

Bay Area Airport Disaster Recovery Study

Regional Scope

Local Scope

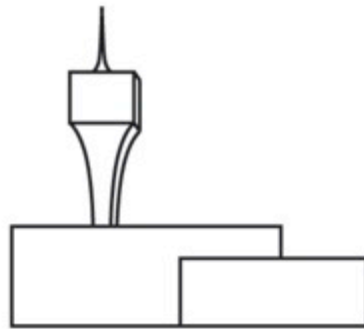
Infrastructure Vulnerability & Interdependencies Study

Airport Liquefaction Susceptibility Analysis

Roles of Airports in Regional Disasters

Oakland Airport & Bayfarm Island Focus Area

AIRPORT IS
DEPENDENT ON



DEPENDENT ON
AIRPORT



- Roads
- Rail (Passenger)
- Rail (Freight)
- Electricity
- Natural Gas
- Fuel
- Water
- Waste Water
- Communications

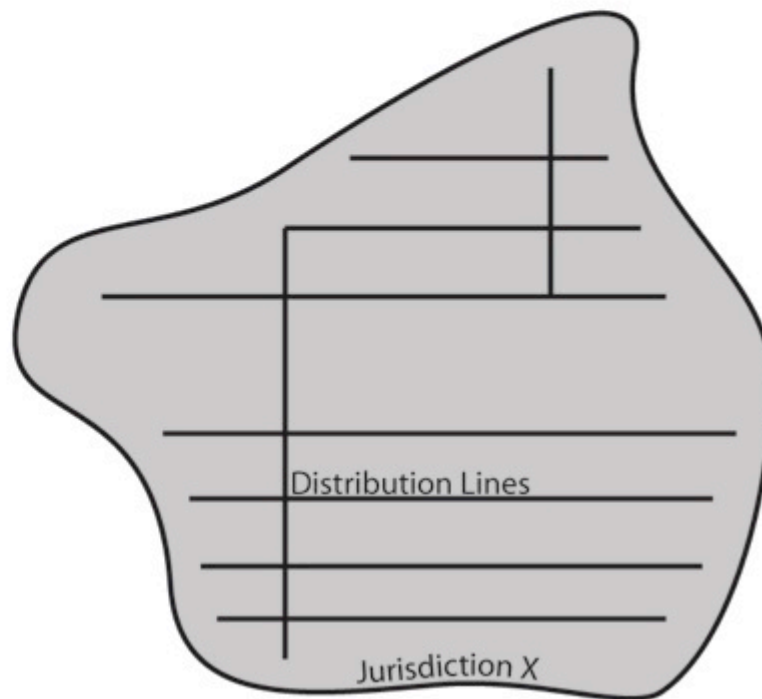
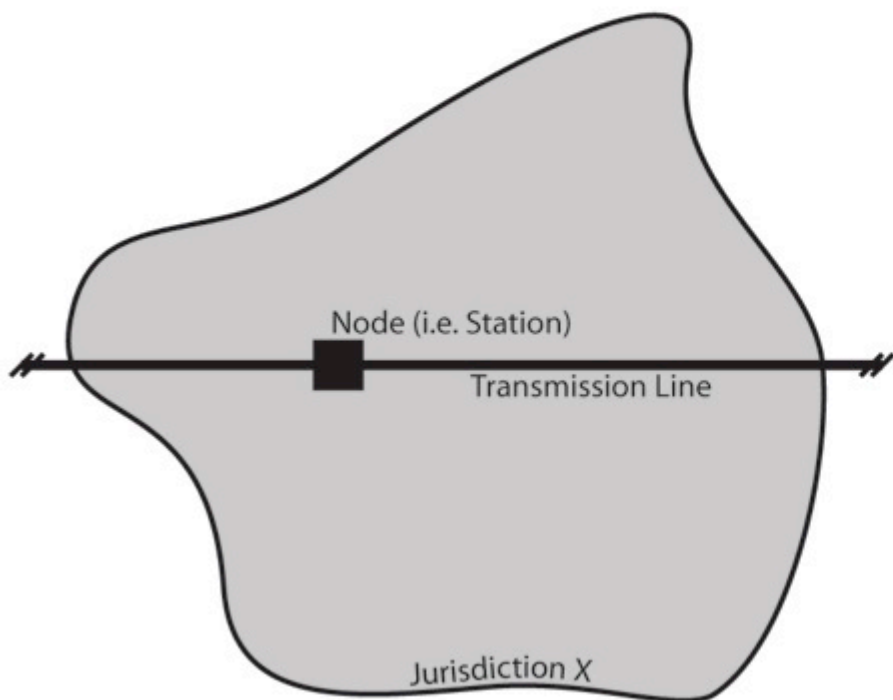
Lifelines Risk

