



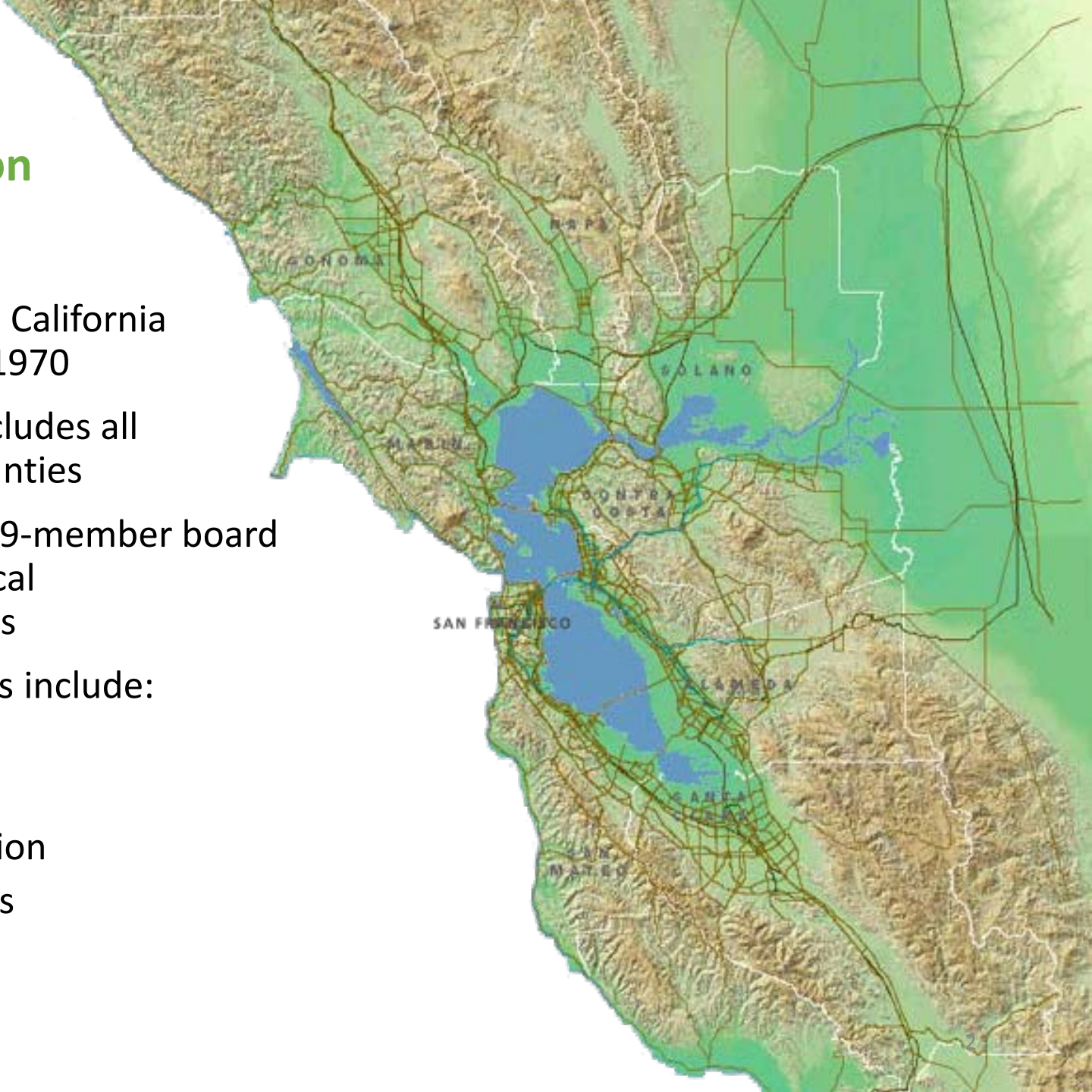
The Metropolitan Transportation Commission and Climate Change Adaptation

Stefanie Hom, Metropolitan Transportation Commission
California Adaptation Forum
September 8, 2016



Metropolitan Transportation Commission

- Created by the California Legislature in 1970
- Jurisdiction includes all 9 Bay Area counties
- Governed by 19-member board of primarily local elected officials
- Responsibilities include:
 - Planning
 - Funding
 - Coordination
 - Operations
 - Advocacy



