



The

Adapting to Rising Tides



Program

Hayward Resilience Study



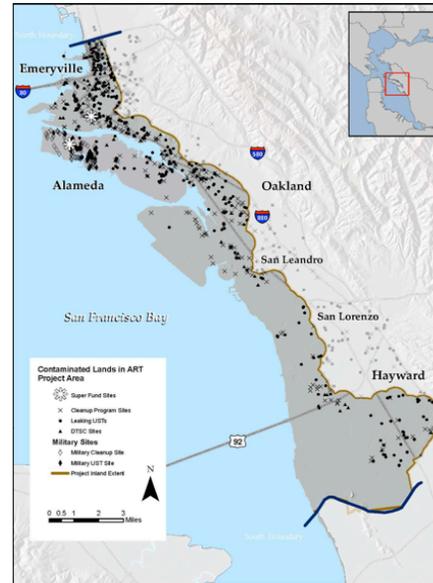
San Francisco Bay Conservation
and Development Commission

ART Alameda County Project

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

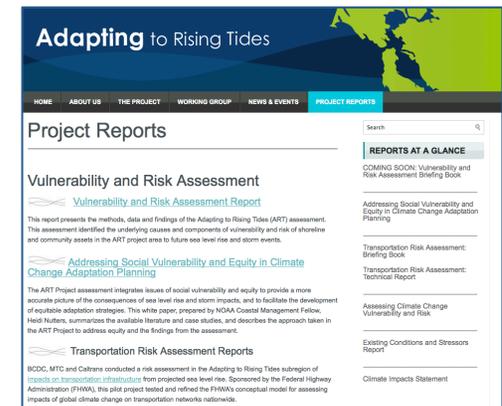


Working Group

ART emphasizes close collaboration among local, regional, state and federal stakeholders to develop a shared understanding of issues, build trust, and achieve buy-in for collaborative problem solving

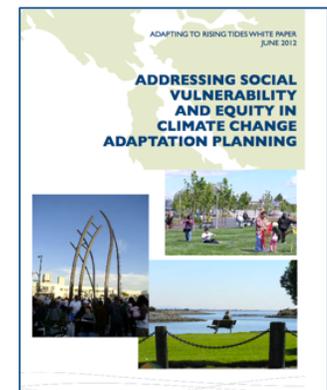
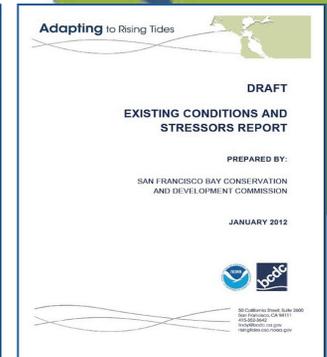
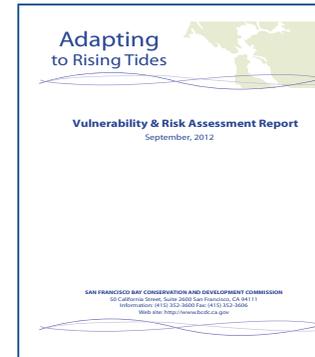
Asset Categories

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



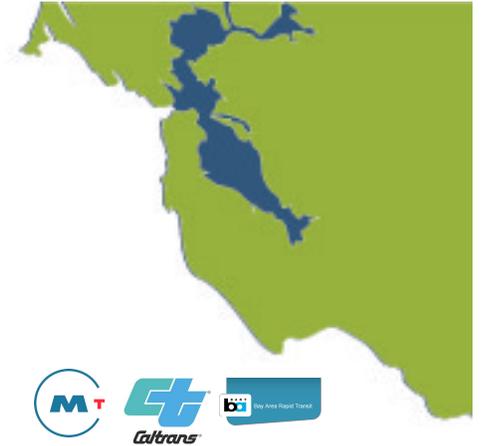
ART Alameda County Project Outcomes

- **Issue papers** on Governance and Social Vulnerability
- A proven **assessment approach**
- **Reports** on existing conditions, vulnerability and risk, and adaptation responses
- Sector-specific **communication materials**, e.g., profile sheets
- **Adaptation responses** for all vulnerabilities identified
- **Capacity building** at local, regional, state and federal levels
- **Further assessments** by the ART team and working group members



ART Program Projects

- ART Alameda County
- ART Transportation Assessment + Adaptation Options
- BART Climate Adaptation Pilot 
- Capitol Corridor Hot Spots Assessment 
- ART Shoreline Parks Assessment 
- **ART Hayward Shoreline Resilience Study**
- Safer Housing, Stronger Communities 
- Benicia Adaptation Plan 
- ART Oakland/Alameda Shoreline Resilience Study
- ART Contra Costa County

