

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

50 California Street • Suite 2600 • San Francisco, California 94111 • (415) 352-3600 • Fax: (415) 352-3606 • www.bcdc.ca.gov

August 20, 2009

Application Summary

(For Commission consideration on September 3, 2009)

Number: Material Amendment No. 13 to BCDC Permit No. 20-73
Date Filed: August 20, 2009
90th Day: November 18, 2009
Staff Assigned: Rafael Montes (415/352-3670 rafaelm@bcdc.ca.gov)

Summary

Applicant: California Department of Transportation (Caltrans)

Location: In the Bay, within the 100-foot shoreline band, in former salt ponds, and in managed wetlands at the Dumbarton Bridge. The Dumbarton Bridge spans the Bay between the City of Fremont (Alameda County) and the cities of East Palo Alto and Menlo Park (San Mateo County). The Dumbarton Bridge is the



Making San Francisco Bay Better

southernmost toll bridge in the Bay and is partially within a Wildlife Refuge Priority Use Area designated in the San Francisco Bay Plan, Map No. 7 (see Exhibits A1 and A2).

Project: The proposed project would result in a total of 5,500 square feet (0.13 acre, 1,800 cubic yards) of permanent Bay fill as a result of enlarging twenty pier pedestals (5,000 square feet) and adding rock riprap (500 square feet) to protect a proposed stormwater pump plant. The proposed project would also involve approximately 400,000 square feet (2,600 cubic yards) of temporary Bay fill to construct two pile-supported construction access trestles. The temporary trestles would be built adjacent to and around the shallow water piers on the east and west sides of the bridge in order to install cofferdams for dewatering the piers' surroundings and ultimately enlarging the footing pedestals. The eastern trestle would be built parallel to and between the existing fishing pier (Dumbarton Pier) and the Dumbarton Bridge. The western trestle would be built at the same location as the abandoned Ravenswood Pier, which would be demolished during the construction of the temporary trestle.

The project proposes public access improvements on the east and west sides of the bridge, including new directional, location and interpretive public access signage, resurfacing the public access parking lots and west side frontage road, enhancing and improving new and existing public access lookouts, constructing a new bridge approach viewing area structure (belvedere) with direct access to a new plaza underneath it, and widening and improving the current Class I bicycle/pedestrian path.

The project will also construct a flood prevention system at the northwest side of the bridge consisting of a 2,000-foot long concrete barrier of varying height (39 to 56 inches) with a continuous underground sheet pile to prevent underground seepage.

Issues

Raised: The staff believes that the application raises eight primary issues: (1) whether the proposed fill for the project would be consistent with the McAteer-Petris Act and the San Francisco Bay Plan policies on fill; (2) whether the proposed public access improvements are the maximum feasible consistent with the project and are reasonable; (3) whether the project would adequately protect fish, other aquatic resources and wildlife; (4) whether the proposed mitigation is adequate to offset the proposed project's impacts; (5) whether the proposed project would protect water quality; (6) whether the proposed project would be consistent with the Bay Plan policies regarding safety of fills; (7) whether the project would be consistent with the Bay Plan policies regarding transportation; and (8) whether the project would be consistent with the Bay Plan's appearance, design, and scenic views policies.

Background

**Prior
Commission
Permits
Affecting the
Dumbarton
Bridge:**

The Commission issued Permit No. 16-99 on August 17, 2000 to widen the bridge approaches (SR 84), to construct a concrete barrier in the median of SR 84, to construct, realign, pave and stripe new and existing bicycle/pedestrian paths along the roadway and the shoreline, and to construct a separation barrier between the path and vehicle lanes. Permit No. 16-99 was recently amended on May 26, 2009 to authorize the removal of the scenic lookout on the north side of the bridge at the western touchdown and the construction of a new scenic lookout on the south side of the bridge. The relocation of the scenic lookout is necessary to allow for the construction of a proposed pump plant. The scenic lookout will be enhanced as part of the proposed project authorized under Permit No. 20-73.

The Commission originally issued Permit No. 20-73 to construct the Dumbarton Bridge on February 21, 1974. The BCDC permit has been amended twelve times to authorize various modifications such as construction of public access areas and fender systems for the piers adjacent to the shipping channel crossing. The

last two amendments, Amendment Nos. Eleven and Twelve, were issued on June 10, 1993 and April 12, 1995, respectively, and authorized additional work to facilitate bridge maintenance and a time extension to complete construction of maintenance facilities on the eastern approach.

The Dumbarton Bridge was completed in 1982 to replace the 1927 Dumbarton Drawbridge. The structure is the southernmost bridge spanning the Bay. The bridge is 1.6 miles long, carries approximately 80,000 vehicles each day on six lanes of traffic in both directions and has an eight-foot-wide bicycle/pedestrian path along its southern edge.

Although it is a relatively new structure, the Dumbarton Bridge does not meet current Caltrans earthquake safety design. The proposed project would address seismic and safety issues of concern raised after the 1989 Loma Pietra earthquake by seismically retrofitting key components of the bridge. After project completion, the bridge would provide safety for users during a maximum credible earthquake and would meet current earthquake safety design standards.