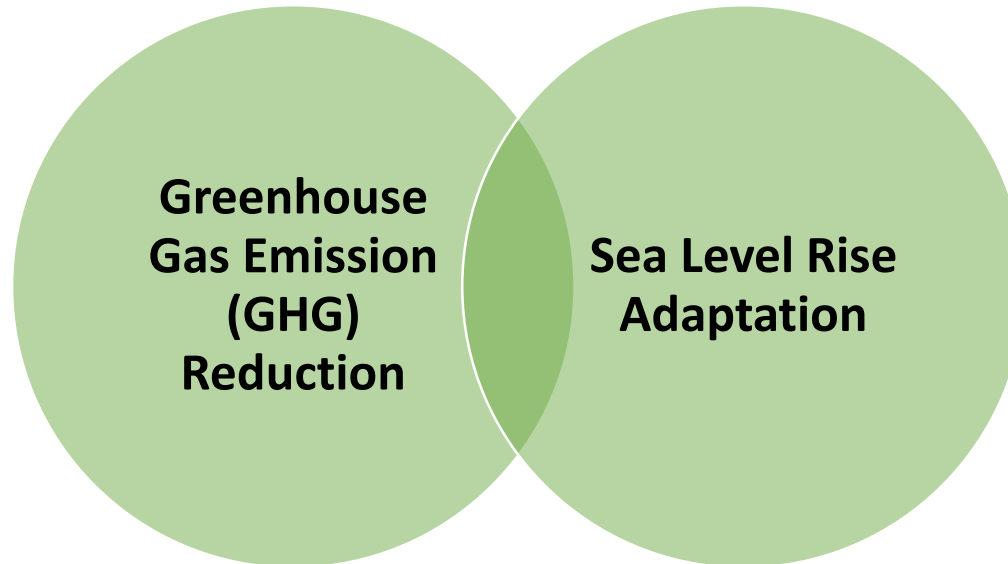


The San Francisco Bay Area's population is projected to swell to approximately nine million people by 2040.



Climate change is projected to cause the San Francisco Bay to rise as much as 24-inches by mid-century and 66-inches by end of century.

MTC Climate Change Activities



- Reduce GHGs from vehicles and light duty trucks
- Strategies focus on promoting alternate modes of transportation, reduced driving, and clean fuels
- Protect vulnerable transportation infrastructure from sea level rise and extreme weather events

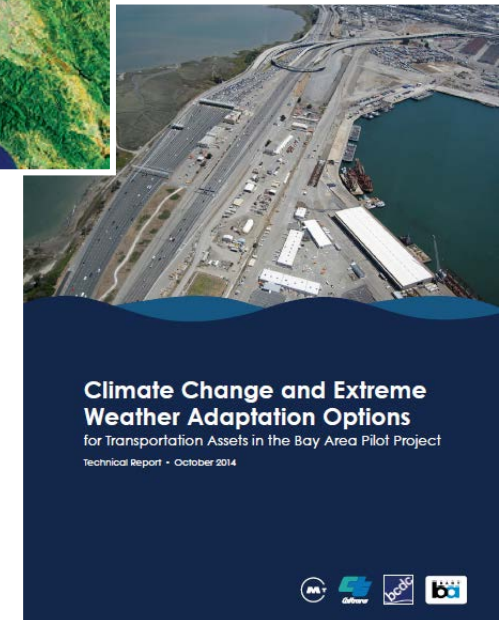
Accomplishments to Date

GHG Reduction

- Plan Bay Area and the Climate Initiatives Program
- Regional Rideshare Program
- Commuter Benefits Ordinance

Sea Level Rise Adaptation

- FHWA Climate Change/Sea Level Rise Adaptation Pilots
- Regional Sea Level Rise Mapping and Shoreline Analysis



