



North Bay Water Reuse Program

Water Reuse Northern California Chapter
Meeting – December 13, 2024



Agenda

- ◆ Part 1: Overview of North Bay Water Reuse Authority (NBWRA)
 - What is the NBWRA?
 - Overview and status of the North Bay Water Reuse Program (NBWRP)
 - Benefits of NBWRA
- ◆ Part 2: Future of NBWRA
 - Resiliency Arenas
 - Near term Focus
- ◆ Part 3: Economies of Scale Example
- ◆ Questions





Part 1: Overview of the North Bay Water Reuse Authority



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NBWRA - Working Together to Meet Common Goals

- North Bay Water Reuse Authority (NBWRA) is a “virtual” Authority - organized under a Memorandum of Understanding (MOU)
- In 2002, NBWRA agencies undertook the cooperative, watershed-based, regional planning effort that initiated the North Bay Water Reuse Program (NBWRP).
- Purpose was to develop and distribute recycled water for urban, agricultural, and environmental uses**
- US Bureau of Reclamation has been a key partner to the success of the program



NBWRA Agencies, Leadership, and Support Team

Member Agencies

- Wastewater Agencies
 - Las Gallinas Valley Sanitary District
 - Novato Sanitary District
 - Napa Sanitation District
 - Sonoma Valley County Sanitation District
- Water Agencies
 - North Marin Water District
 - Marin Municipal Water District
 - Sonoma Water
- Counties
 - County of Marin
 - Napa County
- Cities
 - City of Petaluma
 - City of American Canyon

NBWRA Board Leadership

- David Rabbit, Chair
- Jack Gibson, Vice-Chair

Program Management

- Weir Technical Services

Consultant Team

- Brown and Caldwell (Prime)
- Kennedy Jenks
- Environmental Science Associates (ESA)
- Data Instincts

NBWRA Governance

- ◆ NBWRA operates under an MOU
 - First approved in 2005
 - Amended in 2008, 2010, 2013, and 2017
- ◆ Members and Associate Members (i.e., no projects)
- ◆ Budget and Cost Sharing takes two forms:
 - Feasibility Studies, EIR/EIS, other studies – shared on the basis of benefit (value of Phase 1 or Phase 2 projects)
 - Joint Use Costs for administration and program management (shared equally by all agencies with projects)