Transmission System

Distribution System

Infrastructure Vulnerability & Interdependencies Study

Local Study



TRANSPORTATION

ROAD

PASSENGER RAIL

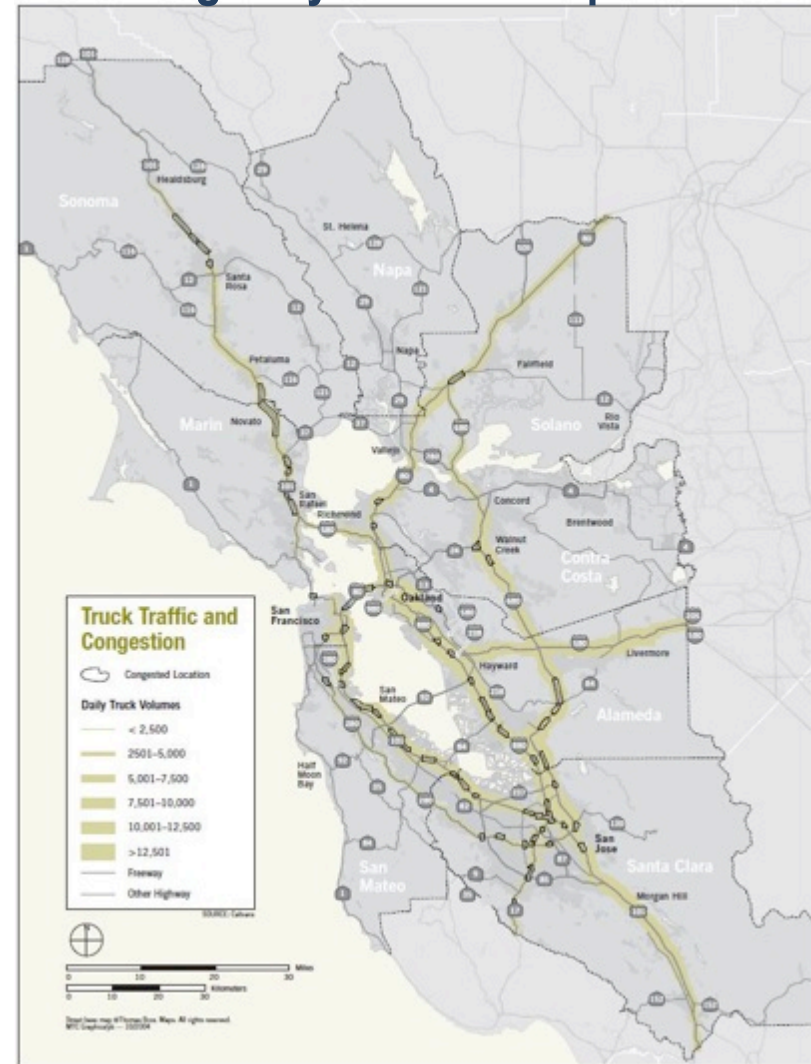
FREIGHT RAIL

REGIONAL ROAD SYSTEM

State Highways – Vehicle Trips



State Highways – Truck Trips



MTC (2004)

