

SAN FRANCISCO BAY RESTORATION AUTHORITY

Staff Recommendation
May 8, 2020

**NORTH RICHMOND SHORELINE LIVING LEVEE PLANNING AND PRELIMINARY
DESIGN PROJECT**

Project No. RA-014
Project Manager: Joshua Bradt

RECOMMENDED ACTION: Authorization to disburse up to \$644,709 to West County Wastewater District to conduct technical studies and data collection; develop conceptual designs and associated cost estimates; and engage the public, key stakeholders, and the regulatory community as the initial phase in determining feasibility and alignment options for a living levee that will be designed to create transitional upland habitat, provide sea level rise flood protection to critical infrastructure and neighboring disadvantaged communities, and improve public access to the North Richmond Shoreline in western Contra Costa County.

LOCATION: North Richmond Shoreline marshlands (Castro Cove, Wildcat, San Pablo, and North Richmond Marshes), City of Richmond & unincorporated Contra Costa County; Measure AA Region: East Bay

MEASURE AA PROGRAM CATEGORY: Vital Fish, Bird and Wildlife Habitat Program; Integrated Flood Protection Program; Shoreline Public Access Program

EXHIBITS

- Exhibit 1: [Project Location and Site Maps](#)
Exhibit 2: [Project Designs and Photographs](#)
Exhibit 3: [Project Letters](#)
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RESOLUTION AND FINDINGS:

Staff recommends that the San Francisco Bay Restoration Authority adopt the following resolution pursuant to The San Francisco Bay Restoration Authority Act, Gov. Code Sections 66700-66706:

“The San Francisco Bay Restoration Authority hereby authorizes the disbursement of an amount not to exceed six hundred forty-four thousand, seven hundred and nine dollars (\$644,709) to West County Wastewater District to implement the North Richmond Shoreline Living Levee Planning and Preliminary Design Project in western Contra Costa County. Prior to

commencement of the project, the grantee shall submit for the review and written approval of the Executive Officer of the Authority the following:

- a. A detailed work program, schedule, and budget.
- b. Names and qualifications of any contractors to be employed in carrying out the project.
- c. A plan for acknowledgement of Authority funding.
- d. Evidence that the grantee has entered into agreements with key landowning stakeholders to enable the grantee and its agents to access real property for data collection and technical study.”

Staff further recommends that the Authority adopt the following findings:

“Based on the accompanying staff report and attached exhibits, the San Francisco Bay Restoration Authority hereby finds that:

1. The proposed authorization is consistent with The San Francisco Bay Restoration Authority Act, Gov. Code Sections 66700-66706.
2. The proposed authorization is consistent with The San Francisco Bay Clean Water, Pollution Prevention and Habitat Restoration Measure (Measure AA).
3. The grantee is not required to enter into a project labor agreement per Resolution 22 because the proposed authorization is for planning work.”

PROJECT SUMMARY:

Staff recommends that the Authority authorize disbursement of up to \$644,709 to West County Wastewater District (WCWD) to implement the North Richmond Shoreline Living Levee Planning and Preliminary Design Project, which consists of conducting technical studies and data collection; developing conceptual designs and associated cost estimates; and engaging the public, key stakeholders, and the regulatory community as the initial phase in determining feasibility and alignment options for a living levee. The planning objectives are to create transitional upland habitat, provide flood protection to critical infrastructure and neighboring disadvantaged communities, and improve public access to the North Richmond Shoreline in western Contra Costa County (Exhibit 1).

WCWD’s wastewater treatment plant is at increased risk of flooding due to sea level rise, and WCWD seeks to pursue collaborative, multi-objective, nature-based solutions on and off its property in order to achieve greater habitat benefits and increased flood protection.

The proposed project would build on the work of recent shoreline planning efforts focused on preservation and resilience, including:

- The North Richmond Shoreline Community Vision Project was led by the San Francisco Estuary Partnership and completed in 2017. It combined transition zone mapping with strategies for protecting and improving ecosystem services, community health, economic stability, local jobs, education opportunities, safe places for recreation, and vibrant

natural habitats. The North Richmond Shoreline Community Vision Project highlighted the WCWD living levee concept as a recommended near-term project.