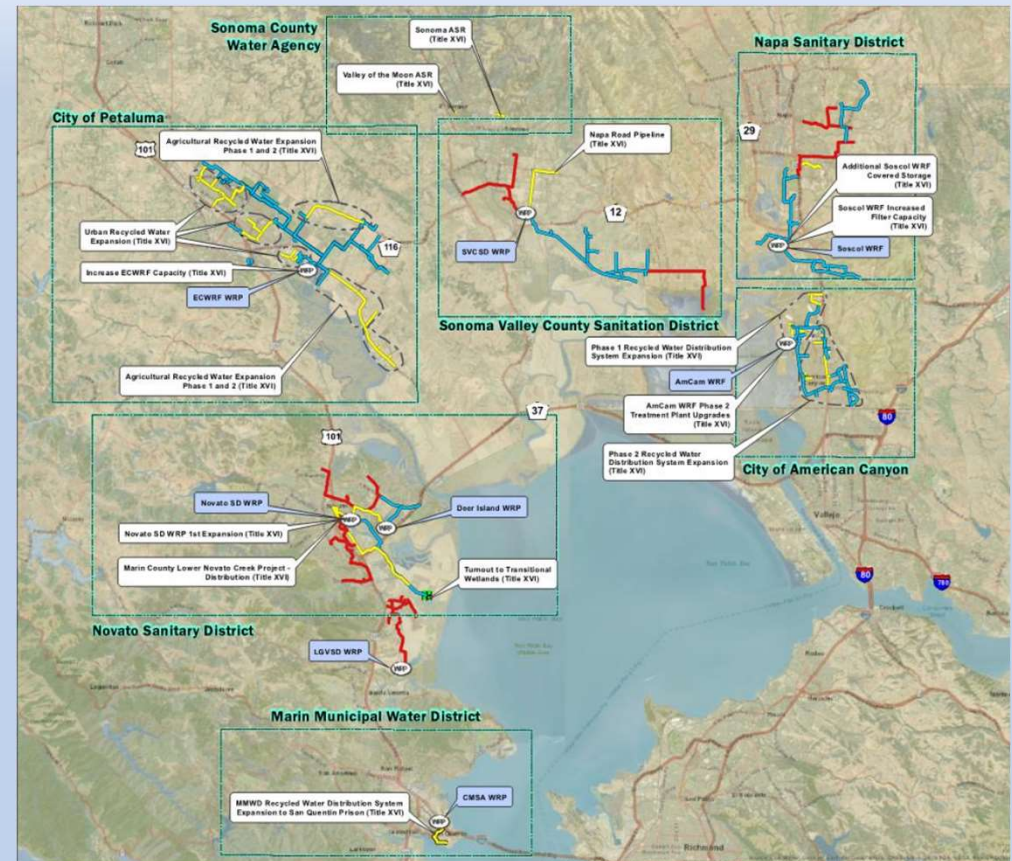
NBWRP – Summary of Phase 1

- The NBWRP was designed to be implemented in two phases
- Phase 1 primarily focused on the planning, design and construction of treatment and conveyance systems
- **Construction of the \$104 million program began back in 2009 and was just completed this year**
- The Phase 1 Program is providing more than 3,700 acre-feet per year (AFY) of water for urban and agricultural irrigation and approximately 1,700 AFY for environmental enhancement



NBWRP Phase 2 – Increasing Yield and Maximizing Infrastructure Investments

- Phase 2 builds upon Phase 1 investments to further develop recycled water
- Phase 2 Program's projects increase the ability to treat, store, and distribute recycled water**
 - Treatment plant upgrades
 - Distribution system expansions
 - Seasonal recycled water storage
- Total Phase 2 Program cost is \$83 million and is projected to yield an additional 5,364 AFY of recycled water



NBWRP – Status of Phase 2 Program



- 💧 **Planning, engineering, and environmental analysis for Phase 2 has been completed**
 - Title XVI FS has been completed
 - CEQA has been completed
 - NEPA Completion December 2024
- 💧 City of Petaluma and City of American Canyon have started implementing some of the distribution system expansion projects included as part of Phase 2 Program
- 💧 State funding for these projects has been procured

Economic Benefits of NBWRA



- Provides **‘economies of scale’** where all agencies – regardless of size – have access to resources that support project implementation
- **NBWRA has effectively secured substantial funding assistance for studies and implementation of regional projects**
- Funding Summary
 - From 2002-2022 member agencies have invested \$12.86M in supporting the NBWRP and studies
 - From 2002-2022 member agencies have received \$38.81M in State and Federal grant assistance

NBWRA – Benefits beyond Dollars

- Benefits to the region go beyond the dollar value of projects:
 - Regional identity
 - Forum to work together to address water supply issues
 - Contributions toward a resilient water supply = strong economy, vibrant communities
 - Urban potable offsets
 - Irrigation supplies for agriculture
 - Relief from surface diversions, pumping groundwater and associated saltwater intrusion
 - Environmental benefits





Part 2: Future of the North Bay Water Reuse Authority



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Exploring new opportunities for NBWRA

- ◆ **NBWRA agencies expressed interest in expanding the focus of this Authority to provide value to the North Bay beyond recycled water**
- ◆ North Bay agencies all face common resiliency threats
 - Water supply/ drought, saline intrusion, sea level rise, changing regulations
- ◆ Through recycled water, NBWRA has successfully implemented a program for a more resilient local water supply
- ◆ Beyond recycled water, there is no framework for sub-regional resilience planning and implementation in the North Bay
- ◆ **Expanding the focus of NBWRA to a broader resilience planning approach increases funding source opportunities for the identified areas of interest**

Resilience Planning Approach – Identified Resilience Arenas



- **Resilience can be an organizing principle across all these areas of interest**
- Based on feedback, the following **Resilience Arenas** were identified:
 - **Recycled Water** – continue to support ongoing efforts to implement recycled water projects in the region
 - **Potable Reuse** – explore implementation opportunities of indirect and direct potable reuse
 - **Coordinated Drought Response Planning** – consider development of regional based drought response
 - **Sea Level Rise Adaptation** – identify strategies to mitigate the adverse effects of sea level rise to critical infrastructure in the region



Near Term Focus

- NBWRA will continue to investigate options that add both resilience and reliability to the North Bay's water supply portfolio
- **Recycled Water** – Continue to support implementation of Phase 2 Program
- **Drought Contingency Planning** – Developing Sonoma/Marin based DCP
- **Sea Level Rise Adaptation** – Las Gallinas/Petaluma WWTP: SLR Visioning Process

