Caltrans Tri-State Resiliency Meeting

Tri-State Meeting
September 1, 2026

Caltrans

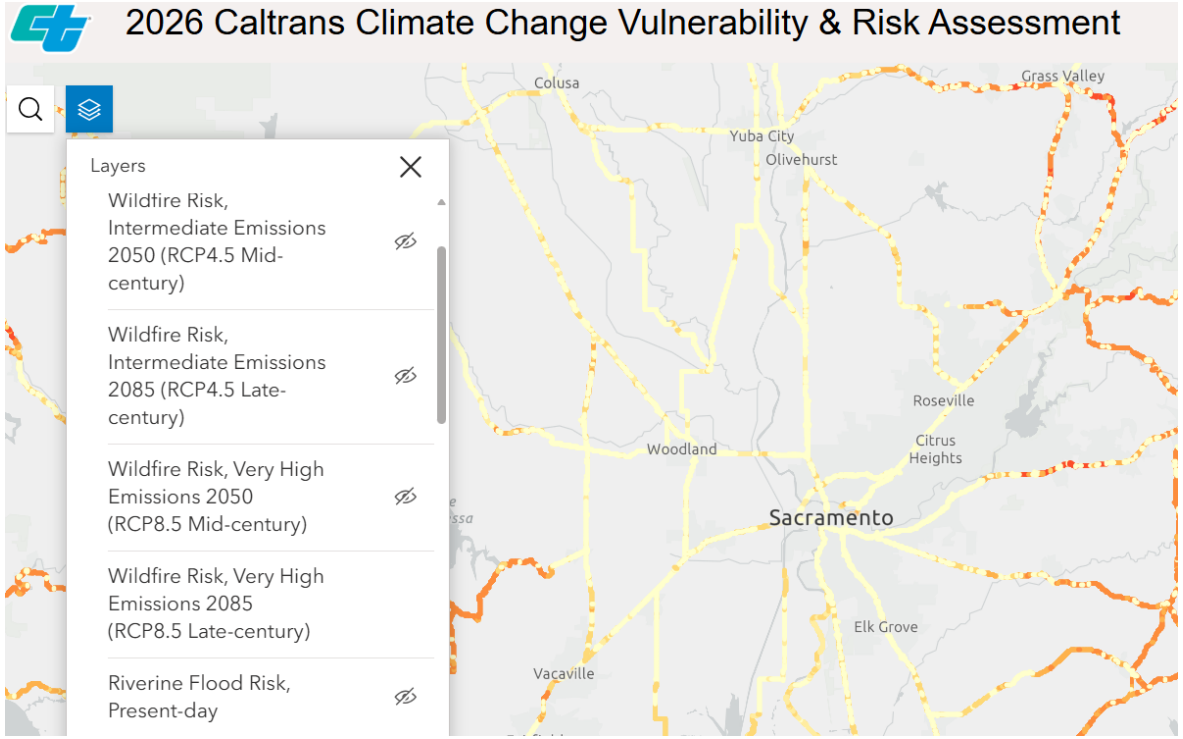
Climate, Asset, and Infrastructure Resilience

Office of Air Quality Conformity and Resiliency Planning Goals:

1. Create a transportation system resilient to all types of impacts
   - Climate impacts
   - Power outages
   - Manmade events
2. Consider interdependent systems
3. Build partnerships for coordinated planning efforts

Climate Change Vulnerability and Risk Assessment (CCVRA)

- Update to the 2019 Caltrans Climate Change Vulnerability and Risk Assessment
- Proactive approach to identifying segments of the State Highway System and assets vulnerable to climate-related stressors
- Deliverables include a Statewide Summary Report, a Technical Report describing methodology and online map viewer

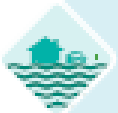


CCVRA Base Infrastructure Data

Asset	Description	Quantity	Data Source
Roadways	Represents the length of pavement in each direction, including all lanes, along the SHS	15,000+ centerline roadway miles	State Highway Network Lines California State Geoportal
Bridges	Brides along the SHS	13,000+	Division of Maintenance/Structure Maintenance and Investigations
Tunnels	Tunnels along the SHS	63	National Bridge Database
Culverts	Essential for managing water runoff and protecting SHS roadways	275,000+	Culvert Inspection Management System