Project Description

**Project
Details:**

The applicant, the California Department of Transportation (Caltrans), describes the project as follows:

In the Bay:

- a. Construct, use and maintain approximately 5,000 square feet (0.11 acre, 1,700 cubic yards) of submerged concrete collar bolsters on the footing pedestals of Piers 5 to 15 and 32 to 40 (see Exhibits C2 and C3);
- b. Construct, use and maintain approximately 500 square feet (0.01acre, 100 cubic yards) of rock riprap at a drainage outfall on the north side of the west approach of the bridge;
- c. Construct, use, maintain and, at project completion, remove two temporary pile-supported construction trestles covering an area of approximately 400,000-square-foot area (9.18 acres, 800 cubic yards) (see Exhibits B1 and B3);
- d. Construct, use, maintain and, at project completion, remove 20 temporary cofferdams surrounding the shallow-water piers (Piers 5 to 15 and 32 to 40) on the east and west sides of the bridge covering approximately 2,560 square feet (0.06 acre, 1,700 cubic yards); and

- e. Demolish and remove the pile-supported Ravenswood Pier (a segment of the former Dumbarton Drawbridge) on the southwest side of the bridge covering approximately 63,000 square feet (1.45 acre) including all pilings below the mudline, the pier abutment, riprap and any debris placed in the mudflat beneath the trestle.

Within the existing bridge footprint:

- a. Construct, use and maintain 96 isolator bearings between the superstructure and the substructure (intermediate pads between the deck girder and the pier bent cap) at 16 piers of the main crossing channel piers, piers 16 to 31;
- b. Construct, use and maintain column and bent cap concrete bolsters (reinforced concrete encasements), and footing overlays from Piers 5 to 40;
- c. Replace existing deck joints with a special seismic joint system to accommodate seismic movements at Pier 16 and Pier 31 (see Exhibits D1 and D2);
- d. Retrofit, use and maintain two bridge hinges (deck section separation openings for seismic displacement) at spans 21 and 25; and
- e. Retrofit, use and maintain 13 sets of steel cross frames (strengthening steel bracings) inside the steel box girders under the bridge deck from Piers 16 to 31 (see Exhibit C1).

Within the 100-foot Shoreline Band, Salt Ponds and the Managed Wetland:

- a. Construct, use and maintain a flood prevention system including (1) a 2,000-foot-long, 39- to 56-inch-tall concrete high-tide barrier and contiguous underground sheet piling to prevent seepage, (2) a 2,000-foot-long, 36-inch-diameter drainage pipe, (3) a 900-square-foot pump plant on the northwest side of the bridge, and (4) an approximately 9,776-square-foot dirt embankment adjacent to the pump plant (Exhibit C1, C2);
- b. Construct, use and maintain an approximately 1,256-square-foot public access lookout on the south side of the western bridge approach (this lookout replaces the overlook currently on the north side of the western bridge approach required in BCDC Permit No. 16-99);
- c. Enhance, use and maintain an existing 5,200-square-foot rock surface public access meeting area immediately south of the Dumbarton Pier on the east approach;
- d. Construct, use and maintain a 96-square-foot public access overlook (belvedere) over a lateral pile at Bent W19, a stairway leading down to public access area with benches and a table within the parking lot on the south side of the west approach;
- e. Construct, use and maintain a total of 28 four-foot diameter lateral piles, on both sides (seven piles per side) of the east and west bridge approaches (Exhibit C3);
- f. Widen and improve the transition between bridge and frontage road path, use and maintain the existing eight-foot-wide bicycle/pedestrian path at both approaches;
- g. Use and maintain staging areas during the bridge retrofit, and at project completion, repave and restripe all areas of public access impacted by construction activities;
- h. Temporarily remove 74 parking spaces from the west side and 34 parking lot spaces from the east side of the bridge to accommodate construction activities, and at project completion, restore and maintain 86 out of a total of 96 parking lot spaces on the west side, and all 80 parking lot spaces on the east side of the bridge. Repave, restripe, use and maintain the existing 25,000-square-foot public access parking lot, the 120,000-square-foot frontage road on the south and north sides of the west approach of the bridge; and the existing 67,000-square-foot public access parking lot at the east approach of the bridge;
- i. Install, use and maintain directional, location and interpretive signage on all public access areas east and west of the bridge and install signs between the BART station in Union City and Caltrain station in Menlo Park; and
- j. Install, use and monitor for a period of three years an approximately 6,534-square-foot (0.15 acre) mitigation wetland adjacent to the proposed public access lookout on the south side of the west approach.

Bay Fill: The project would place approximately 5,500 square feet of permanent Bay fill, 5,000 square feet (0.13 acre and 1,700 cubic yards) of solid fill for the footing pedestal concrete bolsters at piers 5 to 15 and 32 to 40 (see Exhibit C2, C3), and 500 square feet (100 cubic yards) for rock riprap for erosion protection of a pump station. In addition, the project would involve constructing two temporary construction trestles covering 400,000 square feet (9.18 acres and 800 cubic yards) and twenty cofferdams covering 2,560 square feet (0.06 acre, 1,700 cubic yards). Recent amendments to Permit No. 16-99 require the removal of the Ravenswood

Pier totaling approximately 63,000 square feet of pile-supported Bay fill including approximately 525 square feet (64 cubic yards) of solid fill from the piles.

