



The

Adapting to Rising Tides



Program

Oakland/Alameda Resilience Study



San Francisco Bay Conservation
and Development Commission

Adapting to Rising Tides Program

- Provide guidance and support to help jumpstart successful adaptation efforts at all scales (local, regional, state and federal)
- Leverage best available data, information and research to support local and regional efforts
- Continue to develop and refine approaches that lead to action
- Support a consistent approach to coordinating, collaborating and identifying regional issues and priorities actions



ART Program Support for Oakland/Alameda



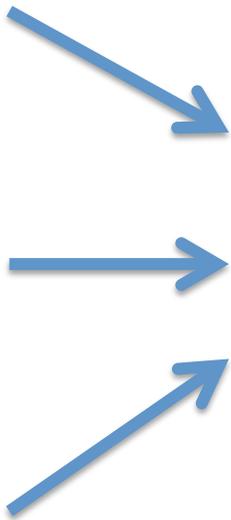
Adapting to Rising Tides
Alameda County Project



Stronger Housing,
Safer Communities Project



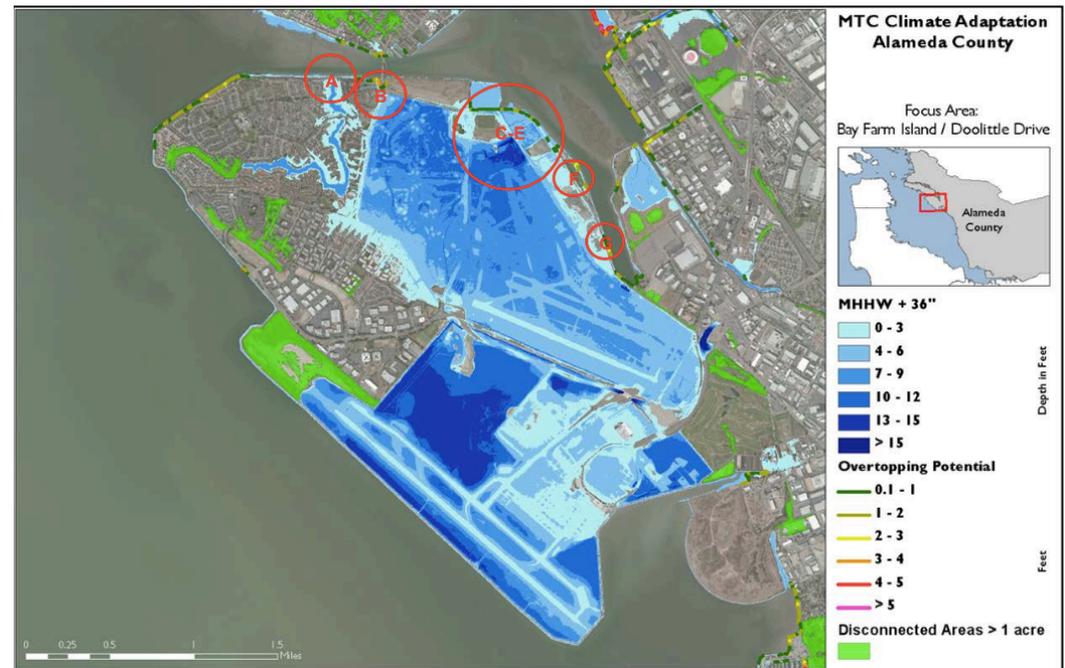
Regional Transportation
Assessment and
Adaptation Options



The Oakland/Alameda Resilience Study leverages findings, methods, and partnerships from other ART Program projects to jump start local adaptation.

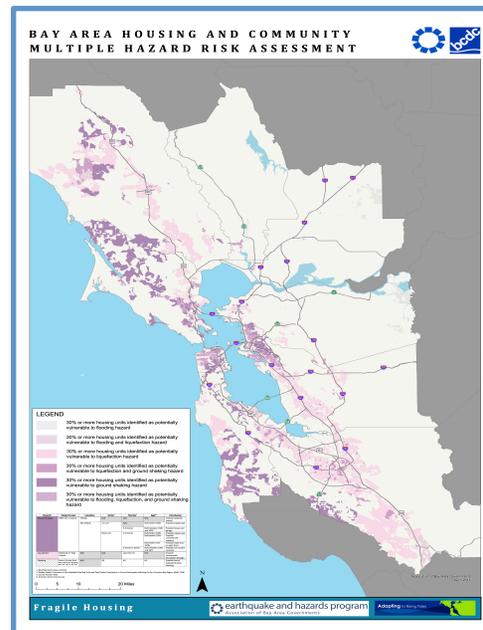
ART Alameda County

- Refined shoreline analysis to better understand shoreline elevation on Bay Farm Island.
- Flooding comes from the Bay overtopping the shoreline and from storm water overflows
- Bay Farm Island has extensive flooding caused by overtopping in just a few locations. Improving coastal flood protection at these low points could reduce flood risk for a large area.