Adding soon: maintenance stations and rail lines

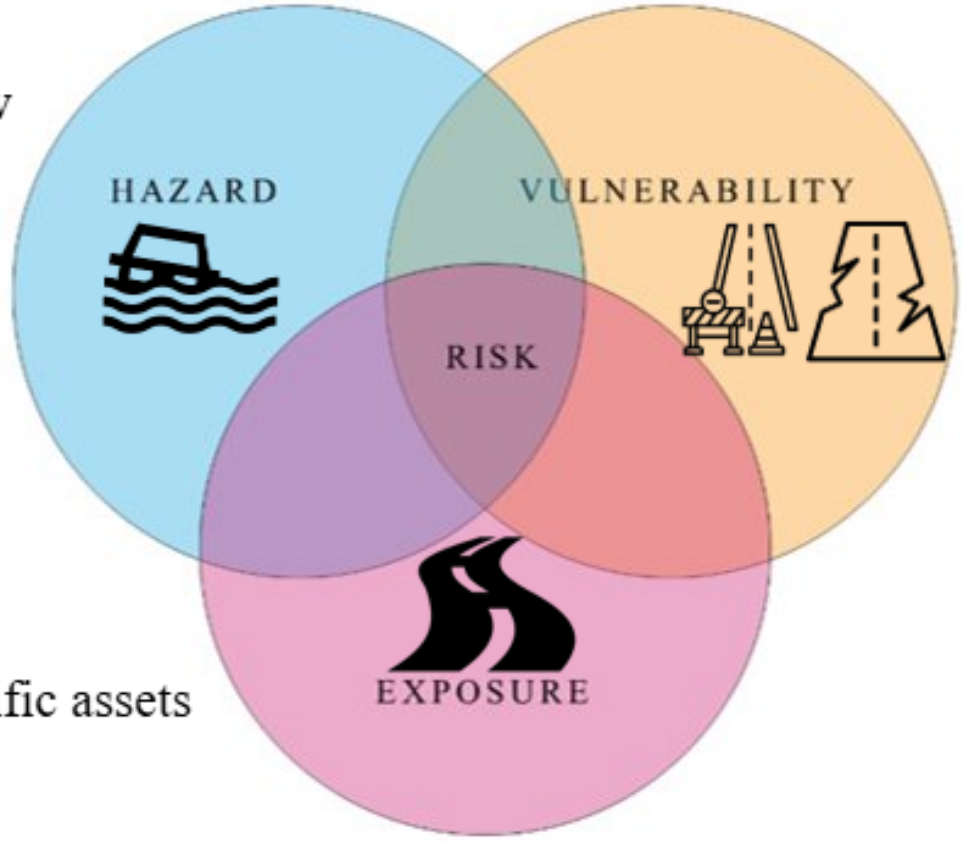
CCVRA Climate Hazard Data Sources

Hazard	Data source for current conditions	Data source for future conditions
Riverine Flooding	FEMA National Flood Hazard Layer	Maximum Annual Total Runoff, calculated from the LOCAv1 Variable Infiltration Capacity Model (LOCAv1-VIC)
 Coastal Flooding and SLR	Inundation extent and flood depth from the Coastal Storm Modeling System (CoSMoS) for multiple sea level rise scenarios	
Coastal Erosion	Shoreline change and cliff retreat from CoSMoS for multiple sea level rise scenarios	
Wildfire	CAL FIRE wildfire threat and tree mortality datasets	Decadal wildfire probability, developed by UC Berkeley and UC Merced and hosted on Cal-Adapt
Landslides	Deep-seated landslide susceptibility map developed by the California Geological Survey (CGS)	Winter season soil moisture, calculated from the LOCAv1 Variable Infiltration Capacity Model (LOCAv1-VIC)

CCVRA Risk Assessment

Risk is the combination of three components: Hazard, Exposure, and Vulnerability

Hazard: How often and how intense are hazards such as storms and wildfires?



Vulnerability: How do assets perform when exposed to hazards such as how does electrical equipment perform when exposed to floodwaters?

Exposure: What specific assets are at risk?

