

Bay Conservation and Development Commission's
Adapting to Rising Tides Program and
other Sea Level Rise efforts

SPUR

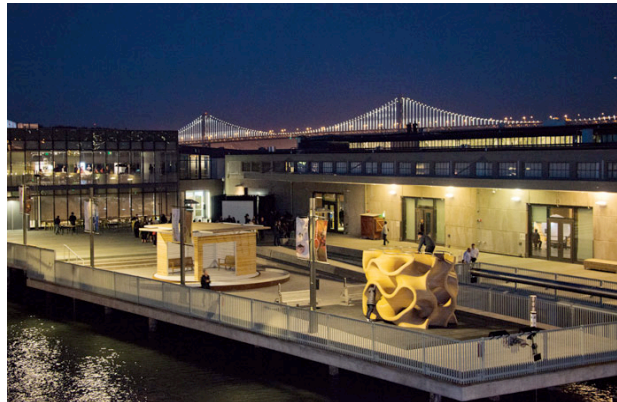
October 12, 2016



San Francisco Bay Conservation
and Development Commission

Adapting to Rising Tides

A regional program that uses findings, processes, tools and relationships built by ART and its partners to lead and support efforts that increase the resilience of Bay Area communities to sea level rise and storm events



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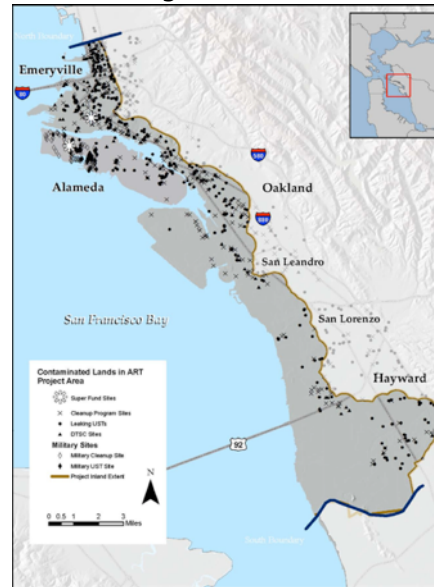
www.adaptingtorisingtides.org

ART Program: From training to doing

Initiated in 2011, the **ART Alameda County Project** was the first in the region to evaluate current and future flooding across multiple jurisdictions and sectors

Key factors of the ART approach – **collaborative by design, a transparent process, and sustainable from start to finish** – were foundational to the project

Project Area



Working Group

ART emphasizes close collaboration among stakeholders to ensure a shared understanding of the issues, build trust, and achieve buy-in for shared solutions and joint action

Sectors

- Airport
- Community characteristics
- Community services
- Contaminated lands
- Energy, pipelines, telecom
- Flood control
- Hazardous material sites
- Ground transportation
- Parks and recreation
- Natural shorelines
- Residential land uses
- Seaport
- Storm water
- Structural shorelines
- Wastewater