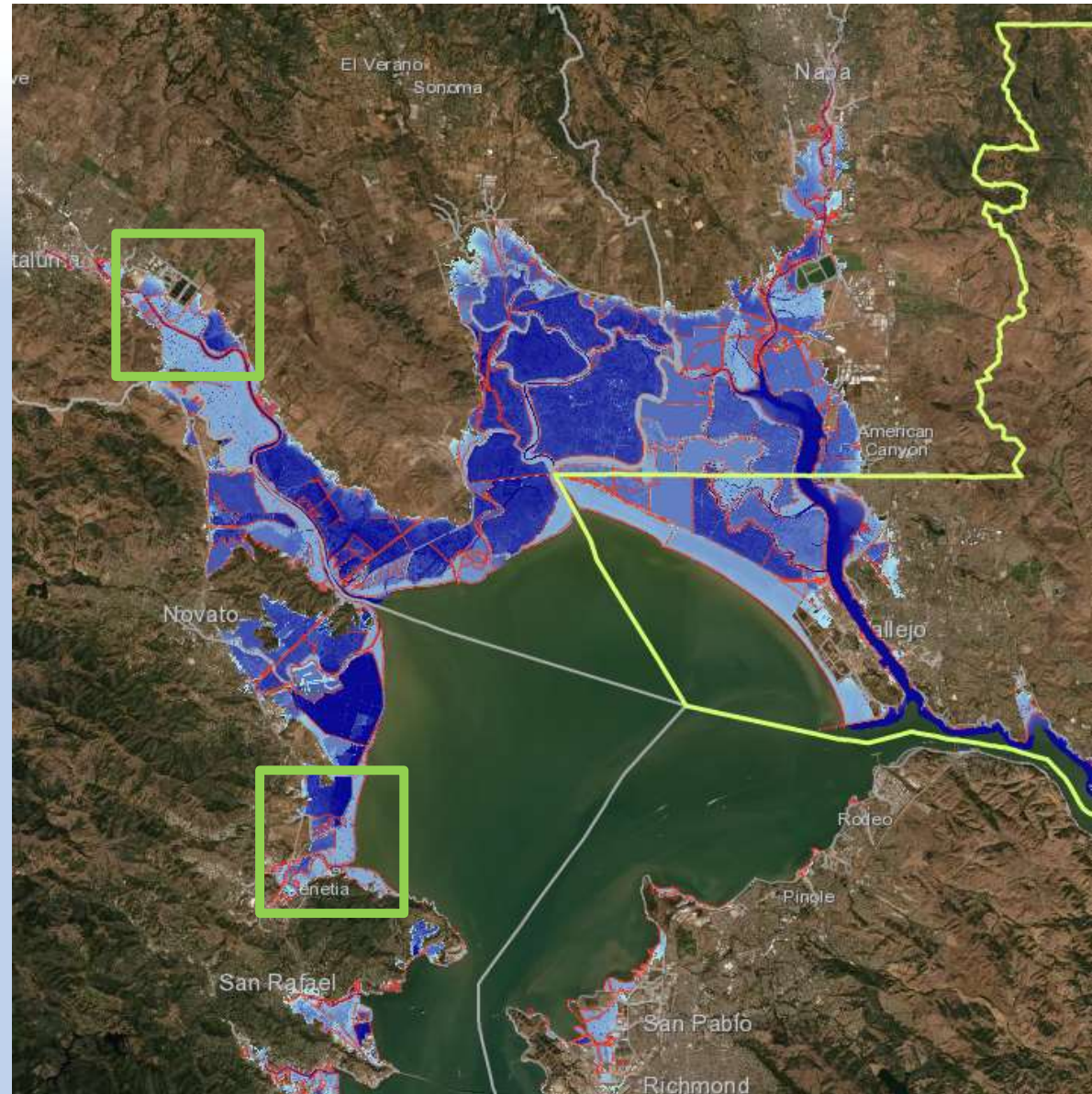


Part 3: Economies of Scale Example NBWRA Sea Level Rise Vision



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Sea Level Rise at NBWRA Participating Agencies



