



CALIFORNIA LAND RECYCLING CONFERENCE

Imagine | Innovate | Implement
September 29 – October 1, 2026 | Foster City

SUSTAINABLE PLANNING FOR RESILIENT COMMUNITIES

Integrating Brownfields, Green Infrastructure, and Climate Adaptation



OFFICE OF BROWNFIELDS
Department of Toxic Substances Control - Cleanup in Vulnerable Communities Initiative



CENTER FOR CREATIVE
LAND RECYCLING
RECLAIM. CONNECT. TRANSFORM.

SPEAKERS



CHRISTINA BEJARANO

WRT



LUISA VALIELA

**San Francisco Bay Program
Manager, EPA Region 9**



MEGAN WHITE

**US Green Building Council
California, Firecrown**



JIM RITCHIE

SCS Engineers

Objective

Sustainable Planning for Resilient Communities | Integrating Brownfields, Green Infrastructure, and Climate Adaptation

Our goal is that you leave with a practical understanding of how regional planning, funding, brownfield expertise and sustainable design can work together rather than as separate processes.

We will start with the problem at scale, then move through regional planning and Bay-specific programs and funding, and finish by grounding the discussion in brownfield implementation and case studies.

Framing

Visions for a Regenerative World



Our mission is to transform California through the built environment into a more sustainable, resilient, and equitable place for all.

By inspiring communities and fostering collaboration, we drive **systemic change**.



Our mission is to empower leaders within the world's largest and most influential organizations to deliver climate solutions at speed and scale.

We envision a world **transformed** by businesses operating in harmony with nature.

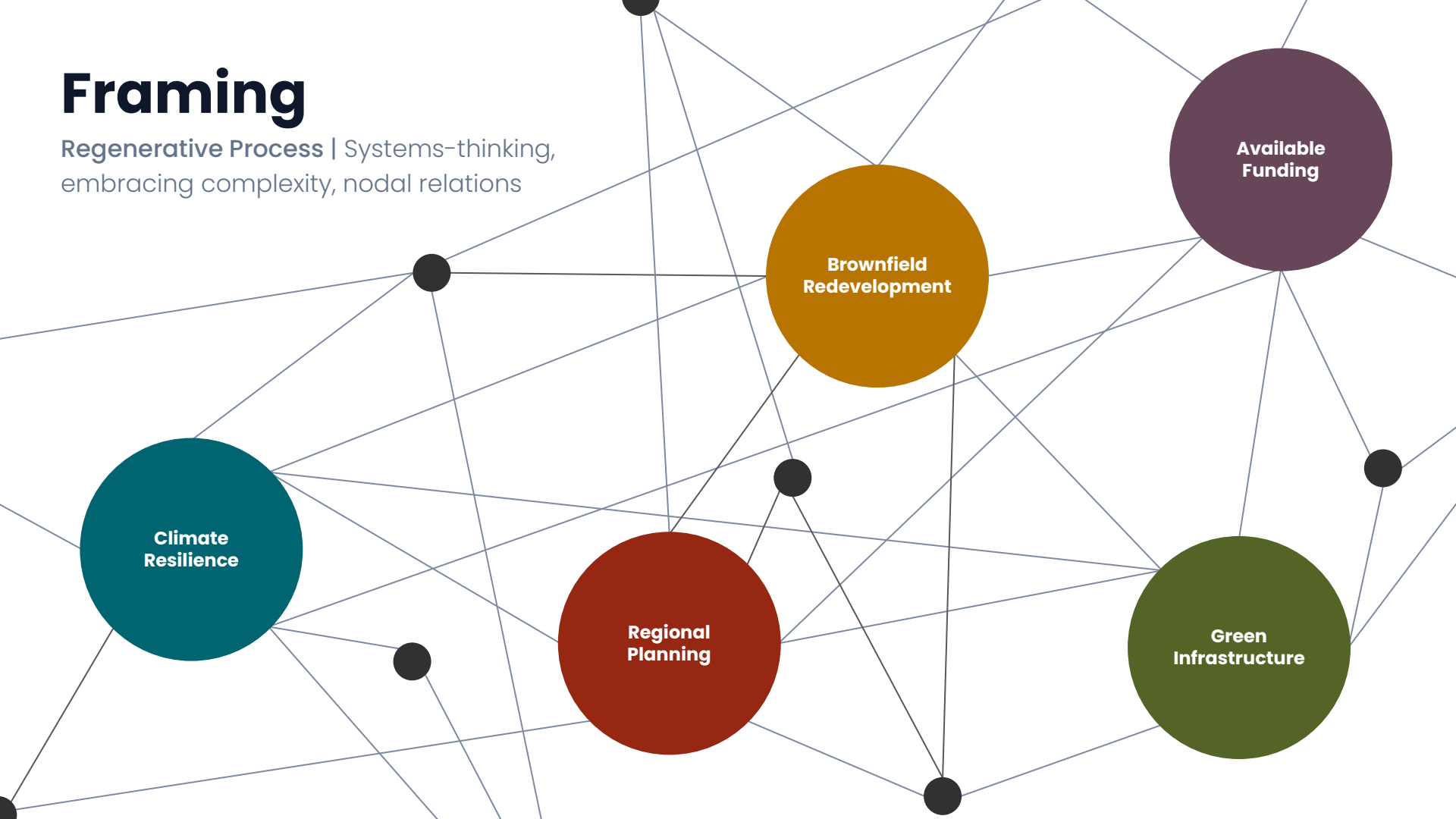
Framing

LEED v5 Development Structure



Framing

Regenerative Process | Systems-thinking,
embracing complexity, nodal relations



Framing

Core pillars for integrated community resilience and sustainable development

Regional Planning

Aligning cross-jurisdictional strategies and holistic land-use frameworks.

Climate Resilience

Adapting systems to withstand environmental change and extreme weather.

Brownfield Redevelopment

Transforming contaminated and underused land into community use.

Green Infrastructure

Integrating nature-based systems that manage water, heat, and habitat.

Available Funding

Leveraging the public and private capital that moves plans into construction.



REGIONAL SHORELINE ADAPTATION

Sustainable Planning for Resilient Communities: Integrating Brownfields, Green Infrastructure, and Climate Adaptation

September 2026



100+

employees

2 offices

Philadelphia and San Francisco

4 practice areas

Community Design

Housing + Neighborhoods

Parks + Open Space

Education

4 disciplines

Planning

Urban Design

Architecture

Landscape Architecture



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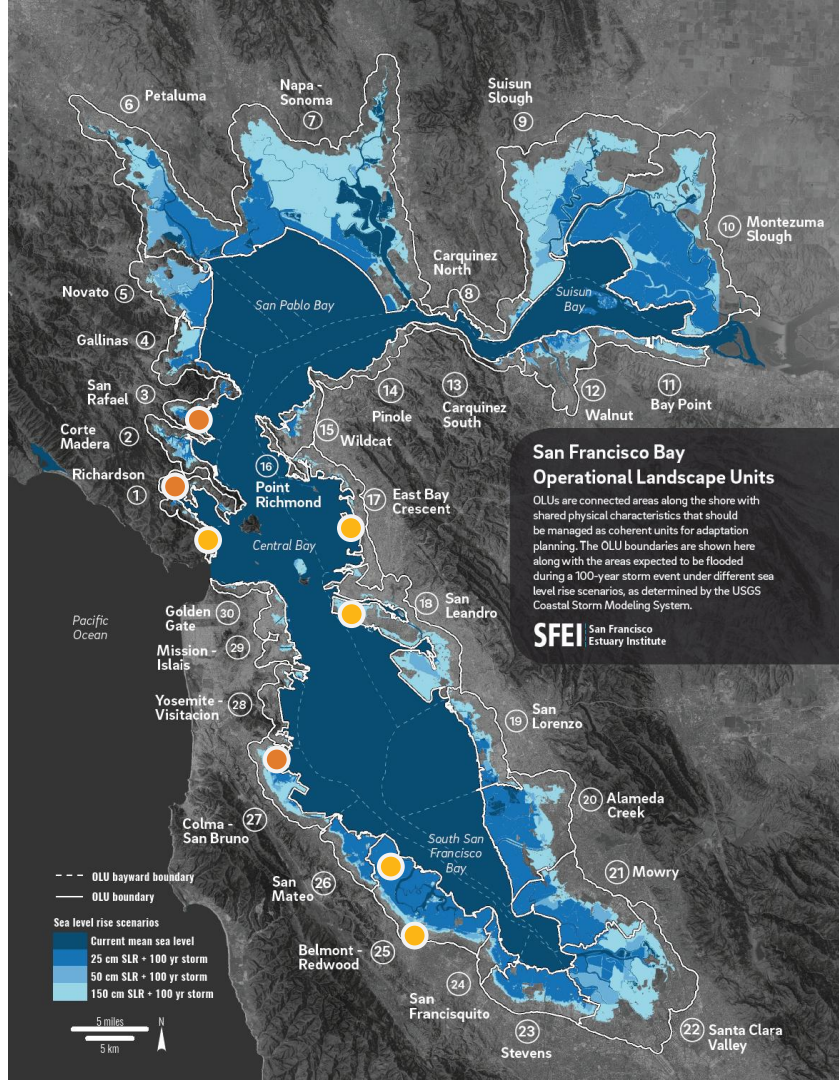
wrtdesign.com



Planning Across the Bay

Regional Planning & Adaptation Examples:

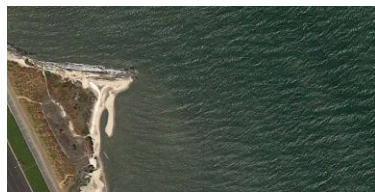
- Mill Valley Shoreline Adaptation Plan
- Protect and Connect South San Francisco
- Southeast San Rafael Specific Plan



Regional Approach

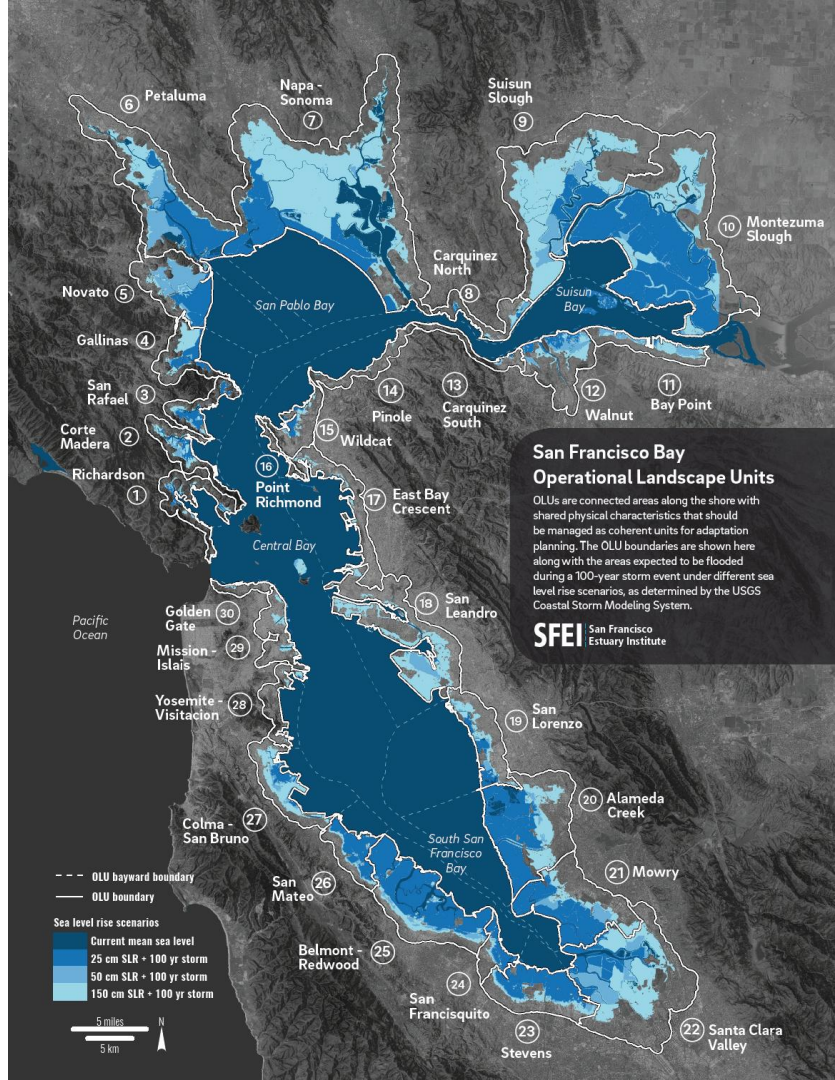
San Francisco Bay Shoreline Adaptation Atlas

- Ground strategies in an understanding of the **landscape processes** that shape the Bay
- Connect community goals, constraints and opportunities from the **regional scale to the local**
- Build consensus to make the leap **from a plan to a project**



SAN FRANCISCO BAY SHORELINE Adaptation Atlas

Working with Nature to Plan for Sea Level Rise
Using Operational Landscape Units



What is the RSAP?



Regional Shoreline Adaptation Plan:

One Bay Vision,
Strategic Regional Priorities,
and Subregional Shoreline
Adaptation Plan Guidelines

December 2024



San Francisco
Bay Conservation
and Development
Commission (BCDC)

ONE BAY VISION FOR A RESILIENT FUTURE SHORELINE—

As sea levels rise, the Bay Area's diverse communities come together to transform how we live, work, plan, and adapt along our changing shorelines.

In this future, communities are healthy, safe, and have greater access to the shoreline, where they can feel connected to the Bay's edge and experience the beauty and wonder of thriving habitats we depend upon to sustain our quality of life. Our region remains connected so that networks of people and goods can move with ease and get to the places they need to go. The services we rely upon keep our communities and economies running and are designed for the long term. Achieving this future will require governments, the private sector, and communities to make a commitment to equity, address past harms, and take on complex, interrelated challenges together. A resilient future for the San Francisco Bay Area starts now and continues for generations to come.



Communities are healthy and vibrant.



Healthy Baylands ecosystems thrive.



Places are designed for changing shorelines.



Critical services are reliable.



The Bay shoreline is accessible to all.



Safe and reliable transportation connects the region.

