The Adapting to Rising Tides Program

San Francisco Bay Conservation and Development Commission
Transitioned from leading a single county effort to a regional program that uses findings, processes, tools and relationships developed in ART Alameda to lead and support:

- efforts at multiple geographic scales
- efforts that are multiple or single sector

For example, Hayward and Oakland/Bay Farm Island focus area studies, Capitol Corridor hot spots assessment, City of Benicia Adaptation Plan, Marin County shoreline planning, and regional resilience planning with ABAG, MTC, Caltrans and BART
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 Program Projects

Local
- Alameda County (ART Subregional Project)
- Contra Costa County ART Project
- Hayward Shoreline Resilience Study
- Oakland/Alameda Resilience Study

Regional
- Resilient Shorelines Partnership
- Stronger Housing, Safer Communities

Sector
- Bay Area Transportation Climate Resilience
- Capitol Corridor Passenger Rail
- Corte Madera Baylands
- East Bay Regional Park District
- Tidal Creeks and Flood Control Channels
Oakland/Alameda Resilience Study

- 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.

- 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.
Tidal Creeks and Channels Project

- Flooding hot spots will likely occur where transportation and community assets are adjacent to tidal creeks and channels.
- Further study is needed to understand when and where joint Bay + River flooding will occur, this includes updating or creating models for individual creeks and watersheds.
- Creative multi-agency and multi-landowner solutions will be needed to address these challenges.
- Some solutions will be place-based while others will be watershed-wide.

The I-880 crossing was not included in Alameda County Flood Control’s HEC-RAS model for Damon Slough, Arroyo Viejo and Lion Creek.
Sea Level Rise and Storm Event Exposure

Alameda County Inundation Mapping
MHWW + 36"
SLR Scenario

Focus Area: Bay Farm Island

Overtopping Potential
- 0.1 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- > 5

MHWW + 36"
- 0 - 3
- 4 - 6
- 7 - 9
- 10 - 12
- 13 - 15
- > 15

Disconnected Areas > 1 acre
Creek and Channel Flooding
Creek and Channel Flooding

During storm events, higher Bay water levels will diminish the ability of these creeks and channels to carry rainwater away from developed areas, resulting in new or prolonged flooding.

On January 1, 1997 torrential rains and a high tide occurred at the same time. High water levels in the Bay caused Alhambra Creek to back up, flooding downtown Martinez.
Creek and Channel Flooding

Understanding how rising tides will impact tidal creeks and channels is critical to determine what actions to take to protect human and natural communities.
Sea Level Rise + Creek + Storm
Watershed Solutions for Coastal Flooding

Figure 2 – Watershed Map for Oakland Coliseum Focus Area³
Damon Slough Improvements

Figure 6-5: The layout and footprint of the living levee (brown) and the section where seawall might be necessary due to space limitations
Low Impact Development
Oakland Flood Resilience Strategies

- Identify opportunities for flood risk reduction from the hills to the Bay
- Map opportunity sites for low impact development and water storage, particularly on public land
- Improve city codes for new development
- Implement strategies that provide multiple benefits, including flood risk reduction, improved water quality, expanded green space and recreation access
- Understand all relevant hazards and choose strategies that build resilience to multiple hazards (e.g., flooding, fire and seismic)
Watershed-wide Opportunities

- Educate residents and property owners about the need to improve stormwater and flood management systems so they support, advocate and vote for improvements

- Analyze watersheds at risk to identify opportunity sites where green infrastructure or nature-based solutions can improve system-wide capacity to accommodate sea level and groundwater rise

- Actively monitor tidal marshes to detect when intervention is necessary before thresholds of change are surpassed

- Collaborate on hydrologic, geomorphic, and ecological studies that will help to determine the feasibility of nature-based adaptation options
ART Program

For more information:
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