Participating Agencies

- 💧 Las Gallinas Sanitary District
- 💧 Marin County (Flood Control)
- 💧 Marin County (Parks and Recreation)
- 💧 City of Petaluma
- 💧 Sonoma Water
- 💧 Other Potential Key Stakeholders
 - City of San Rafael, SMART, PGE, St. Vincent's Property, Santa Venentia Neighborhood
 - Sonoma County



Sea Level Rise Vision, Goals and Objectives

**TABLE 1
NBWRA SEA LEVEL RISE VISION, GOALS, AND OBJECTIVES**

Vision	Goals	Objectives
<p>NBWRA: <i>Cooperate with public and private entities in <u>the North Bay</u> to identify, fund, and implement sea level rise adaptation in a collaborative and cost-effective manner.</i></p> <p>Member Agencies: <i>Identify adaptation strategies to protect wastewater, recreational and other infrastructure, maintain service, and be eligible for state and federal funding.</i></p>	1. Reduce risk to critical infrastructure and built environments	1a. Reduce risk and maintain the viability of regional critical utilities from sea level rise, groundwater intrusion and flood events
		1b. Reduce risk to recreational assets such as McGinnis Park, Schellenberger Park and the Bay Trail
		1c. Reduce risk of flood to built and underserved environments
	2. Align longer-term adaptation with regional efforts to improve resilience	2a. Coordinate, align and partner with agencies to implement integrated adaptation
		2b. Provide framework for public agency and private landowner cooperation for adaptive response to sea level rise
	3. Build Capacity for Current and Future Generations to Adapt to Climate Change	3a. Provide for education, interpretation and understanding of sea level rise impacts to the shoreline and adjacent uplands
		3b. Promote regional vision for adapting to sea level rise and climate change
	4. Create a Resilient Shoreline Environment for People and Ecology	4a. Enhance the shorelines ecological value and adapt to sea level rise
		4b. Enhance recreational opportunities and adapt to sea level rise
		4c. Identify funding sources and position entities in the NBWRA region to apply for and meet federal and state funding requirements.

Gallinas Study Area

- LGVSD, Marin County Parks, Marin County FCD
- Hamilton South to Gallinas Watershed
- Engaging the Following Key Stakeholders:
 - SMART
 - St. Vincent's, Silveira
 - Bay Trail, PGE
 - Santa Venetia HOA:
 - Next Phase