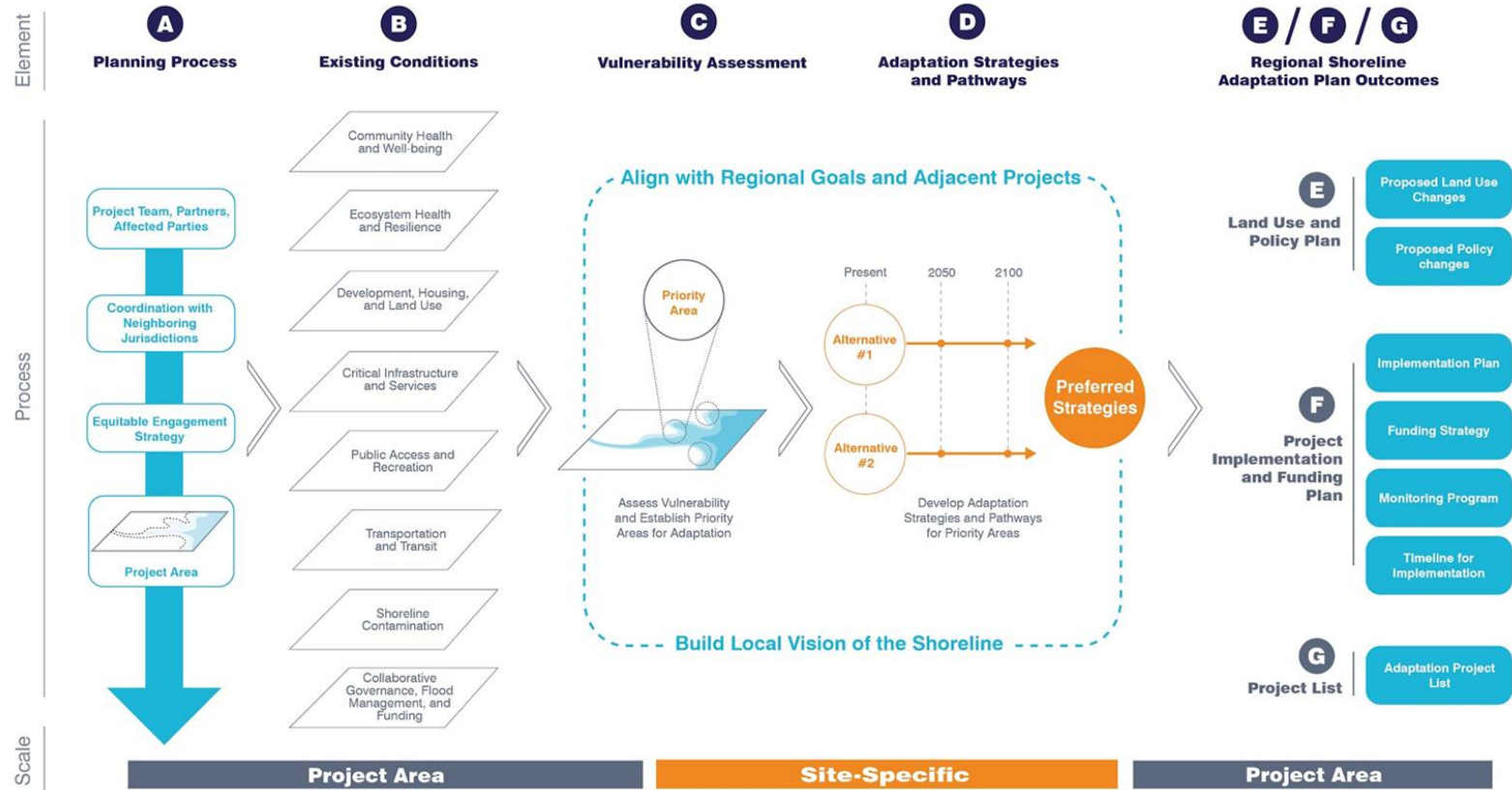


People and ecosystems are safe from contamination risks.

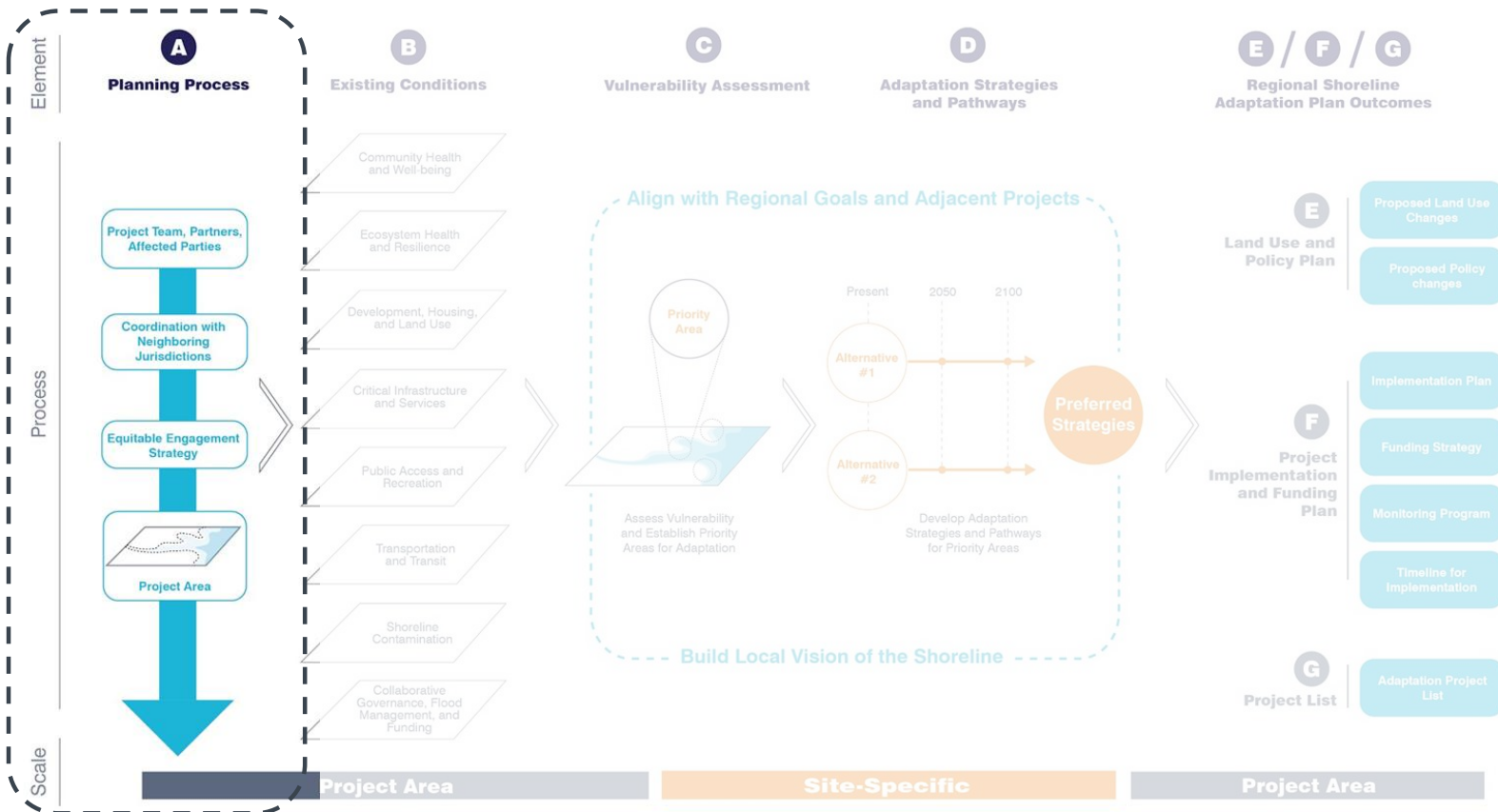


Regional collaboration drives efficient and effective adaptation.