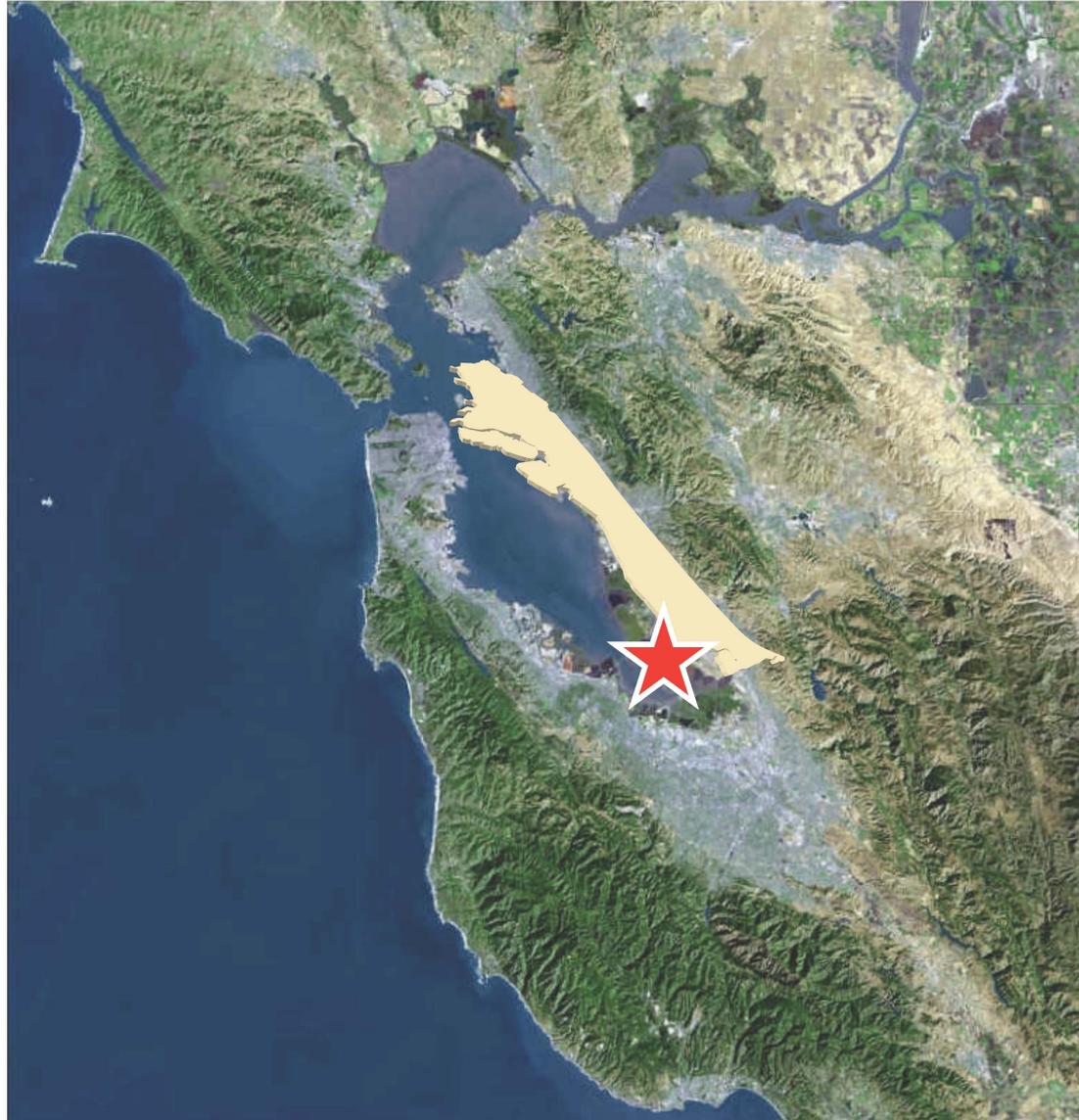




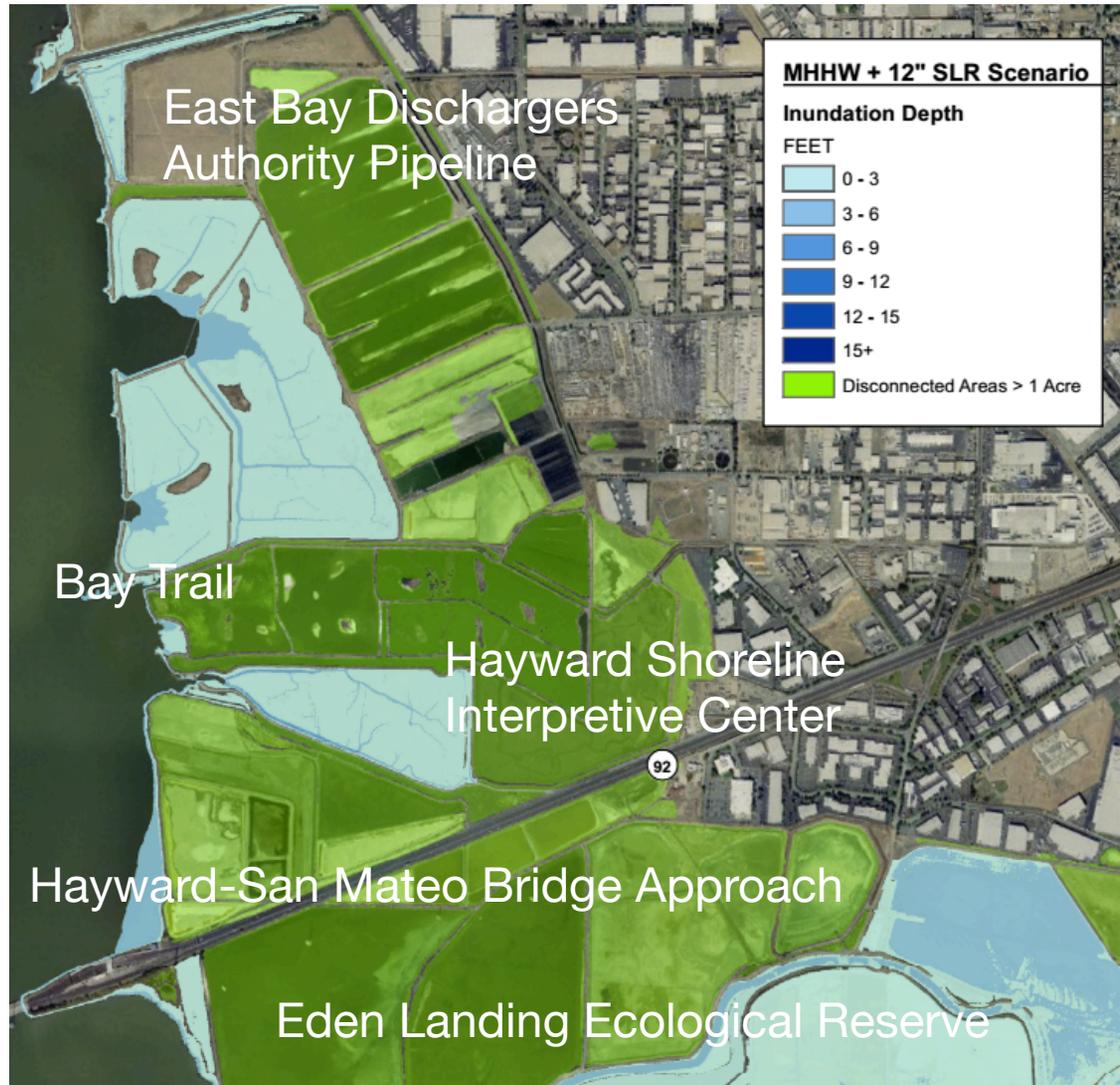
ART Focus Area Assessments

- Refines findings from broader assessments
- Provides for deeper engagement with working group members and the community
- Improves understanding of vulnerabilities and adaptation options
- Results in targeted responses that can be specific to the implementation opportunities and challenges
- Requires a more refined approach to evaluating benefits and identifying implementation priorities