CCVRA Map

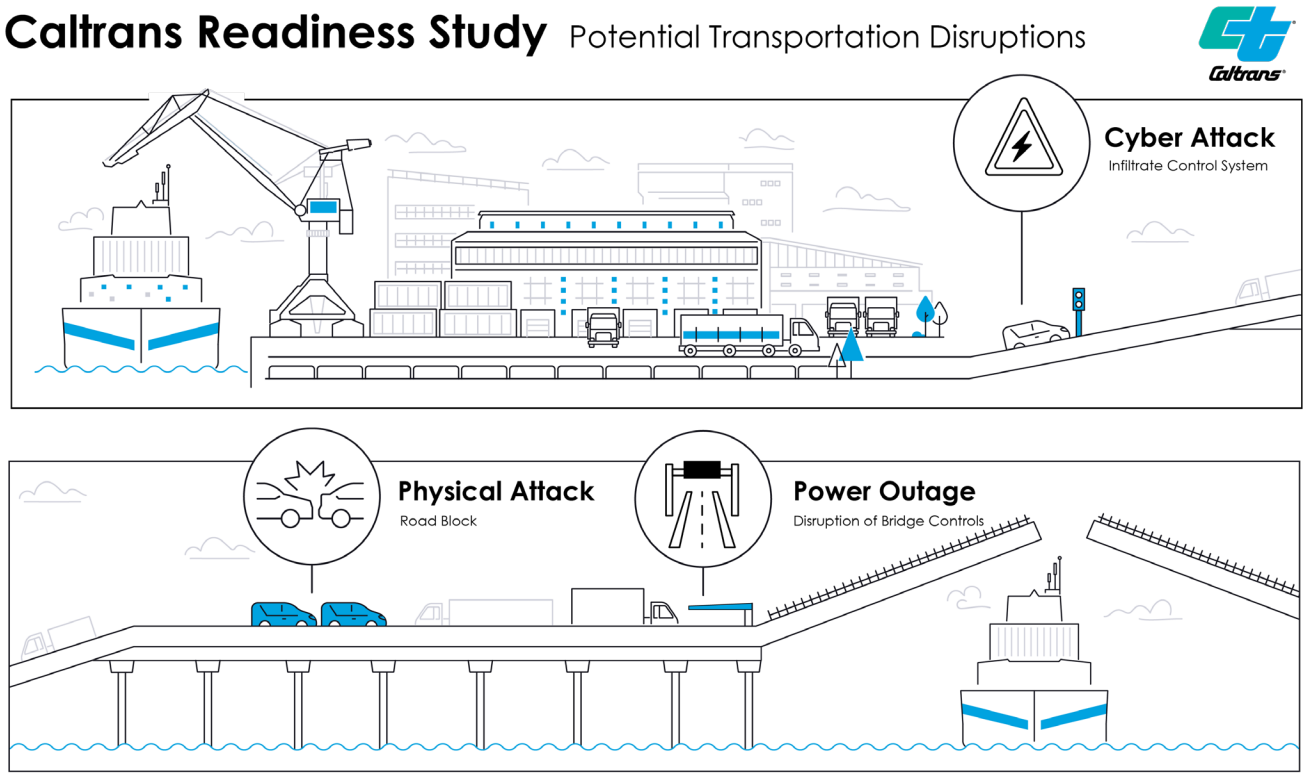
[Statewide Climate Change and Risk Assessment Map]

The CCVRA map allows viewers to visualize the following on the SHS:

- Impacts to SHS infrastructure by post-mile markers
- Choose risks by asset type (slide 4)
- Toggle between climate stressors
- Choose between projection years (present-day, mid-century, and late-century)