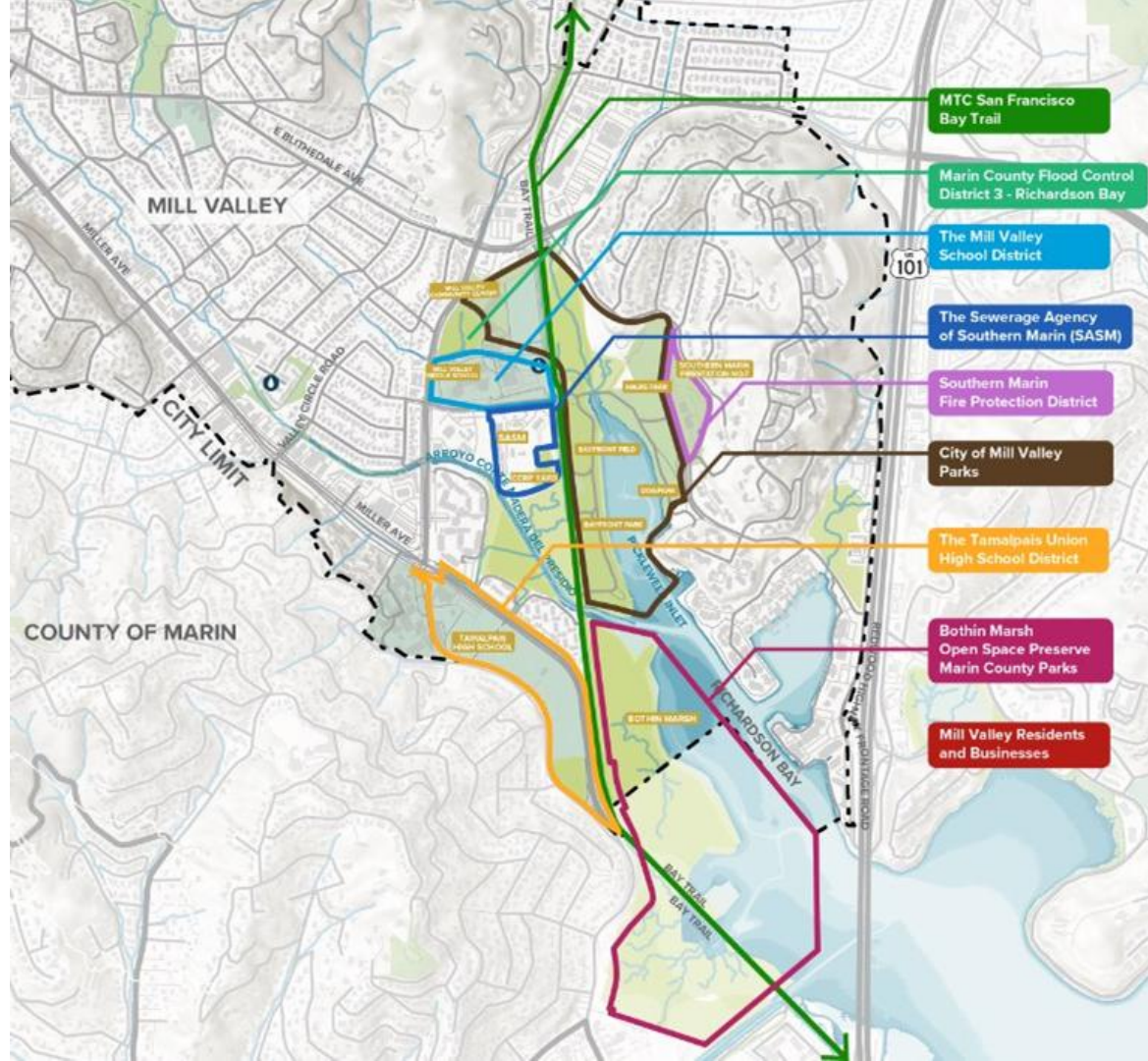
Regional Shoreline Adaptation Framework



Regional Shoreline Adaptation Framework



Coordination with Neighboring Jurisdictions



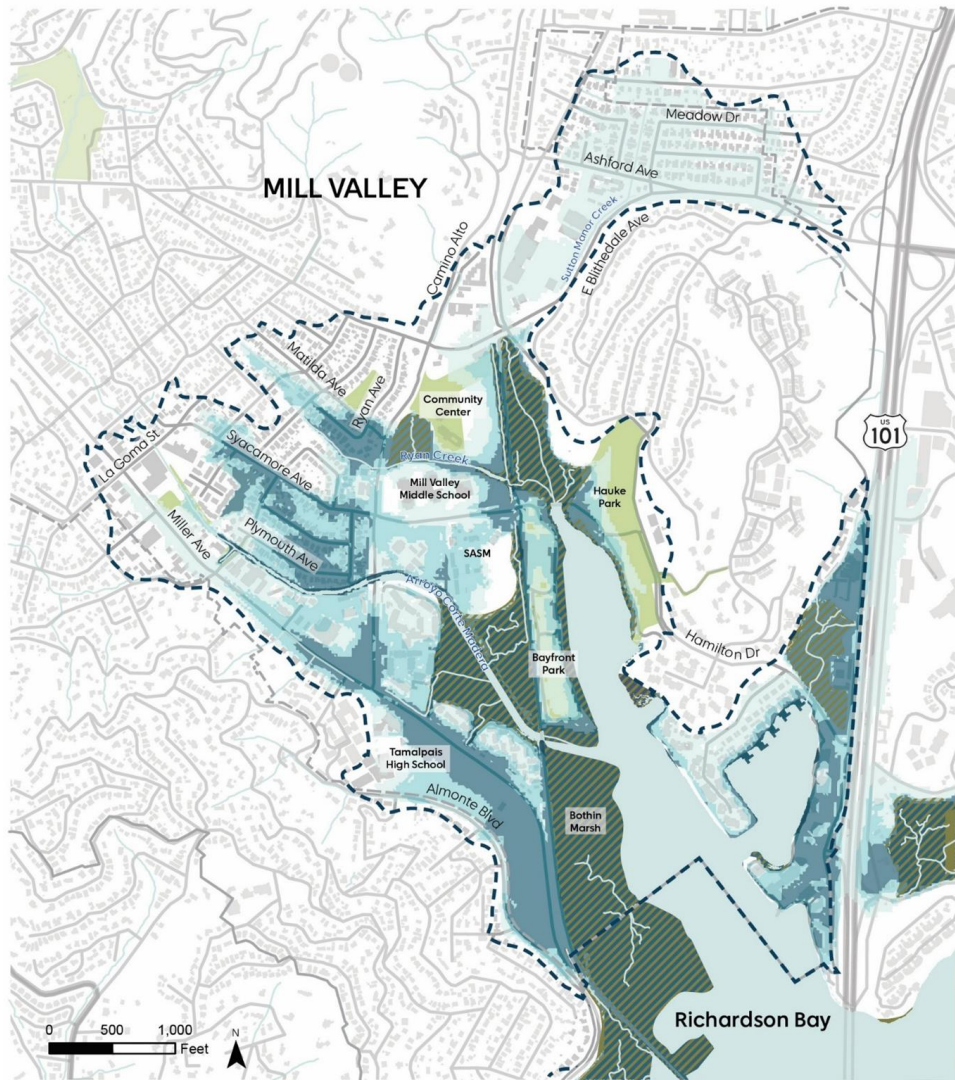
Planning Area

Base Map

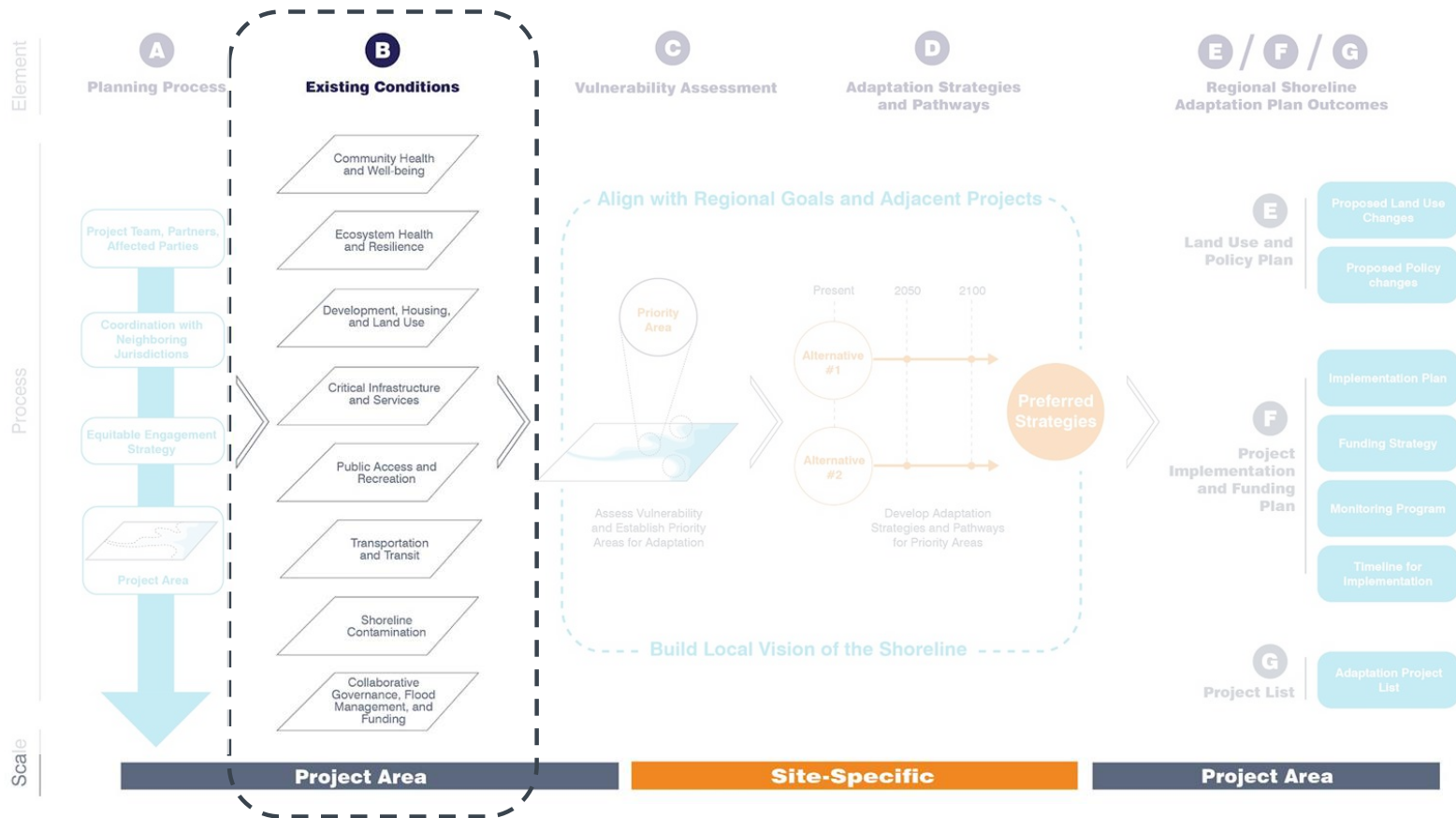
-  Planning Area
-  City of Mill Valley
-  Sphere of Influence
-  Existing Baylands
-  Parks
-  Existing Bay
-  Upstream Flood Zone (Outside Project Area)

Sea Level Rise

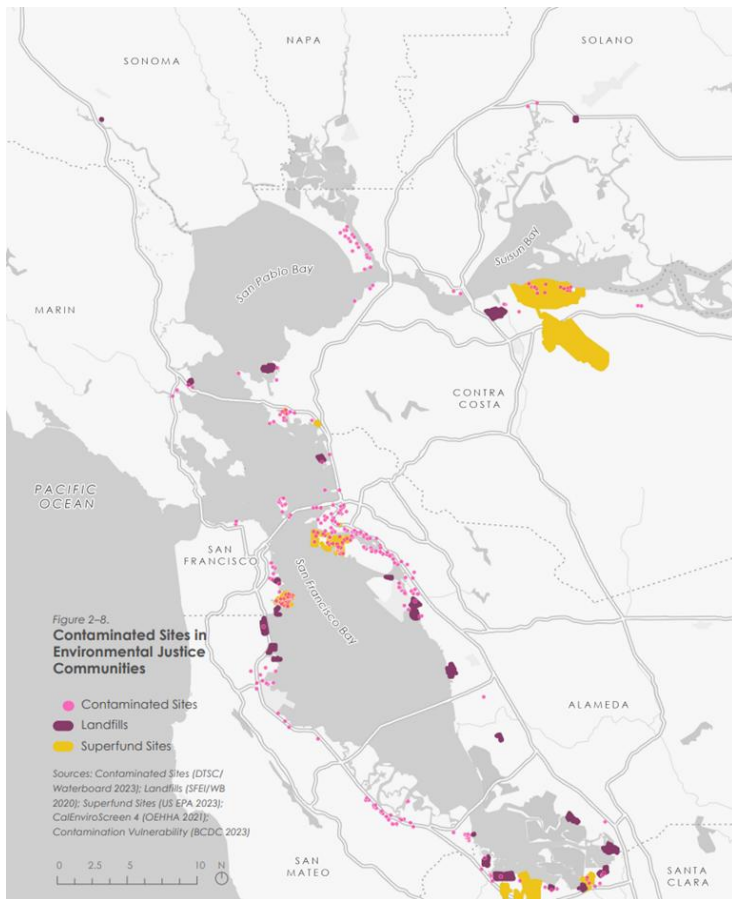
-  0.8 ft Sea Level Rise Inundation (2050)
-  3.1 ft Sea Level Rise Inundation (2100 Intermediate)
-  4.9 ft Sea Level Rise Inundation (2100 Intermediate High)
-  6.6 ft Sea Level Rise Inundation (2100 High)



Regional Shoreline Adaptation Framework



BCDC RSAP Contamination Guidance



2.3.7 Shoreline Contamination

Shoreline Contamination includes sites or land uses that utilize or store hazardous materials and contain substances known to have impacts from hazardous waste that may pose a potential future risk to people, the environment, and water quality. As sea levels rise, coastal flooding and coastal and inland groundwater rise, as well as earthquake, liquefaction, erosion, and landslide hazards may increase the potential for known site contaminants to be released to surface waters, groundwater, air, soil, sediment, human developments, and habitats. Different site conditions and types of contaminants or hazardous materials present will affect the risks, severity, and consequences of flood exposure to people and the environment. Sites that have previously undergone remediation or mitigative measures (such as capped sites) may need to be re-evaluated to determine if they can continue to provide protection against contamination mobilization as sea levels rise.

ONE BAY VISION

As sea levels rise...

People and ecosystems are safe from contamination.

To achieve this:

- Collaborate with communities, Tribes, scientists, industries, and government agencies to **identify, mitigate, adapt, and remediate contaminated shoreline sites.**
- **Prioritize remediation of contaminated sites in Environmental Justice communities,** while minimizing transferring contamination burden.
- **Integrate emerging science on shallow groundwater rise,** including Indigenous Traditional Ecological Knowledge (ITEK), into planning and adaptation decisions and identify innovative solutions.

BCDC RSAP Atlas – DTSC sites



**Regional Shoreline Adaptation Plan (Beta)**

Local Sea Level Rise Plans

User GuideDownload Data

Plan Assistant

Use Plan Assistant to search for data needed in a Subregional Plan. Search by Plan element, topic, and sea level rise scenario. Create maps, tables, and summaries that may be used in Plan submittals. [Learn more.](#)

Filter

What type of jurisdiction are you planning for?

City or Census Designated Places

Which jurisdiction are you planning for?

Mill Valley

What RSAP element are you working on?

C: Vulnerability Assessment

What topic are you interested in?

Shoreline Contamination

What sea level rise scenario do you want to see?

3.1 ft (2100 Intermediate) SLR Scenario

Submit

Reset

+

-

Basemap

Print

Search

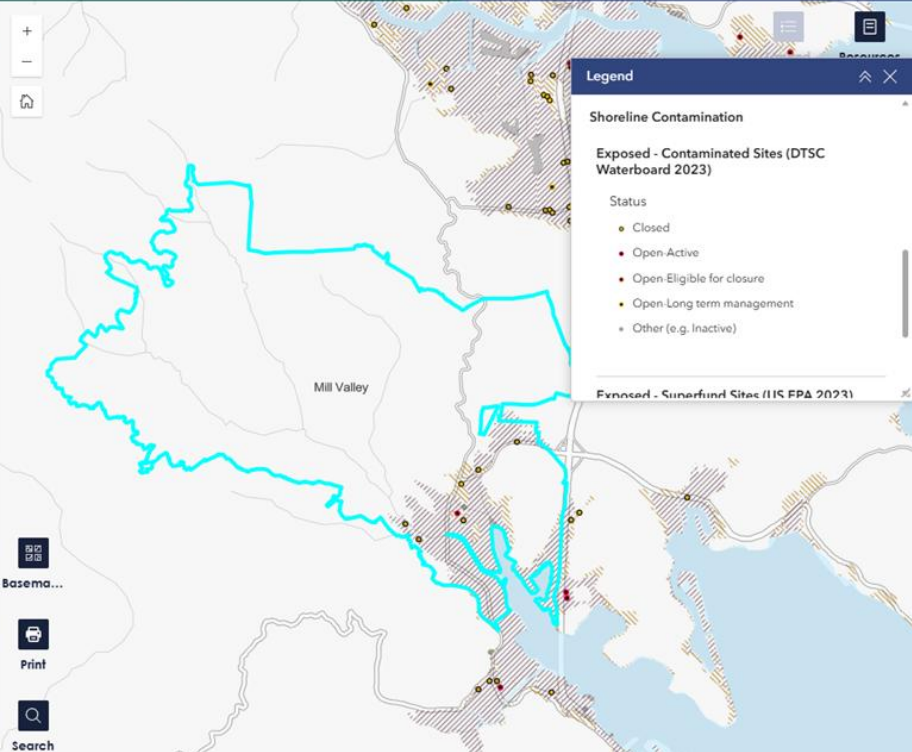
Shoreline Contamination

Exposed - Contaminated Sites (DTSC Waterboard 2023)

Status

- Closed
- Open-Active
- Open-Eligible for closure
- Open-Long term management
- Other (e.g. Inactive)

Exposed - Superfund Sites (US EPA 2023)



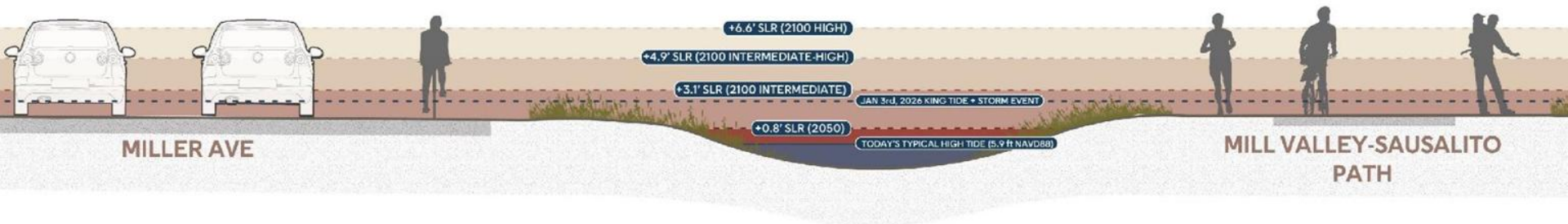
Sea Level Rise Scenarios

Turning complex technical data
into digestible graphics/information for the
community to be able to engage with.

SEA LEVEL RISE SCENARIOS	SEA LEVEL RISE (FT)	JAN 3, 2026 KING TIDE + STORM EVENT (FT)	TOTAL WATER LEVEL (FT)
PRESENT DAY HIGH TIDE (MHHW)	0		2.56
2050	0.8		3.36
2100 INTERMEDIATE	3.1	2.56	5.66
2100 INTERMEDIATE-HIGH	4.9		7.46
2100 HIGH	6.6		9.16

*MHHW: "Mean Higher High Water", an estimate of the typical daily high tide elevation.

*This table shows the increase in tide elevation above present day MHHW for each SLR scenario and King Tide + Storm Surge event.