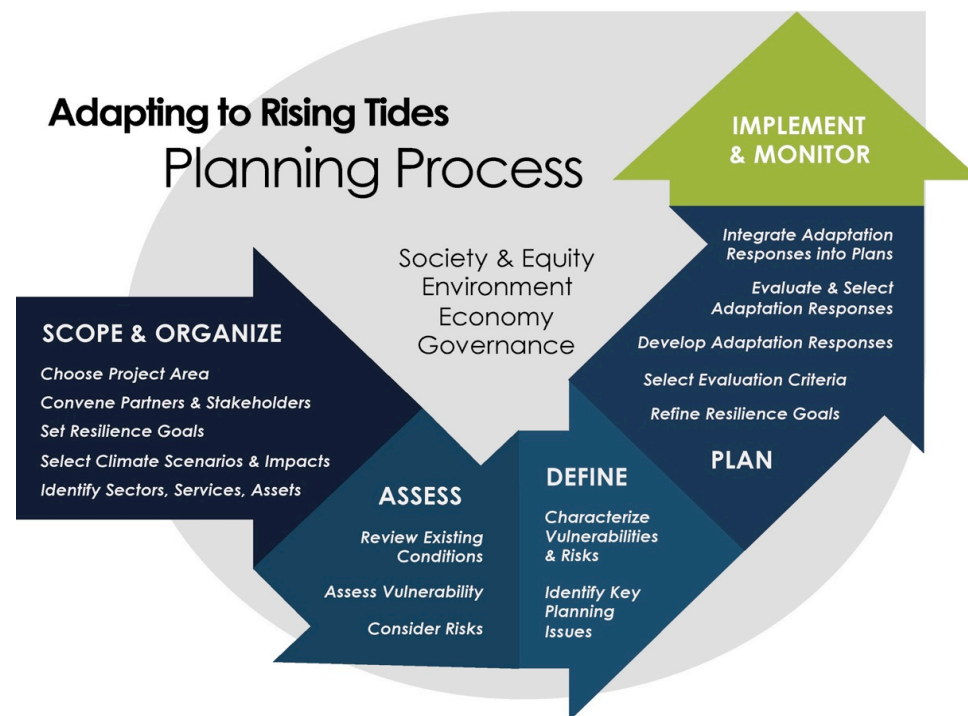
The Adapting to Rising Tides Approach

- Integrates **equity, economy, environment and governance** from start to finish
- Can be applied to **different geographies, sectors and hazards**
- Convenes and engages a **working group** to build local capacity and ensure outcomes resonate locally
- Results in a robust and transparent vulnerability assessment that **makes the case for adaptation**
- Establishes a **clear roadmap** for actors at all scales to take action



ART Project Outcomes

- A **collaborative working group** that has built the capacity to understand and address current and future flood risks
- A robust, **multi-sector, multi-jurisdiction** evaluation of current and future flooding
- Development of **innovative shoreline geospatial analysis and mapping**
- A clear and compelling case for **taking action** on priority planning issues



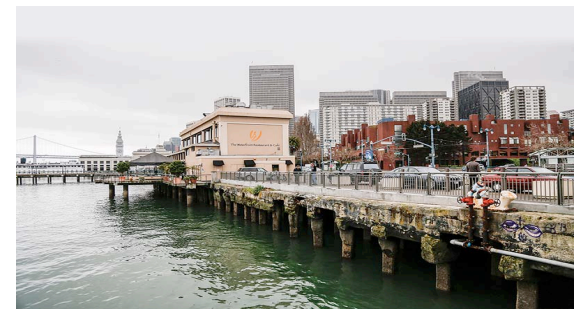
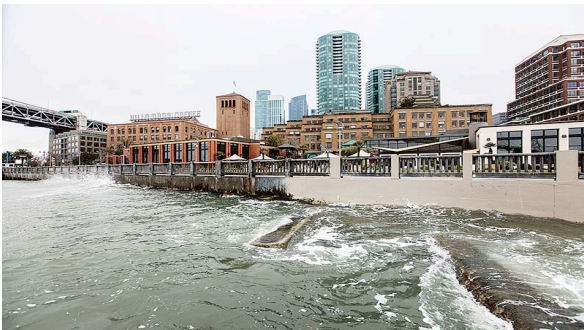
ART Lessons Learned



- Agencies and organizations want to work on this issue, just **need relevant support, guidance, tools and strategies** that can be translated to their boards, decision-makers and the public
- A **regional scale is necessary** to identify the vulnerabilities, consequences and possible solutions
- **Existing conditions matter** and assessments should start there—deferred maintenance, existing flood risk, capacity constraints, lack of redundancy are critical to understand vulnerability to sea level rise
- Infrastructure planning, permitting and financing can take a long time and **it is important to get started** before service disruption is frequent
- Conduct work as broadly as possible with **everyone in the room**—transportation, parks, planning, flood managers, community based organizations and others—**builds capacity and buy-in**