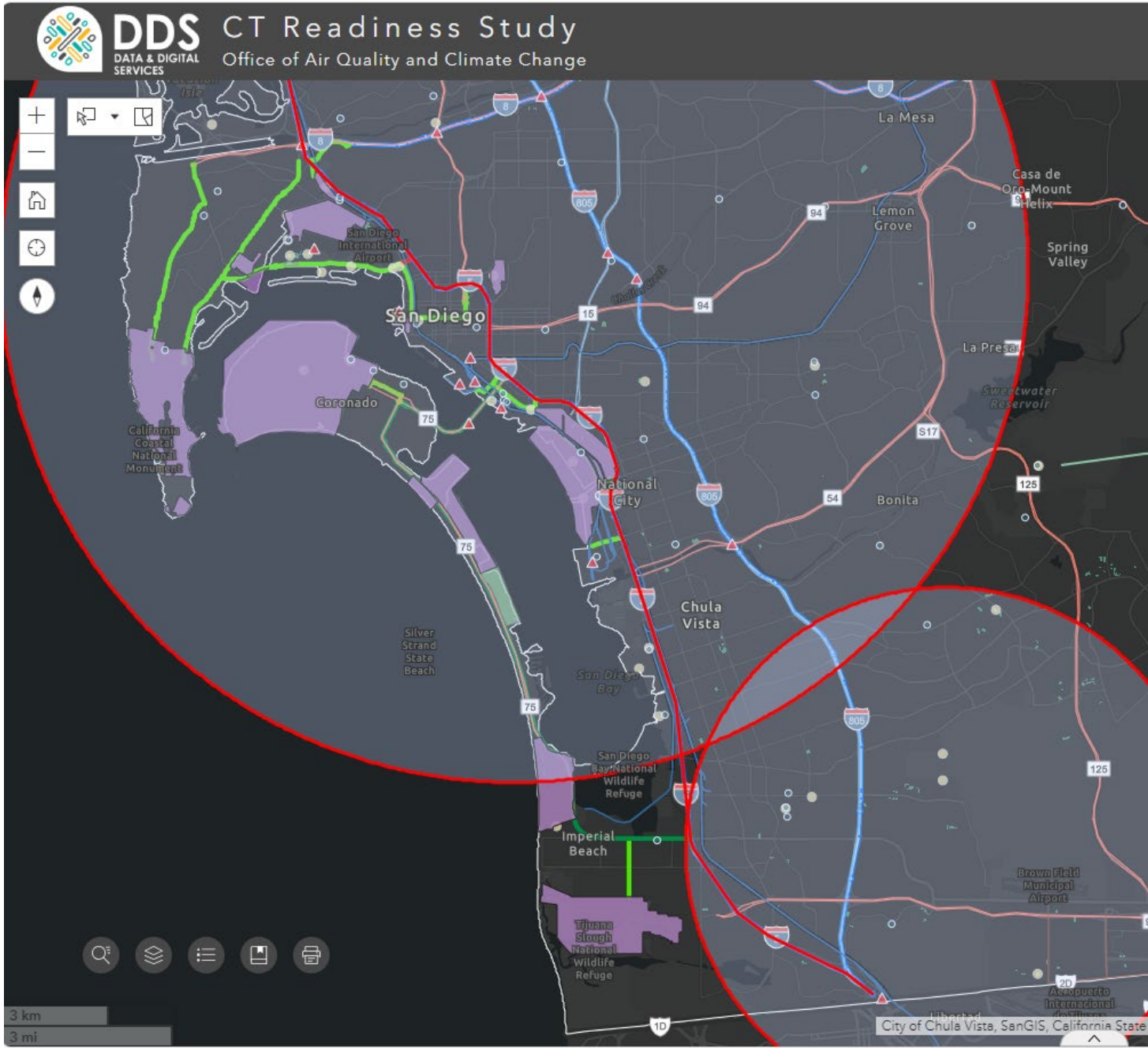
New Caltrans Readiness Study

- Identify and map critical transportation and related energy infrastructure
- Compile information about transportation system vulnerabilities
- Identify likely geographic impact of critical transportation infrastructure disruptions
- Develop mitigation strategies to address vulnerabilities
- Completion by Summer 2027 *(not for public release)*



