San Francisco Bay Basin Water Quality Control Plan

Refinement of Beneficial Uses of Hayward Marsh

STAFF REPORT

September 14, 2011

San Francisco Bay Regional Water Quality Control Board
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1. INTRODUCTION

This Staff Report presents the supporting documentation for a proposed amendment (Appendix A) to the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) that will be considered by the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). The purpose of the proposed amendment is to refine the beneficial uses designated for Hayward Marsh. The Water Board is responsible for designating and protecting all existing and potential beneficial uses.

Currently, the Basin Plan designates beneficial uses for all wetlands in the Hayward area. Hayward Marsh is distinct among these wetlands because it was constructed in 1988 for the purpose of reclaiming treated wastewater to create brackish water habitat for wildlife. That same year, the Water Board issued a permit under the National Pollutant Discharge Elimination System (NPDES) to Union Sanitary District (USD), East Bay Regional Park District (EBRPD), and East Bay Dischargers Authority (EBDA) to supply treated effluent to Hayward Marsh. Water quality based effluent limits for bacteria in that permit were based on total coliforms and were determined to be protective of existing beneficial uses. Subsequently, permit limits were derived for fecal coliforms based on the EBDA Study, *Justification for Fecal Coliform Effluent Limitation*[1].

During the reissuance of the NPDES permit in 2006, the U.S. Environmental Protection Agency (U.S. EPA) raised issues about the applicability of water contact recreation (REC-1) as a presumptive beneficial use in the marsh. In response to the U.S. EPA's comments, the 2006 permit (Order No. R2-2006-0031) required USD, EBRPD, and EBDA (collectively the Dischargers) to submit information for a Use Attainability Analysis to support a Basin Plan amendment to clarify the Marsh's beneficial uses. Information submitted by USD in fulfillment of that permit requirement, and further information submitted by EBRPD, which maintains Hayward Marsh as wildlife habitat, support this proposed Basin Plan amendment.

This report is organized into sections that present the information and analyses required by State and federal law. Section 2 states the project definition and objectives. Section 3 describes the development and historical uses of Hayward Marsh. Section 4 outlines the Marsh's present-day operation. Section 5 describes the existing beneficial uses of Hayward Marsh. Section 6 contains the Use Attainability Analysis done in accordance with the Clean Water Act and U.S. EPA guidance[2] in order to demonstrate that REC-1 is not a beneficial use of Hayward Marsh. Section 7 presents the results of California Environmental Quality Act (CEQA) analyses. Section 8 contains a discussion on the consistency of the proposed amendment with federal and State antidegradation policies.

This report meets the requirements of the CEQA, including the preparation of a checklist (Appendix B) for adopting Basin Plan amendments, and serves in its entirety as a substitute CEQA environmental document.

[1] EBDA, 1995.
[2] U.S. EPA, 2007; U.S. EPA, 2010.

2. PROJECT DEFINITION

This section explains why the proposed Basin Plan amendment project is needed and presents the project definition and objectives which form the basis of the assessment required by the CEQA.

2.1 Project Definition and Necessity

The project is a proposed Basin Plan amendment that would amend Table 2-4, *Beneficial Uses of Wetland Areas,* by refining the beneficial uses specifically for Hayward Marsh, including removing REC-1 and adding the Rare and Endangered Species (RARE) beneficial use. REC-2 will remain as the highest attainable recreational use for the Marsh. Table 2-4 currently has a single entry for all wetlands in the Hayward area, which include a number of marshes in addition to Hayward Marsh. Hayward Marsh was created in 1988 for the purpose of reclaiming treated wastewater to create brackish marsh habitat, and thus is distinct from other wetlands in the Hayward vicinity. The proposed Basin Plan amendment would amend Table 2-4 by adding a separate entry for Hayward Marsh that identifies its beneficial uses and wetland types, and specifies the names of some of the remaining wetlands that are part of the Hayward area listing: Cogswell, Hayward Area Recreation District, Oro Loma, and Triangle Marshes.

Clarifying the beneficial uses for Hayward Marsh is important in order to establish appropriate water quality standards for the Marsh. Water quality standards for a particular water body are based on (1) the beneficial uses of the water body, (2) numeric or narrative water quality objectives necessary to protect those uses, and (3) preventing degradation of water quality through antidegradation provisions. Designating beneficial uses for Hayward Marsh was recognized as a high priority project by the Water Board in its 2009 Triennial Review of the Basin Plan. In addition, the proposed Basin Plan amendment is necessary to provide clarity to the public in regards to the beneficial uses of Hayward Marsh.