East Bay – Hayward Event

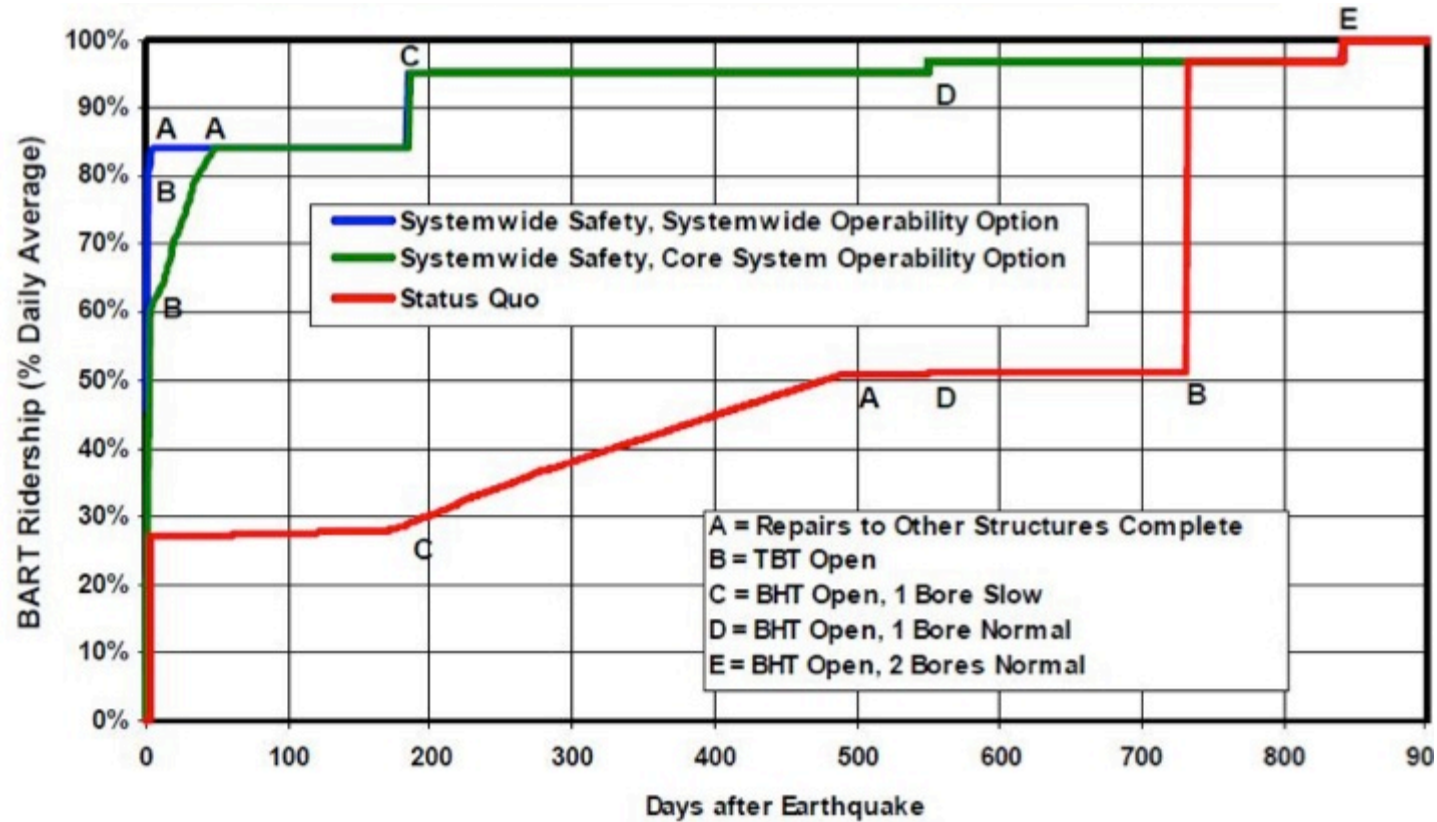


Rail System

- Altamont
- Amtrak
- BART
- CalTrain



BART Service Restoration (Hayward M 7.0)