Identify Caltrans Critical Infrastructure

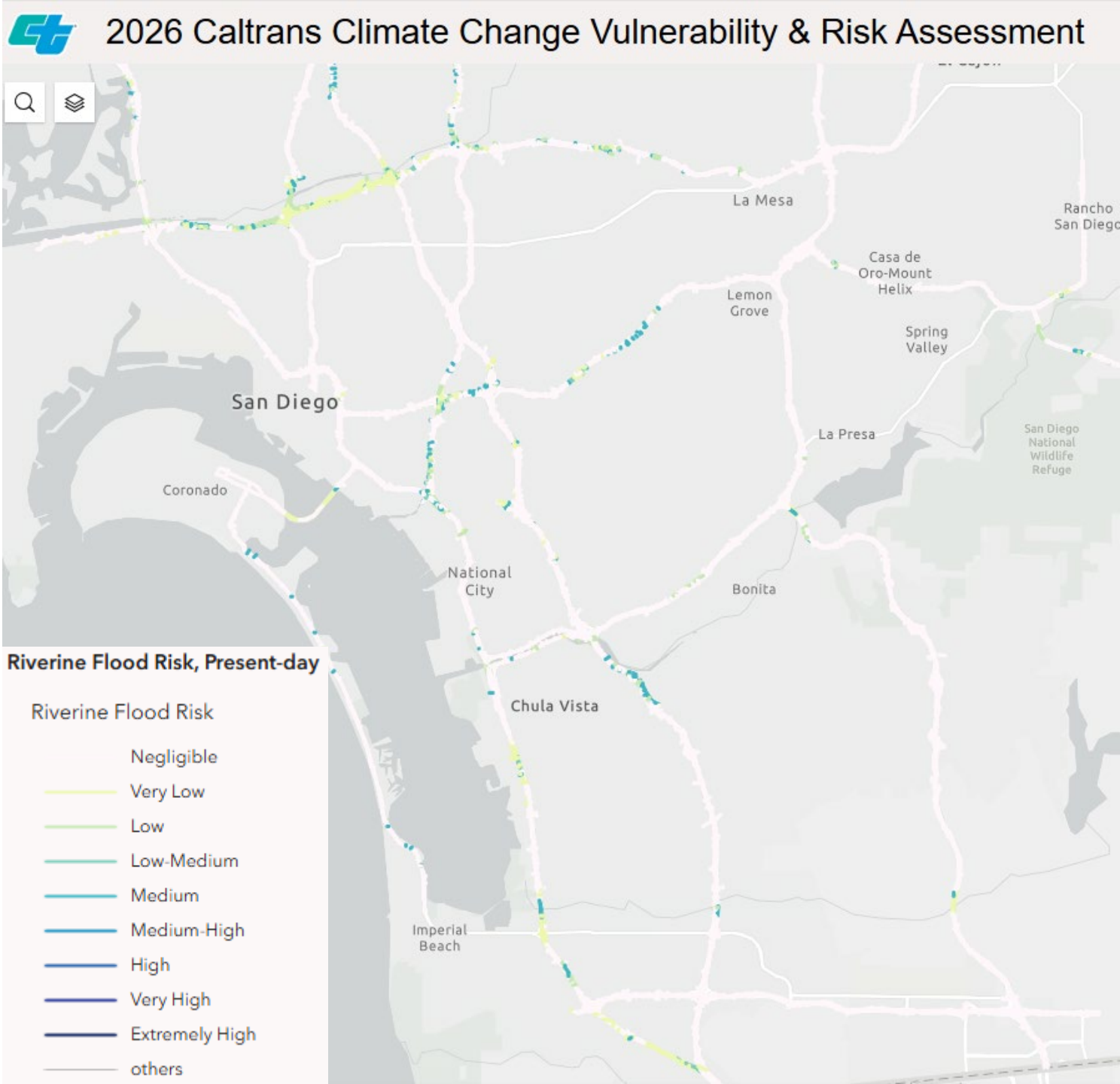
Use the draft critical infrastructure map created for the Readiness Study to identify critical infrastructure



Caption: Draft Readiness Study Map (not for public release)

Overlay Critical Infrastructure with Climate Stressors

Use the CCVRA map to identify critical infrastructure with the highest risk climate stressors



Connecting the CCVRA to Critical Infrastructure

CCVRA

- Displays where the State Highway System is vulnerable to projected climate change impacts
- Data came from the 5th California Climate Assessment
- Available to the public