- The Resilient by Design (RbD) Competition, completed in 2018, dispatched 10 multidisciplinary teams to 10 shoreline areas in the SF Bay to develop innovative site-specific approaches towards achieving community resiliency to sea level rise. The design firm Mithun was assigned to North Richmond and worked with a local Citizen Advisory Board to dig deeper into the concepts and project opportunities identified in the North Richmond Shoreline Community Vision Project. The Mithun final report identifies the living levee concept (Exhibit 2) and measures to improve shoreline local public access and recreational opportunities as priorities. It further recommends that *“The West County Wastewater District’s levee strategy would be coordinated and extended within the greater shoreline to protect the North Richmond neighborhood and existing and planned industrial uses from sea level rise.”*

Several of WCWD’s elected Board of Directors and management staff are active members of the North Richmond Shoreline Resilience Stakeholder Working Group (the “Working Group”), which started meeting under the auspices of Contra Costa County Supervisor John Gioia in March of 2019. The Working Group meets monthly to develop a shared understanding of a rising bay, collectively determine design objectives, and consider design alternatives. It is comprised of shoreline property-owners and nearby interests, with representatives from WCWD, Chevron, Republic Services, East Bay Regional Parks District, Contra Costa County Flood Control District, The Watershed Project, and the City of Richmond. The Working Group seeks agreement on planning objectives, such as habitat creation and public access, to maximize the potential benefits of the project and its eligibility for a variety of grant funding programs.

In addition to habitat and flood protection, the proposed planning process will consider placement and improvements of recreational Class 1 pedestrian and bicycle trails, as part of the Bay Trail, for local users and visitors to the area (Exhibit 1).

The North Richmond Shoreline, from Castro Cove to Point Pinole Shoreline Regional Park, contains some of the best intact tidal and wetland marshes in the Bay-Delta. It is home to threatened and endangered species such as the California Ridgway’s rail and salt marsh harvest mouse. Sea level rise projections indicate these low elevation habitats will be chronically inundated with 5.5’ of sea level rise combined with a 2-year recurrence interval storm event. This increase in water elevation will submerge existing plant communities, make the soils more saline, and force animal and plant communities to higher ground. An ecotone slope in the form of a “living” levee, along the upland edge of the shoreline (outboard of the Richmond Parkway), will provide upland transition zone habitat, high tide refugia, and migration space for flora and fauna as sea level rises. The planning effort will also investigate opportunities for offshore habitat restoration activities, such as oyster reefs and eelgrass beds, where appropriate, to attenuate wave action.

Depending on the final design alignment and elevations, the planned ecotone slope may also provide flood risk reduction for the critical infrastructure (WCWD’s treatment plant, Republic Service’s solid waste transfer station and sanitary landfill, and Chevron’s oil refinery), transportation systems (Richmond Parkway, railroad) existing along the shoreline, as well as for the adjacent residential communities. The disadvantaged community of North Richmond was settled by African Americans in the 1940’s during the era of segregation. The community

endured decades of chronic riverine flooding and minimal public services due to a limited tax base. Although US Army Corps of Engineers flood control projects on lower Wildcat and San Pablo Creeks in the late 1980s reduced this problem, projected sea level rise combined with storm events threatens these communities with a return of chronic flooding.

The North Richmond Living Levee Planning and Preliminary Design Project is expected to evaluate the feasibility, effectiveness, and potential environmental effects of constructing a living levee system at two scales:

- Option 1 – on WCWD Treatment Plant property only (approximately 0.6 linear miles)
- Option 2 – potentially spanning from Castro Cove to Giant Marsh (approximately 5 linear miles)

The goals of this project are (1) to evaluate the cost/benefits of the collaborative approach in Option 2 against the “go-it-alone” approach of Option 1 and (2) to develop a local cost allocation plan among major stakeholders such as WCWD, Republic Services and Chevron.

The proposed project will develop the conceptual alignment, (30%) preliminary designs and cost estimates for both Options 1 and 2 with the objectives of creating upland transition zone habitat, providing added flood protection, and improving public access to the North Richmond Shoreline.