In general BART system performance and restoration will be governed by the

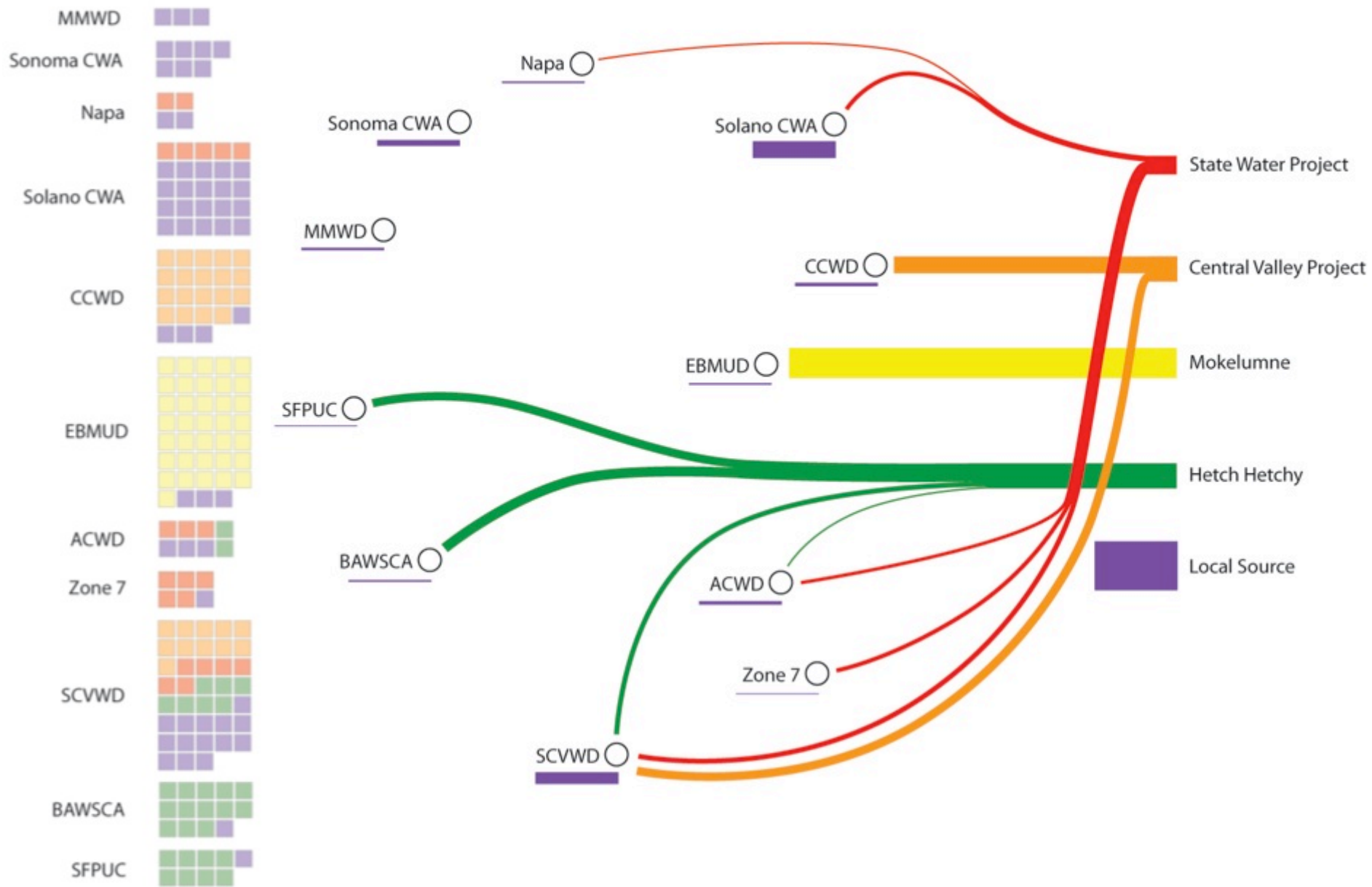
- Transbay Tube
- Berkeley Hills Tunnel

WATER

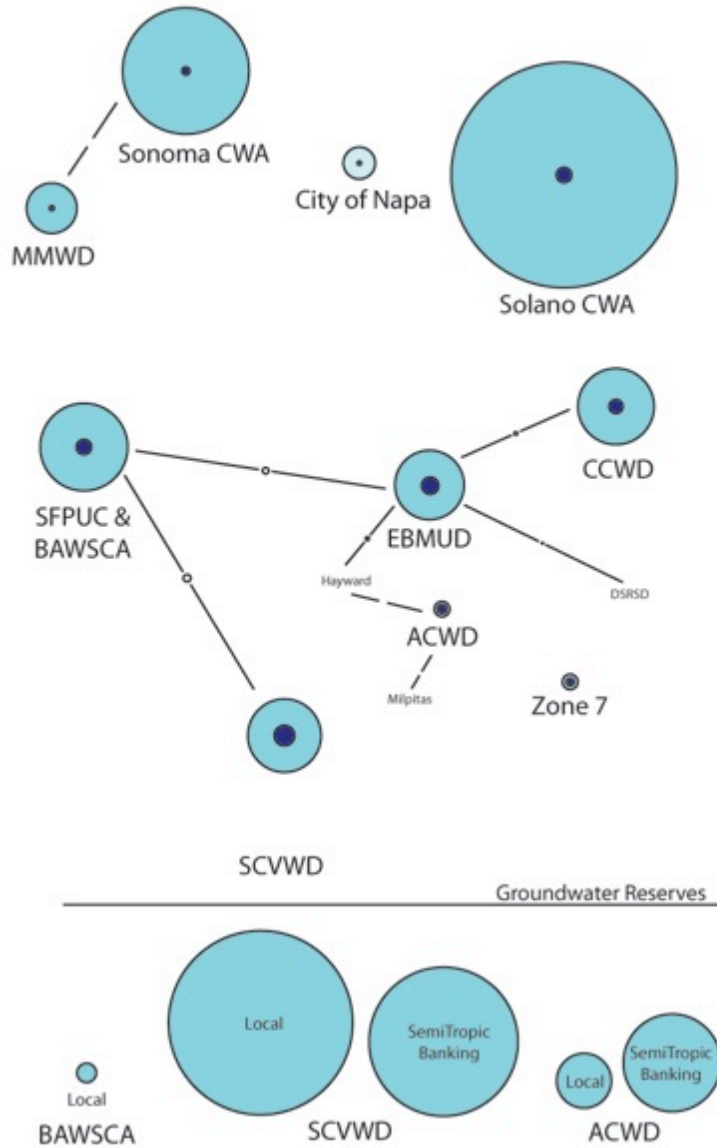
WATER TRANSMISSION

WATER STORAGE

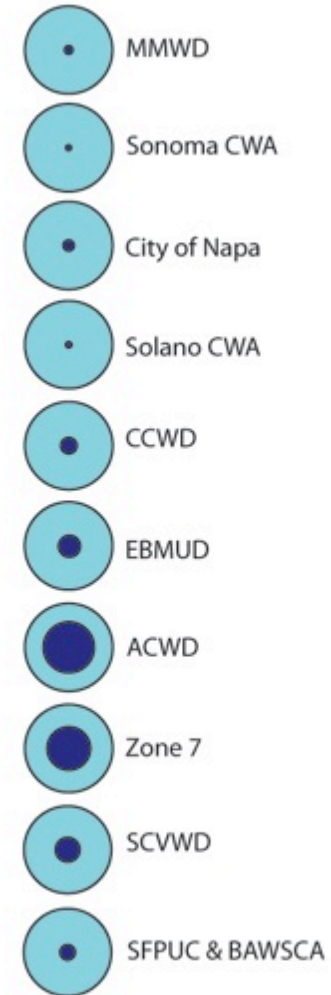
WATER DISTRIBUTION



Inner circle's area is acre-ft used in a week.
 Outer circle's area is acre-ft of 1/2 capacity of reservoirs.
 Lines represent interties; the circle is weekly acre-ft capacity of intertie.



The circles to the left have been scaled to show which districts have storage (reservoir only) and which dont.



