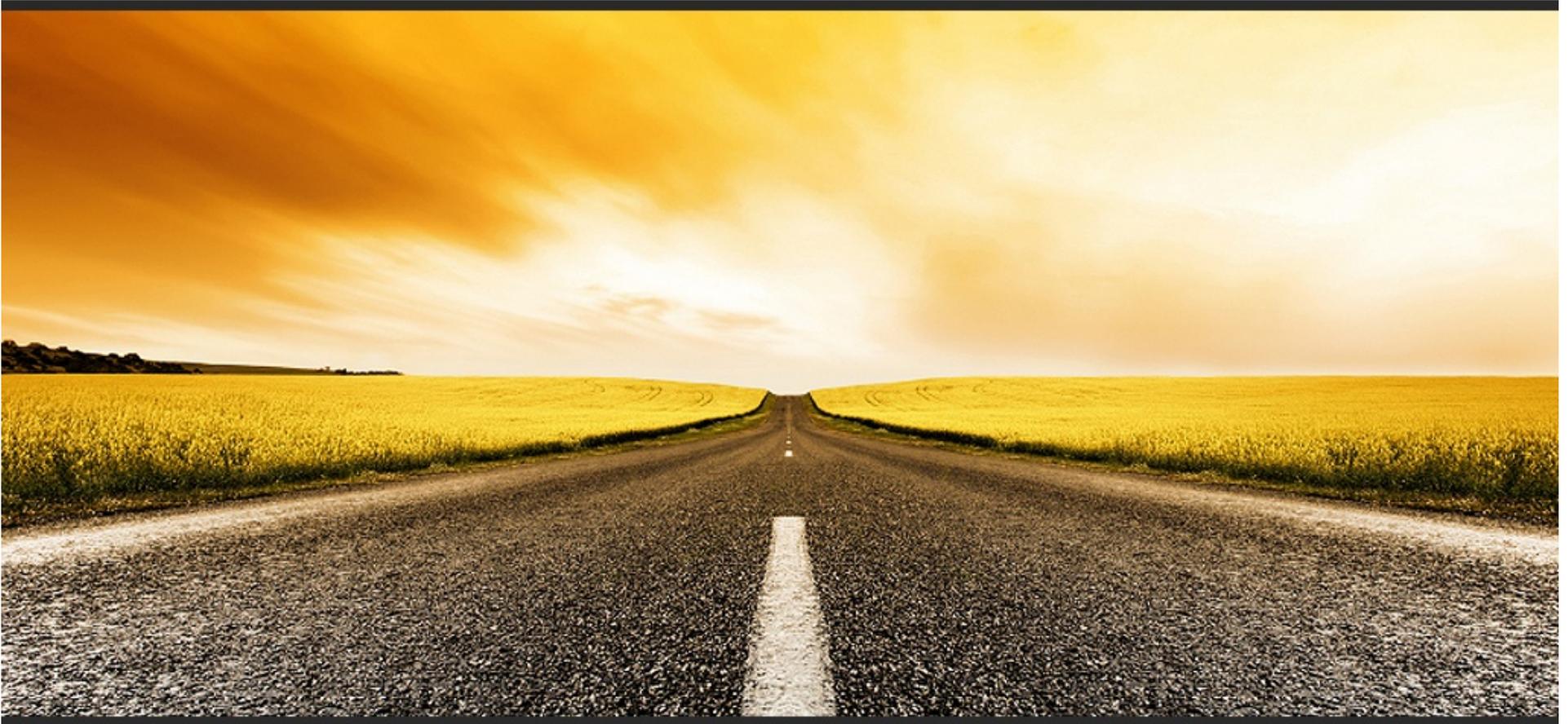


# **Climate Change and Transportation Asset Management**



**Garth Hopkins**

**Chief, Office of Regional and Interagency Planning  
California Department of Transportation**

# Overview of Caltrans Assets

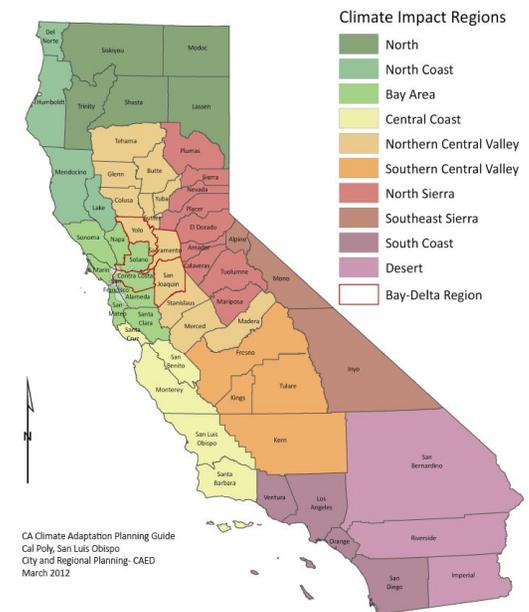
- **Over 50,000 lane miles**
- **Over 13,000 state owned bridges and other structures**
- **Over 78,000 street lights**
- **Over 200,000 culverts**
- **Over 12,000 vehicles in the fleet**
- **Over 2,400 ramp meters**
- **Over 4,500 traffic signals**



# California's Diverse Landscape



- North to South, California extends nearly 800 miles
- Local climates are very diverse, from temperate rainforests in the North to arid deserts in the South
- Within 80 miles of one another lie the highest and lowest points in the lower 48 states – Mount Whitney at 14,495 ft. and Death Valley at 282 ft. below sea level
- California will be affected by changes in the climate including:
  - Changing precipitation patterns
  - Increasing temperatures
  - Drought
  - Sea level rise
  - Wildfires



# Caltrans Transportation Asset Management Plan (TAMP)



- July 2012 internal program review states Caltrans will “fully commit to asset management of the state highway system infrastructure, with focus on performance”
- Below are TAMP sections and will have information on pavement, bridges, culverts, and ITS elements
  - Asset Inventory and Conditions
  - Asset Management Objectives and Measures
  - Performance Gap Assessment
  - Lifecycle Cost Considerations
  - Risk Management Analysis
  - Financial Plan
  - Investment Strategies
  - Asset Management Process Enhancements
- First draft of the TAMP will be completed by February 1, 2015 with a final version of the TAMP completed by April 1, 2016.