ART Pilot to ART Program

- **Lead projects** (Alameda, Contra Costa, Hayward, etc.)
- **Support projects** led by others (San Mateo and Marin)
- Developed **maps and analysis for the region** to aid in local and regional scale planning and decision making
- Provide **technical assistance** through help desk and website (local, state and national assistance)
- Participate in local, regional, state and federal **partnerships**
- Assess and develop options for **regional assets**



ART Mapping and Analysis

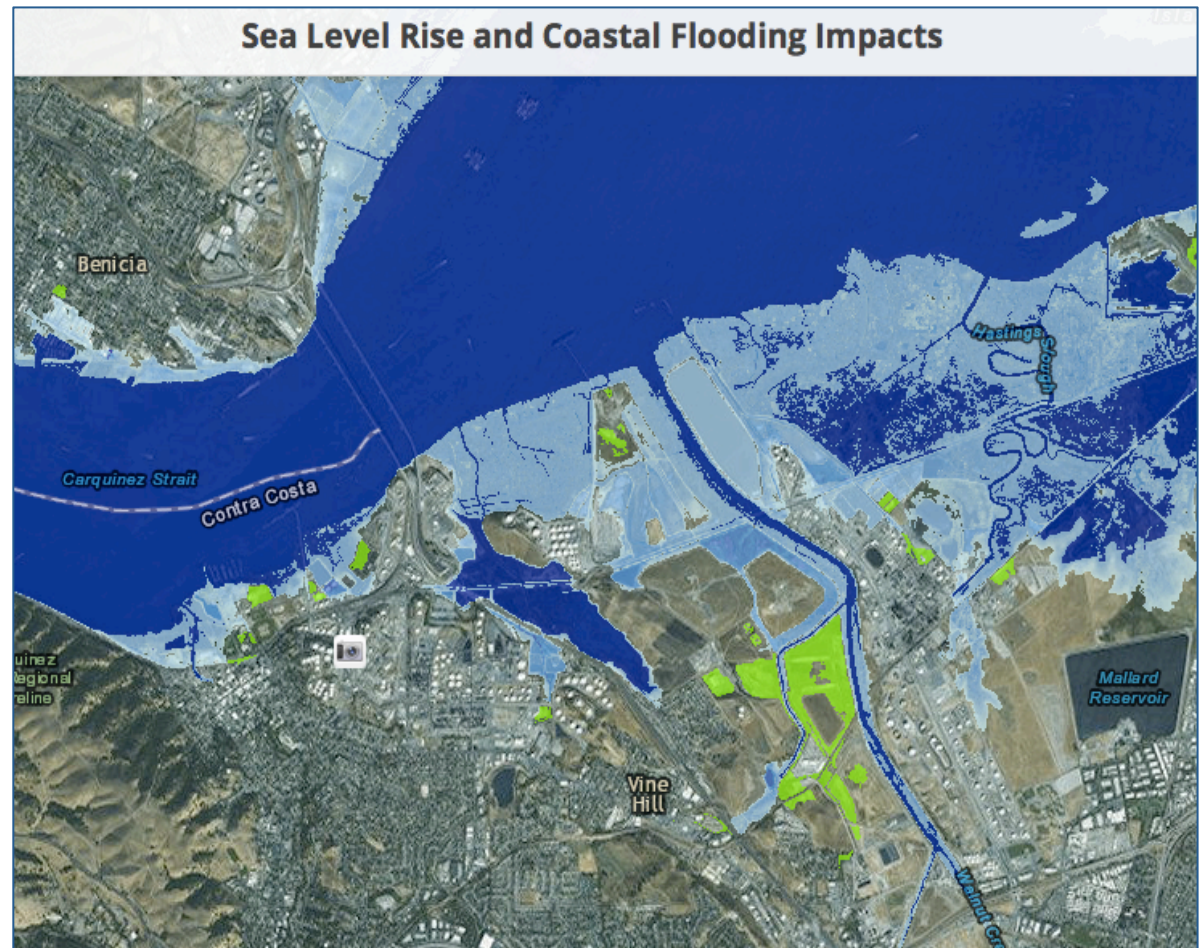
This single map depicts:

Permanent inundation at high tide from 48" SLR

or

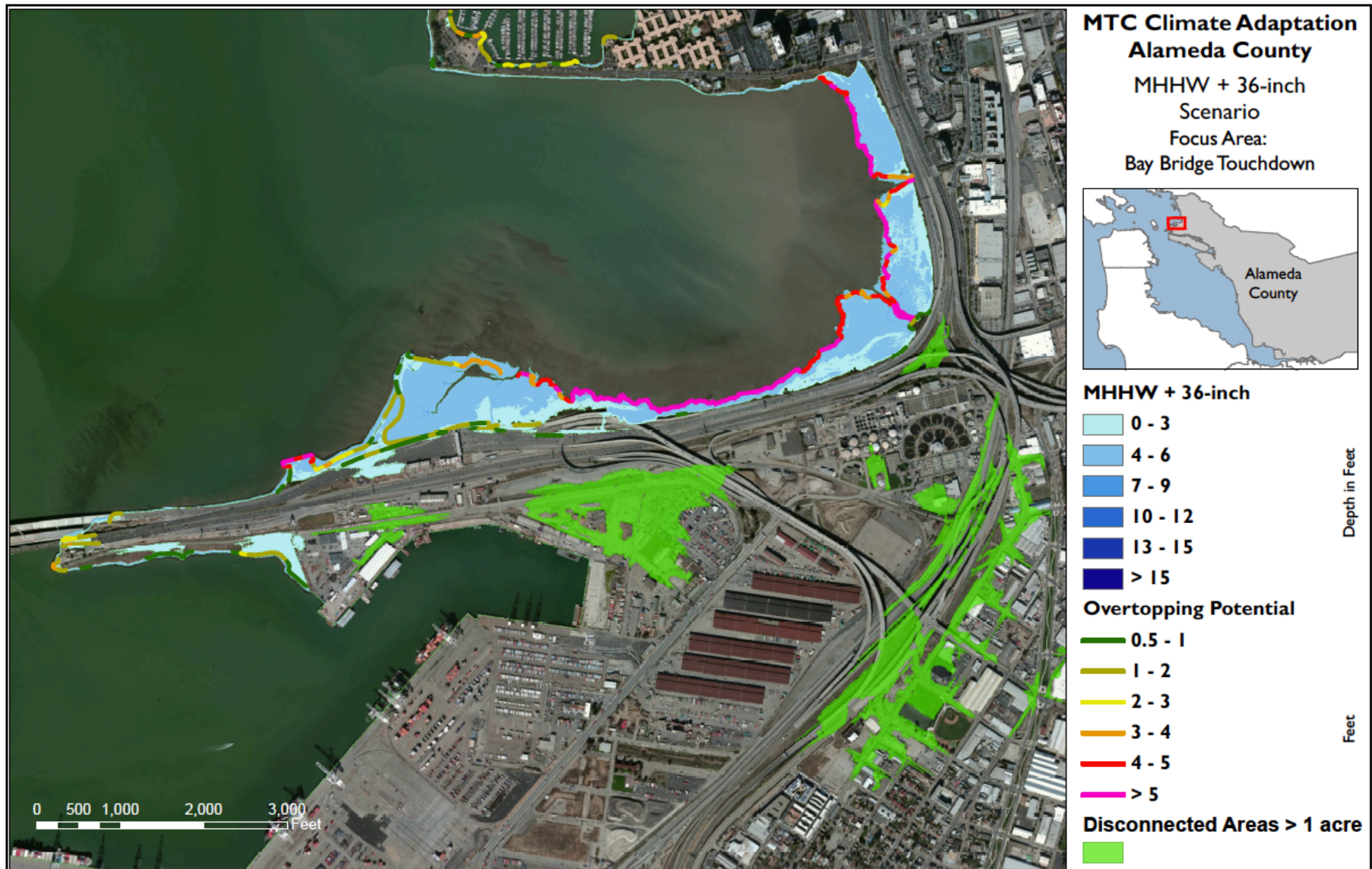
Temporary flooding from:

- 1-year storm with 36" SLR
- 25-year storm with 12" SLR
- 50-year storm with 6" SLR
- Today's 100-year storm



A 10-year storm surge that occurs at King Tide during an El Nino year

Missed opportunity and phased approach



Assessment Findings

These three areas could overtop and cause flooding during today's 50-year storm event, or with a 10-year storm event during an El Nino

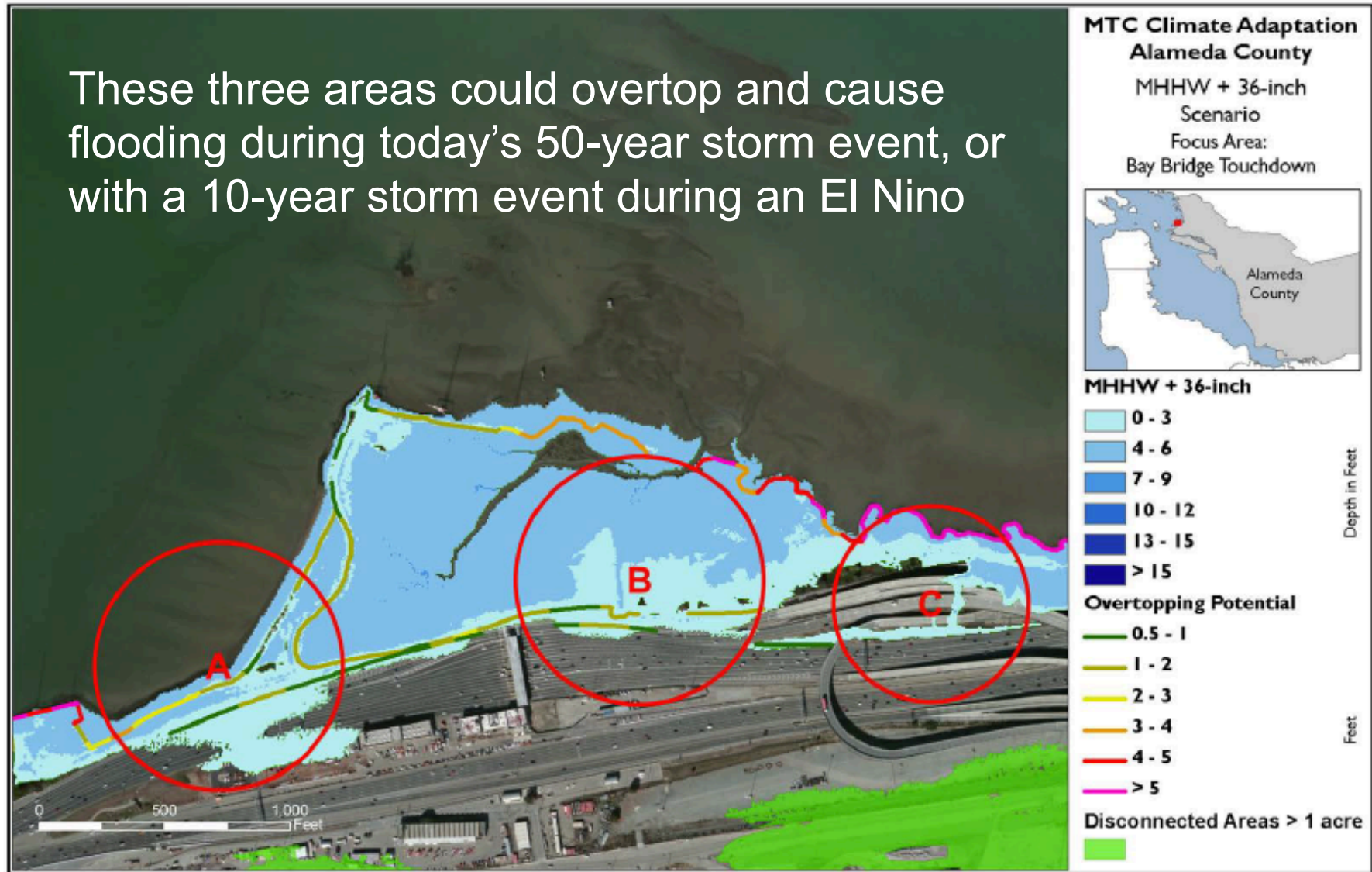


Figure 2. Shoreline Inundation Areas A, B, and C - MHHW + 36-inch Scenario

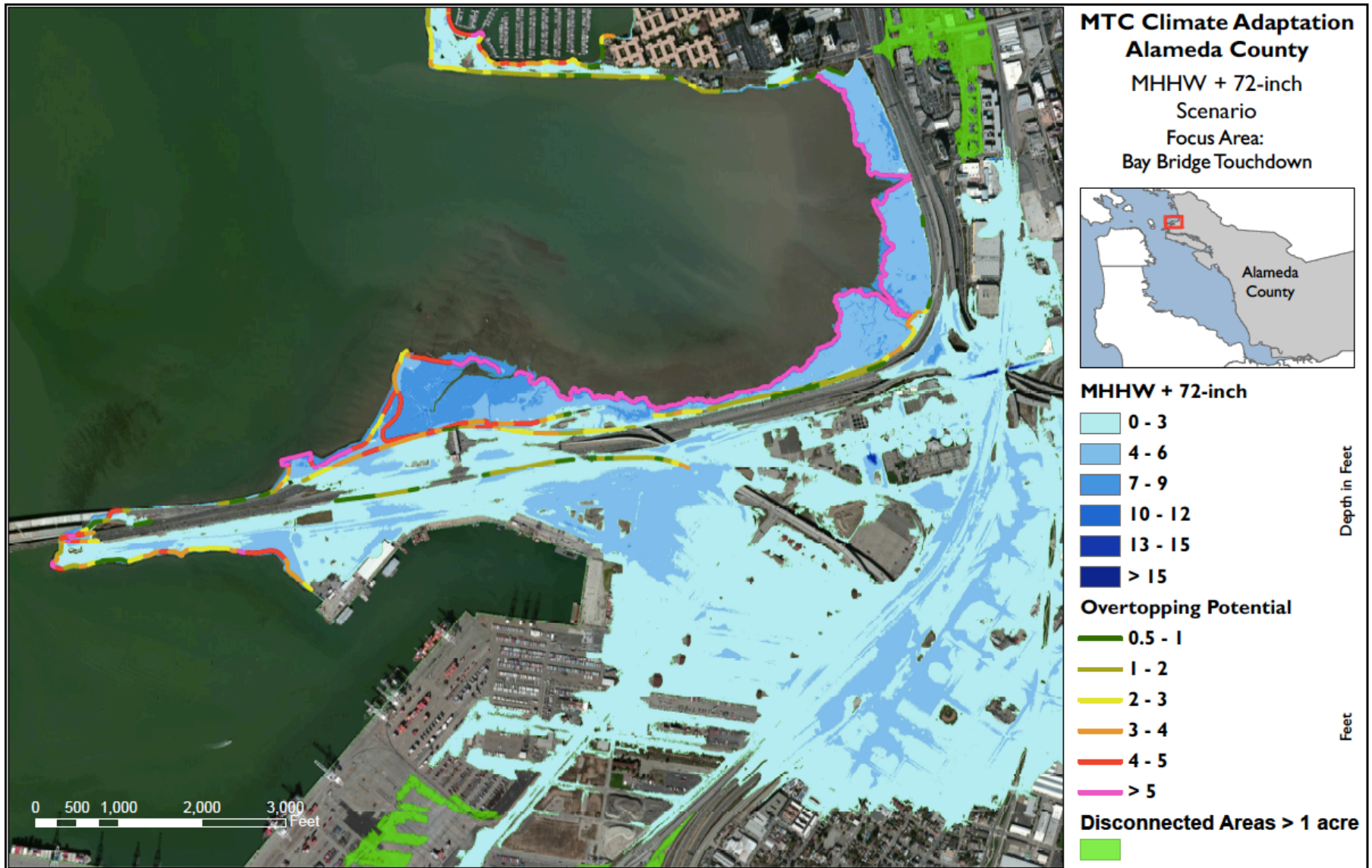
Phased response

Immediate: fortify low spots along Radio Road, have portable pumps and back up power available, temporarily protect the toll plaza and the westbound travel lanes if a storm is predicted