Stronger Housing, Safer Communities

- Housing is generally built to life safety rather than shelter-in-place standards
- Most foundations cannot withstand liquefaction
- Most houses cannot withstand any amount of flooding
- Housing affordability is an existing vulnerability in the region that will make recovery more difficult
- Renters have a limited ability to improve the resilience of the housing they live in
- Many community members have limited or inadequate information about hazards



ART Transportation Study



- Refined analysis of joint riverine and coastal flooding to better define flood risks in the Coliseum area
- Adaptation strategies for Damon Slough to improve resilience of Oakland Coliseum and Interstate 880
- Areas within the Oakland/Alameda Study area have near term flooding vulnerabilities, particularly around Damon Slough
- Strategies developed for transportation assets can and should be developed to provide benefits and resilience to adjacent assets and communities.



Study Area



Planning Process



Adapting to Rising Tides Planning Process

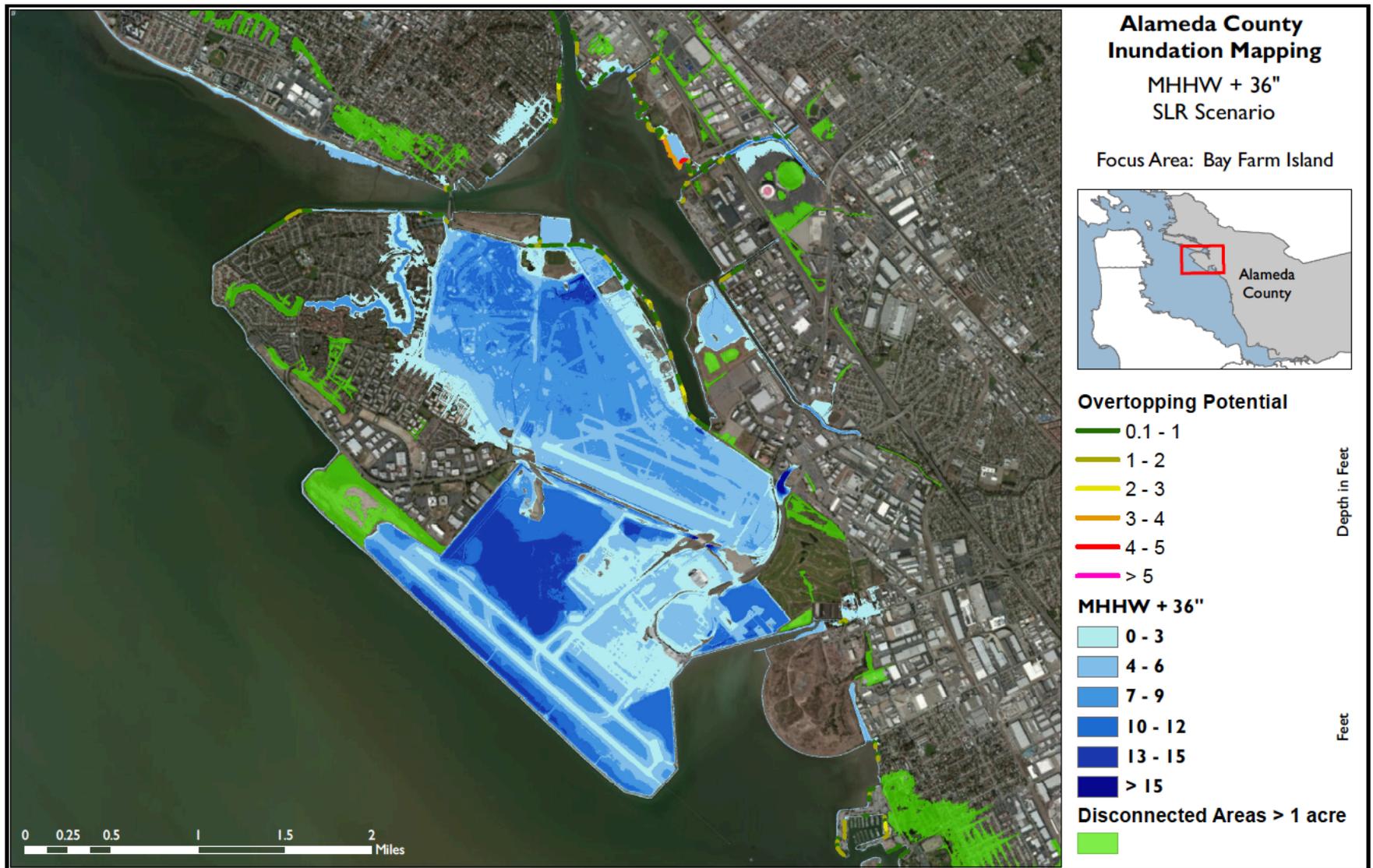
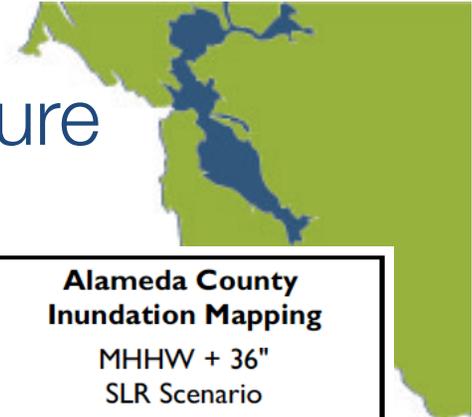


