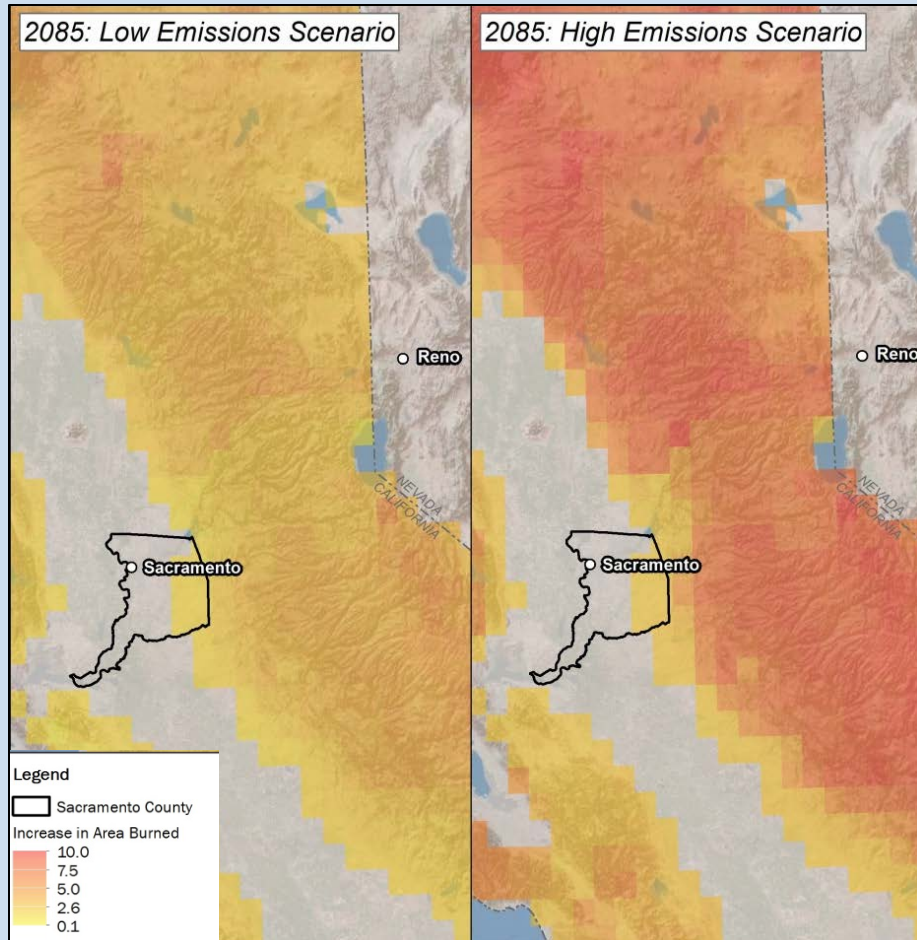
Precipitation/Water Adaptation Measures



- Increase resilience of water supply and flood control systems
 - Water districts
 - Flood control agencies
 - Regional collaboration (Water Forum, Regional Water Authority)
- Increase water conservation efforts to reduce demand
 - Education and outreach
 - Drought-tolerant landscaping
 - Rainwater catchment and storage
 - On-site graywater and area-wide recycled water systems
 - Agriculture: irrigation efficiency, shift crop types and/or methods



Increased Wildfires



Increases in Area Burned by Wildfires

■ County Wildfire Risk

- Grassland and peat fire risk may increase with higher temps, increased drought
- American River Parkway
- Wildland-Urban Interface

■ Sierra Nevada Wildfire Risk

- Significant increase in wildfire events and area burned
- Drought-induced tree mortality: near-term risk increase