Plan Bay Area and the Climate Initiatives Program

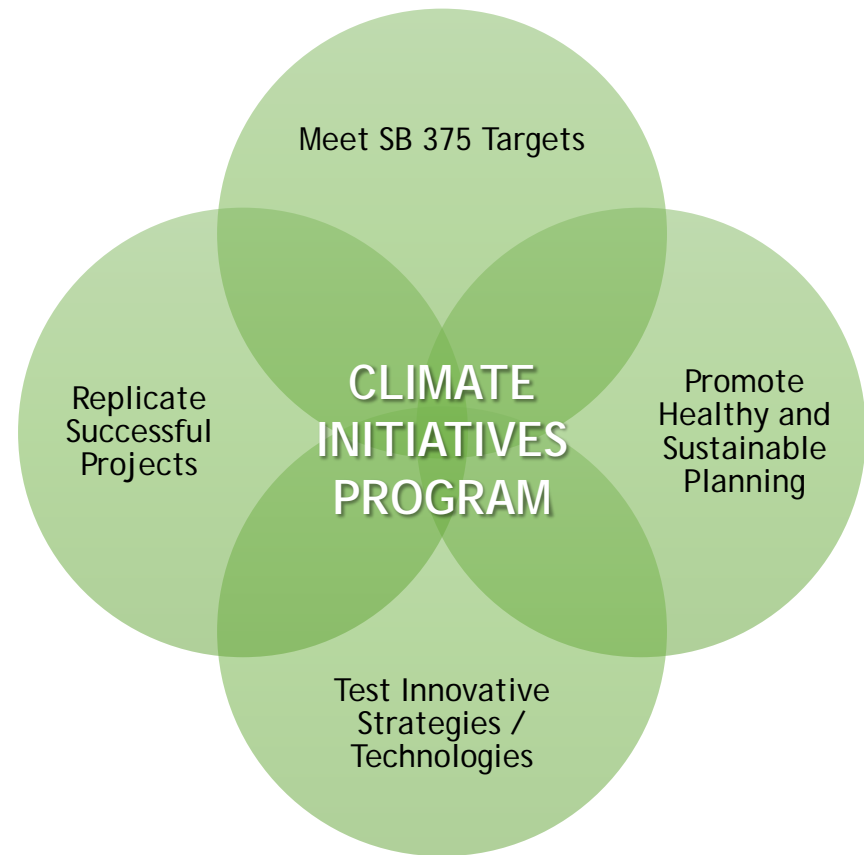
- **Plan Bay Area**, adopted 2013 – Region’s Regional Transportation Plan/Sustainable Communities Strategy
- Required by AB 32 and SB 375



Plan Bay Area GHG Reductions

Plan Bay Area and the Climate Initiatives Program

- **Meet SB 375 GHG emission reduction requirements** that mandate the region to reduce GHG emissions
- **Test innovative transportation strategies / technologies** that reduce GHG emissions, VMT, single occupancy vehicle travel, and support mode shift
- **Promote co-benefits**, such as improved public health and reduced transportation costs
- **Replicate successful projects** throughout the region
- *Plan Bay Area invests \$630m over 25 years to Climate Program activities*



Plan Bay Area and the Climate Initiatives Program *(approx. \$50m to date)*



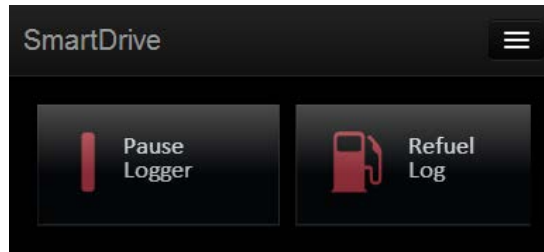
Climate Initiatives Innovative Grants

Evaluated GHG reductions of 19 pilot projects, including TDM, parking pricing, bike sharing and EV deployment *(completed 2014)*.



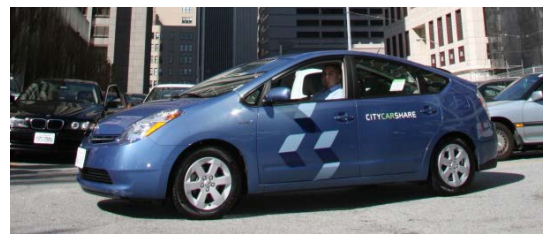
Safe Routes to School

Educational programs that taught students about alternative transportation choices *(completed 2014)*.



Drive Smart Bay Area

Evaluated impacts of real-time driving in-vehicle devices, smartphone apps, and educational elements on driver behavior and fuel economy *(1st pilot completed 2014, 2nd pilot in progress)*.