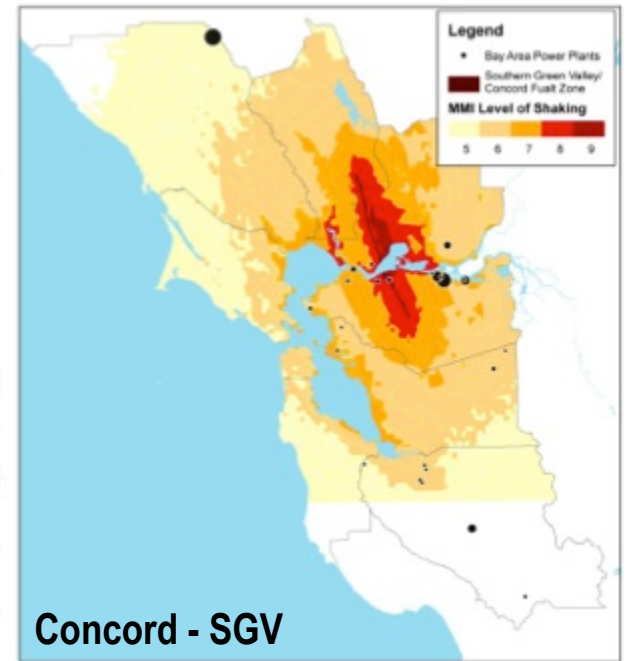
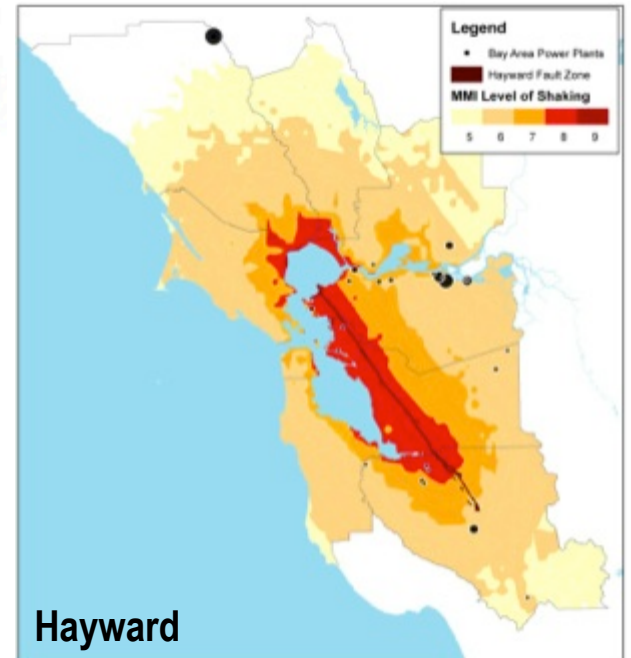
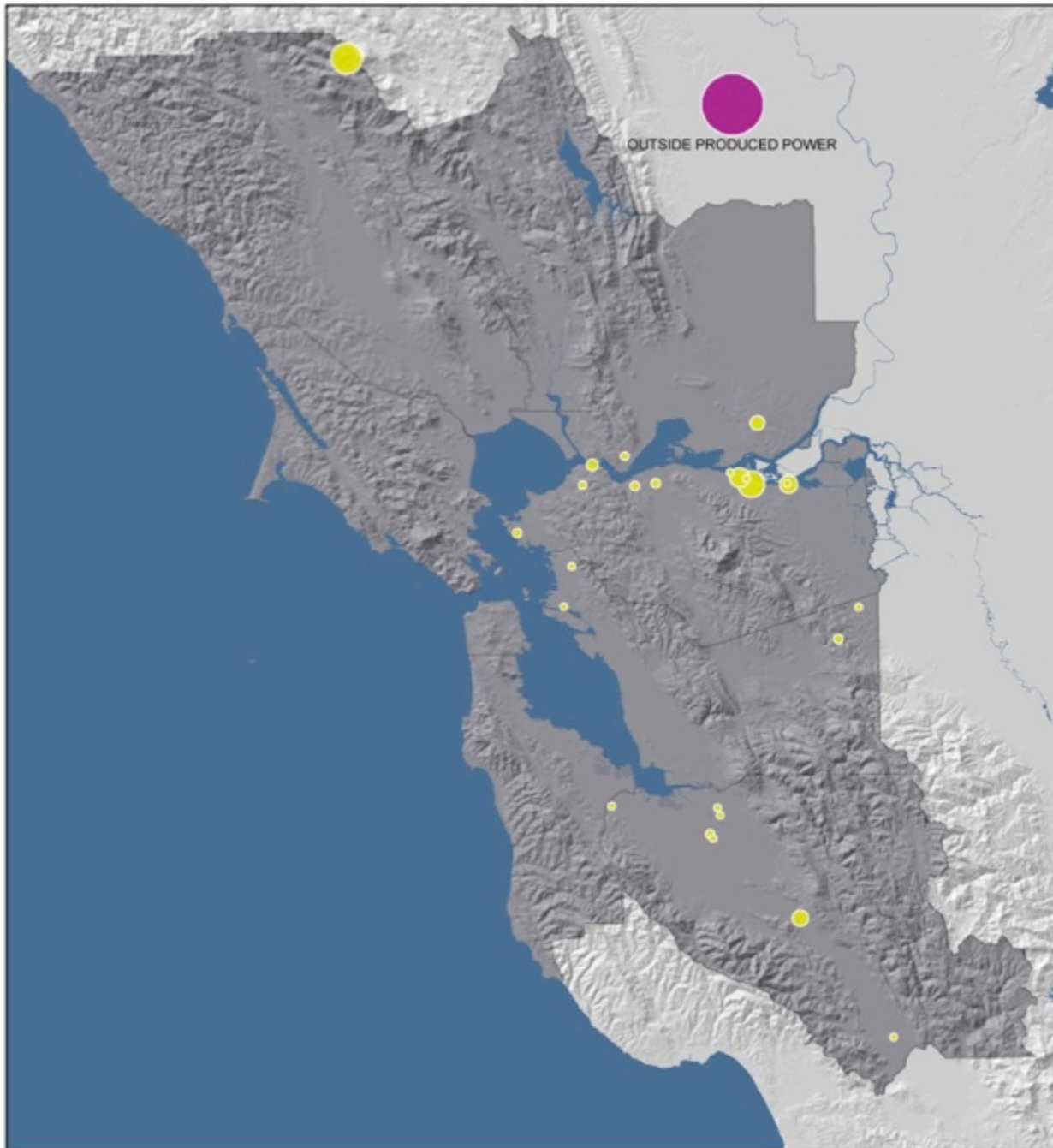
ENERGY