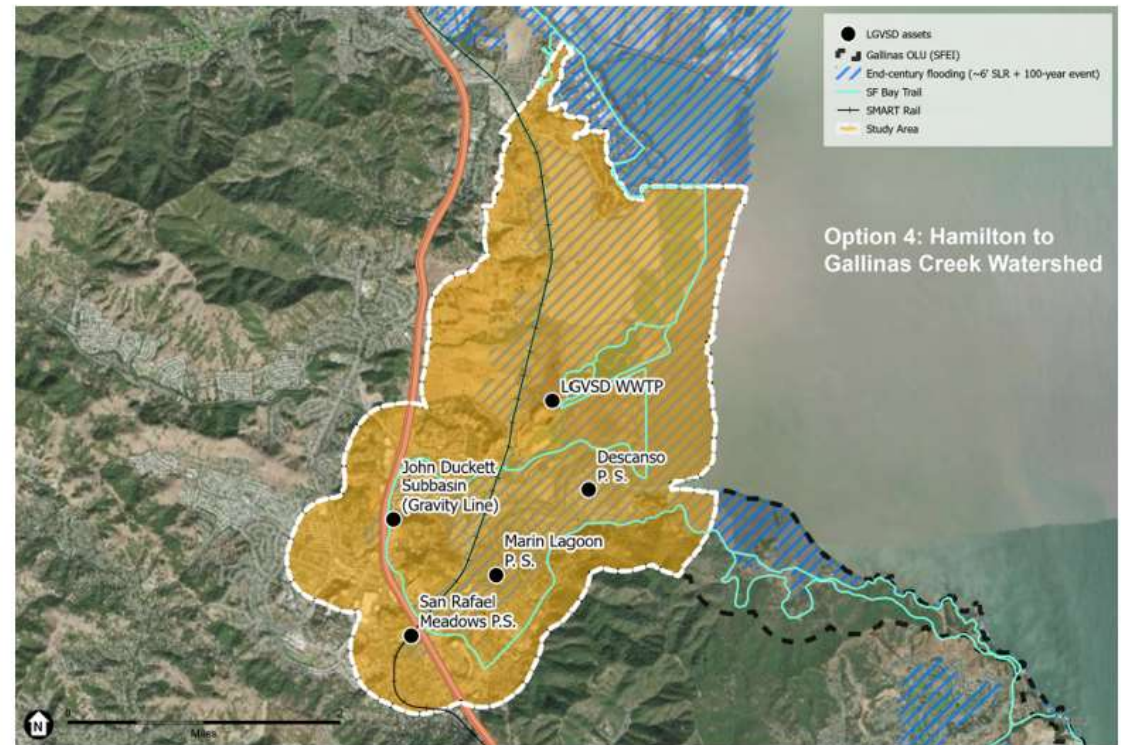


Figure 2

Recommended Study Area: Hamilton to Gallinas Watershed



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Petaluma Study Area

- WWTP North to U.S. 101
- Modified to Include South of Petaluma River Main Channel
- Engaging the Following Key Stakeholders:
 - SMART, Sonoma PRMD

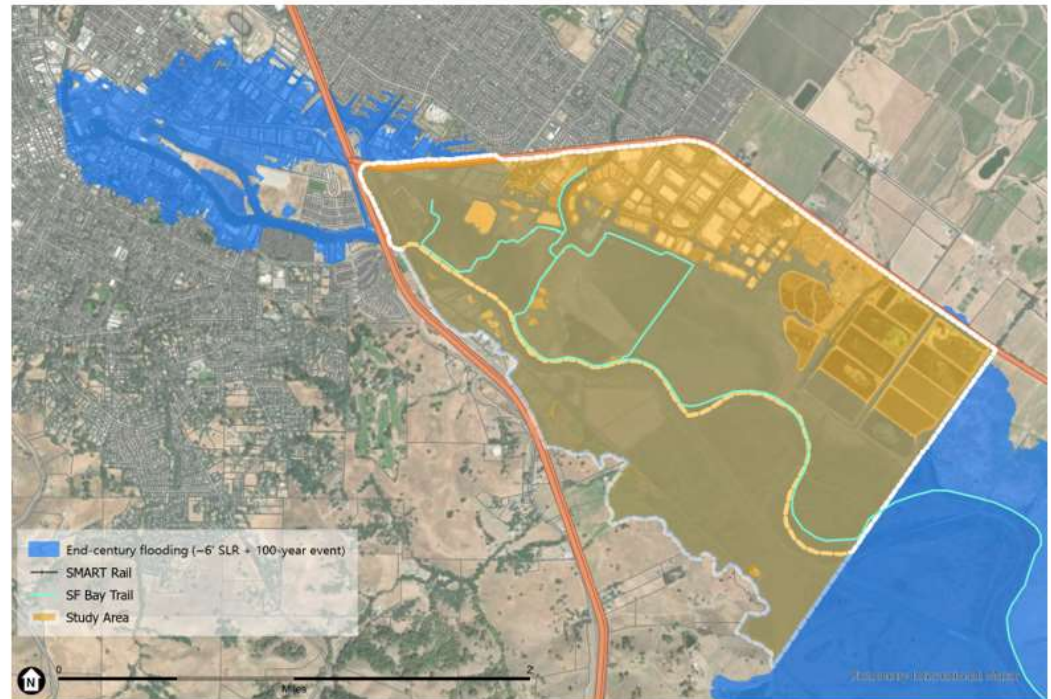
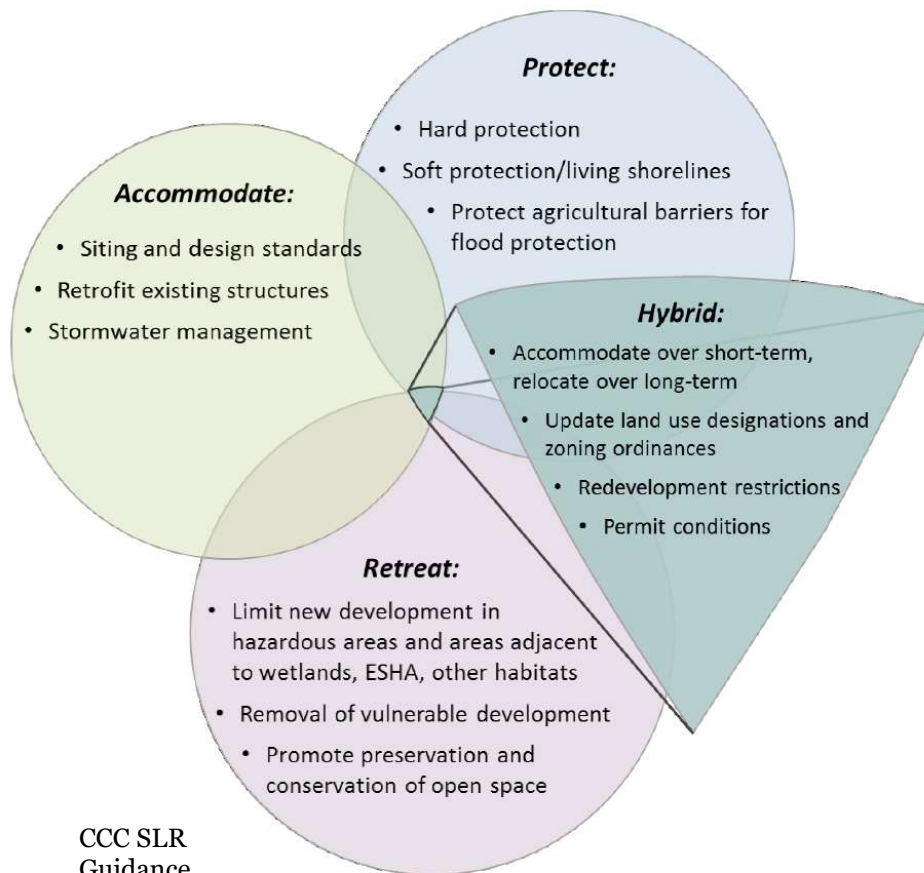