Project Element	Type of Fill (sq ft)	Area of Fill (sq ft)	Volume of Fill (cy)
Permanent			
Concrete collar bolsters	Solid	5,000	1,700
Rock riprap	Solid	500	100
Totals		5,500	1,800
Temporary			
Trestle deck	Pile-Supported	400,000	0
Trestle piles	Solid		800
Cofferdams	Solid	2,300	100
Totals		402,300	2,500

Public Access:

Existing public access areas are located on the bridge, and at both approaches. Public access consists of lookout areas, bicycle/pedestrian paths and trails, a fishing pier, parking lot spaces and 3.6 acres of frontage roads (see Exhibits E1 and E2).

At the western approach, there is an approximately 1,098-square-foot public access lookout next to the shoreline on the north side, a 10-foot-wide bicycle path along the south side of the frontage road, 96 parking spaces and a frontage road on the north and south sides used as a turnaround for east and westbound traffic and as access to the site and to the Ravenswood Open Space Preserve to the south. The project would relocate the existing public access lookout from the north side of the bridge to a new site on the south, as required in BCDC Permit No. 16-99. The relocation is necessary to accommodate the construction of a new pump station for flood control of the area. The seismic retrofit project would enhance this public access lookout and integrate it with the adjacent public access of the U. S. Fish and Wildlife Service's restoration project (SF2) and add new location, directional and interpretive signage. The project would repave

existing parking areas and access roads and install a flood prevention system consisting of a 2,000-foot-long high-tide concrete barrier, a 36-inch-diameter drainage pipe and a pump station to divert flood waters away from the public access at the site.

There is an eight-foot-wide bicycle/pedestrian path along the southern edge of the bridge that begins and ends at both approaches. The path is separated from bridge traffic by a 36-inch-high concrete barrier and by a 32-inch metal railing at the west end transition with the roadway. There would be a 96-square-foot public access overlook (belvedere) on the bridge adjacent to the bike/pedestrian path at the south approach over a new seismic lateral pile at Bent W19, and a stairway leading from the belvedere to a public access area with benches and a table within the parking lot.

On the east approach, the 2,600-foot-long, 28-foot-wide Dumbarton Pier provides fishing access. There is an approximately 5,200-square-foot rock surface public access area south of the Dumbarton Pier's entrance and a 67,000-square-foot parking lot with 86 parking lot spaces. The Bay Trail runs north along the shoreline and southeast under the bridge and along Marshlands Road. The public access areas are inside the boundaries of the Don Edwards San Francisco Wildlife Refuge (DENWR). The seismic retrofit project would enhance the public access overlook, resurface the existing parking lot, and place new directional, location and interpretive signage.

The project would also provide signs directing bicyclists to the bicycle route from Union City to Menlo Park across the bridge.

Caltrans estimates that the total cost of the public access improvements, not including the flood protection system on the northwest side of the bridge, would be approximately \$4,000,000. A barrier will be installed to keep high-tide water from encroaching onto the northern frontage road on the western end for an approximate cost of \$3,000,000.

Mitigation: Caltrans' latest assessment of impacts (June 2009) states that the project would impact approximately 0.737 acres of tidal wetlands. Caltrans propose to mitigate for all permanent project impacts at the land end of Ravenswood Pier once it has been removed. Caltrans plans to grade the shoreline in this area and remove trash and rock riprap and establish wetland habitat.

Table 1

Tidal Wetland Features and Sources of Impact	Temporary	Permanent	Total Net Fill (acres)
Permanent Piles (east approach)	0.467	0.01	0.477
Total (sq ft)	0.467	0.01	0.477

Table 2

Sources of Impact to Bay	Temporary (acres)	Permanent (acres)	Total Net Fill (acres)
Riprap at Pipe outlet	0	0.01	0.01
Concrete Collar Bolsters	0	0.05	0.05
Cofferdams	0.13	0	0.13
Temporary Trestles	0.07	0	0.07
Totals	0.20	0.06	0.26

Public Benefits:

Caltrans states that the retrofit project represents a significant benefit to the public, with impacts that are insignificant and can be mitigated. The surface area of San Francisco Bay would be maintained by minimizing the amount of permanent fill and offsetting the impacts of the 0.07 acres of permanent fill by creating 0.15 acres of tidal marsh. Every effort would be made to avoid or minimize the impacts to wildlife and other resources during construction. The Bay Area would gain a seismically modern bridge with substantially less impact on the environment than the construction of a new span.

Schedule and Cost:

Caltrans proposes to begin construction in August 2010 and complete the seismic retrofit project in December 2013. Within six months of the completion of the project, improvements to the public access would take place. Caltrans estimates the total project cost to be \$210,000,000.

Staff Analysis

A. **Issues Raised:** The staff believes that the application raises eight primary issues: (1) whether the proposed fill for the project would be consistent with the McAteer-Petris Act and the San Francisco Bay Plan policies on fill; (2) whether the proposed public access improvements are the maximum feasible consistent with the project and are reasonable; (3) whether the project would adequately protect fish, other aquatic resources and wildlife; (4) whether the proposed mitigation is adequate to offset the proposed project's adverse impacts; (5) whether the proposed project would protect water quality; (6) whether the proposed project would be consistent with the Bay Plan policies regarding safety of fills; (7) whether the project would be consistent with the Bay Plan policies regarding transportation; and (8) whether the project would be consistent with the Bay Plan's appearance, design, and scenic views policies.