ART Program Focus on Hayward



Sea Level Rise and Storm Event Exposure



Sea Level Rise and Storm Event Exposure



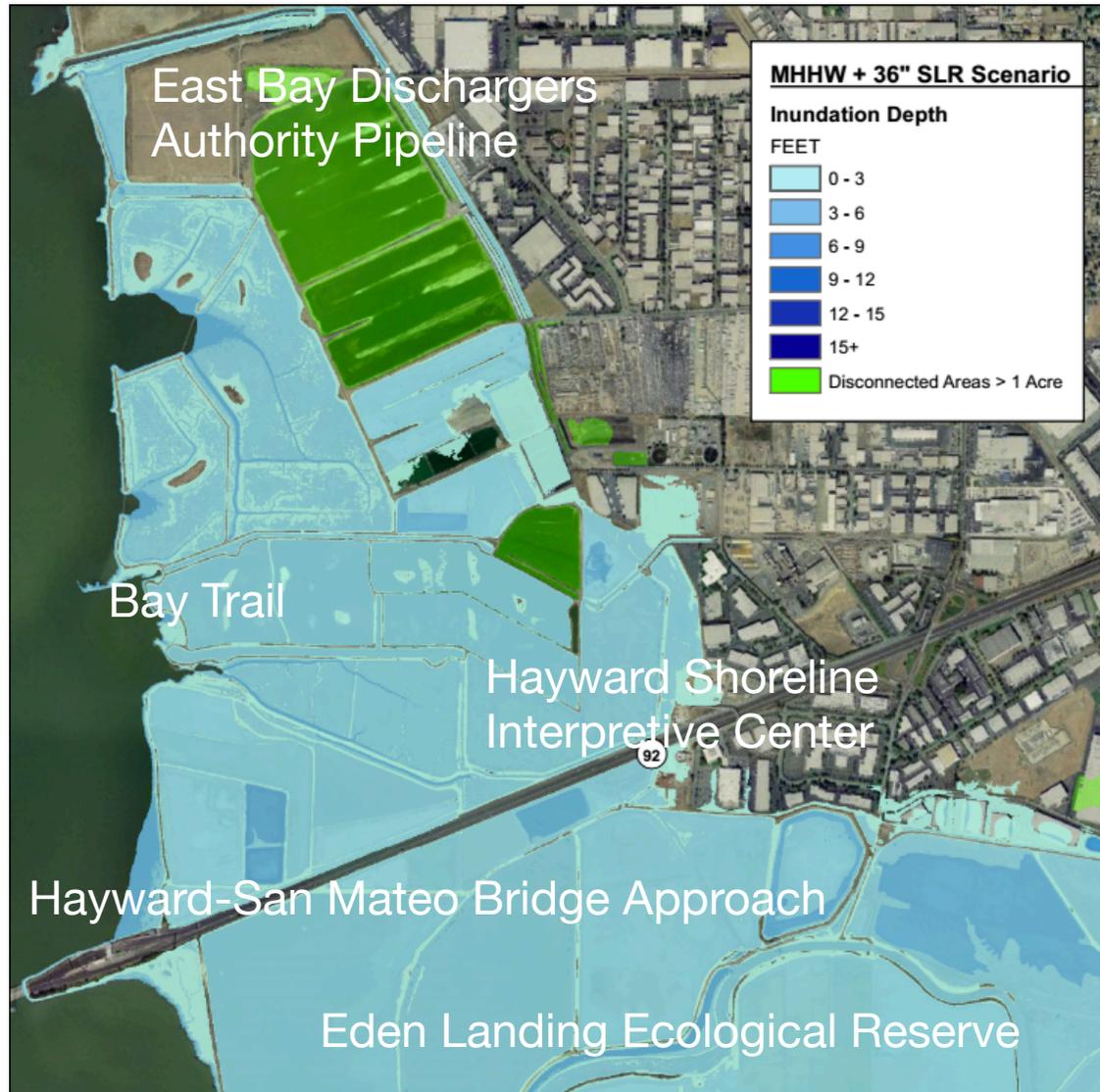
0' MLLW

Sea Level Rise and Storm Event Exposure



8' King Tide

Flooding in Developed Area



Planning Process



Working Group

- City of Hayward
- East Bay Regional Park District
- Hayward Area Recreation and Park District
- East Bay Dischargers Authority
- Union Sanitary District
- California Coastal Conservancy
- Alameda County Flood Control Water Conservation District
- Caltrans
- Bay Trail



1. Shoreline Protection is Too Low

- Shoreline protection is ad hoc levees and natural areas
- Marshes are expected to downshift and eventually drown due to sea level rise and low sediment supply
- Structural shorelines are all at a similar elevation and overtop between 36-48” over MHHW



2. Widespread Consequences

Vulnerable Regional Assets:

- Hayward-San Mateo Bridge Approach
- East Bay Dischargers Authority Pipeline
- Hayward Water Pollution Control Facility
- Russell City Energy Center



3. Governance Vulnerabilities

- Lack of organizational capacity or structure to address issues beyond current jurisdiction, boundaries, or mission
- Limited financial support for current maintenance and repairs as well as long term planning and improvements
- Current regulatory process does not account for unavoidable changes due to sea level rise



4. Unique Recreation and Education At Risk



- Environmental education for 9,000 students/year
- 80,000 Bay Trail users/year
- Interpretation relies on vulnerable natural areas, levees, and trails

5. Landscape Solution Requires Coordination

- Study identified short term, individual and agency actions that can build resilience
- When water levels reach 36-48” above MHHW, the Hayward Focus Area will need a coordinated, multi-benefit, landscape-scale effort for future coastal flood protection