ELECTRICAL GENERATION

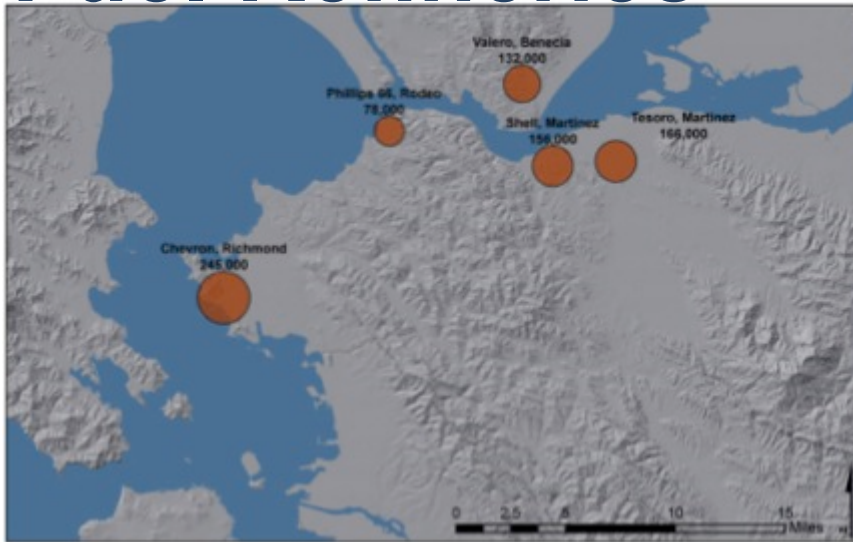
ELECTRICAL TRANSMISSION

ELECTRICAL SUBSTATIONS

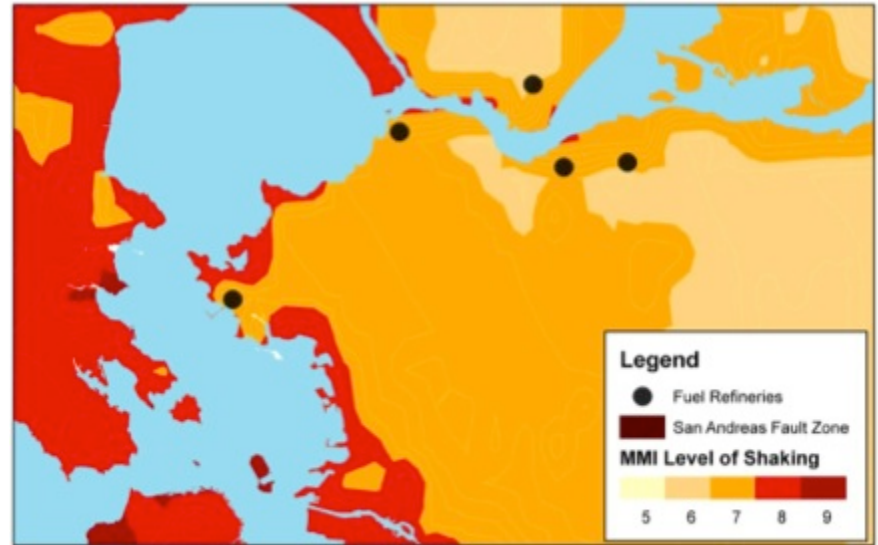
FUEL SYSTEM



Fuel Refineries



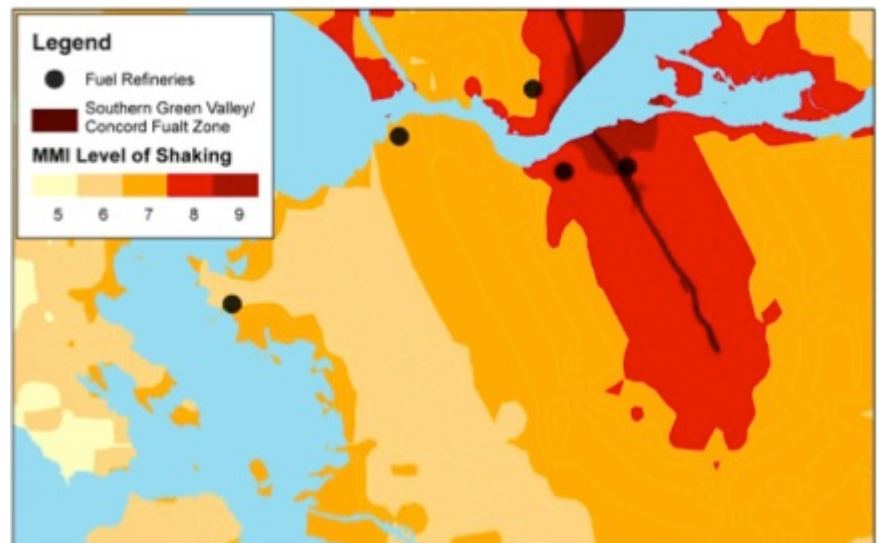
San Andreas

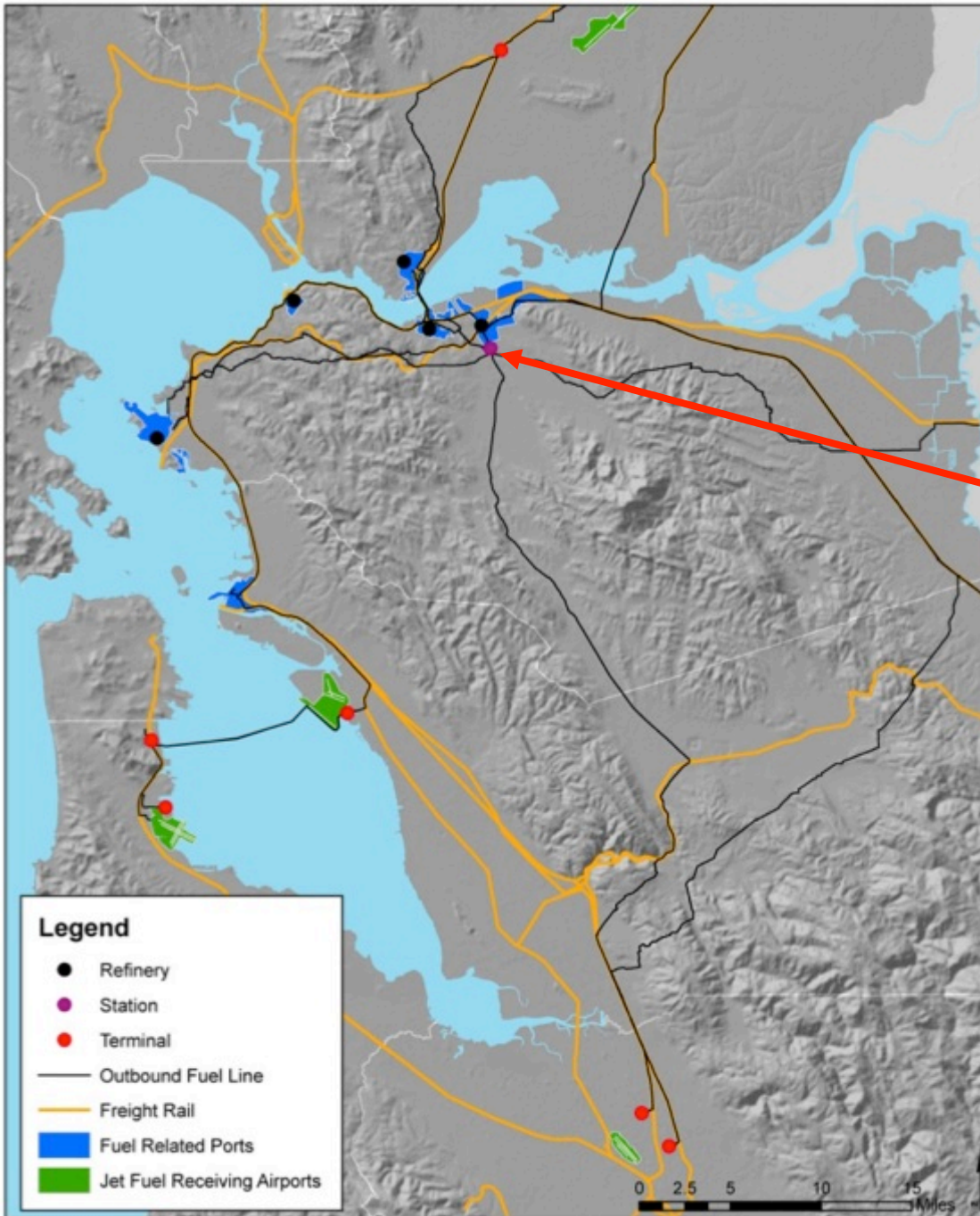


Hayward



Concord - SGV





Fuel Movement

- Ports
- Rail
- Pipeline

Fuel Nodes

- Refineries
- Terminals
- Concord Station

Big pictures are emerging...

- **Fuel is a HUGE issue.**
 - Vulnerable system, impacted by multiple events.
 - Isolated system.
 - Many other systems are reliant on electricity and have mitigated with generators, but have limited supply (hours and days).
- **Life line road routes are vulnerable.**
 - Structurally deficient bridges.
 - SF & OAK airports and ports are disconnected from life line routes.
- **Interdependencies are everywhere.**
 - i.e. Asphalt to repair roadway, requires refineries and natural gas.