1. **Consistency with Fill Policies.** The Commission may allow fill only when it meets the fill requirements identified in Section 66605 of the McAteer-Petris Act, which states, in part that: (a) the public benefits from fill must clearly exceed the public detriment from the loss of water areas, and that fill should be limited to water-oriented uses, such as bridges; (b) no alternative upland location exists for the fill; (c) the fill should be the minimum amount necessary; (d) the fill should minimize harmful effects to the Bay including water volume, circulation, and quality, fish and wildlife resources, and marsh

fertility; (e) the fill should be constructed in accordance with sound safety standards; and (f) the fill should be authorized only when the applicant has valid title to the affected property.

- a. **Public Benefits Versus Public Detriment.** The bridge opened in 1982, and its design dates to the mid 1970's. Following the 1989 Loma Pieta Earthquake, the Governor's Board of Inquiry identified the bridge as part of the critical transportation system for crossing the Bay. The bridge, part of State Route 84, serves as a major east/west connector route across the Bay between Interstate Highway I-880 in Alameda County and Interstate Highway 101 in San Mateo County.

On the basis of research conducted since the 1989 Loma Pietra Earthquake, the U. S. Geological Survey (USGS) and other scientists concluded that there is a 70 percent probability of at least one magnitude 6.7 or greater quake, capable of causing widespread damage, striking the San Francisco Bay region before 2030. It is estimated that a maximum credible earthquake (MCE) with an 8.0 magnitude would generate in excess of 30 times more energy than the Loma Pieta Earthquake (magnitude 7.1).

Caltrans has determined that the existing Dumbarton Bridge does not meet current seismic design standards. The proposed project would provide a seismic upgrade in line with all other bridges in the State. The project would strengthen the bridge and upgrade all of the bridge deck's expansion joints making it safer than current

conditions for the traveling public. Therefore, the seismic retrofit would provide safety for bridge users during a MCE and facilitate the reopening of the Bridge to traffic following an MCE.

In addition, Caltrans has stated that the retrofit project would have few public detriments. Impacts to traffic would be virtually uninterrupted by construction activities except for the bridge closures during some weekends of the year. The project has also been designed to minimize construction impacts on fish and wildlife and permanent impact to natural resources. The surface area of San Francisco Bay would be reduced permanently by 5,500 square feet and temporarily by 402,300 square feet.

- b. **Alternative Location.** Caltrans states that the proposed fill is necessary to retrofit a Bay bridge that is used daily by more than 80,000 vehicles and that does not meet structural requirements for withstanding a maximum credible earthquake event or current vehicle traffic safety design standards. Therefore, there is no alternative upland location for the project purpose.
- c. **Minimum Amount of Fill Necessary.** The Dumbarton Bridge is 1.6 miles long covering 873,000 square feet of Bay. The project would place 5,500 square feet of permanent fill in the Bay (0.0063 percent of the total area) to strengthen the existing pier footings. Caltrans believes that the fill is the minimum amount necessary to provide a bridge that meets Caltrans' Seismic Design Criteria (SDC) of 1999 intended to provide for improved public safety on bridges.
- d. **Valid Title.** Caltrans states that the Bay property on which the proposed project would occur, including the pump plant, the temporary pile-supported trestle and cofferdams all fall within Caltrans existing right-of-way.

The Commission should determine whether the proposed project is consistent with the McAteer-Petris Act and the Bay Plan policies on fill.

- 2. **Public Access.** Section 66602 of the McAteer-Petris Act states that "...maximum feasible public access, consistent with a proposed project, should be provided." In assessing whether a project provides maximum feasible public access consistent with the project, the Commission relies on the McAteer-Petris Act, the policies of the San Francisco Bay Plan, and also relevant court decisions. In assessing whether a proposed *public* project, such as Caltrans' proposed bridge retrofit, would provide the maximum feasible public access consistent with the project, the Commission should evaluate whether the proposed public access is reasonable given the scope of the project.

The Bay Plan Public Access Policy 4 states, part: "Whenever public access to the Bay is provided as a condition of development, on fill or on the shoreline, the access should be permanently guaranteed." Policy 6 states, part: "Public access improvements provided as a condition of any approval should be consistent with the project and the physical environment including protection of Bay natural resources, such as aquatic life, wildlife and plant communities, and provide for the public's safety and convenience. The improvements should be designed and built to encourage diverse Bay-related activities

and movement to and along the shoreline, should permit barrier free access for the physically handicapped to the maximum feasible extent, should include an ongoing maintenance program, and should be identified with appropriate signs.” Policy 9 states, part: “Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational traffic. The roadway and right-of-way should maintain and enhance visual access for the traveler, discourage traffic, and provide for safe, separated, and improved physical access to and along the shore.” Policy 11 states, part: “The Public Access Design Guidelines should be use as a guide to siting and designing public access consistent with a proposed project. The Design Review Board should advise the commission regarding the adequacy of the public access proposed.” Policy 12 states, part: “Public access should be integrated early in the planning and design of Bay habitat restoration projects to maximize public access opportunities and to avoid significant adverse effects on wildlife.”