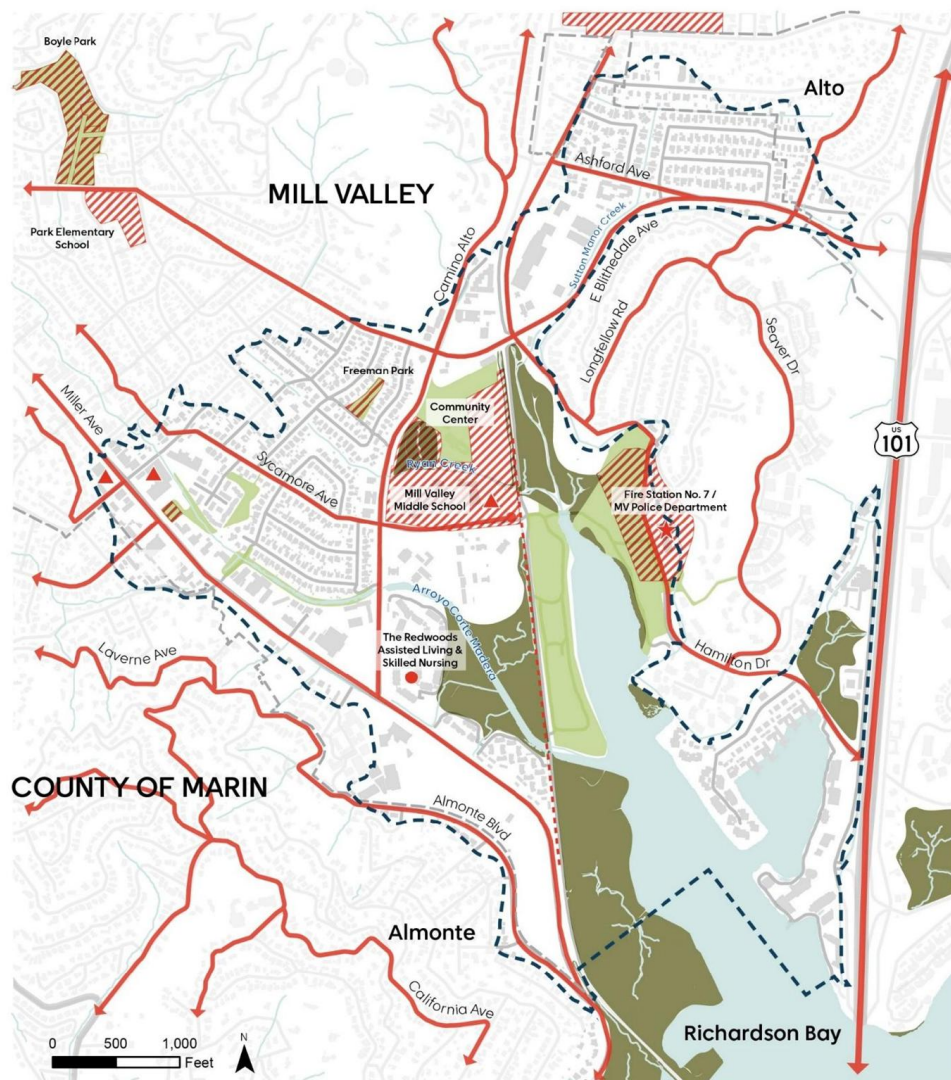
Health and Safety Existing Conditions

Base Map

-  Planning Area
-  Existing Baylands
-  Parks
-  Existing Bay
-  City of Mill Valley
-  Sphere of Influence

Assets

-  Emergency Access Route
-  Emergency Operations Center
-  Community Refuge Areas
-  Contaminated Site
-  Healthcare Facility



Health and Safety Vulnerability

Base Map

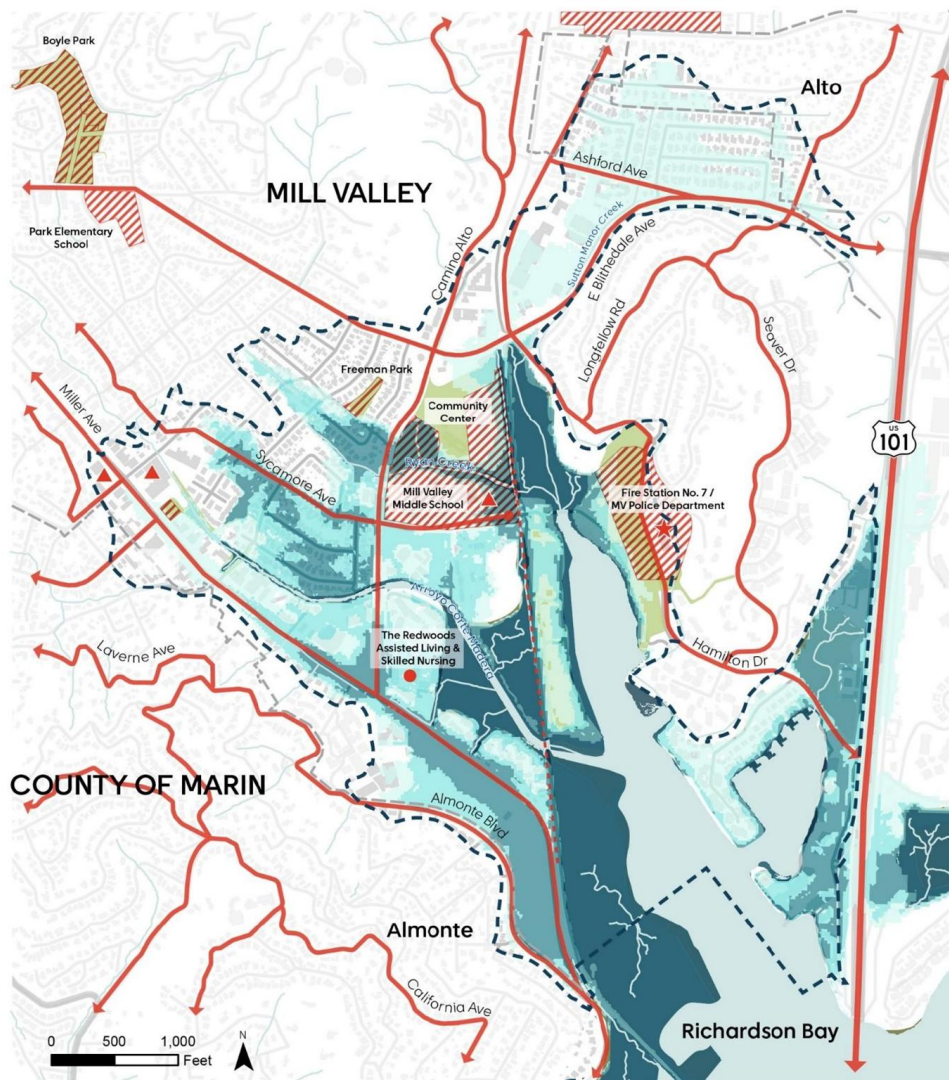
-  Planning Area
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Assets

-  Emergency Access Route
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Mill Valley Shoreline Adaptation Plan

Credit: WRT



Infrastructure and Transportation Existing Conditions

Base Map

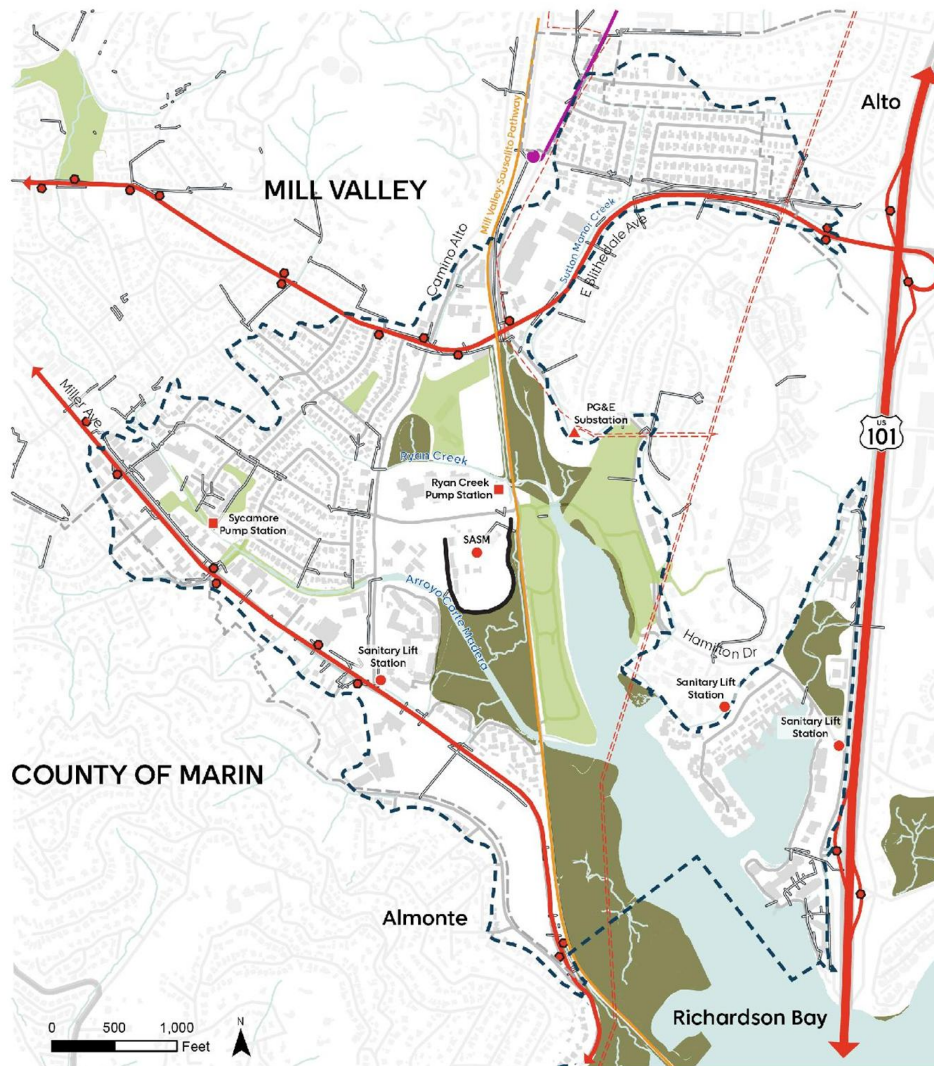
- Planning Area
- Existing Baylands
- Parks
- Existing Bay
- City of Mill Valley
- Sphere of Influence

Critical Infrastructure Assets

- Sewer Infrastructure
- Substation
- PG&E Transmission Line
- Stormwater Pump Station
- Stormwater Pipe
- Levee
- Natural Gas Station
- PG&E Natural Gas Line

Transportation Assets

- Transit Stop
- Transit Route
- Multi-Use Path



Infrastructure and Transportation Vulnerability

Base Map

-  Planning Area
-  6.6 ft Sea Level Rise Inundation (2100)
-  4.9 ft Sea Level Rise Inundation (2100)
-  3.1 ft Sea Level Rise Inundation (2100)
-  0.8 ft Sea Level Rise Inundation (2050)
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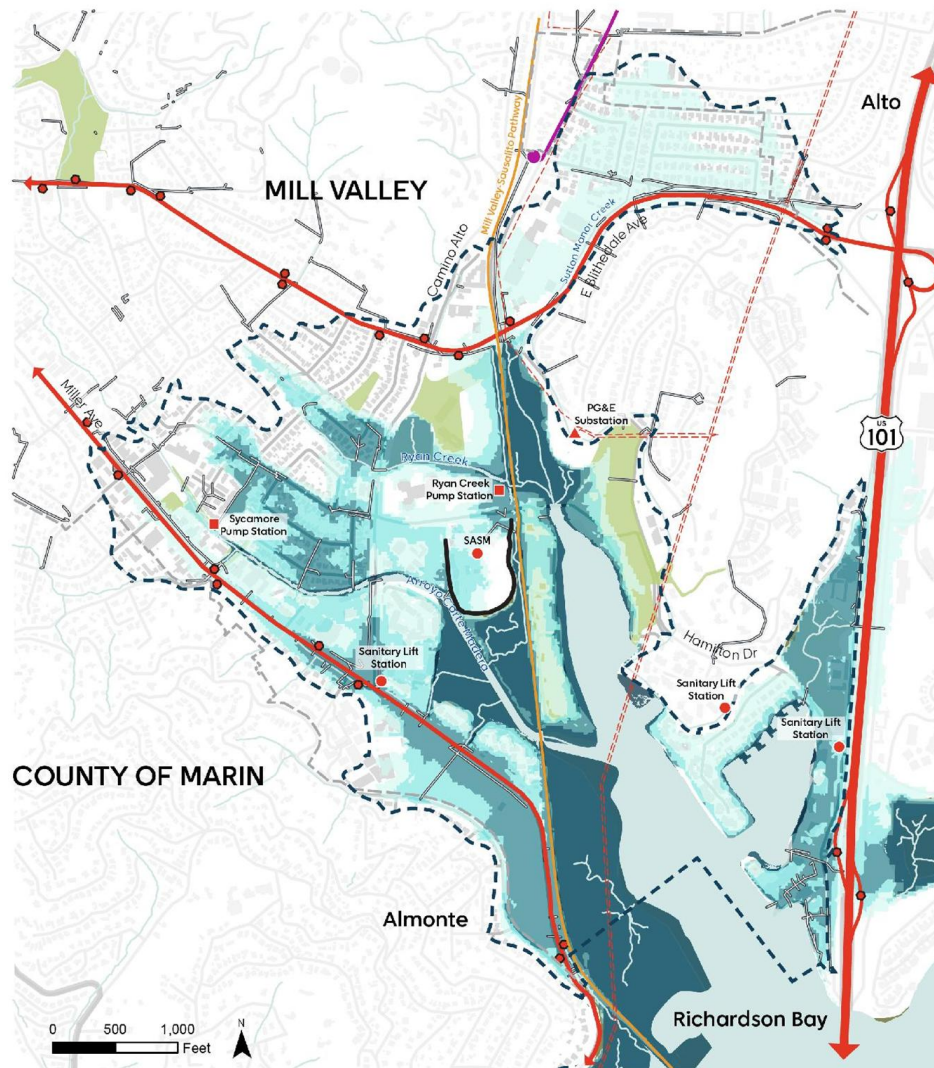
Critical Infrastructure Assets

-  Sewer Infrastructure
-  Substation
-  PG&E Transmission Line
-  Stormwater Pump Station
-  Stormwater Pipe
-  Levee
-  Natural Gas Station
-  PG&E Natural Gas Line