Potential improvements for evaluation include:

- Creating 2.2 - 18 acres of upland transition zone habitat;
- Constructing 0.6 – 5 miles of levee system on various publicly and privately-owned properties;
- Creating oyster reefs and/or eelgrass beds along closed solid waste landfill to protect against erosion and wave action;
- Constructing Bay Trail segments and improving existing segments on the levee; and
- Providing additional culturally relevant recreation amenities, which may include interpretive signage, benches, picnic tables, and bicycle racks.

WCWD will use consultant services and ongoing engagement with the Working Group to develop preliminary design options based on technical and ecological analyses. Project components include:

- Production of technical studies that include topographic mapping, geotechnical investigation, hydrologic modeling, and ecological/biological surveys;
- Production of preliminary (30%) designs and construction cost estimates for Option 1 and Option 2;
- Convene monthly Stakeholder Working Group meetings to continue relationship-building;
- Consult with regulatory agencies (through review by the Bay Restoration Regulatory Integration Team or BRRIT) to avoid impacts where possible, and to inform project design and CEQA analyses for both options;

- Conduct community engagement throughout the project, including meetings with groups and individuals to better integrate community needs into the planning process; and
- Preparation of a funding plan for Options 1 and 2 presenting a range of costs that would be borne collectively by the propertied stakeholders for the subsequent planning, construction, and operations & maintenance phases. The funding plan will identify potential grant opportunities to offset these anticipated costs.

As a special district operating on the shoreline, WCWD is both qualified and motivated to lead this project. It serves approximately 34,000 residences and 2,450 commercial and industrial businesses with a total population of approximately 100,000 in the City of San Pablo, northern subdivisions of Richmond and parts of unincorporated Contra Costa County. The District's mission statement and organizational goals include promoting environmental stewardship for the West County community, embracing its obligations to the future by planning and preparing today, and collaborating with local, regional and national partners to further the mission of the District. WCWD has successfully completed over 42 million dollars of capital improvement projects at its wastewater treatment plant over the last several years. WCWD is committed to protecting its treatment operations in the face of sea level rise and has already had a rough order of magnitude cost analysis conducted for a living levee sited solely along its treatment plant facilitates.

Both the *North Richmond Shoreline Vision* and RbD efforts included significant community engagement. Subsequent water-related workshops raised community awareness of sea level rise and associated flood risks as well as reinforcing the community desire for improved public access and recreational opportunities along the shoreline. Additionally, the disadvantaged North Richmond community has consistently voiced a need for economic and career development. The planning process will seek to incorporate ways to address these needs and desires. Local non-profit environmental organizations with job training programs, Urban Tilth and The Watershed Project, are expected to participate in the planning process as stakeholders.

At this stage it is difficult to anticipate what specific challenges may arise during site analyses and project planning. However, for the multi-stakeholder planning process, one challenge is the varying levels of understanding, interest, and available resources from the respective stakeholder entities. The Working Group meets monthly to develop shared understanding and trust.

The Bay Trail runs through the project area with segments within the property boundaries of WCWD, Republic Services' closed landfill, along the Richmond Parkway, and through the Point Pinole Regional Shoreline Park (Exhibit 1). The planning project is expected to use the existing Bay Trail berm (also known as the Wildcat Marsh Trail) within the WCWD property as the proposed alignment of the living levee for Option 1, potentially increasing the elevation of the levee and improving trail conditions when it is restored atop the finished living levee. This approach would be used in other locations, as applicable. Specifically, the planning process will include closing a gap in the Bay Trail on the north side of the WCWD property, along the south side of San Pablo Creek. The Working Group will work with representatives of Trails for Richmond Action Committee (TRAC) to ensure incorporation of Bay Trail considerations in the planning process.

Site Description:

The North Richmond Shoreline’s Baylands have undergone considerable fragmentation, though some components of its historical ecological landscape persist. Much of the Baylands were lost due to filling for development and construction of levees and berms for flood protection of development. Tidal marshes remain at the mouths of San Pablo and Wildcat Creeks, and a major tidal and seasonal wetland restoration project was completed at the Dotson Family Marsh, just south of Point Pinole. The largest eelgrass bed in the bay is located offshore between Point Molate and Point Pinole. Vernal pools remain in the adjacent uplands.