There is an existing public access path along the southern edge of the Dumbarton Bridge consisting of a Class I (paved and separated from traffic), 8-foot-wide bicycle and pedestrian path. This path transitions to a Class II bike lane along frontage roads at both ends of the bridge. At the eastern approach to the bridge, public access improvements include a fishing pier (the Dumbarton Pier), public parking, and a lookout/picnic area. At the western approach to the bridge, public access consists of parking lots both north and south of the approach and a public access lookout to be relocated pursuant to Permit No. 16-99. The existing Ravenswood fishing pier, abandoned since 1993, will be removed pursuant to Permit No. 20-73. Caltrans is providing an in-lieu fee to compensate for the 16-year loss of public use of the Ravenswood Pier as part of a settlement agreement and pursuant to Permit No. 16-99.

During the three-year construction phase of the proposed retrofit project, The Dumbarton Pier would remain open most of the time. Construction staff would apprise visitors of conditions that could be hazardous to their hearing, and would close particular portions of the fishing pier during pile driving activities and during construction of the bridge pile caps. These limited area closures would occur in 10-minute increments, totaling approximately 1.5 hours a day of impeded access while other pier sections would remain open.

Construction would also result in the temporary removal of 74 parking spaces out of a total of 96 spaces at the west approach and 34 spaces out of a total of 80 spaces from the east approach. At project completion, there would be a permanent loss of 10 parking spaces at the west approach, spaces occupied by new permanent piles for seismic support.

To maintain access during construction, Caltrans will provide 12 additional temporary public shore parking spaces along the frontage road of the western approach and 46 temporary parking spaces along Marshlands Road on the eastern approach.

The construction plan also includes closing the bridge to all motorized and pedestrian traffic for 2 to 4 weekends (two of them being long weekends) as the bridge deck would be raised to install isolation bearings under the deck. On weekends when the deck

raising is underway, a shuttle would be provided from sunrise to sunset to transport bicyclists and pedestrians to the other side of the bridge.

Originally, Caltrans proposed improving public access at the bridge by upgrading the existing barrier railing on the bridge's bicycle/pedestrian path. The proposal aimed at upgrading the existing railing to new Caltrans' standards. When the Commission's Design Review Board (DRB) reviewed this public access proposal on June 8, 2009, the DRB decided that the railing improvements did not provide significant benefits to pedestrians and cyclists. The DRB suggested a variety of improvements they believed would provide greater public access benefits, including installing foldable benches along the bridge bike path and belvederes as rest stops located outside of the path's main alignment.

Subsequently, Caltrans and BCDC staff worked to develop alternative public access proposals. Caltrans has modified their public access proposal so it now includes the following elements:

- a. A 96-square-foot overlook (belvedere) on the top of a new outrigger pile driven along the southern side of the western bridge approach, with a staircase to a small access plaza with benches in the public access parking lot;
- b. Enhancing the public access overlook to be constructed at the site of the removed Ravenswood pier above that required by BCDC Permit No. 16-99;
- c. Enhancing the public access picnic/viewing area at the eastern bridge approach;
- d. Constructing a wall and pump station to prevent tidal inundation of the public access parking lot;
- e. Installing approximately 40 way finding signs directing bicyclists to the bicycle route between the BART Union City train station and Menlo Park; and
- f. Improve approximately 400 feet of the bicycle/pedestrian path where it transitions from the bridge to the frontage road at both the west and east bridge approaches, including widening the path, relocating the path away from the vehicle travel lanes, eliminating existing impediments (e.g., utility covers), and installing a concrete barrier between the travel lanes and path.

Caltrans estimates the cost of all these improvements to be approximately \$8 million.

The Commission should determine whether the applicants' proposed public access improvements are the maximum feasible consistent with the project and reasonable given the scope of the project.

3. **Fish and Wildlife Resources** Policy 2 of the Bay Plan Fish, Other Aquatic Organisms, and Wildlife states, in part: "Specific habitats that are needed to conserve, increase, or prevent the extinction of any native species, species threatened or endangered...should be protected...." Policy 4 of the same section states, in part: "The Commission should: (a) consult with the California Department of Fish and Game and the U. S. Fish and Wildlife Service or the National Marine Fisheries Service whenever a proposed project may adversely affect an endangered or threatened...species...; [and] (c) Give appropriate consideration to the recommendations of the [state and federal resource

agencies] in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat.” Policy 1 of the Bay Plan policies on Subtidal Areas states: “Any proposed filling or dredging project in a subtidal area should be thoroughly evaluated to determine the local and Bay-wide effects of the project on: (a) the possible introduction or spread of invasive species; (b) tidal hydrology and sediment movement; (c) fish, other aquatic organisms and wildlife; (d) aquatic plants; and (e) the Bay's bathymetry. Projects in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects.”

As an existing bridge spanning the Bay, a number of Bay habitats would or could be affected by project construction. Only a small fringe marsh exists along the western bridge approach, though larger marshlands exist nearby. Some subtidal areas would also likely be affected. Most of the project, including most of the seismic retrofit work, the temporary construction trestles, and the removal of the Ravenswood Pier would occur in intertidal flats. While permanent impacts would be small (only 3,049 square feet of Bay would be permanently lost as result of seismically strengthening the bridge piers), as much as 8,712 square feet of intertidal flats would be impacted by the construction of temporary facilities (coffer dams, construction trestles) and the removal of the Ravenswood Pier.