Resilience Goals

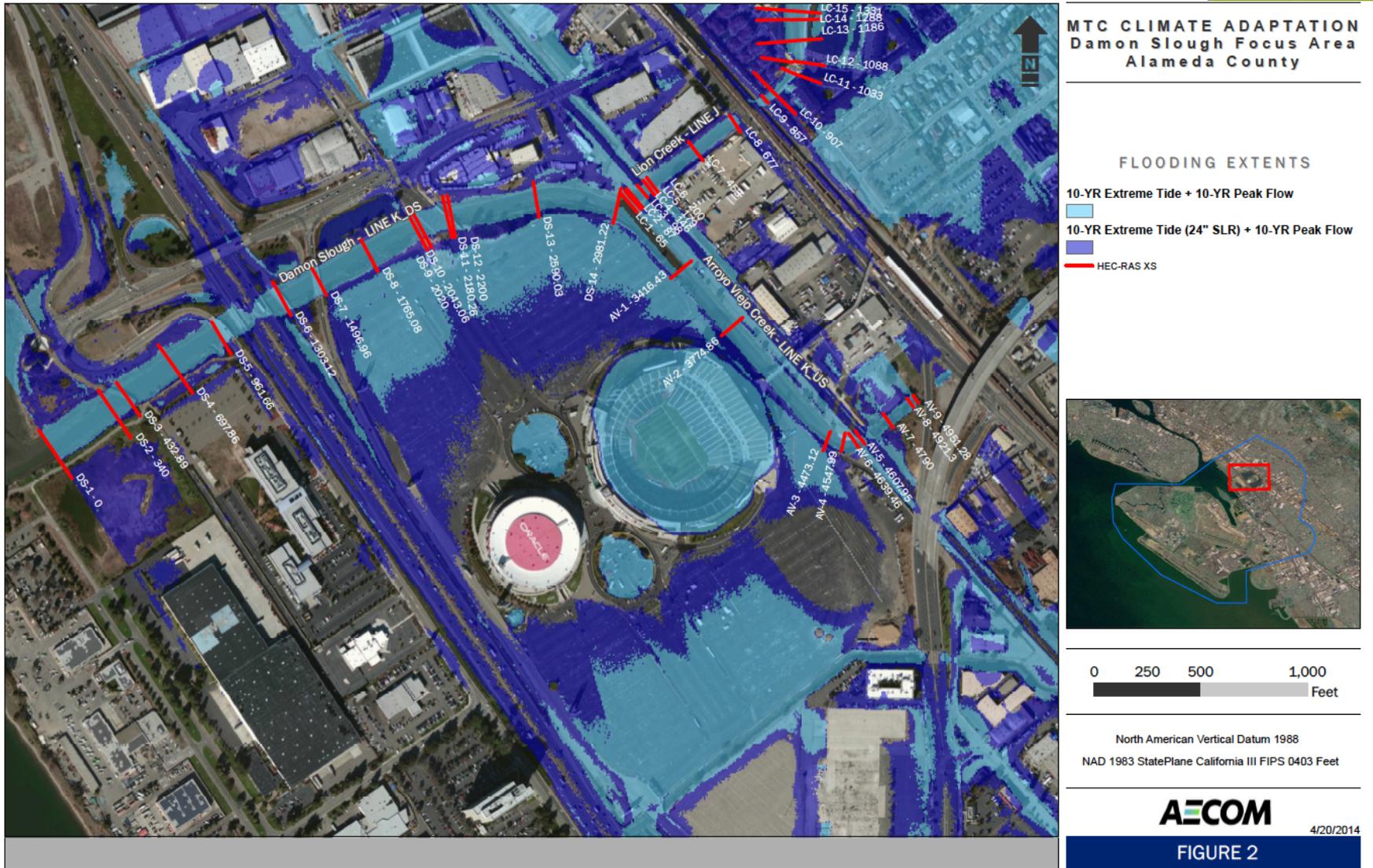


- Maintain neighborhood function by preserving access to roads and transit, goods and services, safe and affordable housing, and outdoor recreational opportunities
- Maintain the function of the airport as a regionally significant passenger, cargo, and employment hub
- Build resilience in all phases of the disaster lifecycle—from mitigation and preparedness to response and recovery—by protecting critical community facilities, supporting community awareness, ensuring assistance through mutual aid agreements, and building capacity for effective recovery
- Preserve environmental quality by protecting endangered species, ensuring good water quality, and providing appropriate wildlife habitat
- Protect local and regional economy by preserving major employment centers, airport services, regionally significant transportation, and local infrastructure investments

Sea Level Rise and Storm Event Exposure



Sea Level Rise and Storm Event Exposure



Key Planning Issues

Access on and off Bay Farm Island and to and from Oakland International Airport (OAK) is already limited due to the island's geography, is vulnerable to future flooding and seismic events, and will affect the economy, public health and safety, and community function if disrupted.



Key Planning Issues



Housing, community members, and community facilities are vulnerable to current and future flooding as well as seismic events. Impacts to these facilities could result in major consequences for people where they live, work, and recreate.

Key Planning Issues

The Oakland Coliseum facilities, transportation assets, and neighborhood are vulnerable to both current and future flooding due to at-capacity flood control channels and rising Bay water levels.



Key Planning Issues



Oakland International Airport (OAK) is vulnerable to future flooding and seismic events both within its facilities and through its dependence on other assets.



Key Planning Issues



The Oakland/Alameda study area contains shoreline habitat, including habitat for the endangered California Ridgeway's Rail. However, much of this habitat exists in the form of fringing marshes, which are not predicted to persist given sea level rise, sediment projections and surrounding land uses.



Key Planning Issues

Overarching: Permitting and regulatory issues along shoreline and with multiple owners and jurisdictions may delay or impede adaptation.