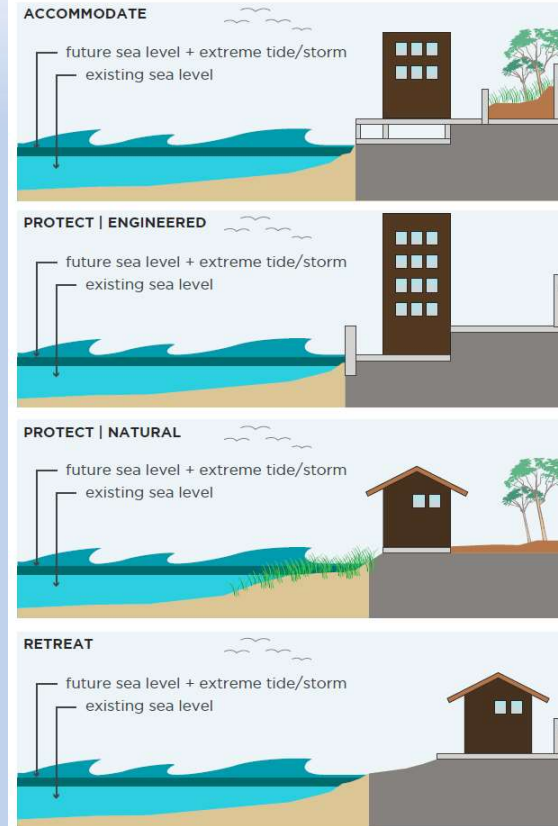
Figure 3
Recommended Study Area: Petaluma WWTP to US 101

Approaches to Adaptation



CCC SLR
Guidance

INTERVENTION OPTIONS



SAN FRANCISCO SEA LEVEL RISE ACTION PLAN



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Adaptation Strategies: Summary

Strategy	Cost/Unit	Uncertainties
Flood Walls	\$37,300/LF	Access, Habitat Loss, Visual, Wave/Sediment Interaction,
Sheet Pile Wall/Bulkhead	\$11,900/LF	Seepage, landward property costs, not a flood barrier
Flood Protection Levee	\$11,900/LF	Geotech, stormwater/groundwater management, fill source/haul costs
Ecotone Levee	\$24,900/LF	Higher cost, greater ecological benefit; cost/benefit compared to FPL is site specific
Tide Gate and Pumps	\$25M Tide Gate \$5.1M Pumps	Habitat impacts, water quality, sediment transport
Retention Basin	\$500K-\$2M/acre	ROW, geotechnical, volume to affect peak flow, pumps
Tidal Marsh/Mudflat Restoration	\$30K- \$300K/acre	Elevations and active vs passive sediment deposition affect cost
Managed Retreat/Buy-Out	\$1M/Parcel	Actual parcel cost, community/political support



Vision Alternatives

Hold the Line

Protect all existing developed and agricultural land

- ◆ Maintain existing embankment and levee alignments.
- ◆ New levees installed where needed.