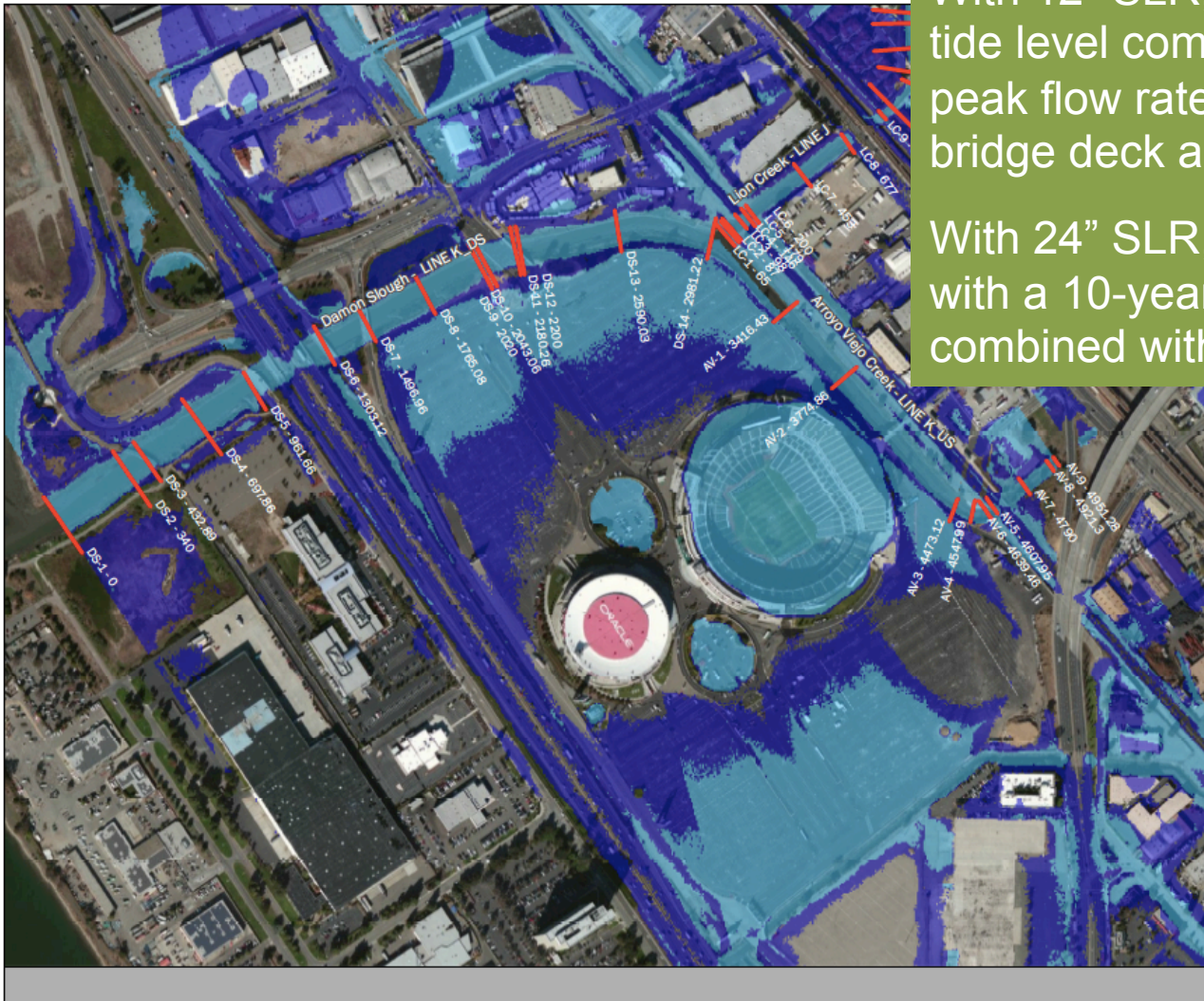
Soon: design and build shoreline protection system such as a living levee that considers need for radio tower access and operations of existing stormwater drainage system