Beneficial uses currently designated in the Basin Plan for wetlands in the Hayward area include REC-1. However, REC-1 should not apply in Hayward Marsh because the Marsh was created for the purpose of reusing treated wastewater as a source of freshwater to create wildlife habitat and the Marsh is managed to prevent human disturbance of habitat. The current NPDES permit for discharge of treated wastewater into Hayward Marsh does not identify REC-1 as a beneficial use of the Marsh. Instead, the permit requires the Dischargers to provide information that would enable Water Board staff to conduct a Use Attainability Analysis (UAA), so that the Water Board could refine the beneficial uses for Hayward Marsh in a future Basin Plan amendment.

A UAA is a structured scientific assessment of the factors affecting the attainment of beneficial uses in a given water body. Clean Water Act regulations (40 CFR 131.10(j)) require that a UAA be conducted to demonstrate that any “presumptive use” cannot be attained in a water body. Presumptive uses are associated with what is more commonly known as the “fishable, swimmable waters goal” of the Clean Water Act and include REC-1 and REC-2, as well as warm freshwater habitat (WARM) and wildlife habitat (WILD). A UAA should have been completed at the time Hayward Marsh was first permitted in 1988. This project is necessary to correct that oversight.

In addition, the project includes the addition of implementation language to Chapter 4 of the Basin Plan, clarifying that NPDES permits for Hayward Marsh do not have to protect REC-1 beneficial uses and therefore are not required to contain effluent limitations from Table 4-2A. The amendment also includes non-regulatory corrections to the Basin Plan for typographical errors made during the 1995 Basin Plan adoption. Table 2-4 is being amended to correct an error when SALT was identified as a beneficial use on the table instead of a wetland type. There is no such beneficial use in the Basin Plan. This correction is consistent with an earlier (1985) and correct version of the Basin Plan.

Because Hayward Marsh has been operated since 1988 as though REC-1 was **not** a beneficial use, this project will not result in additional compliance measures or environmental impacts.

2.2 Project Objectives

The objectives of the proposed Basin Plan amendment include the following:

1) Demonstrate, by conducting a UAA, that Hayward Marsh should not be designated for water contact recreation.
2) Support timely reissuance of the Hayward Marsh NPDES permit and provide clarity to the Basin Plan Chapter 4, *Implementation Plan*, as to the approach for determining the permit effluent limitations protective of REC-2.
3) Improve the specificity, accuracy and clarity of the Basin Plan by refining beneficial uses specific to Hayward Marsh, which is a unique marsh in the Hayward area.
4) Provide certainty for the Dischargers in continued operation of Hayward Marsh, whose sole freshwater input is the reclaimed wastewater from USD's wastewater treatment plant.

The objectives of the proposed Basin Plan amendment are consistent with the mission of the Water Board and the requirements of the federal CWA and California's Water Code. These laws require the Water Board to protect the beneficial uses of water bodies in the San Francisco Bay region.

3. HISTORY OF HAYWARD MARSH

Historically, Hayward Marsh was part of a natural tideland area on the eastern shore of San Francisco Bay (Figure 1). The marsh site was destroyed in the 19th century when a dike was created to impede tidal action and allow the area to be used for salt evaporation ponds. Salt production ceased in the 1940s, and the area remained in private ownership, unused, for forty years.

In 1971, the Hayward Area Shoreline Planning Agency (HASPA), a joint powers agency, was formed to coordinate planning activities and to adopt and carry out policies for the improvement of the Hayward Shoreline. At that time, HASPA consisted of five entities:

- City of Hayward
- Hayward Area Recreation and Park District

- East Bay Regional Park District
- Hayward Unified School District
- San Lorenzo Unified School District

HASPA undertook creation of Hayward Marsh with assistance from several additional entities, including design work by the U.S. Fish & Wildlife Service; permits and contract documents from the City of Hayward; EBRPD's appropriation funding under the 1980 California Parklands Act; and a grant from the California Coastal Conservancy for a major portion of the construction.[3]

