

San Francisco Bay Conservation and Development Commission

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TO: Design Review Board Members

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SUBJECT: Lake Merritt to Bay Trail Pedestrian and Bicycle Bridge; First Pre-Application Review
(For Design Review Board consideration on April 8, 2019)

Project Summary

Project Proponent and Property Owner. City of Oakland.

Project Representatives. Diane Tannenwald (City of Oakland); Steven Grover and Oscar Tsai (Steven Grover & Associates, Architects); and Gary Antonucci and Robert Dameron (Moffat & Nichol, Engineers).

Project Site. The project site is located along Lake Merritt Channel at its confluence with the Oakland Estuary, in the City of Oakland, Alameda County. The project site covers an approximately 950-foot-long area on both sides of Lake Merritt Channel, running roughly from the I-880 overpass to the Embarcadero Bridge near the Estuary (Exhibit X).

On the east side of the Channel, the site is bounded by a Peralta Community College District parking lot, an East Bay Municipal Utility District (EBMUD) storm drainage facility, and the future site of Channel Park as part of the Brooklyn Basin development project. On the west side of the Channel, the site is bounded by a Laney College parking lot, Oakland Fire Department training facilities, Jack London Aquatic Center and Estuary Park (a Water Trail site), and the Bay Trail.

Existing Conditions. (Exhibits 1-6) The proposed project would span a number of properties and rights-of-way, in addition to the Lake Merritt Channel. The project site therefore includes industrial, commercial, and transportation land uses, and a landscape with ruderal vegetation, a few trees, tidal marsh, and open water. Several bridges and overpasses cross the Lake Merritt Channel within the project site: I-880 Nimitz Freeway, the Embarcadero, two pipelines, a Western Pacific Railroad in active use, and a Union Pacific Railroad that is not in active use. While the majority of the shoreline along the Lake Merritt Channel is currently designated for public access, the physical constraints of the I-880 overpass, the Union Pacific Railroad tracks, and the Embarcadero Bridge leave a significant gap between the pedestrian/bicycle trails around Lake Merritt and the Bay Trail along the Oakland Estuary shoreline. Most of the project site itself is not currently accessible to the public.

Various public access facilities are located or planned within and adjacent to the project site, including the following:

1. The soon to be completed Embarcadero Bridge re-construction includes a 12-foot-wide multi-use path on the south side of the bridge, a pedestrian sidewalk on the north side, Class II bike lanes, and nearby planned public improvements such as an ADA-accessible restroom on the west bank of Lake Merritt Channel near the Embarcadero Bridge. This path is to connect to the proposed pedestrian and bicycle bridge at such time as it is constructed. (Required public access under BCDC Permit No. 2007.002.03.)
2. The Peralta Community College District properties on the north and west sides of the Lake Merritt Channel include required public shoreline pathways, two public parking spaces, and other amenities including seating and large-scale art. (Required public access under BCDC Permit No. M1981.112.02.)
3. Public access is required on both banks of the Lake Merritt Channel under and adjacent to I-880, including upgrades and extensions to pedestrian and bicycle pathways. The west has been improved, but the east side remains undeveloped. (Required public access under BCDC Permit No. 2005.003.00.)
4. Public access is required on the eastern bank of Lake Merritt Channel, adjacent to the EBMUD facility, but has not been implemented. (Required public access under BCDC Permit No. M1992.044.02).
5. Channel Park along the Oakland Estuary at the site of the Brooklyn Basin Redevelopment project is included in phase four of the project development and requires connections to the pedestrian and bicycle bridge at such time as it is constructed. (Required public access under BCDC Permit No. 2006.007.02).

designed and built to encourage diverse Bay-related **Proposed Project**. The proposed project would construct an elevated bicycle and pedestrian bridge to create a continuous trail from Lake Merritt to the Oakland Estuary. Within the Commission's Bay and 100-foot shoreline band jurisdiction, the proposed project includes the following components:

1. **Lake Merritt to Bay Trail Pedestrian and Bicycle Bridge (Exhibits 7-22)**. The "S"-shaped pedestrian and bicycle bridge (approximately 1,110-linear-foot) would run along approximately 950 feet of Lake Merritt Channel, with four touchdowns on both sides of the channel. The superstructure is a series of connected cantilevers formed by a hybrid steel girder and space truss system which would be viewed from I-880 and the Embarcadero, among other locations along the shoreline. The bridge superstructure would rise to 50 feet above existing grade at its apex and may include solid beams and/or space trusses. The bridge would be supported by 8 pier foundations all of which are in the Shoreline band. Three of the foundations are within the future Channel Park.

The bridge structural system integrates the main bridge pathway and lower access paths into an interconnected design. The bridge would touch down and connect to existing or planned trail segments at four locations: 1) the Peralta Community College District campus (east bank); 2) Victory Court near Laney College and the Oakland Fire Department property (west bank); 3) the Planned Channel Park (east bank); and 4) one of the belvederes on the Embarcadero Bridge.

The bridge would include a 16-foot-wide upper pathway with two 4'-3" - bicycle travel lanes, a 6-foot-wide pedestrian sidewalk, and a 2-inch-tall by 6-inch-wide rolled curb separating the sidewalk and bicycle lanes. The upper pathway would touchdown at the Peralta and Embarcadero Bridge sites (the two ends of the proposed bridge).

The bridge would also include an approximately 480-foot-long lower accessway, consisting of two 6-foot-wide stairways and two 10-foot-wide sloped pathways, with connections at all four bridge connection locations.

The upper pathway and lower accessway would have 48-inch-tall railings, and the lower accessway stairs would also have handrails and a 48-inch-tall guard. Where the bridge crosses over the Union Pacific Railroad tracks, approximately 10-foot-tall fencing would be installed along the sides of the upper pathway. Lighting would be incorporated into the railings, with the intent to focus light on the pathways and minimize habitat impacts.

The project would include an overlook on the bridge at Victory Court, a resting/overlook spot at the top of each set of stairs, and integrated seating near the Peralta and Channel Park connections. The bridge would be designed consistent with the City's guidelines for recreational navigation of the Lake Merritt Channel, and would provide at least 9.8 feet of clearance from mean high water (MHW) under current conditions in the deepest portion of Lake Merritt Channel. (Exhibit 14)

The upper pathway would rise at a 4.9% grade from the Peralta touchdown (northern end-point) to a high point of +41' NAVD88 over the Union Pacific Railroad tracks, and then descend to the Embarcadero Bridge touchdown (southern end-point). The pathway would divide mid-span on the curves of the "S"-shaped bridge to allow for the lower accessway to connect to Victory Court and Channel Park, in addition to the two end-points.

2. **Removal of Deteriorated Railroad Bridge (Exhibit 3).** The proposed project would remove an approximately 16-foot-wide, 90-foot-long disused and deteriorated Western Pacific railroad bridge that crosses the Lake Merritt Channel near Victory Court, removing approximately 240 cubic yards of Bay fill.

Resilience and Adaptation to Rising Sea Level. According to the Federal Emergency Management Agency ("FEMA") the current 100-year-flood elevation for the project site is approximately +9.6' NAVD88, and current MHHW is +6.29' NAVD88. The proposed project has a design life of 50 years. The proposed pedestrian bridge would have elevated touchdowns, which are intended to account for sea level rise through 2070: +12.0' NAVD88 at Peralta (northern end-point), +22.0' NAVD88 at the Embarcadero Bridge (southern end-point), and +11.1' NAVD88 at Victory Court and Channel Park (intermediate touchdowns).

Under the projections in the 2018 State of California Sea Level Rise Guidance document for medium-high risk aversion projects in a high-emissions scenario, the Peralta and Embarcadero Bridge touchdowns would not be expected to flood by 2050 (BFE+1.9'SLR=11.5' NAVD88). The Victory Court and Channel Park touchdowns could flood in extreme storm events at 2050 (approximately 0.5 inches in a 50-year storm and 4.8 inches in a 100-year storm), but would not be expected to flood on a regular basis.