Field Trips



Damon Slough Flooding



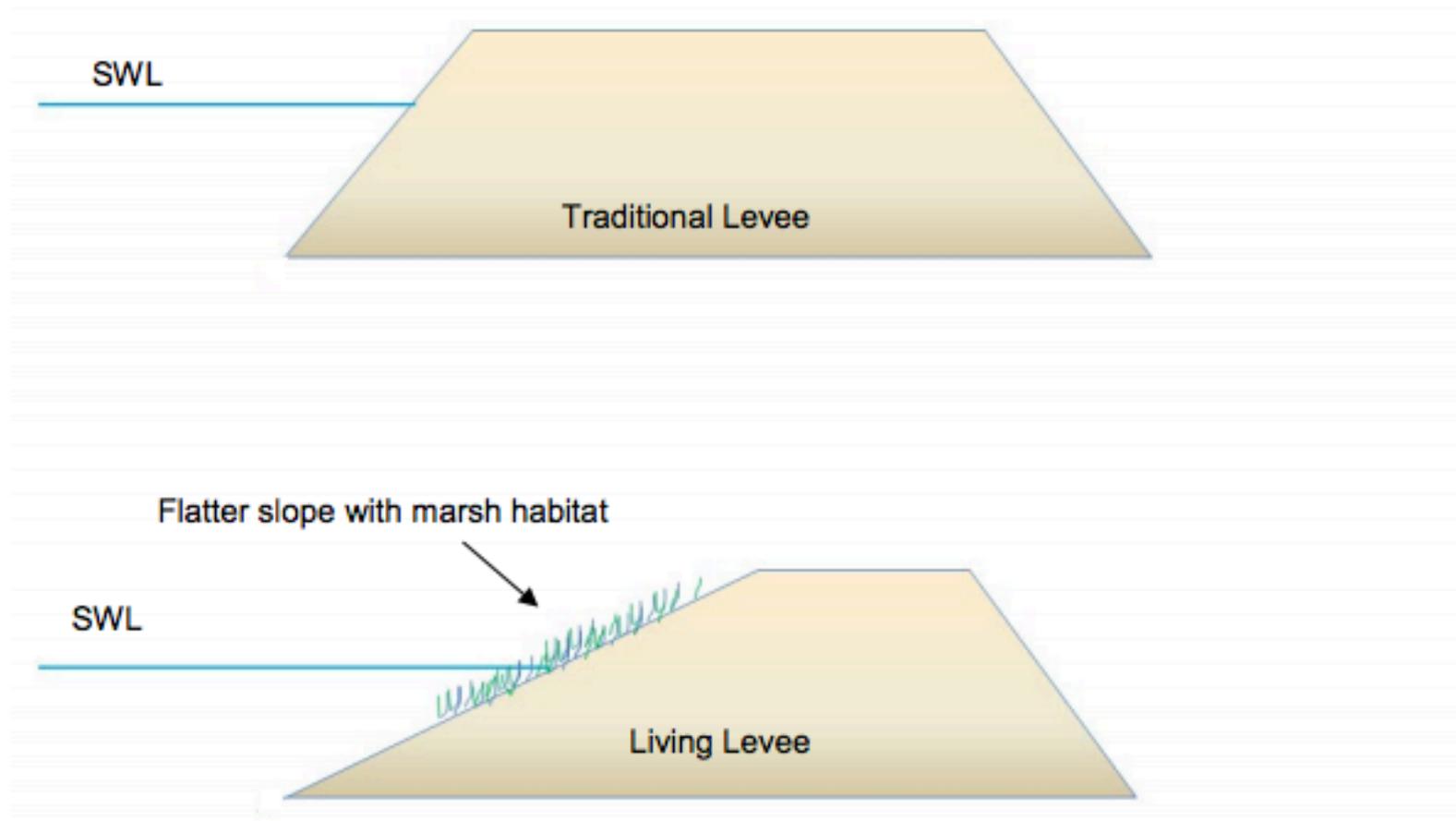
Figure 6-5: The layout and footprint of the living levee (brown) and the section where seawall might be necessary due to space limitations