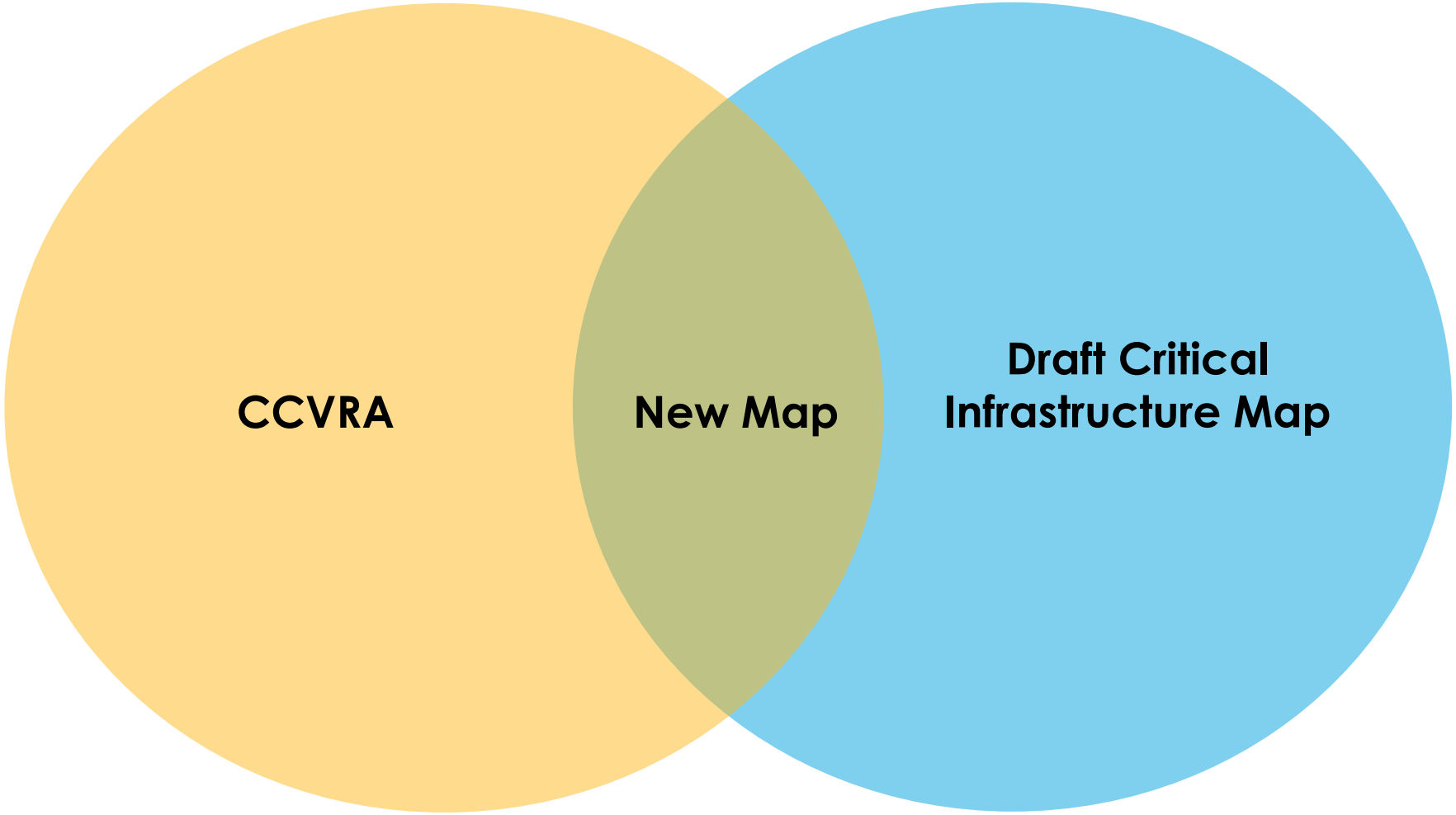
Draft Critical Infrastructure

- Displays infrastructure including ports, energy and water systems, commercial vehicle enforcement facilities, and Traffic Management Centers.
- Was developed for the Readiness Study
- Not for public release

Caltrans Readiness Study

- Identifies Critical Infrastructure, potential impacts and mitigations to areas of concern.
- The focus of this study is ports and military installations.
- Not for public release

Mapping Critical Infrastructure with the CCVRA



Thank you