Longer-term, broader solutions

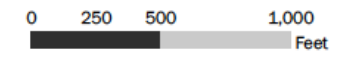


Understanding all flood risk



With 12" SLR, a 100-year extreme tide level combined with a 10-year peak flow rate could flood the bridge deck and adjacent roadways

With 24" SLR, flooding could occur with a 10-year extreme tide level combined with a 10-year peak flow.



North American Vertical Datum 1988
NAD 1983 StatePlane California III FIPS 0403 Feet

AECOM

4/20/2014

FIGURE 2

Other BCDC Initiatives



Current BCDC initiatives

- Policies for a Rising Bay:
 - An assessment of BCDC's laws and policies in relation to potential adaptation actions with an emphasis on effects on equity, environment and economy in the region
- BCDC's 2016 Workshop Series on Rising Sea Levels:
 - January 21st: Five Year Review of BCDC's Climate Policies
 - March 3rd: The Regional Role and Approach, Issues and Actions
 - April 7th: Review and discussion of January and March Findings
 - May 19th: Commissioner Conversation-Next Steps and Direction
 - October 6th: Commission approval of Sea Level Rise Recommendations

Caltrans Grant

MTC, BCDC and BARC built upon their existing partnership and was awarded a grant from Caltrans. The grant includes:

A regional vulnerability assessment and the development of adaptation strategies for:

- Transportation assets and service
- Priority Development Areas
- Priority Conservation Areas
- Communities with characteristics that could make them more vulnerable to sea level rise



ART Findings and the Sea Wall

The ART Program findings relevant to the sea wall:

- Existing conditions matter (a lot!)
- Seismic risk and flood risk go together on the Bay shoreline
- Capital improvement projects are the perfect time to conduct detailed assessments and make incremental changes
- Phased approaches will be necessary to address current risk, near term risk and long term risk
- Sea wall is a regional asset and a broad working group approach will increase capacity and buy in to address the risks



Adapting to Rising Tides

The screenshot shows the homepage of the Adapting to Rising Tides website. At the top, there is a navigation bar with links for 'ABOUT', 'ART SUPPLIES', and 'ART APPROACH'. Below the navigation bar is a large image of a coastal landscape with a body of water and hills in the background. A text box on the image reads: 'The Adapting to Rising Tides (ART) Program is an initiative led by the San Francisco Bay Conservation and Development Commission. ART provides staff support and other resources to help agencies and organizations collaboratively plan for sea level rise and storm impacts.' Below the image, a welcome message states: 'Welcome to the ART Portfolio, a place to find planning guidance, tools and information that have been developed, tested and refined by the Adapting to Rising Tides Program to address the specific challenges of climate change.' The main content area is divided into three columns: 'Findings', 'Projects', and 'How-to'. Each column has a description and a list of links. The 'Findings' column includes 'Findings by sector >' and 'Findings by issue >'. The 'Projects' column includes 'Regional scale projects >', 'Local scale projects >', and 'Sector specific projects >'. The 'How-to' column includes 'ART approach to adaptation >', 'Design your own project >', and 'ART supplies >'. At the bottom, there is a 'Help Desk >' button with the text 'Answers to frequently asked questions. How to contact us for additional help.' The website URL 'www.adaptingtorisingtides.org' is displayed at the bottom.

Findings: ART Program outcomes summarized by sector and issue

Projects: Latest information about current and past projects

How-to: Background information and step-by-step guidance and supplies

Help-desk: Connect to ART Program staff

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Thank you!

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