Proposed Adaptation Responses



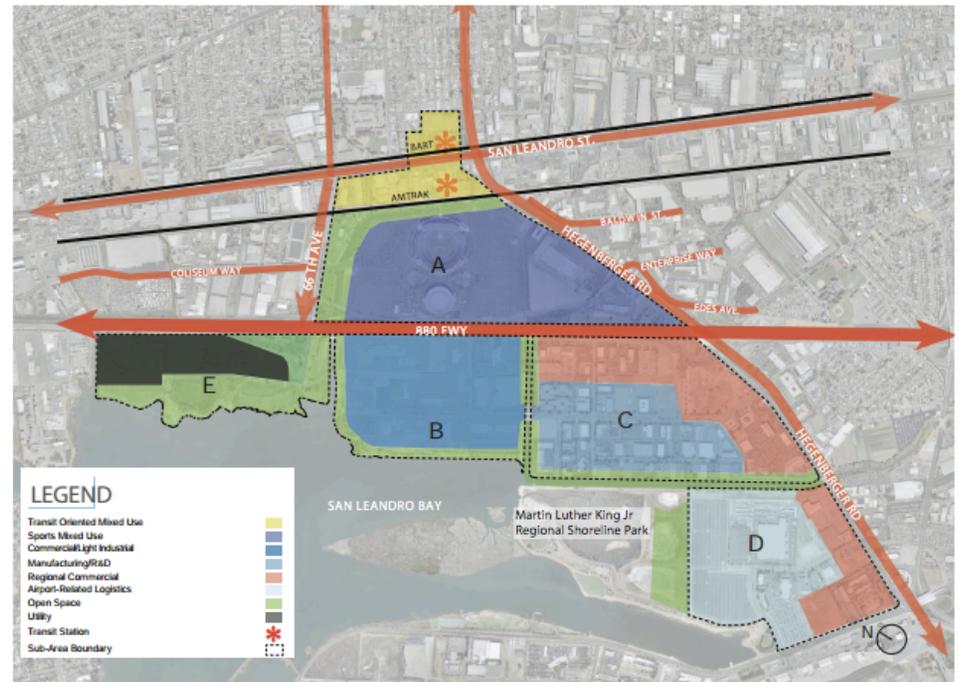
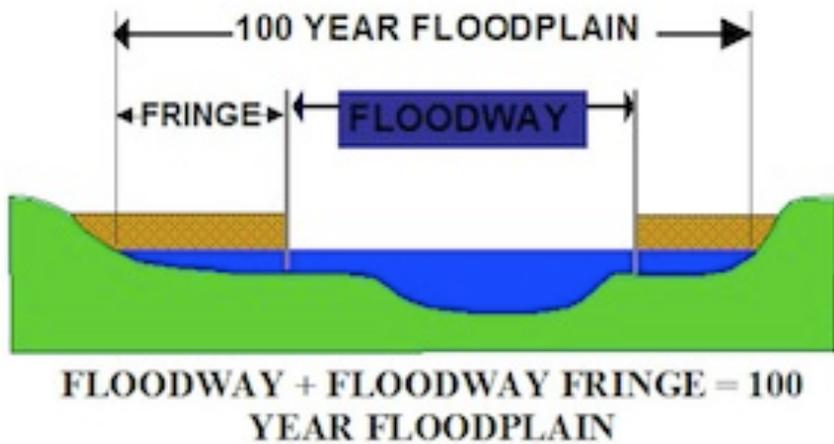
Figure 6-4: Conceptual diagrams of a traditional levee (top) and living levee (bottom)