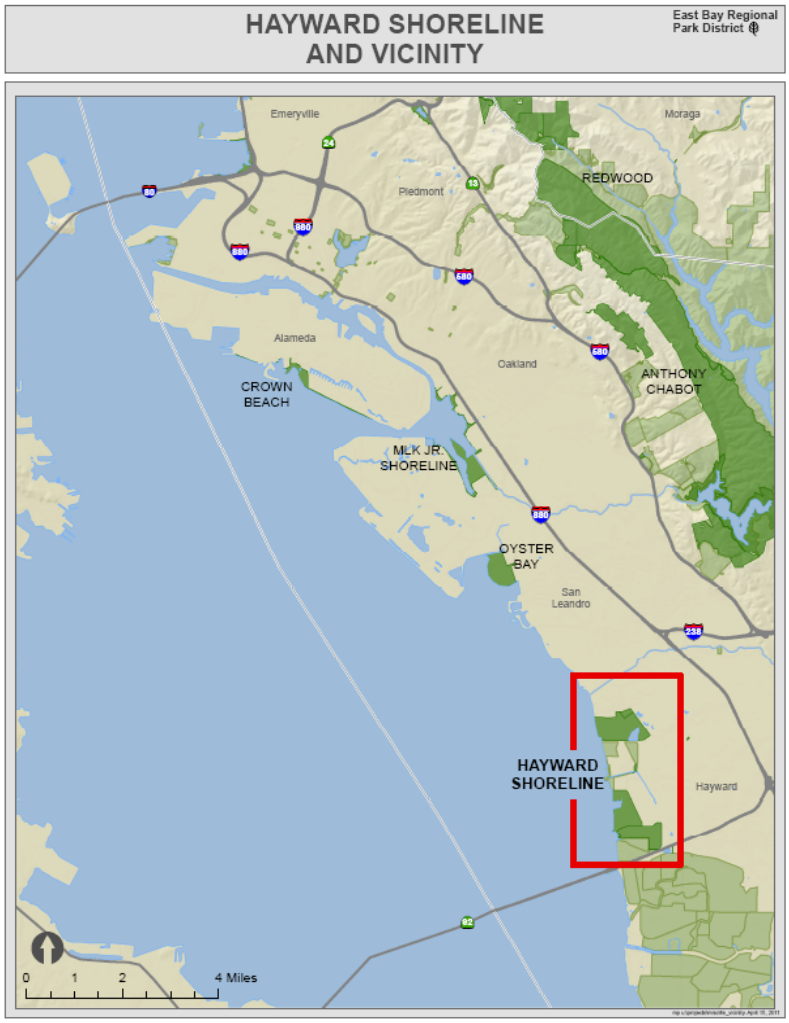


Figure 1. Hayward Shoreline and Vicinity

The creation of Hayward Marsh was intended to address the growing urban issue of the loss of wetland areas, and also to take advantage of the additional treatment and beneficial uses that can be achieved from using treated wastewater. The specific objectives of the project were to:

- Create a diversified marsh system using secondary effluent

[3] U.S. EPA, 1993.

- Maximize public benefits including wildlife habitat, preservation of open space, and creation of educational, research and aesthetic opportunities

The first phase of restoration work was completed in 1980 and included extensive grading and breaching of the existing dikes. The second phase, completed in 1988, was the construction of Hayward Marsh's fresh and brackish basins. In total, the project restored the 145 acre, five-basin Hayward Marsh as well as a 27-acre salt marsh harvest mouse reserve (Figure 2).

Figure 2. Hayward Marsh and Surrounding Wetlands

4. HAYWARD MARSH DESIGN & OPERATION

Hayward Marsh is specifically designed and operated to reclaim treated wastewater and to create and maintain habitat for wildlife and waterfowl, as described below.

4.1 Design of the Marsh

Secondarily-treated wastewater from USD's Alvarado Wastewater Treatment Plant flows to the EBDA pipeline, where a portion (about 10-15%) of the wastewater is diverted to Hayward

Marsh for reclamation. Flow into the marsh is managed by USD operators, who control the diversion off the EBDA forcemain. Under normal operations, approximately three million gallons per day (mgd) of treated wastewater are diverted from the EDBA pipeline to Hayward Marsh, providing all of the marsh's freshwater inputs.