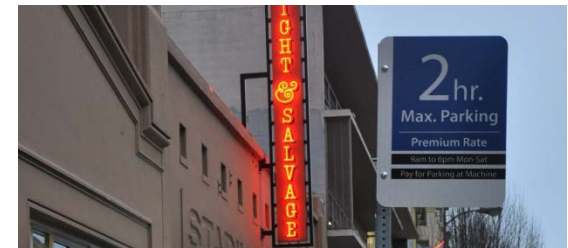
Car Sharing Grant Program

Implementation of car sharing pods in 6 different areas across the region *(in progress)*.



Experience Electric Campaign

Ride-and-drive campaign that sought to build awareness and demand for plug-in electric vehicles *(completed 2014/2015)*.



Parking Management and TDM Grant Program

Implementation of parking management strategies in 4 cities, and an on-demand shuttle at a transit station *(in progress)*.

Other GHG Reducing Climate Programs

- **Regional Rideshare Program**

- 511 Ridematch System
- Promotes private ride-matching apps, such as Lyft, Carma, and Scoop

- **Commuter Benefits Ordinance**

- SB 1339 requires employers to provide commute benefits to employees



MARCH 14, 2016

Lyft Partners with California's MTC to Deliver New Carpooling Mode

Today, we're proud to [join the Metropolitan Transportation Commission \(MTC\)](#) in announcing our official partnership with the [511 Rideshare](#) program to launch a new [carpooling service](#) enabled by the Lyft platform that will relieve traffic congestion for regional commuters traveling on Bay Area highways. This marks the first time a government agency and Transportation Network Company (TNC) have launched a product together.