Transportation Assets

-  Transit Stop
-  Transit Route
-  Multi-Use Path

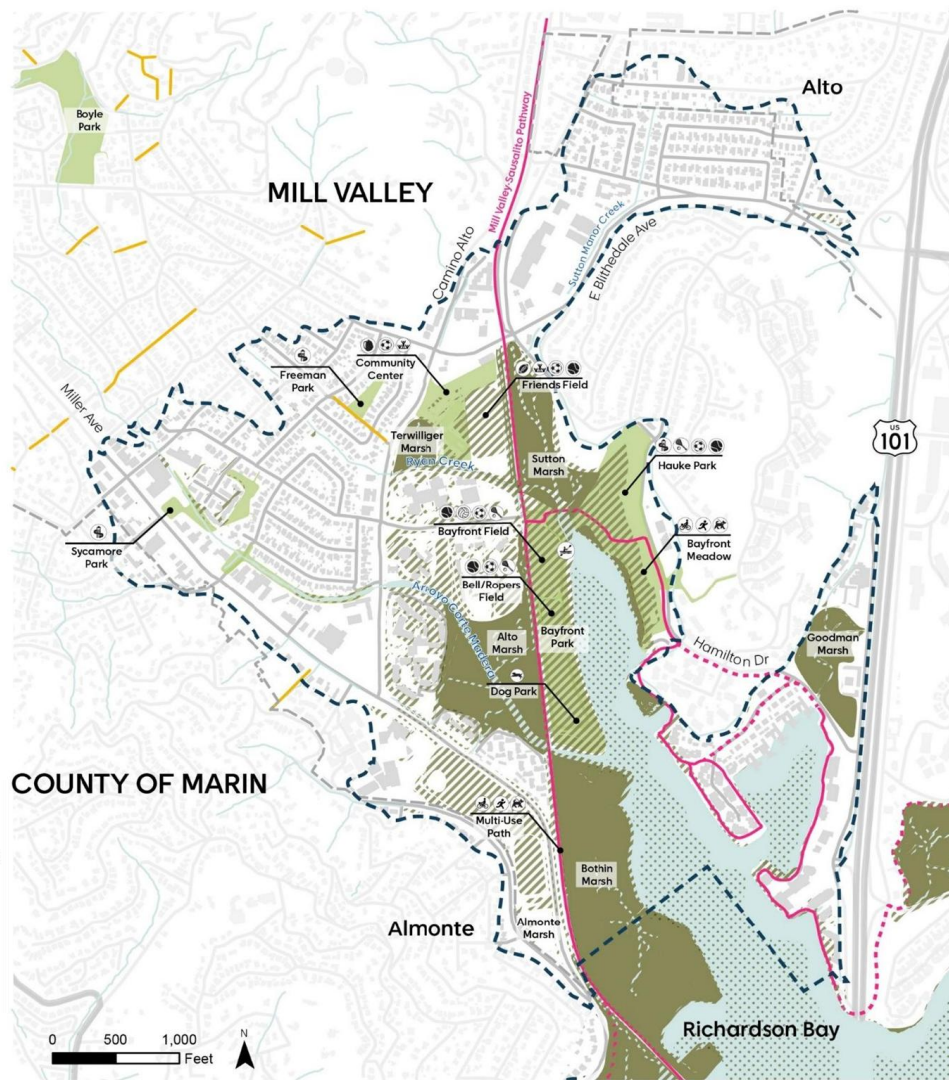
Mill Valley Shoreline Adaptation Plan
Credit: WRT



Ecosystems and Recreation Existing Conditions



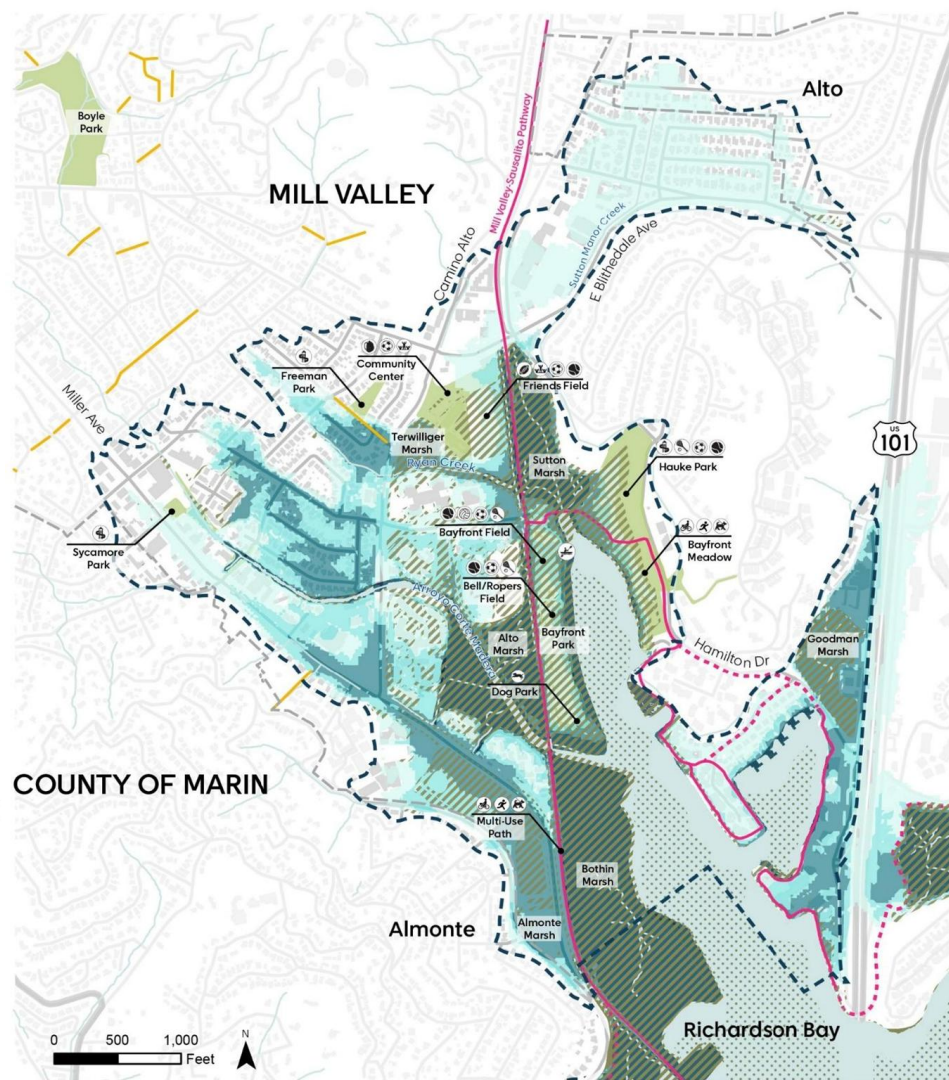
Mill Valley Shoreline Adaptation Plan
Credit: WRT



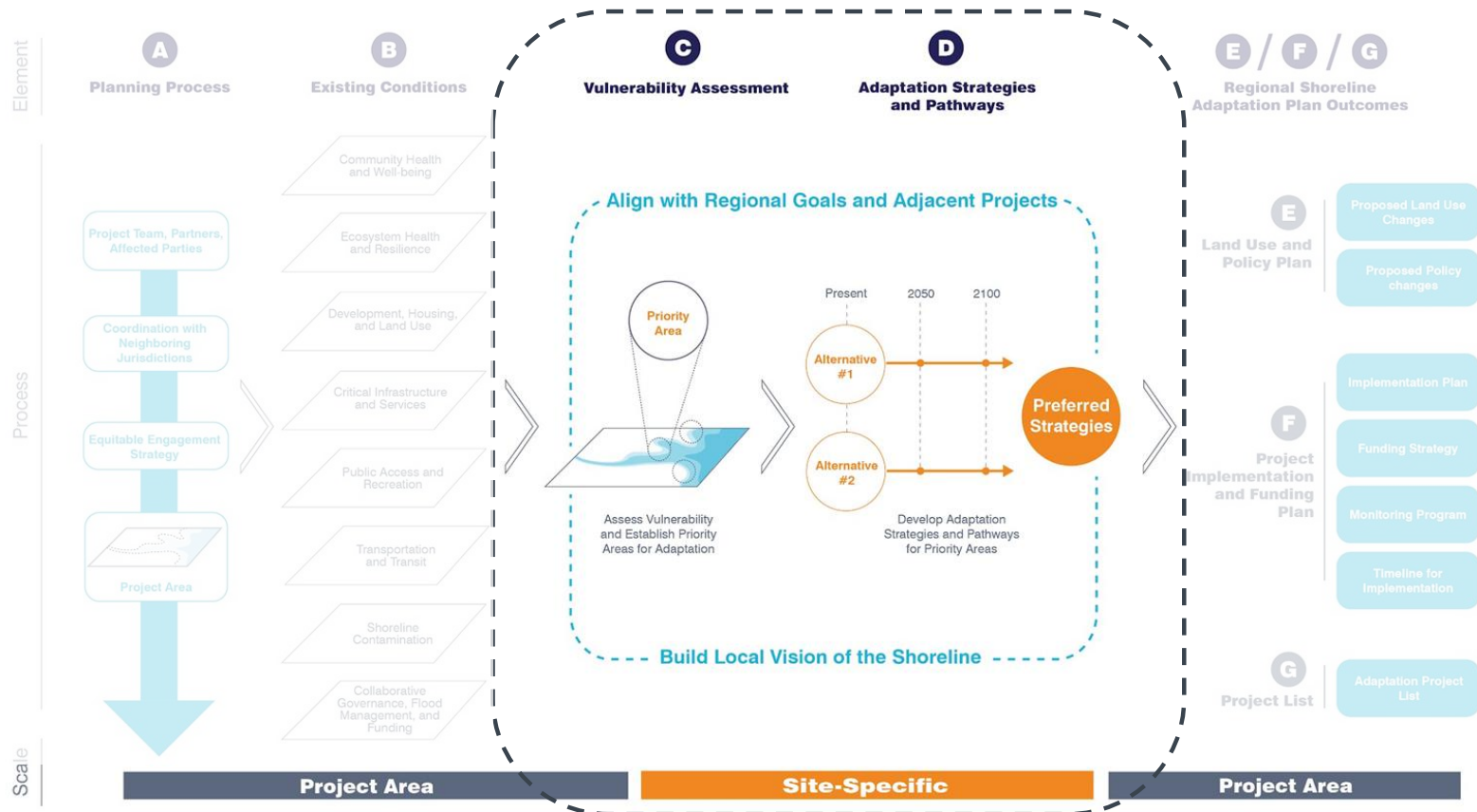
Ecosystems and Recreation Vulnerability



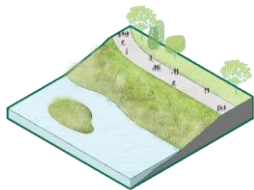
Mill Valley Shoreline Adaptation Plan
Credit: WRT



Regional Shoreline Adaptation Framework

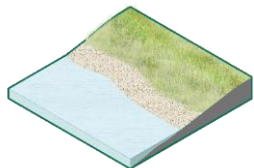


Flood Protection Strategy Toolkit



Ecotone Slope

A gently graded, vegetated transition zone between a levee/upland and the bay that allows marshes to migrate upslope over time.



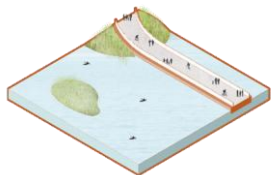
Coarse Beach

A nature-based shoreline treatment that places coarse gravel or sand along an unprotected shoreline to absorb wave energy and break up waves before they reach the shore.



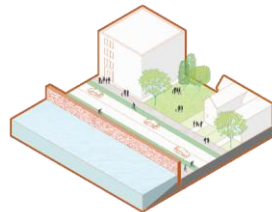
Horizontal Levee

A hybrid green-grey flood-protection levee with a sloping wetland habitat buffer fronting the levee where treated wastewater effluent is irrigated across the slope to create wet meadow habitat



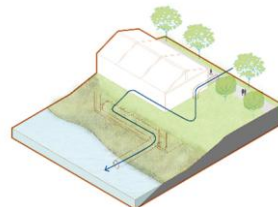
Causeway

An elevated roadway or rail structure built up on fill or piers across low-lying, flood-prone, or tidal terrain to keep transportation infrastructure passable above rising water levels.



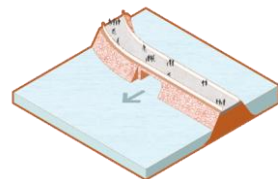
Seawall

A hard, vertical engineered structure built at the land-water edge to hold back tidal and storm water.



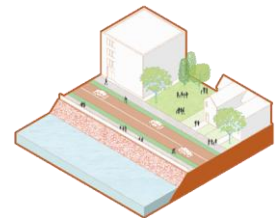
Pump Station

Mechanical infrastructure that actively removes stormwater and drainage runoff from behind levees or floodwalls out to the bay, keeping low-lying areas dry during high tides.



Tide Gate

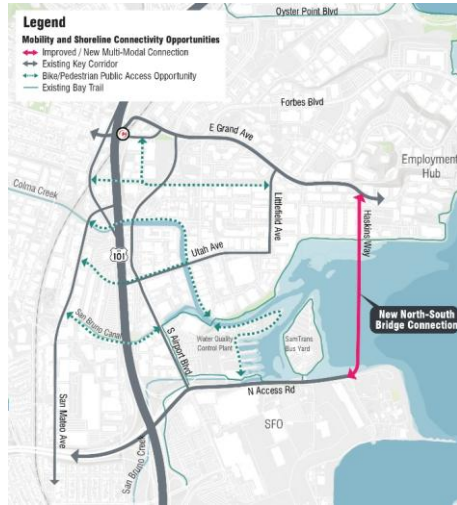
A one-way flow-control structure installed at creek mouths, culverts, or levee openings that lets stormwater drain out to the bay at low tide while automatically closing to block bay water from flowing inland during high tides.



Rip-rap/Revetment

A shoreline hardening measure using placed rock/stone armor along a bank or levee toe to absorb wave energy and prevent erosion.