Wildfire Impacts

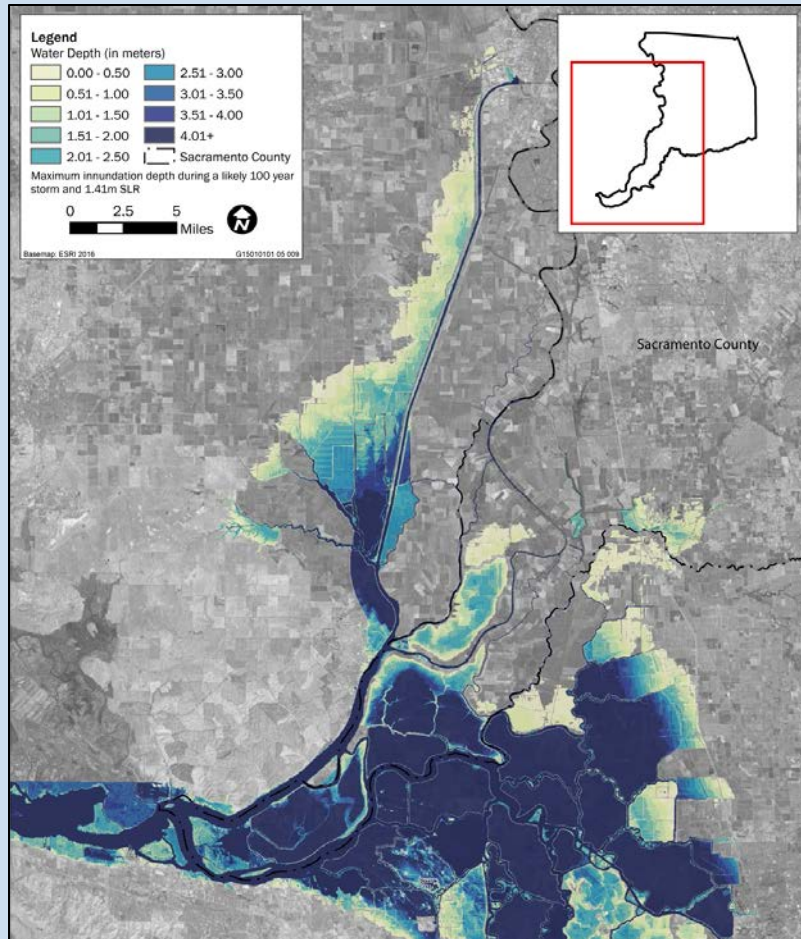
- Population
 - Direct threats to human life and safety
 - Property loss
 - Public health: air quality impacts in Central Valley
- Functions and Structures
 - Utilities and Infrastructure: damage to power generation & transmission, roads, bridges
 - Economic: property, operations, and connectivity losses
 - Agriculture and Natural Resources: grazing loss, livestock mortality, crop damage, species and habitat loss



Wildfire Adaptation Measures

- Mapping and detailed planning for critical infrastructure
- Avoid development in very-high fire hazard severity zones
- Collaboration with existing fire and emergency management agencies in the region
- Interregional collaboration between Sacramento region and Sierra Nevada

Sea-Level Rise and Flooding



Combined SLR and 100-Year Storm Event

■ Existing Flood Risks

- Sacramento, American, Cosumnes, Mokelumne Rivers + streams
- Over one third of County is currently in 100-year floodplain.

■ Sea-Level Rise (SLR) Impacts

- 1.4 m (4.6 foot) increase by 2100
- 51,000 acres (80 square miles) inundated during 100-year storm event combined with 1.4 m SLR.
- Increasing salinity in freshwater



SLR and Flooding Impacts

■ Population

- Direct threats to human safety (incl. mobility-challenged or areas without sufficient evacuation procedures/routes)
- Property damage and loss
- Vector-borne illness
- Hazardous material or sewage exposure

■ Functions and Structures

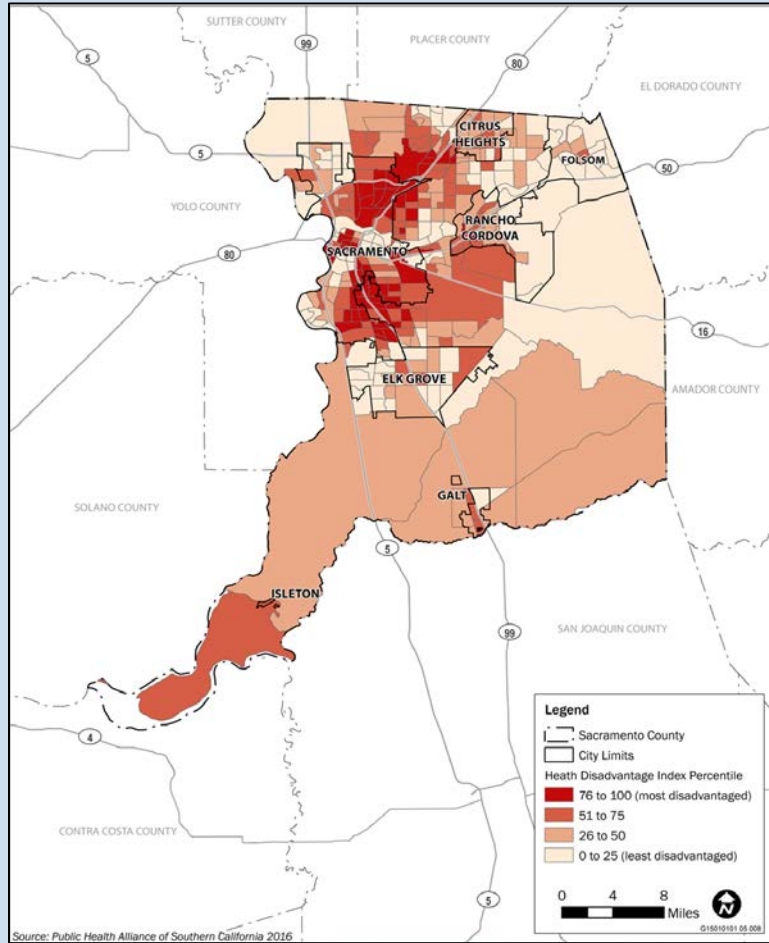
- Utilities and Infrastructure: levees, roads, bridges, power generation & transmission, water/sewer systems, fuel supply & distribution
- Economic losses: property damage, loss of operations
- Agriculture and Natural Resources: Crop damage, damage to grazing lands, livestock mortality, erosion and loss of topsoil, debris flows