A number of special status species could be affected by project construction, including the green sturgeon, the coast steelhead, the salt marsh harvest mouse, the Pacific harbor seal, the California sea lion, the California clapper rail, the western snowy plover, and the California black rail. In addition, the intertidal flats below and adjacent to the bridge are heavily used by migratory and resident waterfowl and shorebirds.

Caltrans has included a number of construction best management practices to eliminate or minimize construction impacts, and, in consultation with the U.S. Fish and Wildlife Service (USFWS), has proposed several conservation measures, including:

- a. Physical disturbance to existing habitats would be limited and all staging and stockpiling areas and other facilities would be located outside of sensitive areas.
- b. Caltrans would reduce the amount of disturbance within sensitive areas to the minimum necessary to accomplish the project.
- c. An USFWS-approved biological monitor knowledgeable about sensitive and special-status species and habitats near the construction would conduct surveys before and during construction activities to inspect exclusion fencing and verify absence of listed species.
- d. Weekly focused surveys for each listed bird species would be conducted during the nesting season within a 300 feet buffer of sensitive habitat areas.
- e. All permanent piles would be driven outside of the nesting seasons of listed bird species.
- d. Similar seasonal avoidance would be applied to the maximum extent practicable for the temporary piles to be used to construct the temporary trestles.

If seasonal avoidance is not feasible during nesting seasons of listed species, temporary trestle piles and cofferdams' sheet piles would be driven with a vibratory hammer to reduce noise levels.

The Commission should consider whether the project adequately protects existing Bay fish and wildlife, including special status species.

4. **Mitigation.** The Bay Plan Mitigation Policy 1 states, in part: “[p]rojects should be designed to avoid adverse environmental impacts to Bay natural resources such as to water surface area, volume, or circulation and to plants, fish, other aquatic organisms and wildlife habitat, subtidal areas, or tidal flats. Whenever adverse impacts cannot be avoided, they should be minimized to the greatest extent practicable. Finally, measures to compensate for unavoidable adverse impacts to the natural resources of the Bay should be required....”

The project would result in the permanent loss of approximately 5,500 square feet (0.13 acres) of Bay intertidal flats and surface area as a result of seismically strengthening the bridge piers. To do the seismic retrofit, Caltrans would also construct temporary trestles (for 3-4 years) to provide construction access that would cover approximately 402,300 square feet (9.23 acres) of intertidal flats. To offset the impacts of the permanent and temporary fill, Caltrans is proposing to create a 6,534-square-foot (0.15 acre) tidal marsh at the land end of the former Ravenswood Pier. Excavating existing fill to promote positive drainage and to create elevations suitable for marsh establishment would create the marsh. The restoration plan and proposed monitoring have not yet been completed.

The Commission should consider whether the proposed mitigation adequately offsets

the impacts of the proposed project.

5. **Water Quality.** The Bay Plan policies on Water Quality (Policy 1) states: “Bay water pollution should be prevented to the greatest extent feasible...” and policy 2 states that, “...the policies, recommendations, decisions, advice and authority of the State Water Resources Control Board and the Regional Board, should be the basis for carrying out the Commission’s water quality responsibilities.” Policy 3 states, in part: “[new] projects should be sited, designed, constructed and maintained to prevent or, if prevention is infeasible, to minimize the discharge of pollutants into the Bay by: (a) controlling pollutant sources at the project site; (b) using construction materials that contain non-polluting materials; and (c) applying appropriate, accepted and effective best management practices....”

Because a number of contaminants are known to occur in south Bay sediments, it is possible that the sediment near the bridge contains contaminants. Sediment from the Bay will be excavated during the construction of concrete bolsters on specific piers. Excavated material will be at appropriate disposal facilities outside of the Commission’s jurisdiction.

Removal of the Ravenswood Pier could also introduce hazardous material, such as lead paint, and asbestos bearings and joint material, into Bay waters.

Caltrans has proposed a number of construction best management practices to minimize the potential of hazardous spills, prevent the entry of debris into the waters of the Bay, and minimize sedimentation and erosion into the Bay, including:

- a. Preparing a stormwater pollution prevention plan to protect the Bay and fish and wildlife species from pollution from fuels, oils, lubricants, and other harmful materials;
- b. Treating water containing residue from construction activities by filtration, retention in a settling pond, or other similar measure and assuring that such material not enter San Francisco Bay;
- c. Storing all hazardous materials offsite in properly designated containers in a storage area with an impermeable membrane between the ground and the hazardous material; and
- d. Removing all construction waste material from the site to an authorized disposal area upon completion of the project.

The Commission should consider whether the proposed project would be consistent with the Bay Plan’s water quality policies, or whether other specific measures should be incorporated into project construction plans to assure that potential water quality impacts are minimized.

6. **Safety of Fills**

- a. **Engineering Criteria Review Board.** Policy 1 of the Bay Plan Safety of Fills section states, in part, that: “the Engineering Criteria Review Board should review all

except minor projects for the adequacy of their specific safety provisions, and make recommendations concerning these provisions....”