Mobility Concepts Overview



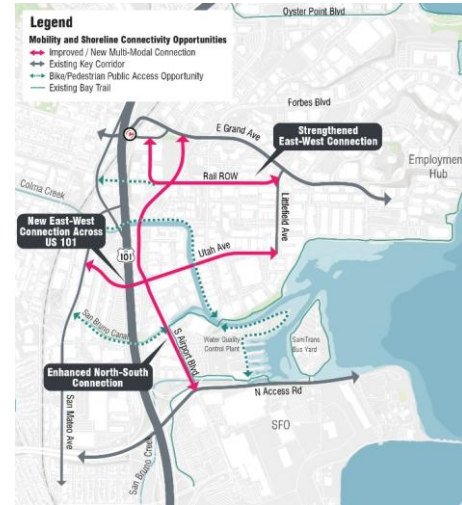
M1: North-South Bridge via Haskins Way



M2: North-South Bridge via SamTrans Bus Yard

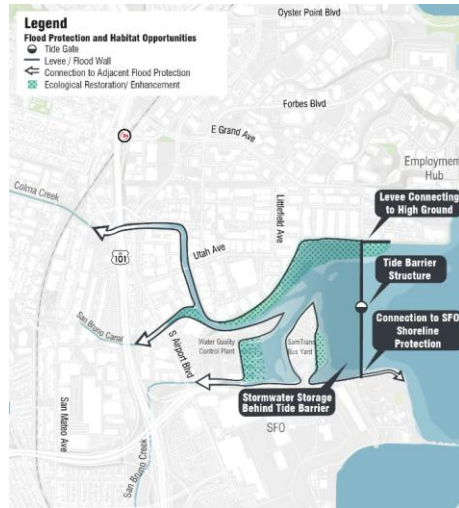


M3: North-South Bridge via Littlefield Ave

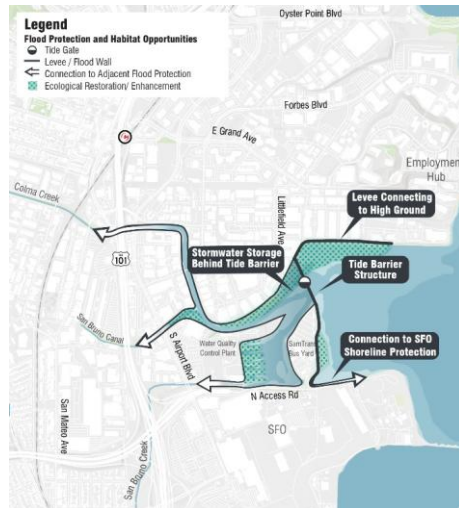


M4: East-West & Airport Blvd Enhancement

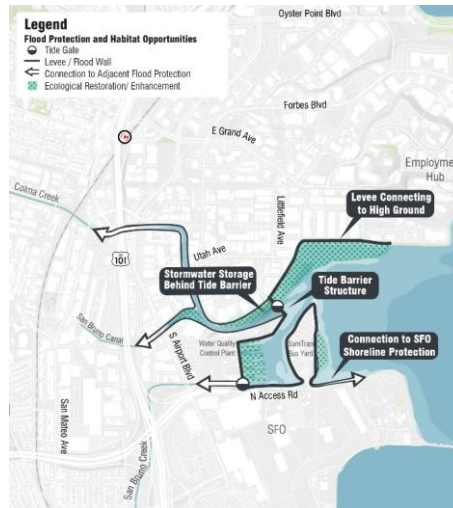
Flood Protection and Habitat Concepts Overview



F1: Tide Barrier Across Cove Area



F2: Tide Barrier via SanTrans Bus Yard

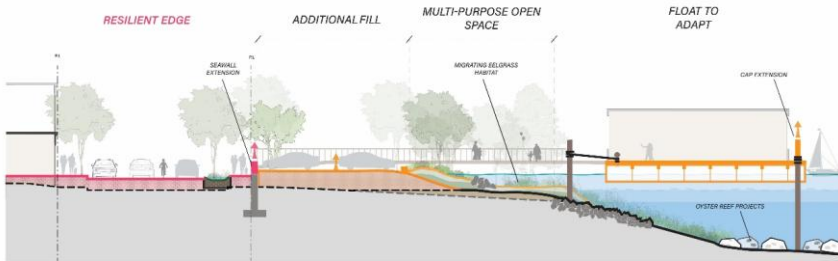
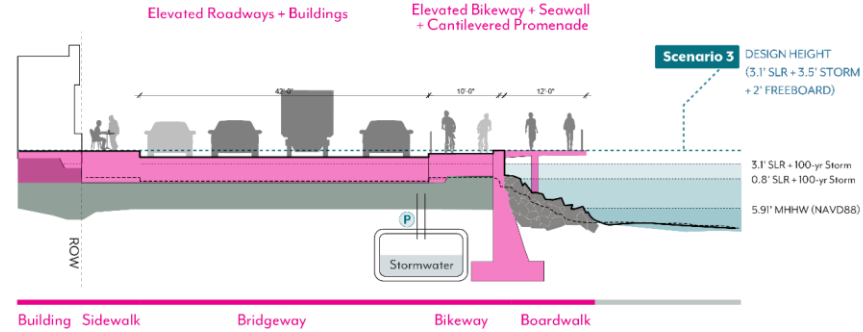


F3: Tide Barrier Across Colma Creek at WWTP



F4: Individual Tide Gates with Levee System

Concept Alternatives



*Sausalito Shoreline Adaptation
Credit: WRT*

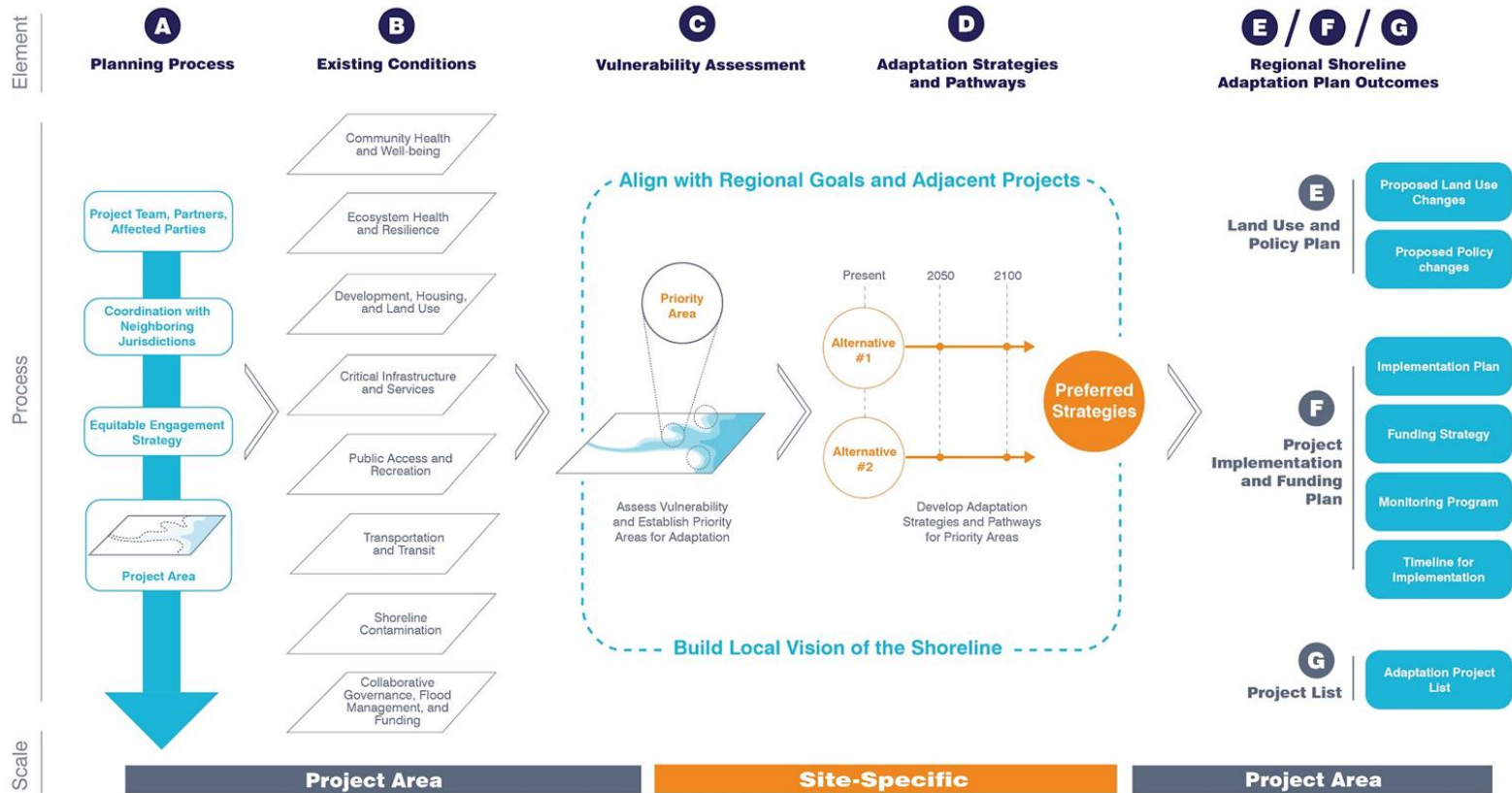


Concept Alternatives



North Basin Strip, Credit: WRT

Regional Shoreline Adaptation Framework





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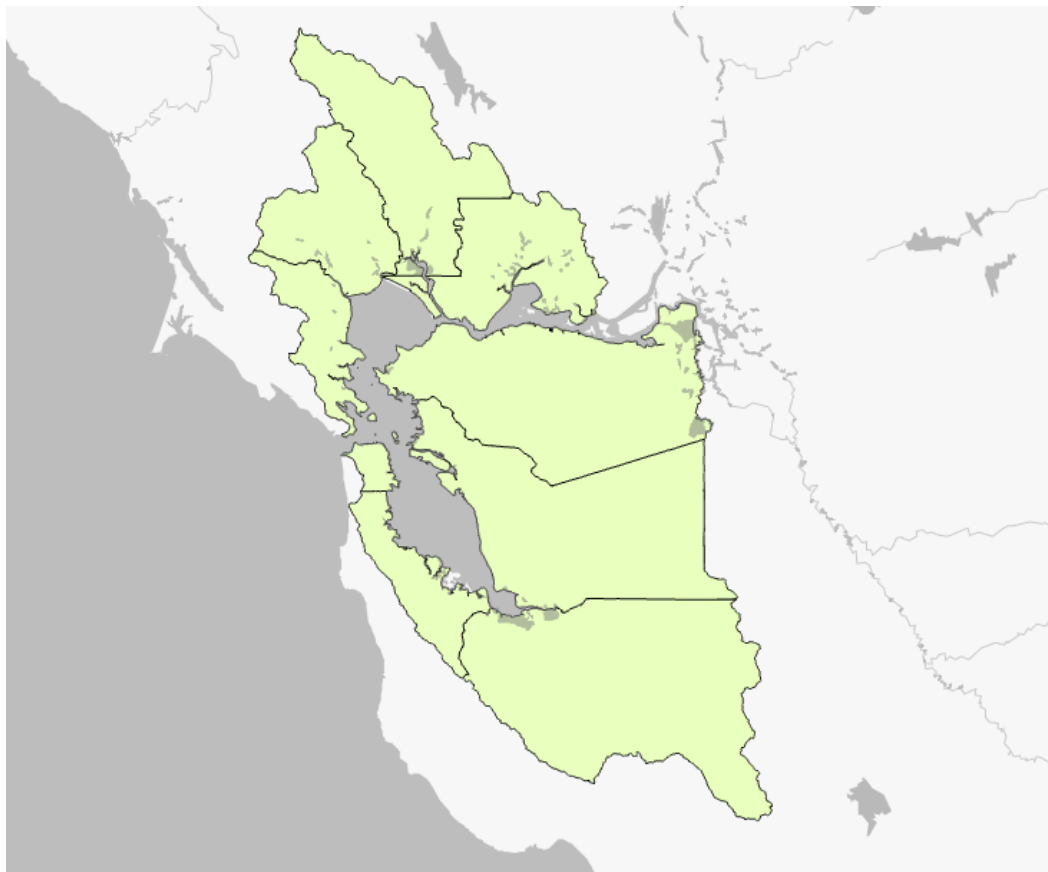
San Francisco Bay Restoration Program

Luisa Valiela
Valiela.luisa@epa.gov
San Francisco Bay Program
Manager



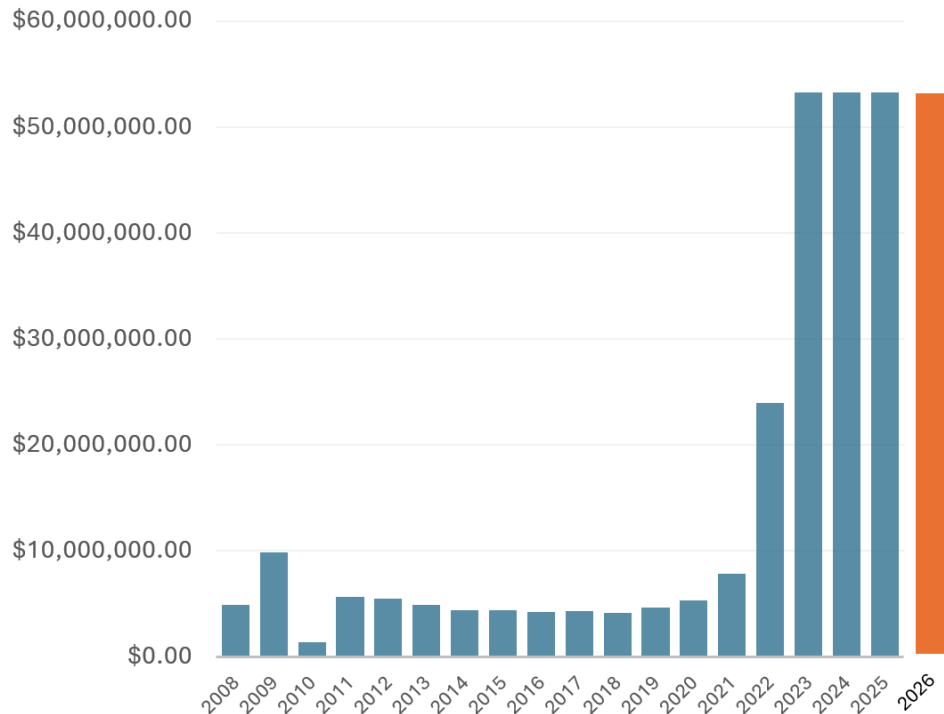
About the SF Bay Program

- **2008 - San Francisco Bay Water Quality Improvement Fund (SFBWQIF) established**
 - ~\$5 million/year for project grants
- **2022 - San Francisco Bay Program Office**
 - Authorized under the National Defense Authorization Act 2022: Clean Water Action Section 125
 - ~\$54 million/year
- **Coordination with the San Francisco Estuary Partnership**