# Caltrans Office of Enterprise Risk Management



- Office created in 2013 to identify risks and opportunities to guide decision making
- Supports the achievement of Caltrans' objectives by addressing the full spectrum of its risk, and managing the combined impact of those risks as an interrelated risk portfolio
- Includes Department wide risks, from assets to employees and ethics

# Importance of incorporating climate change into asset management plans



- Extreme weather has caused millions of dollars in damage to the state transportation system
- Extreme weather has the potential to cause disruptions on the transportation system
- Knowledge of what assets are where can save a lot of money when an extreme event occurs
- Identification of assets that are critical to keeping the transportation system working during an extreme event

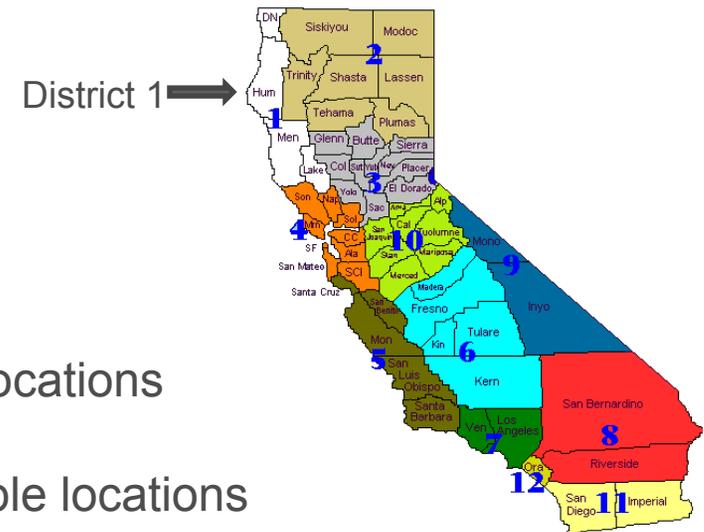


## **Challenges in addressing the risks of climate change and extreme weather in asset management**

- Climate change and extreme weather are unknown
- Currently there is a lack of uniform climate projections

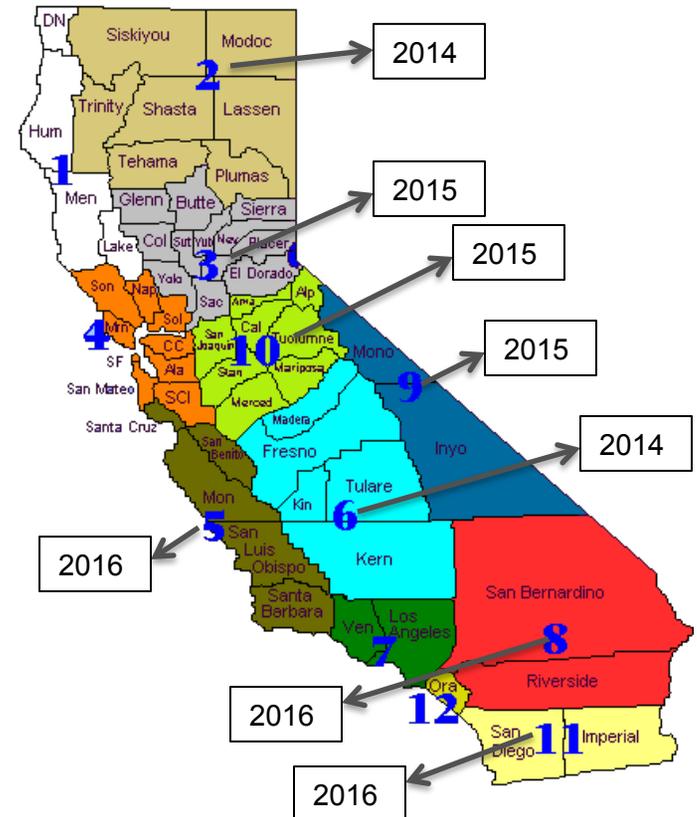
# Current Caltrans Climate Change Effort District Vulnerability Assessment

- District 1 (Northwest California) is conducting a climate change and extreme event vulnerability assessment
- Previous weather related impacts to the transportation system include:
  - Sea level rise
  - Flooding
  - Landslides
  - Wildfires
- Identifying four most vulnerable locations
- Conducting asset inventory in the most vulnerable locations
- Developing adaptation options for the most vulnerable locations



# Upcoming Caltrans Climate Change Effort District Vulnerability Assessments

- Caltrans will be conducting vulnerability assessments in 8 districts over 3 years
- Assessments will identify transportation Infrastructure vulnerable to the impacts of climate change and extreme weather events
- Robust asset inventories will be conducted in all Districts conducting assessments



**Thank You!**