Managed Retreat

Install new flood protection only for priority areas, while allowing tidal habitat restoration elsewhere

- Levee alignments adjusted to support habitat migration
- Some managed retreat

Restore / Retreat

Install new flood protection only for critical transportation and utility infrastructure.

- ◆ Managed retreat from all non-critical infrastructure (including commercial and residential parcels)
- ◆ Habitat restoration in areas where retreat occurs

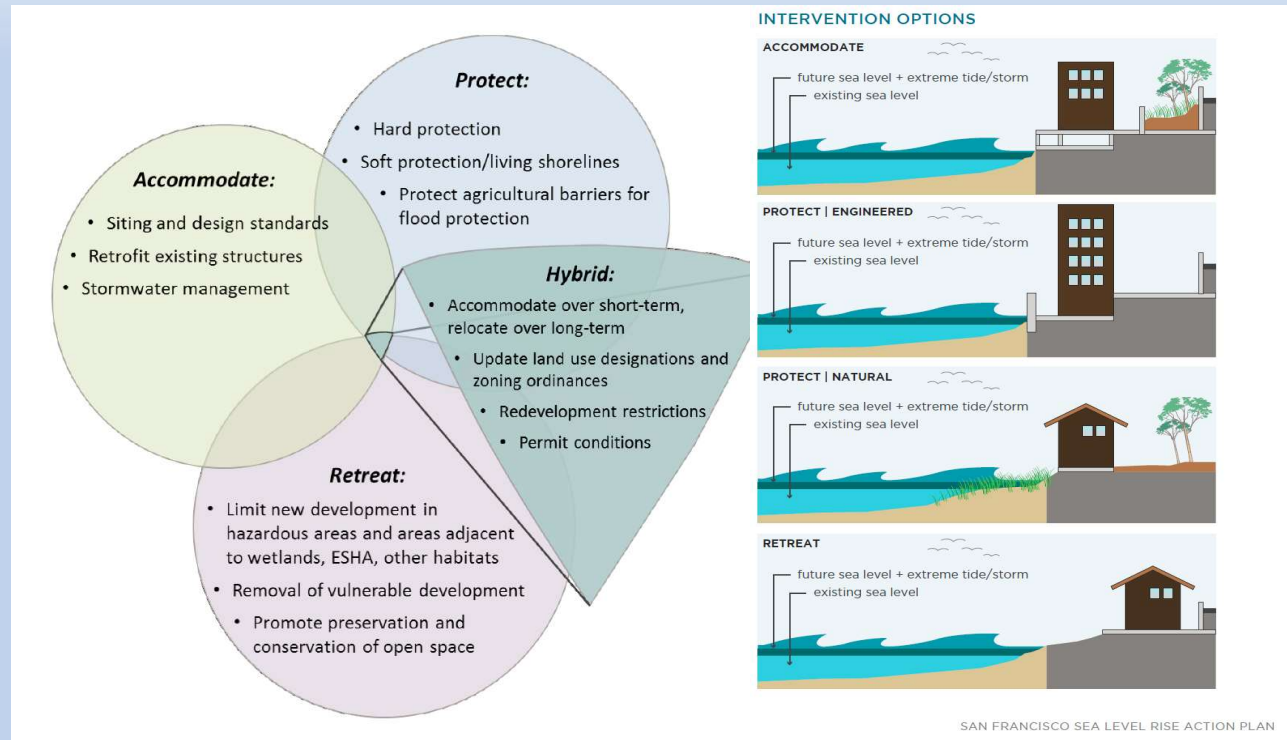
These preliminary draft scenarios are presented to inform the ongoing adaptation visioning process. ESA invites input and discussion. ESA expects that these preliminary drafts will be revised and updated as the underlying assumptions and planning priorities are confirmed and refined.



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Next Steps

- Complete SLR Adaptation Vision Process: January
- Review with Member Agency Boards
- Apply for BRIC and OPC Grants: Spring 2024
- Integrate SLR Adaptation Planning Process into 2025/26 Budget





Questions?

Project Information:
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