On former tidal marshes sits most of the Chevron refinery (filled Castro Cove), railyards, most of the West County Wastewater Treatment Plant, as well as portions of the North Richmond neighborhood. Atop former tidal mud flats sits the West Contra Costa Landfill and the Richmond Rod & Gun Club. Almost all the remaining Richmond northern shoreline was historically wet meadow. This includes the western half of Parchester Village, and most of North Richmond, the West County Wastewater plant, railroad and industrial areas. The Richmond Parkway, a transportation corridor connecting I-80 to I-580, separates most of the residential land uses to the east from the shoreline and heavy industry to the west.

Wildcat, San Pablo, and Rheem Creeks, although significantly altered, still flow to San Francisco Bay. The lower reaches have been lined with constructed levees designed to protect homes and other property in the adjacent low-lying areas from flooding. Near the creeks, within the historical stream corridor and alluvial fan, there are multiple land uses, including North Richmond neighborhood homes, low density commercial land uses (warehouses, storage facilities, equipment rental yards, rail and junk yards), and open space.

PROJECT FINANCING

San Francisco Bay Restoration Authority	\$644,709
West County Wastewater District	\$42,500
Project Total	\$687,209

As the applicant, WCWD is contributing \$42,500 to this collaborative effort. WCWD’s contribution will offset grant expenditures for project management tasks, public engagement and stakeholder negotiations, including: procurement of consultants and other service providers and development of a funding plan among stakeholders to advance final designs, permitting, implementation, and anticipated operations and maintenance of the proposed living levee. The WCWD Board has approved additional funding for advancing infrastructure asset protection in the face of sea level rise to be used once the project is in its next phase of planning. No repayments or other revenue to the Authority are expected.

CONSISTENCY WITH AUTHORITY’S ENABLING LEGISLATION, THE SAN FRANCISCO BAY RESTORATION AUTHORITY ACT:

The proposed project is consistent with Section 66704.5(a), (b), and (e) of the San Francisco Bay Restoration Authority Act and is therefore eligible for grant funding from the Authority. Consistent with Section 66704.5(a), the project is within the Authority’s jurisdiction as shoreline parcel(s) in the San Francisco Bay, and WCWD is an eligible grantee as a local public agency

(special district) and an owner/operator of a 110-acre shoreline parcel in the San Francisco Bay area. Consistent with section 66704.5(b), the proposed planning project will determine the feasibility and alignment options for a living levee with the objectives to: 1) create shoreline transitional upland habitat, 2) provide sea level rise flood protection to critical infrastructure and neighboring disadvantaged communities, and 3) improve public access to the North Richmond Shoreline in west Contra Costa County. Consistent with section 66704.5(e), this is a proposed planning project, which is eligible for Authority funding.

CONSISTENCY WITH MEASURE AA PROGRAMS AND ACTIVITIES:

The proposed project is consistent with the programs and activities of Measure AA, as outlined below:

The project supports the *Vital Fish, Bird and Wildlife Habitat Program*'s purpose to significantly improve wildlife habitat that will support and increase vital populations of fish, birds, and other wildlife in and around the Bay because it will produce plans for creating and restoring shoreline transitional upland habitat. Once implemented, the shoreline environment will have the potential to provide habitat for the threatened saltmarsh harvest mouse and the California Ridgway's rail.

The project supports the *Integrated Flood Protection Program*'s purpose to use natural habitats to protect communities along the Bay's shoreline from the risks of severe coastal flooding caused by storms and high water levels because it will design 0.6 to 5 miles of a living levee system that will both create transitional upland habitat and provide sea level rise flood protection to critical infrastructure and neighboring disadvantaged communities.

The project supports the *Shoreline Public Access Program*'s purpose to enhance the quality of life of Bay Area residents through improved public access, as part of and compatible with wildlife habitat restoration projects in and around the Bay, because the proposed living levee will include a pedestrian/bicycle trail, where appropriate, to promote public accessibility and use. There is an opportunity to close a 0.25-mile gap in the Bay Trail on WCWD property between the Richmond Parkway and the junction of the Wildcat Marsh Trail and the Landfill Loop.