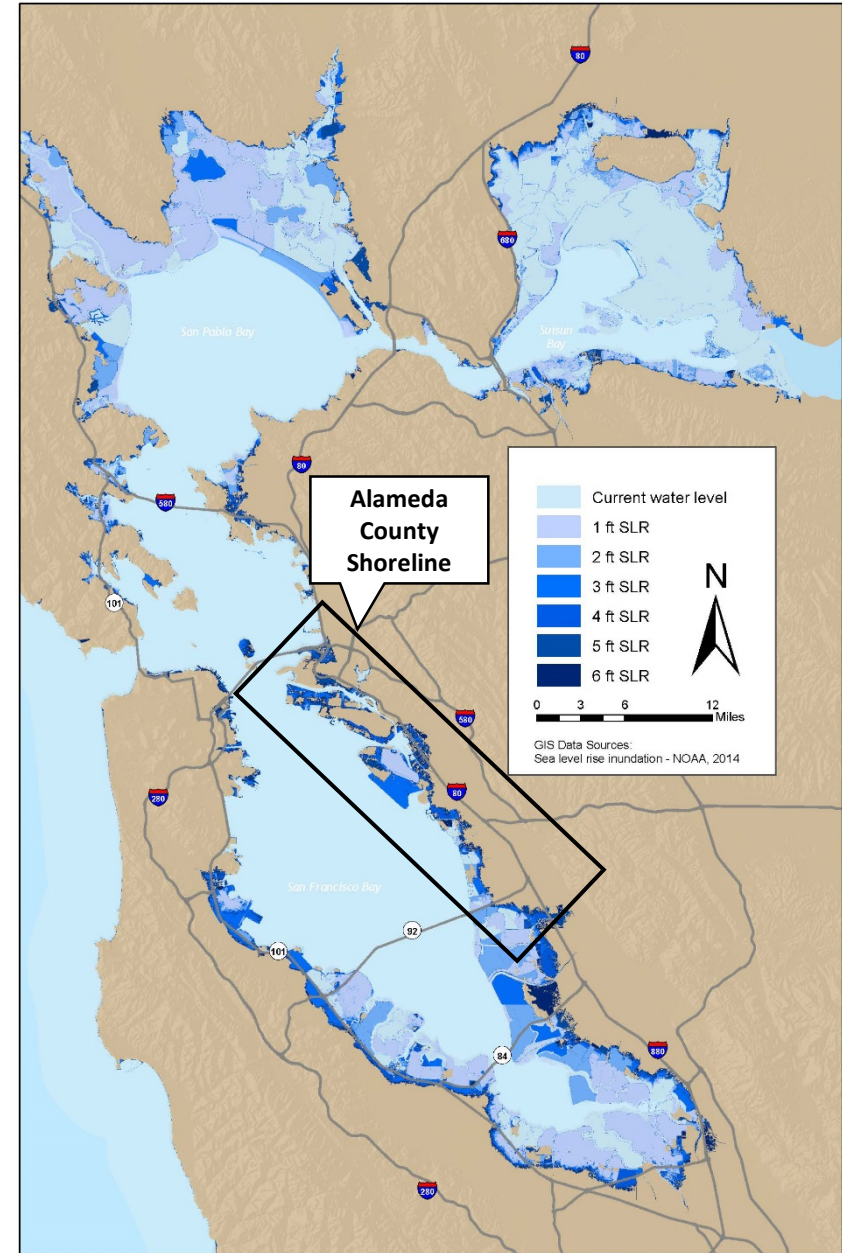
Sea Level Rise

- FHWA Pilots
 - 1st Pilot, 2011: **Vulnerability Assessment for Alameda County**
 - 2nd Pilot, 2014: **Adaptation Options for 3 Focus Areas in Alameda County**
- Regional Sea Level Rise Mapping and Shoreline Analysis



Regional Inundation Extents

0 - 6 Feet Sea Level Rise



Sea Level Rise, FHWA 2nd Pilot

Bay Bridge Focus Area: 36" Sea Level Rise



MHHW 36" SLR
(permanent inundation)

OR

24" SLR + 1-yr tide
18" SLR + 2-yr tide
12" SLR + 5-yr tide
6" SLR + 10-yr tide
0" SLR + 50-yr tide
(flooding, temporary inundation)

Assets:

- I-880
- 7th Street/Bay Street – Transbay Tube
- Eastshore State Park/Emeryville Crescent
- EBMUD Facilities
- Electrical Substation
- Port Operations

Source: AECOM 2014

Inundation Mapping Focus Areas - Bay Bridge



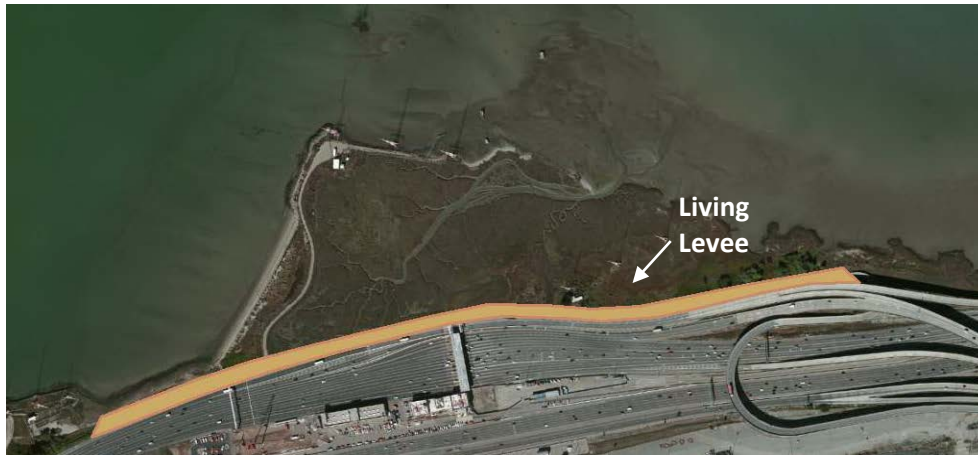
Vulnerability Metrics

- Existing Conditions
- Information
- Governance
- Functional
- Physical
- Consequences

Adaptation Strategies

- **Core Transportation Assets**
 - Drainage System Modifications
 - Update Emergency Management Plans
 - Relocation/Replacement/Enhancement
 - ITS Solutions
- **Focus Area**
 - Levees
 - Shoreline Protection (berms)
 - Natural and Engineered Solutions
- **Agency Specific**
 - Information Databases
 - Coordination
 - Strategies that can be integrated into normal maintenance