In 2070, the Embarcadero Bridge touchdown remains sufficiently elevated to avoid flooding under both low- and high-emissions scenarios. Under a low-emissions scenario, the Peralta touchdown would be anticipated to begin flooding in a 25-year storm event (0.1 inches) with 8.4 inches of flooding in a 100-year storm event, and under a high-emissions scenario, flooding would be anticipated to begin in a 10-year storm event (0.1 inches) with 4.9 inches of flooding in a 25-year storm event and 13.2 inches (1.1 feet) of flooding in a 100-year storm event. At 2070, under a low-emissions scenario the Victory Court and Channel Park touchdowns would be anticipated to begin flooding in a 5-year storm event (2.6 inches) with 19.2 inches (1.6 feet) of flooding in a 100-year storm event, , and under a high-emissions scenario, flooding would be anticipated to begin in a 2-year storm event (2.9 inches) with 10.8 inches of flooding in a 5-year storm event and 24 inches (2 feet) of flooding in a 100-year storm event.

With regards to navigational access beneath the bridge (e.g., for kayaks and paddleboard users), the project would provide approximately 7.9 feet of clearance from mean high water (MHW) at 2050. At 2070, the project would provide a minimum of 6.7 feet of clearance under a low-emissions scenario, and 6.3 feet of clearance under a high-emissions scenario. Providing a minimum of 5 feet of clearance is consistent with the City of Oakland’s guidelines for recreational navigation of the Lake Merritt Channel by small watercraft.

To date, a sea level rise adaptation plan has not been proposed for the project. It’s worth noting that the surrounding properties currently experience flooding with king tides and storm events.

Operations and Maintenance. The City of Oakland would operate and maintain the proposed bridge.

Project Approvals and Proposed Timeline. The proposed project has not yet received regulatory or City approvals. The City of Oakland, as the lead agency, issued a Notice of Determination for the project under CEQA in May 2016. The City is in the process of obtaining easements and an encroachment permit for the proposed project from the current property owners. Pending regulatory approvals and easement agreements, construction would occur over 14 months and be completed by summer 2022.

Commission Findings, Policies & Guidelines

San Francisco Bay Plan Policies. The Bay Plan **Public Access** policies state, in part, that “...maximum feasible access to and along the waterfront and on any permitted fills should be provided in and through every new development in the Bay or on the shoreline...” and that “[a]ccess to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available.” Further, these policies state that “... improvements should be activities and movement to and along the shoreline, should permit barrier free access for persons with disabilities to the maximum feasible extent, should include an ongoing maintenance program, and should be identified with appropriate signs.” Additionally, the policies provide that “[p]ublic access should be sited, designed, and managed to prevent significant adverse effects on wildlife,” that “[p]ublic access should be sited, designed, managed, and maintained to avoid significant adverse impacts from sea level rise and shoreline flooding,” and that access should be designed consistent with the physical and natural environment.

The proposed project would construct a pedestrian and bicycle bridge for public access purposes, linking the Bay Trail to shoreline public access along Lake Merritt Channel and inland to public trails around Lake Merritt. Stairs and sloped walkways would connect the bridge to intermediate touchdown points in Channel Park and at Victory Court. Lighting as part of the bridge railings, seating, and overlooks are also proposed.

The Bay Plan **Appearance, Design, and Scenic Views** policies state, in part, that “all bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay” and that “[m]aximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas...” Furthermore, “[s]tructures and facilities that do not take advantage or complement the Bay should be located and designed so as not to impact visually on the Bay and shoreline.” These policies also state, in part, “[a]dditional bridges over the Bay should be avoided, to the extent possible, to preserve the visual impact of the large expanse of the Bay. The design of new crossings deemed necessary should relate to others nearby and should be located between promontories or other land forms that naturally suggest themselves as connections reaching across the Bay (but without destroying the obvious character of the promontory). New or remodeled bridges across the Bay should be designed to permit maximum viewing of the Bay and its surroundings by both motorist and pedestrians. Guard rails and bridge supports should be designed with views in mind.” Additionally, “[t]owers, bridges, or other structures near or over the Bay should be designed as landmarks that suggest the location of the waterfront when it is not visible, especially in flat areas. But such landmarks should be low enough to assure the continued visual dominance of the hills around the Bay.”