CONSISTENCY WITH MEASURE AA PRIORITIZATION CRITERIA:

1. **Greatest positive impact.** Depending on the option pursued by the Stakeholder Working Group to keep the project design limited to WCWD or to span multiple properties, the potential positive impacts on the Bay would range widely. At minimum (Option 1), the project will create between 2.2-2.6 acres of transitional habitat. If all key stakeholders elect to participate (maximum Option 2), a continuous living levee designed for the roughly 5 miles from Castro Cove to Pt. Pinole Shoreline Regional Park would create up to 18 acres of transitional habitat with the potential for offshore oyster and eelgrass habitat improvements at certain locations. Flood protection for the WCWD Wastewater Treatment Facility is embedded in both options, preserving its ability to treat effluent from its service area and provide its treated water to the Chevron refinery rather than discharging to the Bay. If the facility were to become inoperable due to chronic flooding, there would be major water quality impacts to the bay. Finally, the project will integrate Bay Trail improvements, including a gap closure, in the design process.

2. **Greatest long-term impact.** Perhaps the greatest long-term impact the project will have is successfully modeling an inclusive multi-stakeholder approach that spans property lines, political jurisdictions, and habitat types. This collaborative approach speaks to the real challenges of resilience planning around the San Francisco Bay shoreline, which is a mix of public and private lands with various existing uses and environmental conditions. Sea level rise will eventually compel shoreline landowners and operators to take action (protect their property individually or collaboratively with structures such as levees or flood walls, accommodate rising waters, or retreat). The project strives to prove that the collaborative approach offers the most comprehensive and cost-effective solution, which can be replicated throughout the region. While the initial living levee will be designed to be constructed to specific elevations (to be determined), once the alignment is established, it will be designed to allow for further elevation to keep pace with future sea level rise projections.
3. **Leveraging resources and partnerships.** The Stakeholder Working Group is comprised of public and private entities seeking opportunities for collaboration. Regardless of the project's ultimate alignment, it will include voluntarily commitment of resources by stakeholders (such as staff time, land, and money) to advance the project from planning through implementation, and finally long-term management and monitoring. The WCWD Board of Directors has committed \$500,000 towards resilience planning and implementation efforts, with \$42,500 allocated to this stage of the project. As the project crystalizes, other stakeholders will identify their respective levels of contribution and seek to leverage additional grant support from all appropriate sources (federal, state, and regional).
4. **Economically disadvantaged communities.** The WCWD Treatment Plant lays within an identified Economically Disadvantaged Community (EDC) block group and census tract. Flood protection benefits for shoreline properties as envisioned under Option 2 would also benefit the neighboring greater North Richmond community, also identified as an EDC block group and census tract. The North Richmond community is within the projected flood zone for 5.5' of sea level rise, as is its primary transportation corridor, the Richmond Parkway. In addition, the WCWD service area includes a wide area of EDCs in Richmond, San Pablo, and unincorporated Contra Costa County. An Option 1 "go-it-alone" project would likely put a high strain on WCWD's ratepayers, many of whom are from low income households. The collaborative approach may reduce this burden by sharing the costs with other stakeholder entities, allow for other regional benefits, and attract other funding sources.
5. **Benefits to economy.** Without the levee system's potential flood protection benefits, there are massive threats to the economy if neighborhoods and vital infrastructure (pump station, wastewater treatment, local streets and arterials) are damaged or interrupted. The project, no matter which option is ultimately selected, is likely to be a large construction effort that would use union labor. In addition, the project would provide professional employment in designing the living levee.
6. **Engage youth and young adults.** Urban Tilt and The Watershed Project are two non-profit organizations participating in the Stakeholder Working Group. The City of Richmond also has a forestry program for youth. These organizations focus on environmental education with established stewardship and restoration apprenticeship programs for local young adults. The

planning project will seek opportunities to include these youth programs in the development of planting and public access plans, as well as in appropriate aspects the implementation, maintenance and monitoring phases.