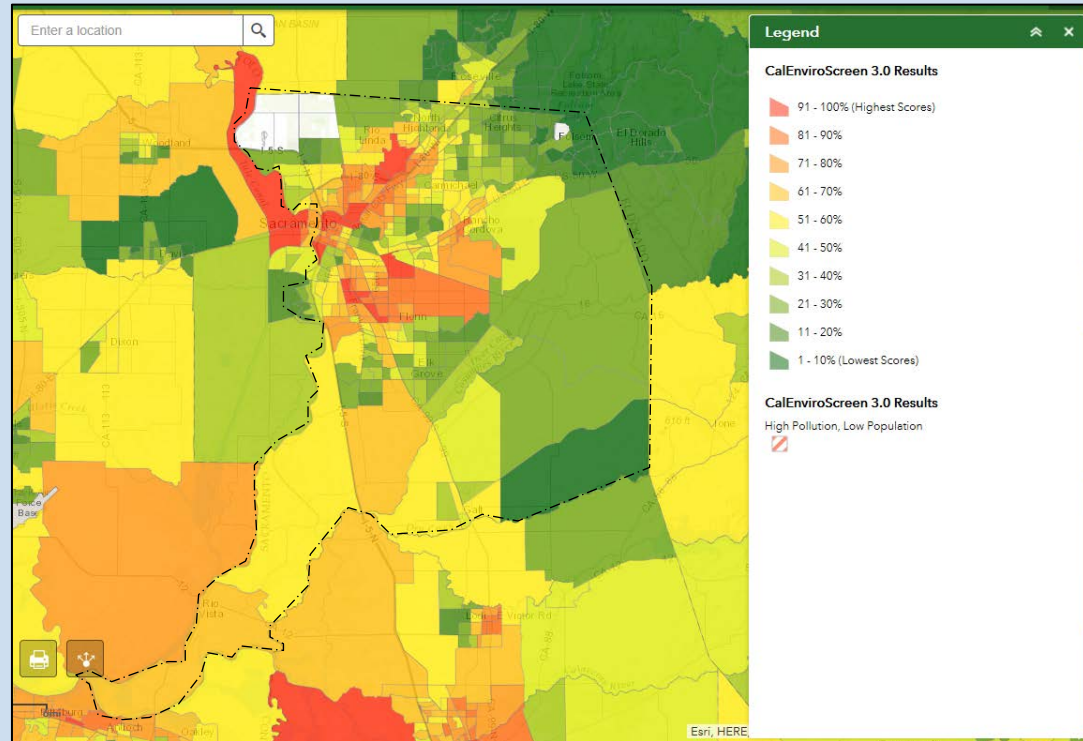
SLR and Flooding Adaptation Measures

- Improve emergency evacuation and supply routes
- Improve flood warning system and outreach to affected populations
- Address flood control system vulnerabilities
- Evaluate and improve stormwater infrastructure capacity
- Improve resilience of water supply, sewer, other systems
- Stream restoration, replanting, use natural infrastructure
- Map critical/threatened infrastructure and evaluate upgrades or relocations
- Regional collaboration and coordination

Disadvantaged Communities



Health Disadvantage Index (HDI)



CalEnviroScreen 3.0

Next Steps

- Develop and finalize adaptation measures
- Continue developing GHG reduction measures
- Future community workshops:
 - GHG reduction measures
 - Public Draft CAP document

Questions and Discussion

- What questions or concerns do you have about climate change?
 - Responding to climate change impacts
 - Reducing GHG emissions
- How can the County tie community needs into climate action strategies?
- Do you have questions about the presentation or process?

Get Involved

- Stay Informed
 - <http://www.per.saccounty.net/PlansandProjectsInProgress/Pages/CAP.aspx>
 - GovDelivery Email Subscription
- Communications
 - Todd Taylor, Project Manager
916-874-3125, taylor@per.saccounty.net
- Your involvement is welcome and encouraged!