The treated effluent enters the marsh at Basin 1 (point E1 in Figure 3) and is retained before being split and directed into Basins 2A and 2B. The freshwater basins, Basins 1, 2A, and 2B, are considered part of the treatment process and thus are not considered to be waters of the United States.

From freshwater Basins 2A and 2B, treated effluent enters the Mixing Channel, where it mixes with saline inflow from San Francisco Bay and becomes brackish. The brackish mixture enters Basins 3A and 3B, providing habitat to numerous species, as further described in Section 5.1 below. Finally, flow from Basins 3A and 3B enters the Northwest Channel and then discharges into Lower San Francisco Bay through an earthen channel.

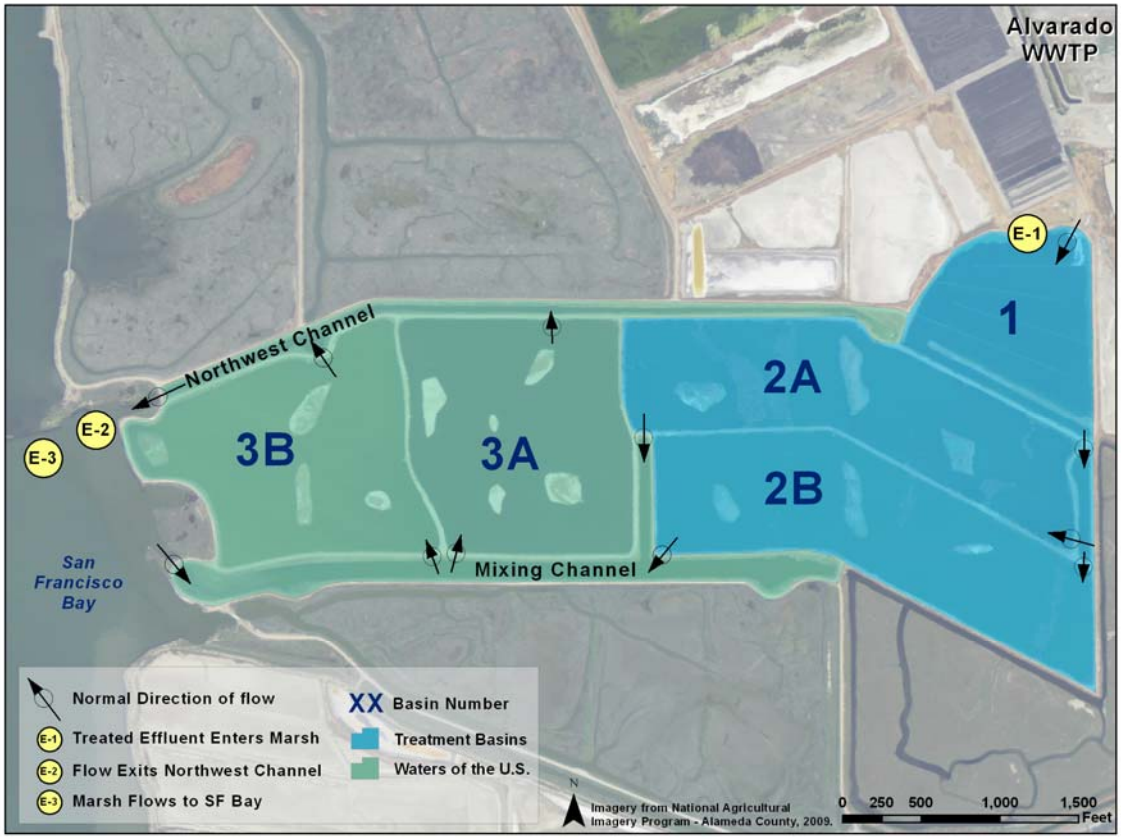


Figure 3. Schematic Diagram of Hayward Marsh

4.2 Marsh Operation & Maintenance

EBRPD operates Hayward Marsh and controls flows through all five basins with a series of weirs, valves, and channels, which allow for flexibility in marsh operation, habitat management, and biological research. EBRPD monitors a range of marsh conditions, in addition to planting and maintaining the 15 islands and several other bands of vegetation within the marsh, to optimize habitat and marsh water quality.