Bay Bridge Focus Area Example Adaptation Strategy



Total Estimated Project Costs

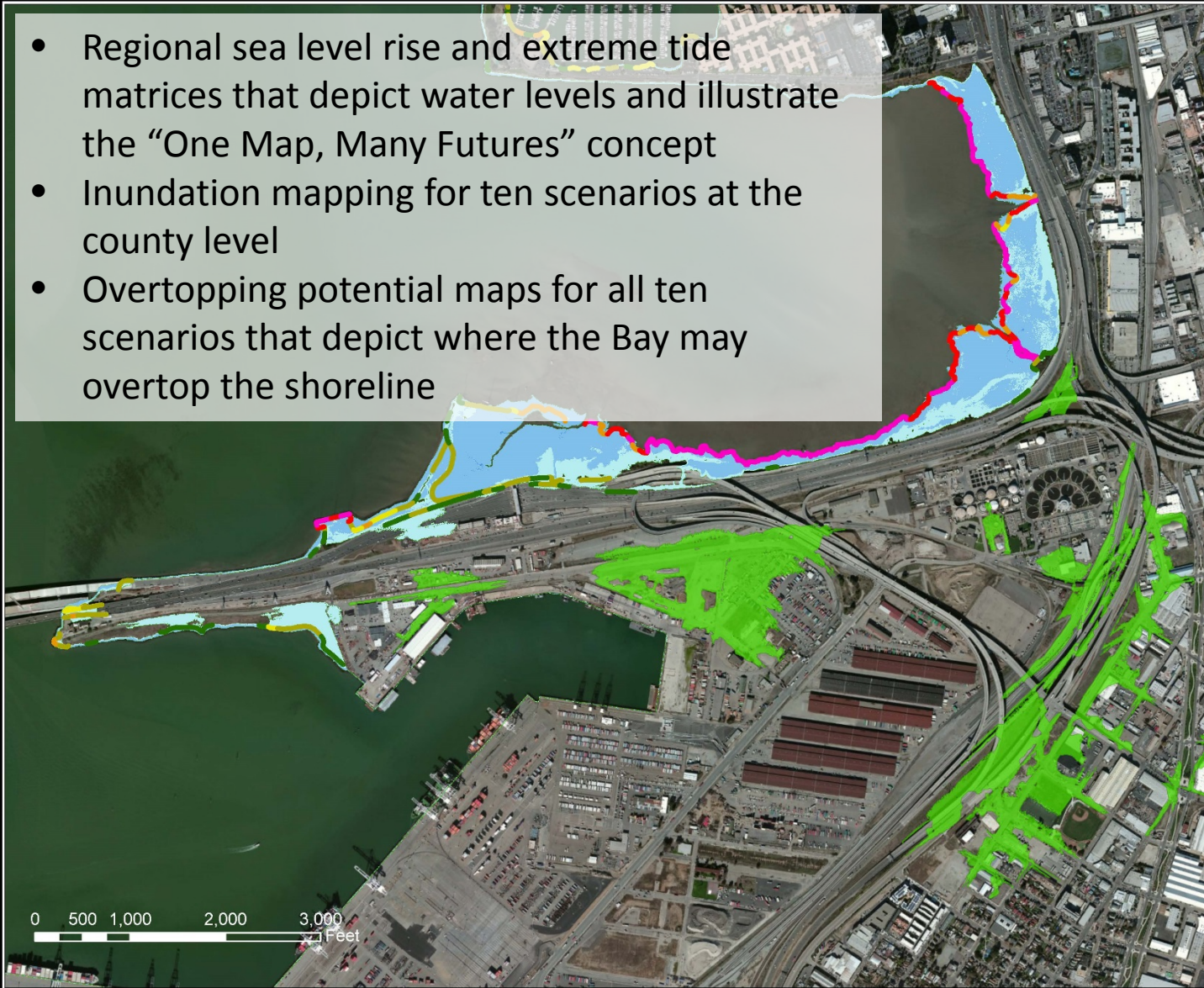
Living Levee: \approx \$5 million

Offshore Breakwater: \approx \$10.8 million

Total Estimated Daily Avoided Costs to the Region: \approx \$15 million

Sea Level Rise, Regional Mapping

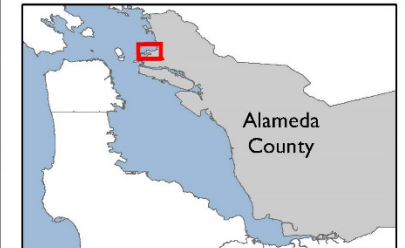
- Regional sea level rise and extreme tide matrices that depict water levels and illustrate the “One Map, Many Futures” concept
- Inundation mapping for ten scenarios at the county level
- Overtopping potential maps for all ten scenarios that depict where the Bay may overtop the shoreline