Congressional Appropriations To Date

- Increased funding = increase in large-scale projects
- Awarded over \$325M to date to 169 grants
- Projects include 100+ partners, contributing an additional \$230 million



**Subtidal habitat,
eelgrass and oyster
reef restoration**

**Wetlands Regional
Monitoring Program**

**Beneficial Reuse of
Dredged Material
Support**

**In-Bay Monitoring of
Pollutants, including
trash, and algal species
under the Regional
Monitoring Program**

**Large scale shoreline
resilience, multi-benefit
projects**

**EPA Region 9
San Francisco Bay Program Office
Priority List**

Nutrient Management

**Special
studies/projects for
addressing PFAS in SF
Bay**

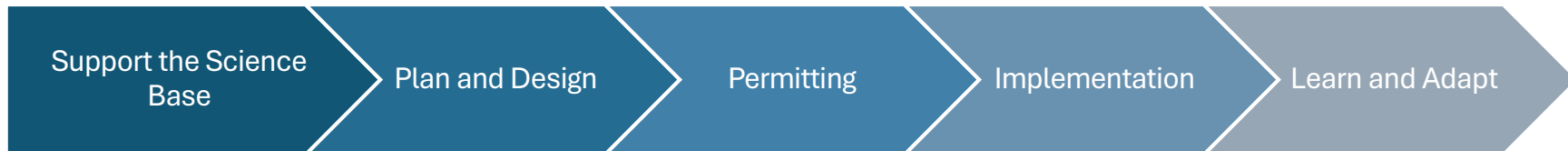
**Large scale tidal
wetlands restoration**

**Special
studies/projects for
addressing PCBs under
TMDL implementation
plan**

**Large scale
implementation of
urban green
stormwater
infrastructure**

**BRRIT
(Bay Restoration
Regulatory Integration
Team)**

Funding the Full Spectrum of Restoration



- **Support the Science Base:**

- Regional monitoring, special studies, data to inform planning and permits

- **Plan and design:**

- Regional and project level planning, feasibility and engineering

- **Permitting:**

- Bay Restoration Regulatory Integration team and other permit-streamlining tools

- **Implementation:**

- On-ground construction of infrastructure, habitat restoration, contaminant removal

- **Learn and Adapt:**

- Knowledge transfer, post-implementation assessments, adaptive management

<https://www.epa.gov/sfbay-program>

Tracking Progress using an internal database and ArcGIS tools

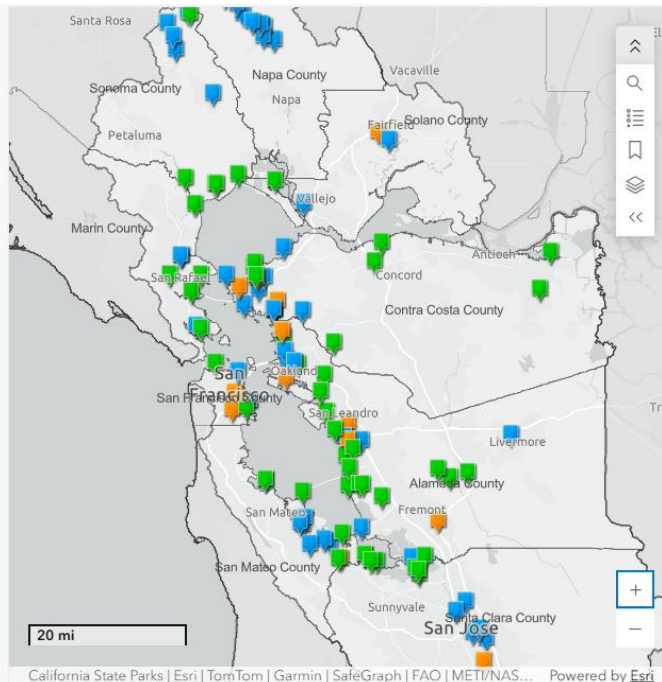
Funding by Project Type

EPA Funding \$



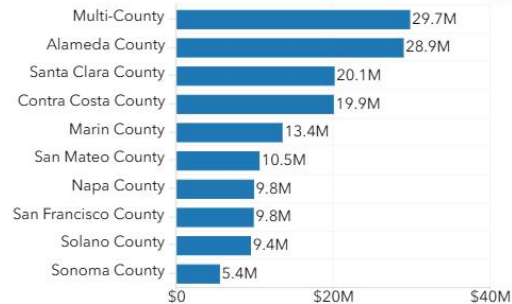
Projects Funded Since 2008

Significant Number of Completed Projects



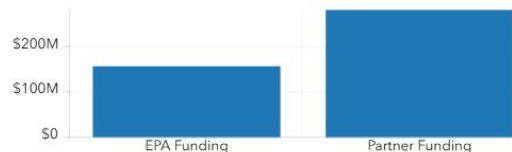
EPA Funding by County

Grant Amount \$



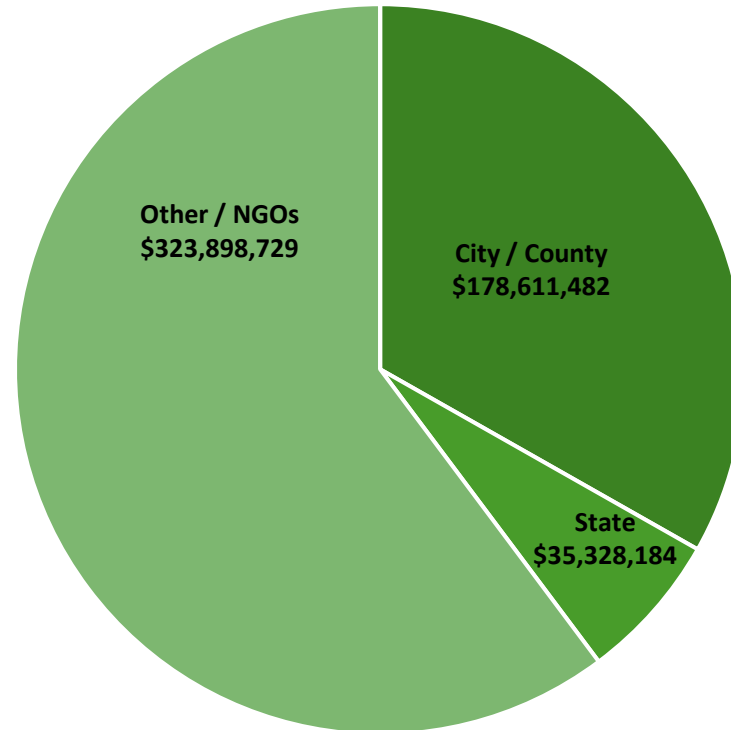
Leveraging Resources

Funding Amount \$



EPA Region 9 San Francisco Bay Program

Grantee Types for Total Grants Awarded between 2009-2026 = \$537,838,395



EPA Region 9 Community & Cleanup Investments at India Basin Since 2012

Brownfields Grants	\$1.3 million
Brownfields Job Training	\$1 million
Brownfields Technical Assistance	\$130 k
SF Bay Water Quality Improvement Fund	\$1.2 million
TOTAL	~\$3.6 million



Source: India Basin Waterfront Park





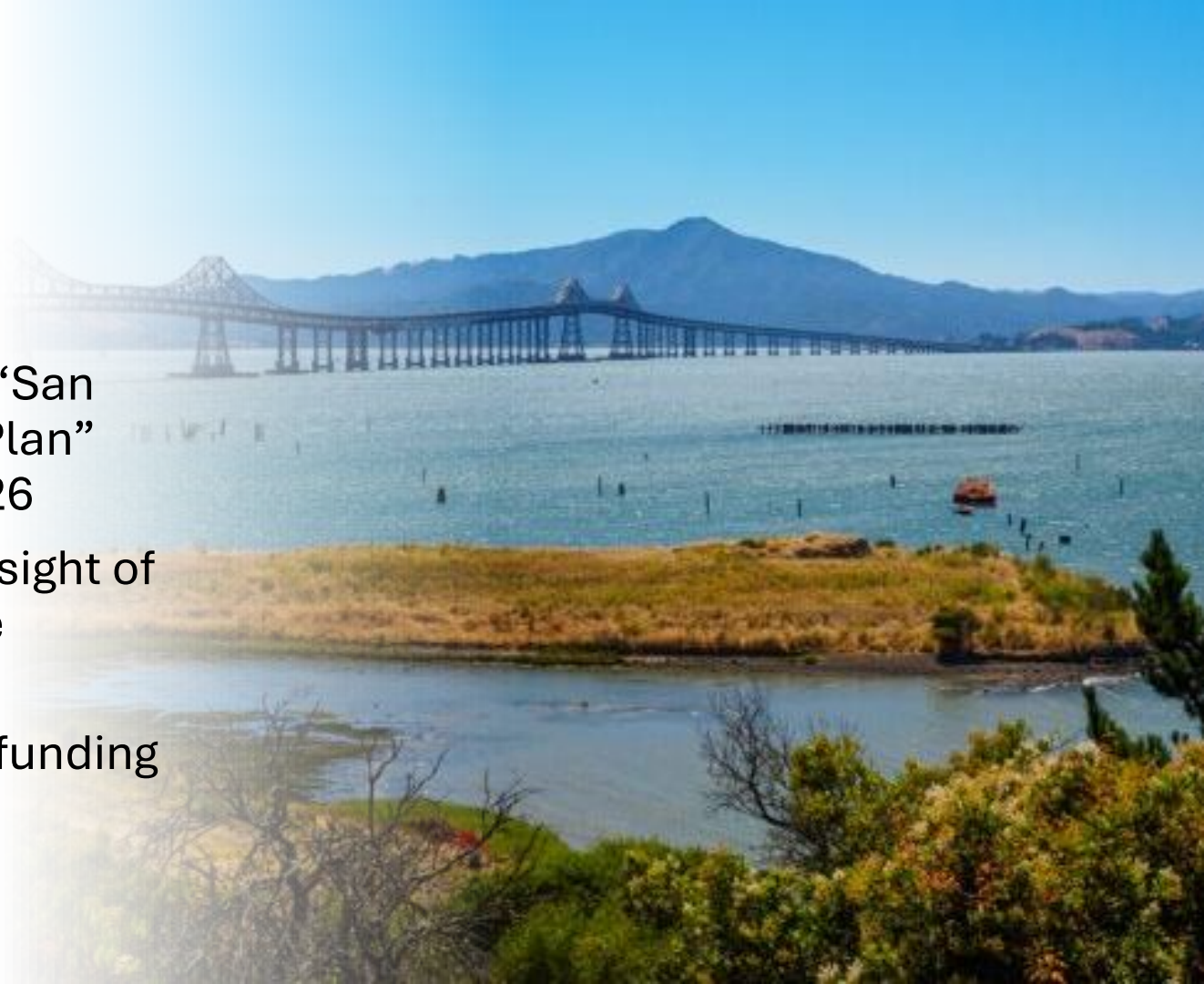






What's next?

1. Develop a new “San Francisco Bay Plan” starting Fall 2026
2. Continued oversight of \$259M of active projects
3. Expected FY27 funding



Brownfields Reimagined: Where Sustainability, Clean Energy, and Community Resilience Meet

PRESENTED BY:

James Ritchie, PG, QSD



SCS ENGINEERS

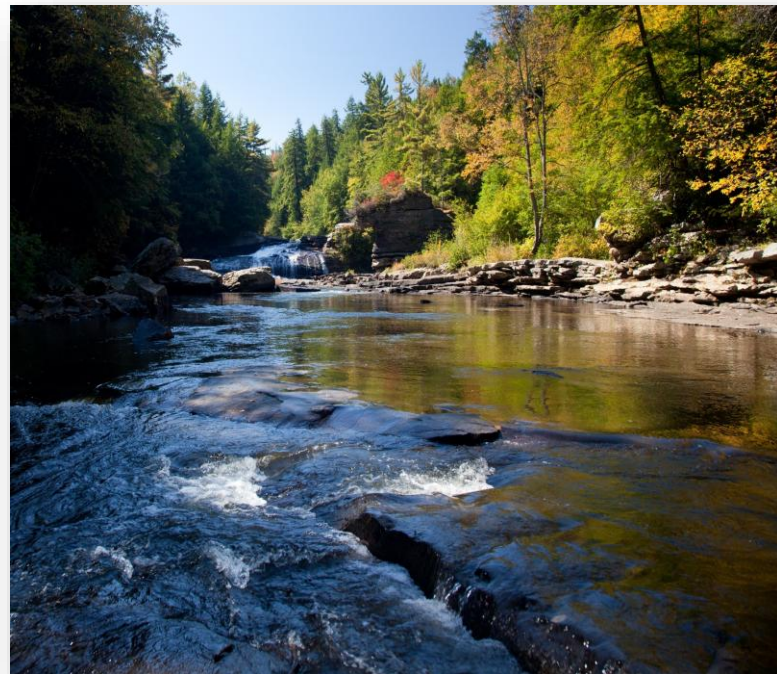
Session Vision

- Move beyond cleanup as the finish line
- Reframe brownfields as catalysts for sustainability and resilience
- Integrate climate adaptation, equity, and long-term community value
- Examples of real-world redevelopment success stories
- Provide actionable strategies attendees can implement
- Early and consistent engagement – Marathon, not a Sprint!



What if Cleanup is Only the Beginning?

