District Climate Change Vulnerability Assessment

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Transportation Infrastructure

- Ports
- Rail
- Scenic Routes
- Rural Communities
- Trails
- Rural Routes
- Delta/Wetlands
- Airports
Climate Change Impacts to the Transportation Infrastructure
Caltrans Climate Change Efforts

- **Greenhouse Gas Mitigation**: Reduced emissions from operations by 24%
- **Climate Change Adaptation**: Guidance and research on incorporating climate change into projects
- **Climate Change Vulnerability Assessments**
Scope of Climate Change Vulnerability Assessment Studies

- Project future climate scenarios (2050, 2070, 2100)
- Quantify and map impacts of climate change stressors
- Identify transportation assets at risk (roads, bridges, culverts, etc.)
- Develop strategies and guidance to address vulnerable assets in Caltrans planning, and project development
Vulnerability Assessment Study – Delivery Schedule

**District 1**
- Completed

**District 4**
- February 2017

**Districts 2, 9, 3, 8, 6, 10 & 11**
- By the end of 2017

**Districts 5, 7 & 12**
- Pending sea-level rise data by the US Geological Survey
Draft Climate Change Vulnerability Report
District 4 - San Francisco Bay Area

Report Includes:

- Sea-level rise projections
- Maps (data) for each climate stressor
- Identification of vulnerable roadway
- Case-study example of project-level analysis
Sea Level Rise Impacts – High Emission Scenario
San Francisco Bay Area

2050
1.6 Ft Sea Level Rise

2070
3.3 Ft Sea Level Rise

2100
5.7 Ft Sea Level Rise
Adaptation Approaches

- Defend
- Adapt
- Realignment
- Planned retreat
- Forced retreat
Caltrans Example of Defend

- Major erosion event along 101 in need of repair
- Rock slope protection along 101
- Seawall protecting 1 in Malibu
Caltrans Example of Planned Retreat

Storm surge on State Highway 1 near Piedras Blancas

3-mile Realignment to protect HWY from erosion
California Sea Rise Adaptation Efforts
Elkhorn Slough

This project is exploring green infrastructure techniques for coastal highway resilience along the Pacific Coast Highway (Hwy 1) along Elkhorn Slough in Monterey County.
Questions?

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