The Bay Plan **Transportation** policies state, in part, that “[t]ransportation project on the Bay shoreline and bridges over the Bay...should include pedestrian and bicycle paths that will either be a part of the Bay Trail or connect the Bay Trail with other regional and community trails. Transportation projects should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline.” Furthermore, “[i]f a route must be located across the Bay...[t]he crossing should be placed on a bridge or in a tunnel, not on solid fill” and that “[b]ridges should provide adequate clearance for vessels that normally navigate the waterway beneath the bridge.”

The proposed project would provide a pedestrian and bicycle bridge that connects the Bay Trail to the public trails at Lake Merritt. The elevated bridge would be a minimum of 9.8 feet above the mean high water level under current conditions and 6.3 to 6.7 feet above the mean high water level by 2070, and therefore would allow for low-clearance navigation under the bridge at certain tides.

The Commission’s **Public Access Design Guidelines** state partly that public access should be designed “so that the user is not intimidated nor is the user’s appreciation diminished by large nearby building masses....” Furthermore, “public access improvements should be designed for a wide range of users,” should “provide basic public amenities, such as trails, benches, play opportunities, trash containers, drinking fountains, lighting and restrooms that are designed for different ages, interests and physical abilities,” and should be designed for the weather of the site. The guidelines also state that viewing the Bay is the “most widely enjoyed ‘use’ and projects should be designed to “enhance and dramatize views of the Bay.”

Board Questions

The Board's advice and recommendations are sought on the following issues regarding the physical and visual design of the proposed public access:

1. Would the proposed pedestrian and bicycle bridge provide ample, diverse, and adequate opportunities for public use, including for both pedestrians and bicyclists?
2. Does the project adequately allow for recreational use of Lake Merritt Channel, including for kayaks and other low-clearance navigational vessels passing beneath the bridge?
3. Are the proposed public amenities adequate, distributed, and designed to balance the needs of visitors and natural resources in the project vicinity?
 - a. Are the proposed bridge overlooks appropriately sized and located?
 - b. Is the proposed lighting appropriate?
 - c. Would the project be enhanced by including other site amenities such as interpretive elements, bird viewing opportunities, bike racks, waste receptacles, signage, and/or additional seating opportunities?
4. Is the proposed bridge designed in a manner that is universally accessible for the public?
5. Does the bridge design take advantage of bay views?
6. Does the bridge provide an appropriate landmark to identify the location of the Bay in areas where it's not immediately visible?
7. Does the bridge design minimize view impacts of the shoreline and Bay from other high points such as the I-880 overpass and the Embarcadero?
8. Does the design of the proposed bridge railing and fencing maximize Bay viewing opportunities for all users? How can view impacts be further minimized or reduced?

The Board's advice and recommendations are sought on the following issues regarding the design of the proposed physical connections:

9. Are the connections at the bridge touchdown points (Peralta, Victory Court, Channel Park, and Embarcadero Bridge) designed appropriately to connect people to and along the shoreline? Does the design of the lower accessway provide adequate connections to and invitations to use the bicycle and pedestrian bridge?
10. Does the bridge adequately integrate with existing or planned public access at the touchdown sites (e.g., Channel Park)?

The Board's advice and recommendations are sought on the following issues regarding sea level rise:

11. Is the proposed bicycle and pedestrian bridge appropriately designed to be resilient and adaptive to sea level rise?
12. How can the bridge design facilitate future adaptation of the shoreline, e.g. at its touchdown locations?