EBRPD personnel also monitor the number and species of waterfowl using the marsh. Monthly nesting surveys identify the numbers and species of birds nesting and thus indicate how the islands should be managed. The islands in brackish Basins 3A and 3B are managed for shorebirds such as plovers, terns, avocets, black neck stilts, and black skimmers. Shorebirds prefer nesting sites with little or no vegetation, so EBRPD personnel keep the vegetation on these islands low. Islands in freshwater Basins 2A and 2B are managed for waterfowl, which require a different height and type of vegetation. These islands are generally mowed before nesting season, for example, then vegetation is allowed to grow tall.

The large bird populations, and particularly the nesting sites, attract predators, including birds of prey and raccoons. EBRPD personnel trap and remove raccoons from the vegetation bands and the freshwater islands, which the raccoons access from the surrounding levies. The brackish water islands in Basins 3A and 3B are isolated from mainland mammal predators, but are subject to birds of prey, such as hawks, ravens, crows, and gulls. Because special-status species, including western snowy plover (federally-listed as threatened) and California least tern (federally- and State-listed as endangered), nest on the brackish water islands, predatory birds are controlled as necessary by the U.S. Department of Agriculture's Wildlife Service under permit from the U.S. Fish &Wildlife Service.

4.3 Public Access

Public access to Hayward Marsh is not allowed, in order to protect avian nesting and feeding areas. Physical access to the Marsh is limited by both fencing and water channels. However, the public is invited to view wildlife during guided tours and from the marsh periphery. In addition, the perimeter water channels are not deep enough for boat access, and muddy soils make wading both impractical and potentially dangerous.

The Marsh is only partially fenced (Figure 4) to limit available perches for predatory birds. This is particularly important along the Northwest Channel, where fence posts would give birds of prey easy access to the nests, eggs, and nestlings on the islands in Basin 3B. Installation of fencing would also impact the pickleweed that has been established along this discharge channel, and therefore encroach on the habitat of the endangered salt marsh harvest mouse.

Signs posted on the fences alert the public to the use of recycled wastewater and prohibit access. Other information sources, such as the EBRPD brochure for the Hayward Regional Shoreline, remind the public to stay on trails and observe signed restricted areas to protect wildlife habitat.[4] In addition, the muddy and rocky terrain along the Hayward shoreline, as well as the configuration of Hayward Marsh, are not conducive or inviting to swimming or wading.

[4] EBRPD, 2010.