7. **Monitoring, maintenance, and stewardship.** Monitoring, maintenance, and stewardship planning would be more specifically addressed in the final design phase of the project and ahead of construction. All participating entities would need to commit to long-term maintenance and monitoring of the facility on their respective lands. There will be opportunities to promote stewardship through use of local job training programs and volunteers. The final report from this planning phase will detail the process to achieve consensus and collaboration with an emphasis on lessons learned.

8. **Coastal Conservancy's San Francisco Bay Area Conservancy Program.**
 - a. The project is supported by several adopted local and regional plans such as the *City of Richmond General Plan, Baylands Ecosystem Habitat Goals Update, San Francisco Bay Subtidal Habitat Goals Report, Comprehensive Conservation and Management Plan, Surviving the Storm, San Francisco Bay Trail Plan and the Long-Term Management Strategy for the Placement of Dredged Material in the SF Bay Region.*
 - b. The project is multi-jurisdictional, including unincorporated Contra Costa County and the City of Richmond with water quality and public access benefits to the wider region.
 - c. The project is can be started quickly with WCWD ready to engage a multi-disciplinary consultant team and the Stakeholder Working Group meeting regularly to help guide the approach and resolve issues.
 - d. The project needs to occur to provide transitional upland habitat and refugia opportunities before the existing tidal and wetland marshes are chronically inundated.
 - e. WCWD will commit \$42,500 to this effort and has encumbered \$457,000 to further explore and implement measures to protect the critical infrastructure of its wastewater treatment plant. Other participating stakeholders will determine their respective contributions as the planning effort progresses.

9. **San Francisco Bay Conservation and Development Commission's Coastal Management Program.** The proposed project is consistent with policies of the BCDC Bay Plan in the following ways:
 1. Fish, Other Aquatic Organisms and Wildlife, Policy 3: The project will seek to provide a diversity of habitats to enhance opportunities for a variety of native aquatic and terrestrial species
 2. Tidal Marshes and Mudflats, Policy 6: The planning process (likely in two phases) will develop long-term and short-term biological and physical goals, success criteria, and a monitoring program.
 3. Tidal Marshes and Tidal Mudflats, Policy 8: A minor amount of fill material will need to be authorized to create the ecotone slope. The amount will be based on

scientific ecological analyses and consultation with federal and state resource agencies, which is expected to occur through review by the Bay Restoration Regulatory Integration Team.

4. Subtidal Areas, Policy 3: As appropriate, the project will investigate offshore resiliency opportunities to promote an abundance and diversity of fish and other aquatic organisms and wildlife, particularly on the bayside of the landfill.
5. Public Access, Policy 4: The project plan will seek to avoid or minimize adverse effects on wildlife associated with the placement of a public access trail.
6. Public Access, Policy 13: The stakeholder working group is already considering the integration of public access into the project.
7. Dredging, Policy 11: The living levee construction will require fill material to be placed along the upper margins of the existing marshlands. This material will need to satisfy the policy's requirements to be approved. We anticipate the use of dredged materials from the Wildcat Creek Sediment Basin, which is stockpiled within a mile of the project area.

San Francisco Bay Joint Venture's Implementation Strategy. The proposed project meets the SFBJV's Project Adoption Essential Criteria by implementing recommendations from the Baylands Ecosystem Habitat Goals Update, the Upland Habitat Goals Report, the SFBJV Implementation Strategy, and the Riparian Bird Conservation Plan. It advances the goals of the SFBJV by protecting, restoring, and enhancing habitat for target species. Biological assessment will strongly guide the design and will be implemented to ensure the best biological foundations for long-term habitat value. WCWD has consulted with SFBJV and has requested to be added to the SFBJV's Priority Projects List.

COMPLIANCE WITH CEQA:

The proposed project is statutorily exempt from the requirement to prepare an environmental document under the California Environmental Quality Act and categorically exempt from CEQA under 14 Cal. Code of Regulations Sections 15262 and 15306, as it only involves preparation of feasibility and planning studies for possible future actions that have not yet been approved, adopted or funded, and basic data collection, research and resource evaluation activities that will not result in serious or major disturbance to an environmental resource. The planning studies will consider environmental factors. Staff will file a Notice of Exemption upon approval of the proposed project.