The Commission’s Engineering Criteria Review Board (ECRB) reviewed the proposed project for its seismic and engineering design safety on February 5, 2009. However, the ECRB requested that Caltrans return prior to the Commission’s consideration of the project in order to get a complete understanding of the geotechnical and structural criteria, and a detailed seismic instrumentation plan for the proposed project. The ECRB’s second review of the project occurred on May 21, 2009. The Board was generally satisfied with the geotechnical and structural criteria, but requested Caltrans to provide additional information on (1) the impacts to the Bay area public, particularly in the South Bay, from a bridge closure as a result of a major earthquake, and any specific steps to communicate and educate the public as to the expected level of bridge safety and bridge performance expectations based on the chosen engineering criteria; (2) the effects of ground liquefaction on the capacity of the piers, and (3) the stability of the steeper Bay mud slopes during a seismic event.

On August 5, 2009, Caltrans responded to the Board's requests for more information on Items 2 and 3 indicating that geotechnical analyses demonstrated that the occurrence of soil liquefaction at the bridge site during the target design earthquake (1,000-year return period) should be localized and less likely to result in significant adverse effects on the bridge. Regarding the potential lateral movement of the softer soil layers (Young Bay Mud or YBM) in the slope areas of the channel crossing and its effect on the adjacent pier foundations, the additional analysis indicated that the resulting loads exerted by the YBM on the foundations in the slope areas would not adversely affect the bridge foundations. The Board concluded the criteria used for the two analyses were satisfactory.

Caltrans provided a response to the Board for contingency Item 1 on August 19, 2009. However, the Board has not had the opportunity to comment on CalTrans' response. Caltrans said that although there was a higher level of bridge performance criteria available for "lifeline" structures such as the San Francisco-Oakland Bay Bridge, the selected bridge performance criteria for the Dumbarton Bridge was in concurrence with its classification as an "important" structure. After a maximum credible earthquake event, "important" structure could close for as little as one month and as long as twelve months for deck repair, but it would not collapse or be permanently impaired. According to Caltrans, lifeline structures are inherently more expensive to build and maintain, and these are structures selected as part of an emergency route plan developed in conjunction with most regional governmental agencies to provide immediate movement of emergency equipment and supplies into or through the region. State Route 84, which includes the Dumbarton Bridge, is not part of the lifeline emergency route plan. Therefore, Caltrans chose the criteria partly due to economic realities.

The Commission should determine whether the proposed project would be consistent with the policies on safety of fill.

- b. **Sea Level Rise.** The Bay Plan policies on the safety of fills state, in part, that: "to prevent damage from flooding, structures on fill or near the shoreline should have adequate flood protection including consideration of future relative sea level rise as determined by competent engineers. Additionally, the policies state that, [to] minimize the potential hazard to Bay fill projects and bayside development from subsidence, all proposed development should be sufficiently high above the highest estimated tide level for the expected life of the project or sufficiently protected by levees." Finally, the policies state that, "[l]ocal governments and special districts with responsibilities for flood protection should assure that their requirements and criteria reflect future relative sea level rise and should assure that new structures and uses attracting people are not approved in flood prone areas or in areas that will become flood prone in the future, and that structures and uses that are approvable will be built at stable elevations to assure long-term protection from flood hazards...."

For this project, the applicant proposes to construct a high-tide barrier on the

northwest side of the bridge to protect existing public access area, parking lots, and the frontage road from frequent inundation. Although there has been no assessment done by the applicant of sea level rise impacts on the structure based on the specific geographic and physical features of the area, the anticipated increase of water levels are not likely to have a physical impact on the bridge's piers and columns.

Currently, proposed projects reviewed by the Commission are reviewed using sea level rise rates projected over a fifty-year period, generally consistent with the California Climate Action Team Reports on Climate Change. These reports project the following sea level rise scenarios: (a) a low rate of 0.08 inches (2 mm) per year; (b) a medium rate of 0.18 inches (4.6mm) per year; and (c) a higher rate of 0.33 inches (8.4 mm) per year. The scenario with the highest projected sea level rise in these reports would result in sea level rise of approximately 16 inches. The bottom of the proposed bridge would be raised by four and one half feet; thus, even under the highest sea level rise scenario, the proposed bridge is higher than the projected 16-inch sea level rise.

The Commission should determine whether the proposed project would be consistent with the policies on safety of fill, particularly whether the public access areas would be affected by rising sea levels.

7. **Transportation.** The Bay Plan Transportation Policy No. 3 states, in part: “[i]f a route must be located across a waterway, the following provisions should apply: (a) [t]he crossing should be placed on a bridge or in a tunnel, not on solid fill....” The Bay Plan Transportation Policy No. 4 states, in part: “bridges over the Bay or certain waterways 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....[and]...should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline.”

The proposed project is a seismic retrofit of an existing pile-supported bridge to provide increased safety during seismic events. The project is also proposes new public access in addition to that provided by the existing bridge that would be part of the Bay Trail.

The Commission should consider whether the proposed project would be consistent with its Bay Plan policies regarding transportation.