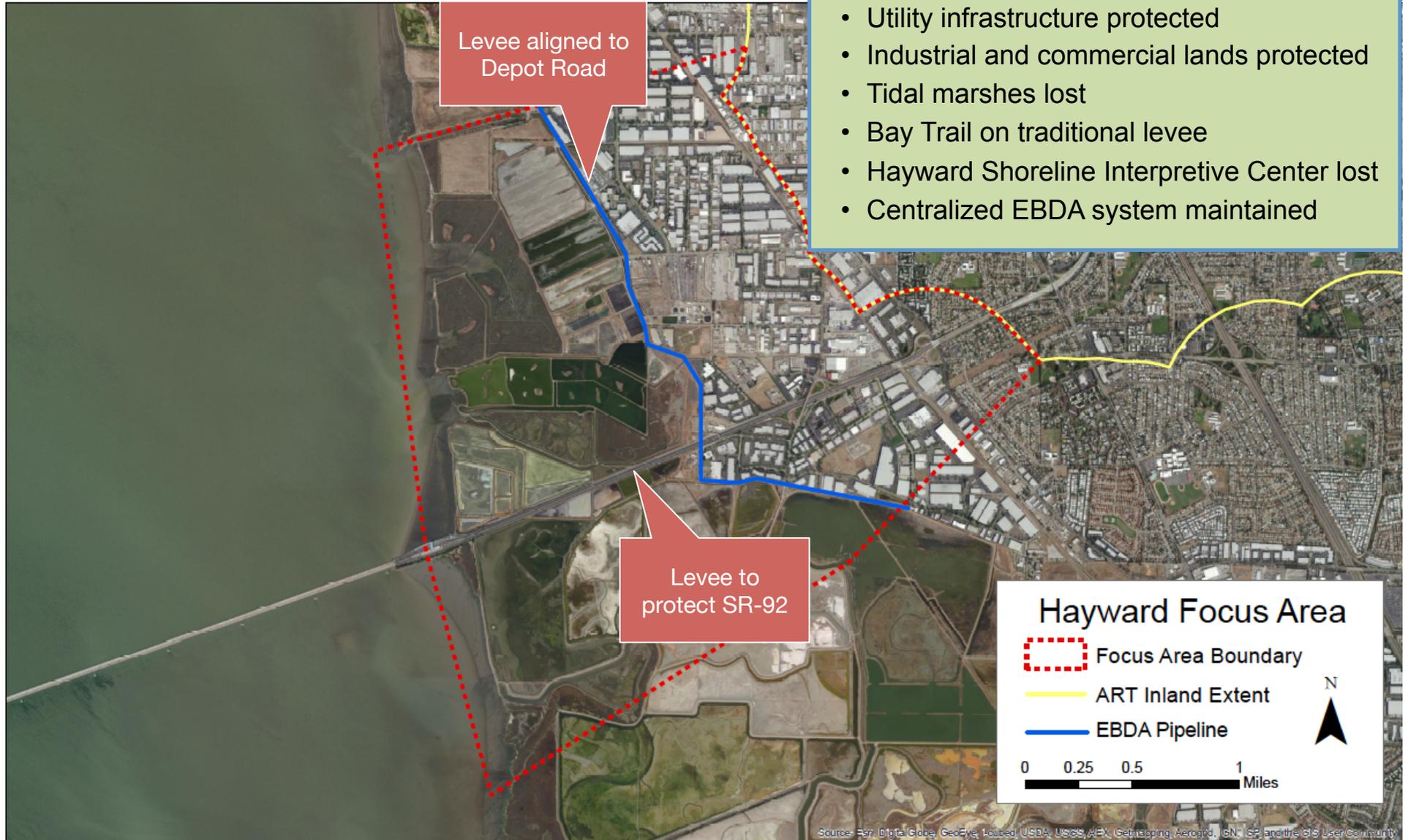
Business as usual

Key outcomes

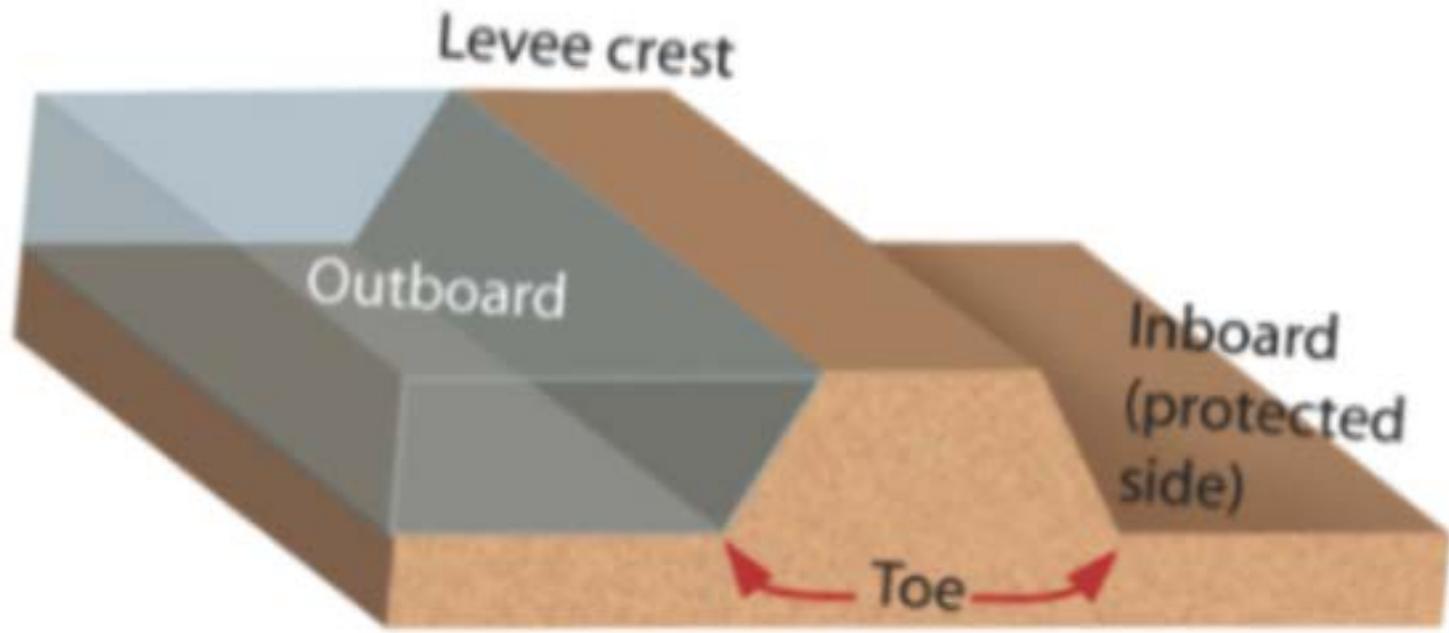
- Costly flood damage and recovery in industrial areas and on bridge approach
- Increased flood insurance premiums
- Tidal marshes lost
- Bay Trail lost
- Hayward Shoreline Interpretive Center lost
- Centralized EBDA system maintained