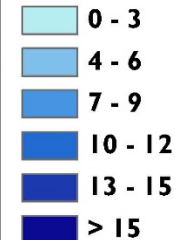
MTC Climate Adaptation Alameda County

MHHW + 36-inch
Scenario

Focus Area:
Bay Bridge Touchdown



MHHW + 36-inch



Depth in Feet

Overtopping Potential



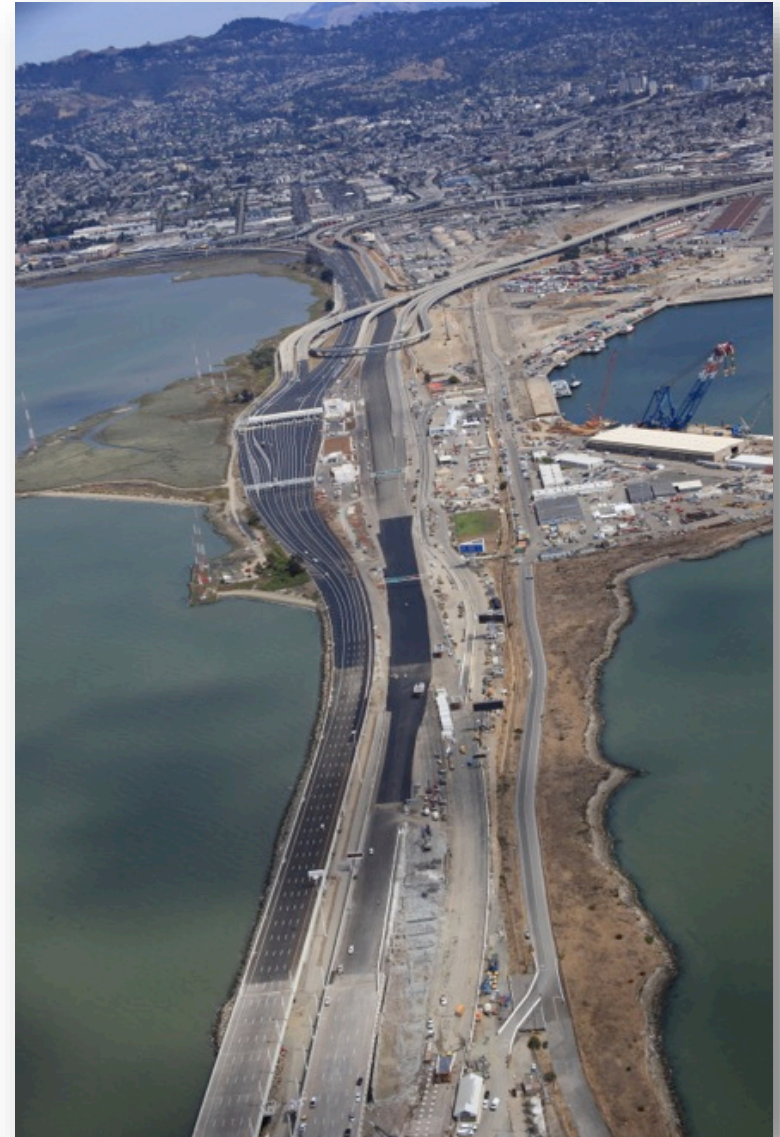
Feet

Disconnected Areas > 1 acre



Future Plans

- **Continue to address climate change in the RTP/SCS**
 - Upcoming Plan Bay Area 2040 will include update to Climate Initiatives Program
 - \$22m in FY 2017-18 funds programmed for Climate Initiatives Program activities
- ***A Resilient Transportation System for Safe and Sustainable Communities (Caltrans Planning Grant)***
 - Regional sea level rise vulnerability assessment using BCDC ART framework
 - Expected to be completed in 2019



Constraints & Opportunities

- **Constraints**

- Awareness and understanding of issues
- Funding
- Leadership
- Scale

- **Opportunities**

- Grants
- Partnerships



Partnerships

- Regional Partner Agencies
 - Bay Conservation and Development Commission
 - Bay Area Air Quality Management District
 - Association of Bay Area Governments
- Congestion Management Agencies
- Caltrans
- Transit Agencies
- Local Jurisdictions
- Private Partners
- Stakeholder Groups



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