8. **Appearance, Design, and Scenic Views.** The Bay Plan Appearance, Design, and Scenic Views Policy 1, states, in part: “To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides, the shores of the Bay should be developed in accordance with the Public Access Design Guidelines.” Policy 6, states, in part: “....New or remodeled bridges across the Bay should be designed to permit maximum viewing of the Bay and its surroundings by both motorists and pedestrians. Guard rails and bridge supports should be designed with views in mind.” Policy 9, states, in part: “‘Unnatural’ debris should be removed from sloughs, marshes, and mudflats that are retained as part of the ecological system....” Policy 12, states, in part: “In order to achieve a high level of design quality, the Commission's Design Review Board...should review, evaluate, and advise the

Commission on the proposed design of developments that affect the appearance of the Bay....” Policy 14, states, in part: “Views of the Bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping between the view areas and the water.” Policy 15, states, in part: “Vista points should be provided in the general locations indicated in the Plan maps. Access to vista points should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where parking or public transportation is available. In some cases, exhibits, museums, or markers would be desirable at vista points to explain the value or importance of the areas being viewed.”

As proposed, the Dumbarton Bridge retrofit consists of a number of concrete bolsters to be placed at the footing pedestals of Piers 5 to 15 and 32 to 40, 14 trestle piles at the approaches, and seismic bearing installation at the superstructure. The bridge would be raised six inches to accommodate the improvements. Upon completion of the project, the appearance of the Dumbarton Bridge would not be significantly altered, nor would elements of the seismic retrofit obstruct views of the Bay, nor would views of the Bay

from vehicles be affected. The views from surrounding Don Edwards San Francisco Bay National Wildlife Refuge and Ravenswood Open Space Preserve would not be impacted by the final bridge design. Furthermore, views of the Bay and the surrounding shoreline from the bridge deck would remain unobstructed upon project completion.

Temporary trestles would be required for work on the east and west bridge approach structure. The western trestle would measure approximately 2,200 feet long, and the eastern trestle 2,500 feet. Both trestles would be shorter in height than the existing Ravenswood and Dumbarton fishing piers, and would not exceed 24 feet in width, the minimum required for safe operation of construction equipment. During construction activity, machinery would be present onsite. These visual impacts are temporary, and would not create a permanent adverse impact on views of the Bay (see Exhibits C3 and D2).

A flood prevention system consisting of a high-tide concrete barrier would be placed north of the western approach. The height of the barrier would range from 39 to 56 inches above the existing road to accommodate the varied surface level of the roadway. This barrier's height would obstruct foreground views of the Moseley Tract to the north of the project from the parking lot and may affect views of the Bay from cars parked in the public access parking lot.

A pump plant will be installed at the levee to the north of the west approach to draw water from the parking lot during flood events and return it to San Francisco Bay. The pump plant will stand approximately 8 feet above the ground, with the majority of the structure buried underground in excavated space, as to reduce visual impacts on the shoreline and to enhance public safety. Caltrans has not provided final details of the embankment details.

The Commission should consider whether the project would be consistent with the Bay Plan's appearance, design, and scenic views.

B. Review Boards

1. **Engineering Criteria Review Board.** The Commission's Engineering Criteria Review Board (ECRB) reviewed the proposed project for its seismic and engineering design safety on February 5, 2009 and on May 21, 2009. During the second meeting, the ECRB asked Caltrans for more information on the engineering criteria pertaining to the effects of ground liquefaction on piers and the stability of the steeper ground slopes at the channel crossing that could affect adjacent piers during anticipated seismic events. In addition, the ECRB asked Caltrans to educate local and regional governments about the bridge's expected performance during a major earthquake and the fact that such an earthquake could lead to bridge closure for up to a year.

On August 5, 2009, Caltrans provided additional engineering criteria regarding the geotechnical evaluations to the ECRB, who found them satisfactory. Caltrans has only recently provided the Commission with information regarding its evaluation of potential bridge closure impacts on the public and CalTrans efforts to communicate these impacts to local government and the public. The ECRB has not had an opportunity

to comment on the new information.

2. **Design Review Board.** On June 8, 2009, the Commission's Design Review Board (DRB) reviewed an earlier version of a public access improvement proposal that consisted in an upgrade of the existing barrier railing on the bridge's bicycle/pedestrian path.
- C. **Environmental Review.** The proposed project would involve the seismic retrofit of the existing Dumbarton Bridge. Caltrans certified the Initial Study with Proposed Mitigated Negative Declaration (CEQA) and an Environmental Assessment (NEPA) on June 2, 2009.

D. Relevant Portions of the McAteer-Petris Act

1. Section 66602
2. Section 66605

E. Relevant Portions of the San Francisco Bay Plan

1. Bay Plan Map 6 and 7
2. Bay Plan Policies on Fish, Other Aquatic Organisms, and Wildlife (pages 16)
3. Bay Plan Policies on Water Quality (pages 17)
4. Bay Plan Policies on Subtidal Areas (pages 27-28)
5. Bay Plan Policies on Safety of Fills (pages 32-33)
6. Bay Plan Policies on Transportation (pages 47-48)
7. Bay Plan Policies on Public Access (pages 59-60)
8. Bay Plan Policies on Appearance, Design, and Scenic Views (pages 62-63)

Exhibits

A1 Project Location**A2 Dumbarton Bridge Pictorial****A3 Bay Plan Map 7****B Project Overview****C1 West Approach Details****C2 West Approach Proposed Barrier and Drainage****C3 Land Structure 4-foot-diameter piles****D1 Footing Enlargement****D2 Footing Enlargement Piers 5 to 15 and 32 to 40****E1 Existing Public Access West****E2 Existing Public Access East**