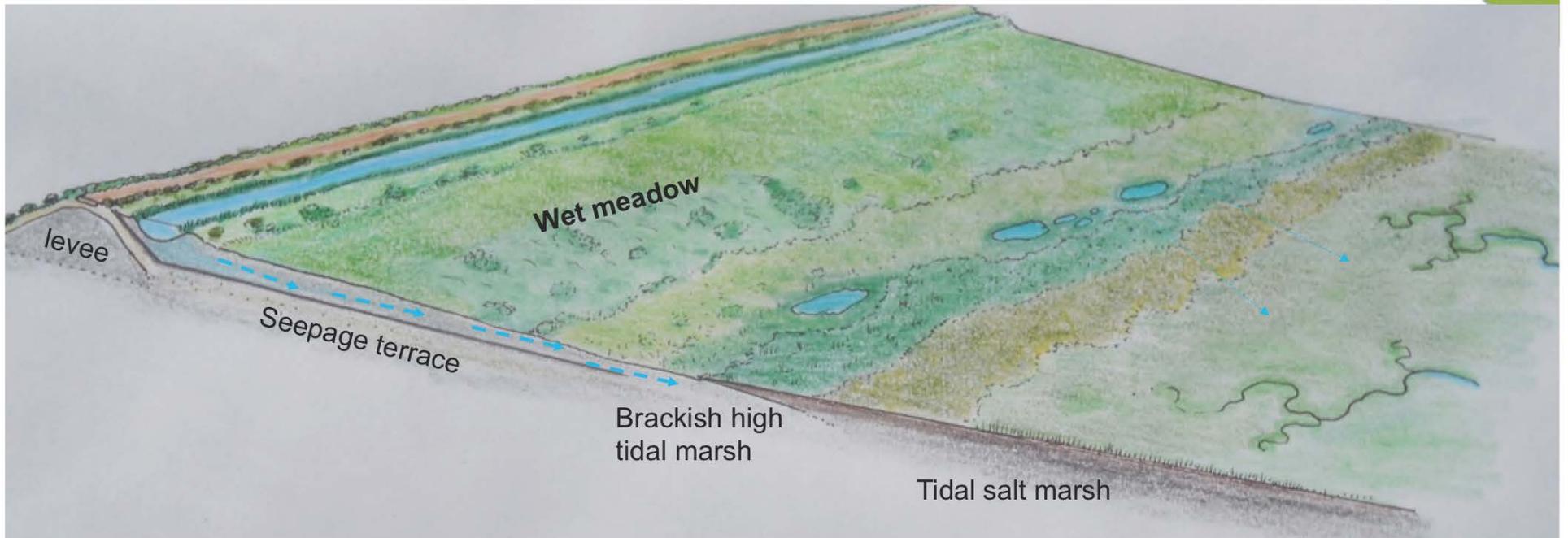
Traditional levee



Traditional levee



Horizontal levee

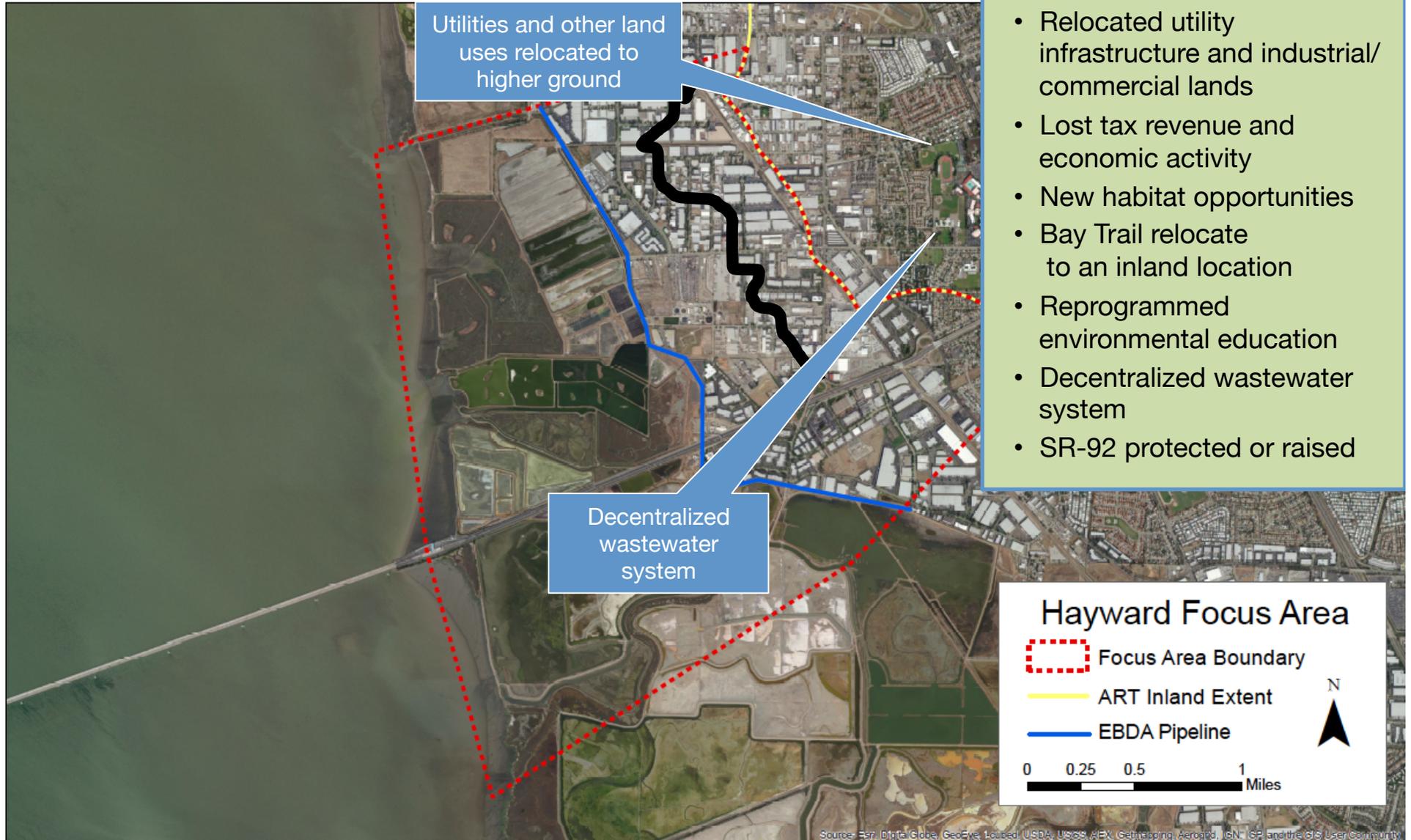


Room for the Bay

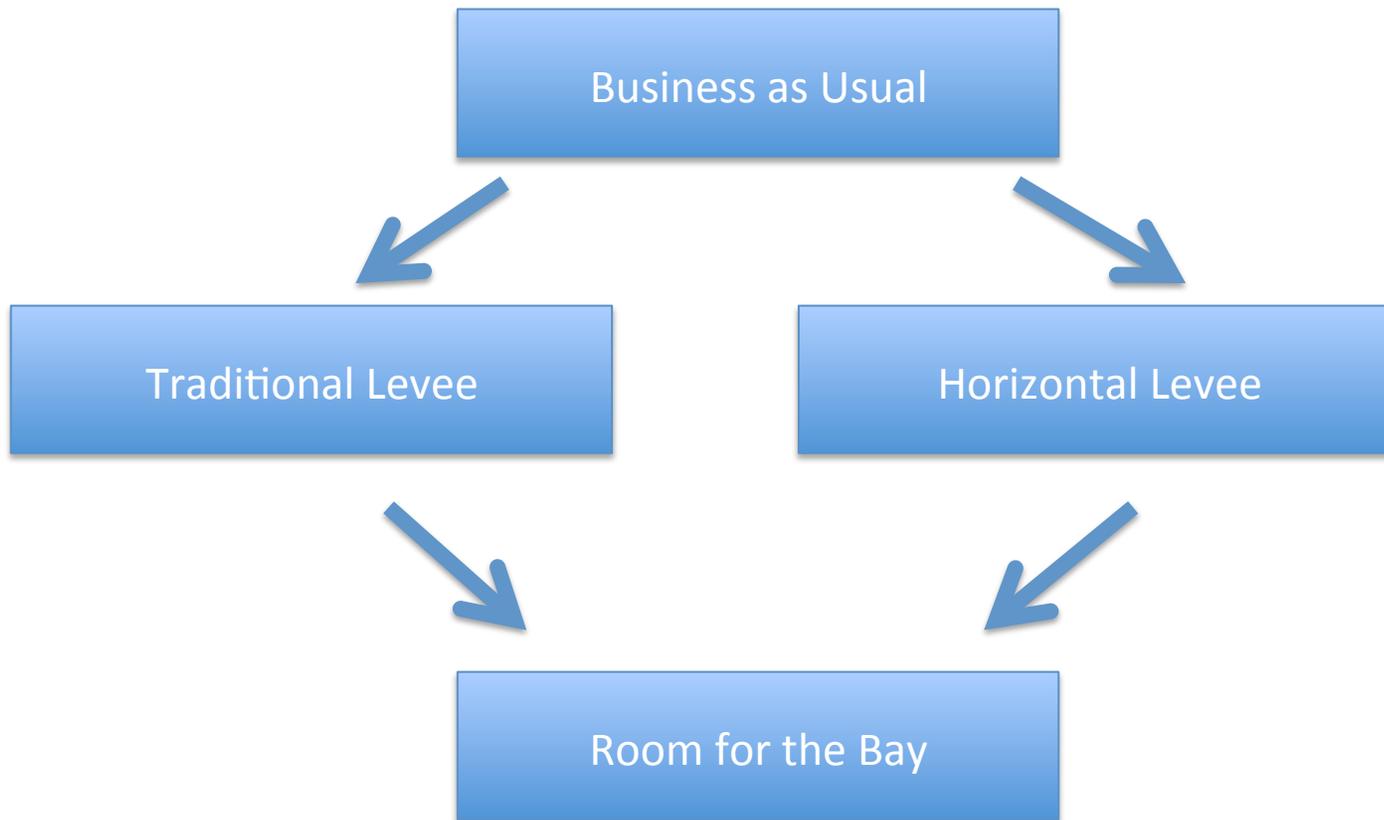
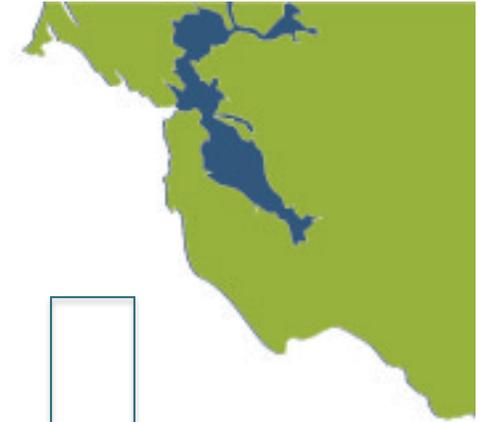


Key outcomes

- Relocated utility infrastructure and industrial/commercial lands
- Lost tax revenue and economic activity
- New habitat opportunities
- Bay Trail relocate to an inland location
- Reprogrammed environmental education
- Decentralized wastewater system
- SR-92 protected or raised



Planning for Multiple Timeframes



TIME + RISING SEA LEVEL

A large, hollow, downward-pointing arrow with the text "TIME + RISING SEA LEVEL" written vertically inside it.

Key Outcomes



1. Adaptation planning involves working beyond existing intra-agency processes and across jurisdictional boundaries. **ART staff** play a **critical role in convening local stakeholders** and providing a structure for collaboration to improve shoreline resilience.

2. Current regulatory process for natural areas, shoreline improvements, and water quality makes current maintenance and repairs difficult; adapting to sea level rise impacts will require a more holistic approach to **weigh short term and long term costs** and benefits as well as multi-objective projects.

3. The next steps for the ART Program is to **refine the approaches** developed to **evaluate and prioritize implementation of adaptation responses** and find ways to assist its working group members and others in **carrying these findings and alternatives into implementation.**

Hayward Resilience Study



For more information:

www.adaptingtorisingtides.org

Contact:

Maggie Wenger

maggiew@bcdcc.ca.gov

415-352-3647