- Support food security and local agriculture
- Reduce flooding and improve stormwater management
- Advance clean energy goals
- Restore ecosystems and biodiversity
- Create equitable access to greenspace
- Strengthen community resilience to climate impacts



Brownfields + Sustainability = OPPORTUNITY

- Pollinator habitat restoration
- Urban agriculture and food access
- Renewable energy and solar reuse
- Green infrastructure and flood mitigation
- Groundwater recharge and soil restoration
- Carbon sequestration and urban cooling



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Challenge: Rising Energy Costs and Demand

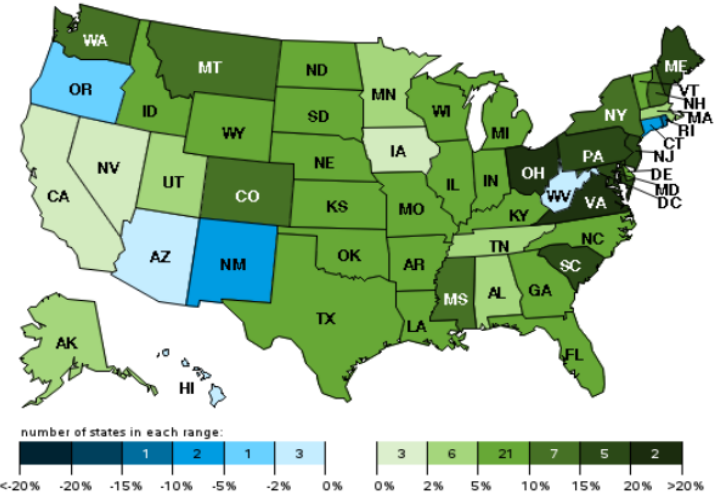
- 9.0% average increase in average revenue per kWh (national)
- Average US electricity prices have risen nearly 30% since 2010
- 15-40% increase in US residential electricity rates by 2030 (region dependent)
- Nearly 25% of households experienced difficulty paying energy bills in 2024
- Forecasts:
 - +25% by 2030
 - +78% by 2050

Average revenue per kWh by state

PERCENT CHANGE

¢ PER KWH

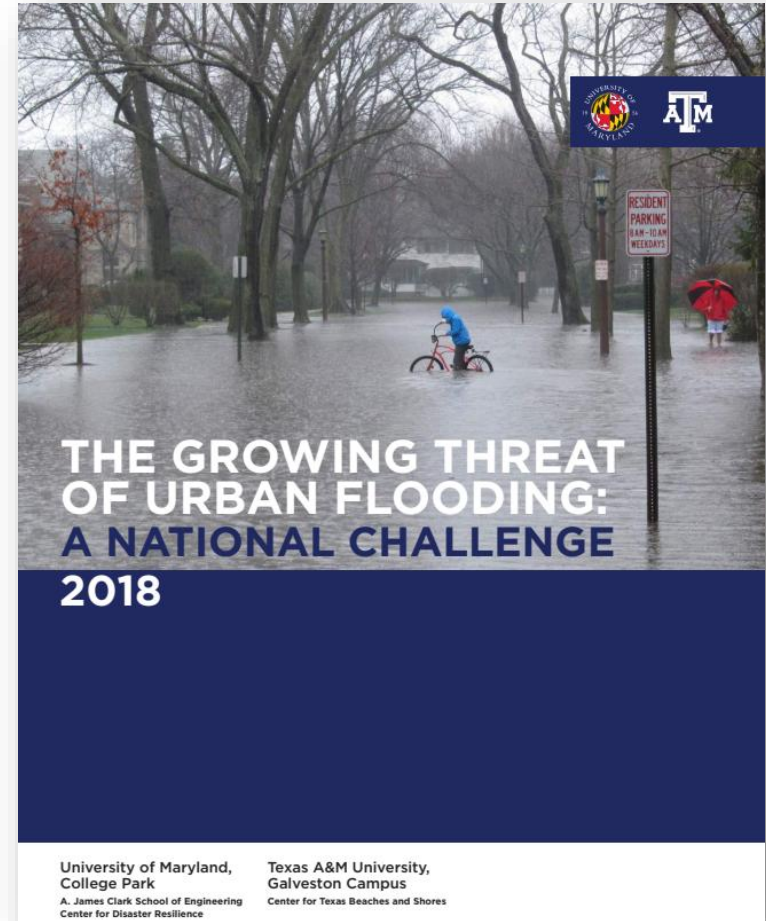
U.S. electric industry average revenue per kilowatt-hour
February 2026 over February 2025, percent change



Forty-three states and the District of Columbia saw increased revenue per kilowatt-hour (kWh) compared to last February, while average revenue per kWh increased by 9.0% on a national basis. The largest percent increase was in the Virginia, up 26.3%, followed by Ohio, up 21.9%, and Pennsylvania, up 19.5%. Average revenue per kWh decreased in seven states compared to last year.

Challenge: Flooding

- 134% increase in global flood disasters since 2000
- Today: 23 weather-related disasters/year
- Annual U.S. disaster costs increase: 7x since the 1980s
- More than 4,800 flood disasters recorded worldwide from 1990-2023
- Account for ~ 40% of global disasters
- Roughly \$388B/year in global flood losses



Sources: [The Growing Threat of Urban Flooding](#) | [Center for Disaster Resilience](#), [GAR 2025](#)
[Hazard explorations: Floods](#) | [UNDRR](#), [Billion-Dollar Weather and Climate Disasters](#) | [United States Summary](#) | [National Centers for Environmental Information \(NCEI\)](#), [Floods in the U.S. - statistics & facts](#) | [Statista](#)

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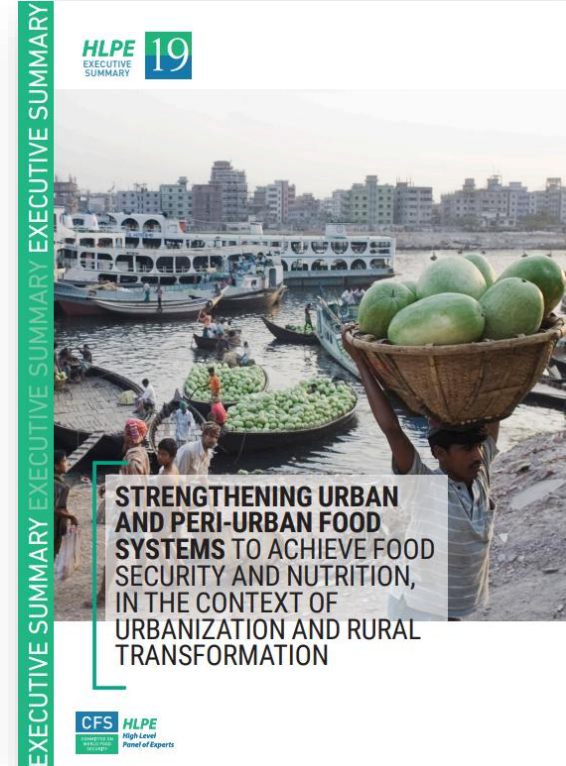
Challenge: Food Insecurity

UN Committee on World Food Security

- Worldwide - 2.2B moderately and severe food insecure people
- Urban and peri-urban areas - 1.7B

Food Research and Action Center

- 13.7% (1 in 7) of households in USA experienced food insecurity in 2024 (equates to 47.9M in US)



Brisbane Baylands Project

Approximately 660 to 700 acres.

Bounded by Bayshore Boulevard to the west, U.S. Highway 101 (Bayshore Freeway) to the east, and the San Francisco–San Mateo County line to the north.

Includes the Brisbane Lagoon at its southern end.

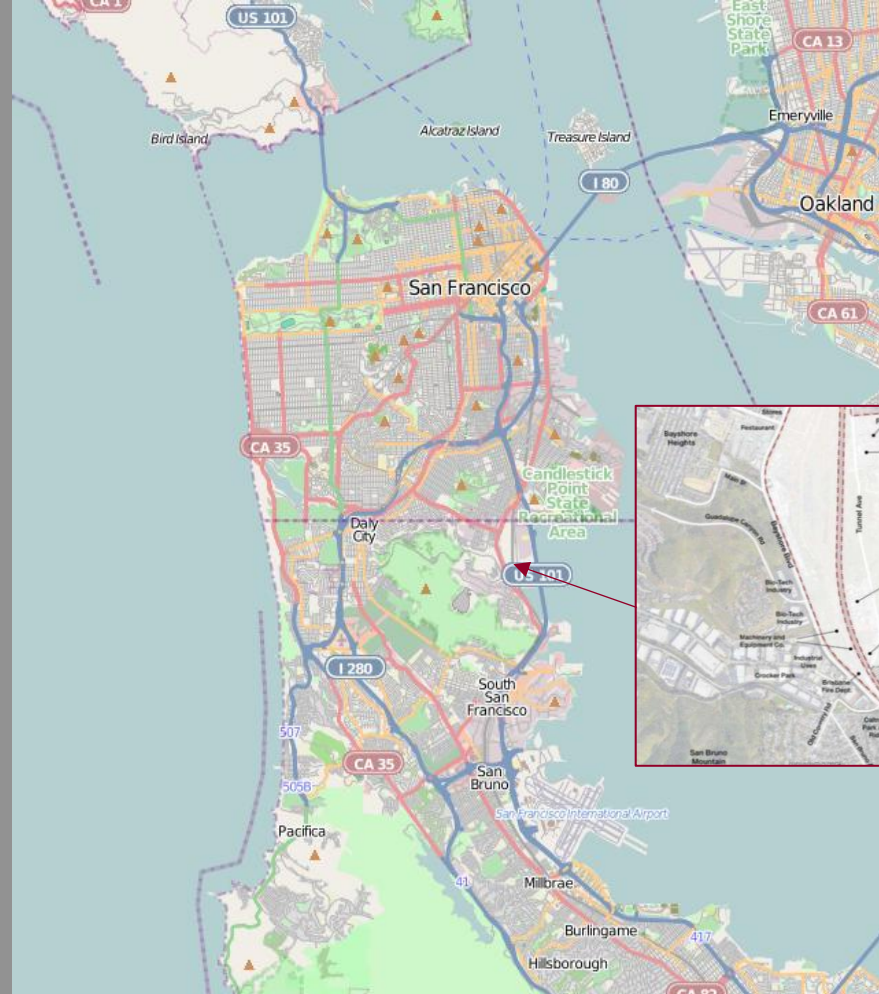
Former industrial railyard (Southern Pacific) and municipal landfill.

Owned by Sunquest Properties Inc., (Baylands Development Inc. or BDI), along with Recology, Golden State Lumber, and the Kinder Morgan Tank Farm.

Planned redevelopment for:

- 1,800 to 2,200 units of housing,
- Up to 6.5 million sf of commercial use,
- 500,000 sf of hotel use, and
- Minimum of 25% of open space.

Long term project, multiple agencies and



Brisbane Baylands Project

Strong Resiliency and Sustainability Components

1. Zero Carbon Buildings
2. Zero Waste
3. Sustainable Transportation
4. Local and Sustainable Materials
5. Local and Sustainable Food
6. Sustainable Water
7. Open Space and Habitat
8. Culture and Heritage
9. Economic Vitality with Equity and Ecology
10. Recreation, Health, Safety and Happiness



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India Basin Shoreline Park, San Francisco, California



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Ecosystem Services

PROVISIONING

- Community garden

REGULATING

- Bioswales

SUPPORTING

- Underpin other services – habitat for pollinators

CULTURAL

- Greenspaces, parks

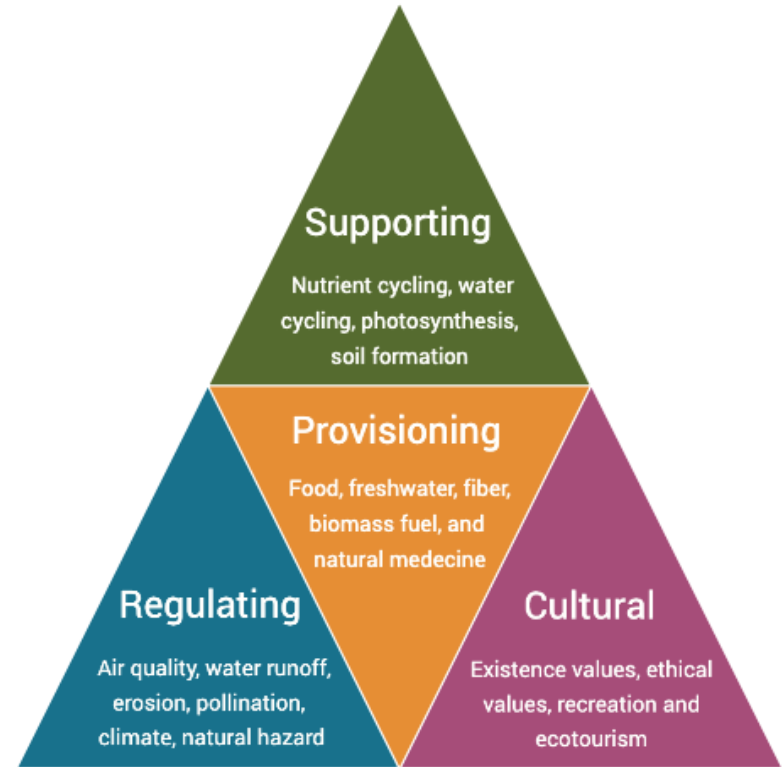


Image credits: Earthwise Aware, Florida Sea Grant, Pollinator.org

Some Themes

Redevelopment designed around food production, renewable energy and community resilience

Redevelopment designed around flooding resilience

Sustainable Brownfield Regeneration

Green spaces and community-oriented design (village square, gathering places)

Shoreline habitat, rewilding, stormwater management (bioswales and pollinator habitat)



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Takeaway Strategies

- Consider hydrology
 - Infiltration and recharge
 - Bioswales, rain gardens, bioretention, constructed wetlands, permeable surfaces, infiltration basins, green roofs
- Plant!
 - Numerous benefits
 - Native plant species, plants for phytoremediation, attract pollinators
- Be lean, be clean, be green, offset
 - Energy hierarchy
 - “No-regrets renewables”
- Beneficial reuse
 - Look for ways to use what is already present
- Dare to be creative
- Early and consistent Engagement – Marathon not a Sprint



Low Impact Development (LID)

Bioswales, Curb inlets and Rain Gardens



Green Roofs



Permeable Pavement and Parking

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Support Sustainable Redevelopment

- ✓ Integrated sustainability, resilience, and redevelopment planning
- ✓ GHG and climate risk evaluation
- ✓ Renewable energy and beneficial reuse planning
- ✓ Waste minimization, circularity, and materials management
- ✓ Water stewardship and green infrastructure solutions
- ✓ Engineering-driven implementation strategies focused on realistic ROI



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Thank you!



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CALIFORNIA LAND RECYCLING CONFERENCE

Imagine | Innovate | Implement
September 29 - October 1, 2026 | Foster City

THANK YOU!

IMAGINE, INNOVATE, IMPLEMENT
THE FUTURE OF LAND RECYCLING



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to submit an evaluation form on Whova.

Join the conversation, use #CALRC2026 to share
your photos, insights and highlights!



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