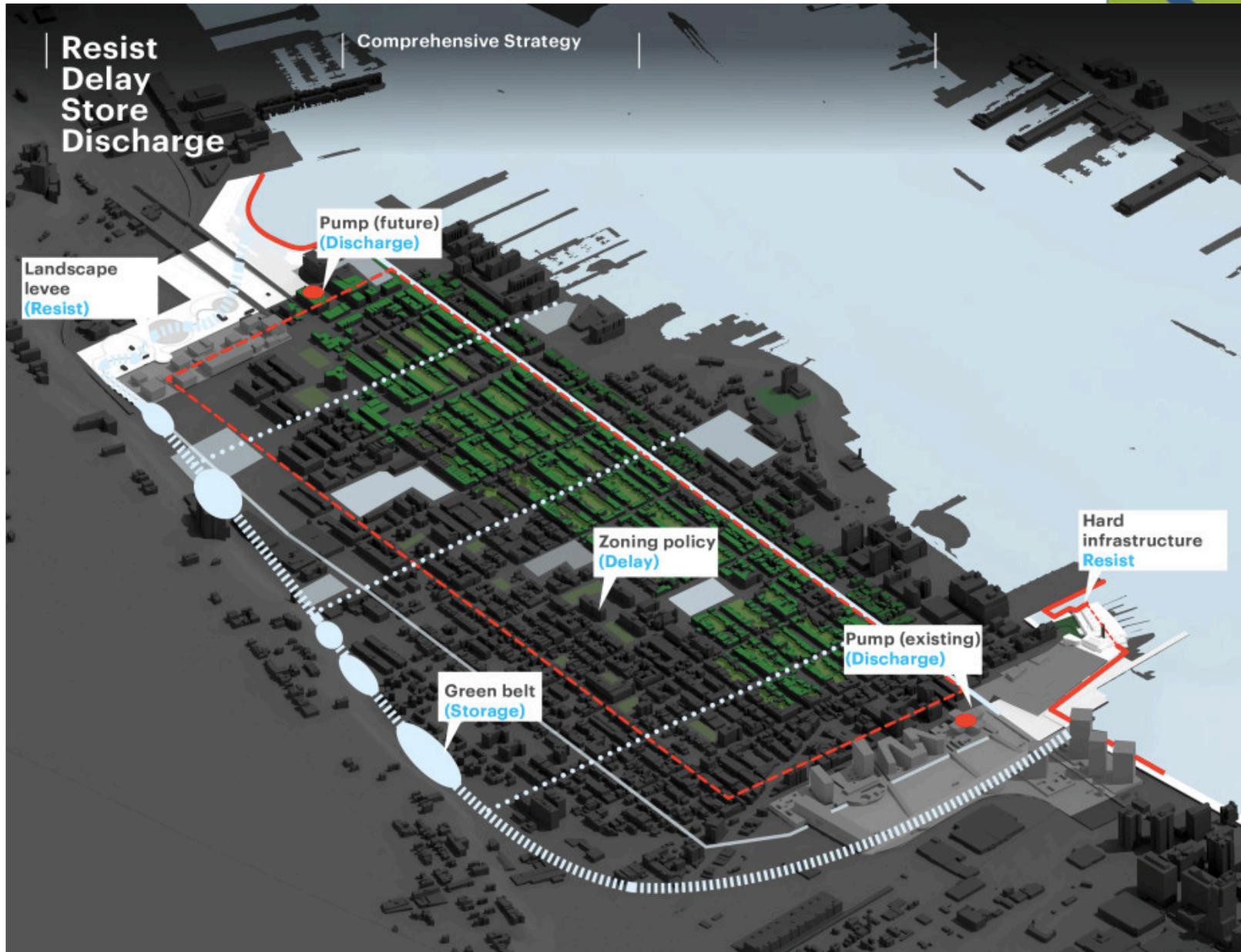
Proposed Adaptation Responses



Floodway Schematic



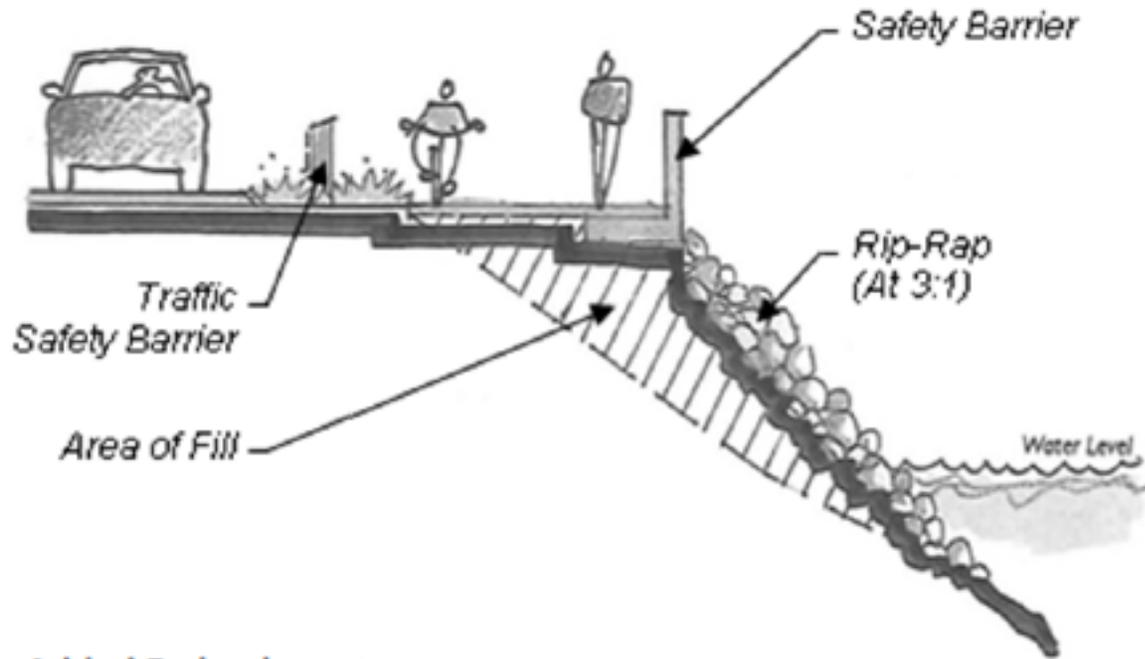
Proposed Adaptation Responses



Proposed Adaptation Responses



C. ADDED EMBANKMENT TRAIL TYPE



Added Embankment

Proposed Adaptation Responses



Timeline for Study

1. Vulnerability and Risk Assessment Report this fall
2. Synthesizing and evaluating adaptation responses with working group in November
3. Final study findings and products early 2016



Oakland/Alameda Resilience Study



For more information:

<http://www.adaptingtorisingtides.org/working-group/oakala/>

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