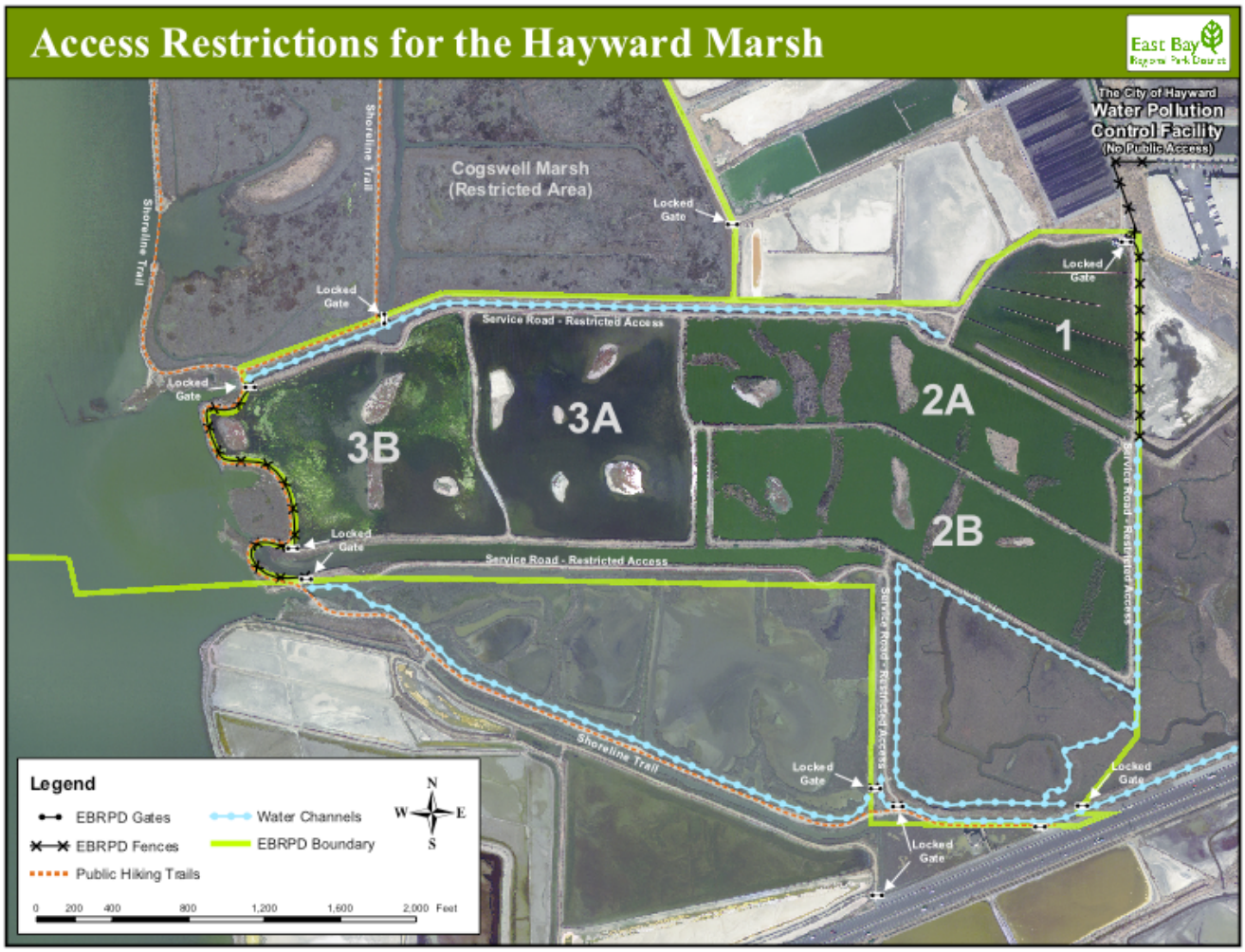


Figure 4. Hayward Marsh Access Restrictions

4.4 Hayward Marsh NPDES Permit

EBRPD, EBDA and USD are joint holders of the Hayward Marsh wastewater discharge permit.[5] USD owns and operates the Alvarado Wastewater Treatment Plant, which provides reclaimed wastewater through an EBDA pipeline to the Hayward Marsh system. EBRPD owns and operates the Hayward Marsh. First issued in 1988, the Hayward Marsh NPDES permit was reissued in 1993, 1999 and 2006, and it is again scheduled for reissuance in 2011.

For treated effluent entering the Marsh, the permit contains the following water quality-based effluent limits:

[5] NPDES No. CAOO38636/Order No. R2-2006-0031

Fecal Coliform Bacteria: The effluent shall not exceed a five day log mean fecal coliform density of 500 MPN/100 ml and a ninetieth percentile value of 1,100 MPN/100ml.

These effluent limitations are more stringent then the fecal coliform objectives for REC-2 contained in Table 3-1 of the Basin Plan (mean fecal coliform < 2,000 MPN/100ml and 90th percentile < 4,000 MPN/100ml), but less stringent than REC-1 objectives.

The discharge is monitored monthly to ensure compliance with the permit requirements and the data are submitted to the Water Board in accordance with permit requirements. Treated effluent discharged into the Marsh (point E-1 in Figure 3) meets the effluent limitations for fecal coliform in the current permit.

The current permit added an additional study requirement that the Dischargers monitor bacteriological levels in the San Francisco Bay near the point where Hayward Marsh flows into the Bay to evaluate compliance with applicable bacteriological water quality objectives. Data were collected during the summer of 2008. The Dischargers sampled the receiving water in the Bay, as well as other locations within Hayward Marsh. Data collected for enterococci are summarized in Table 1.

Table 1. Summer 2008 Bacteriological Data[6]

Enterococci (MPN/100ml)								
Station	Event 1	Event 2	Event 3	Event 4	Event 5	Geometric Mean	90th Percen-tile	REC-1 Water Quality Objective Attained?*
	7/25/08	8/1/08	8/8/08	8/15/08	8/22/08			
E-1	2	12	16	10	9.7	8.2	14.4	Yes
3A	292	3600	820	10	10	153.9	2488	No
3B	127	41	1700	3400	130	446.4	5980	No
E-3	10	10	10	10	20	11.5	16	Yes

*See discussion of Enterococci objectives below.

Water quality objectives for enterococcus, protective of the REC-1 beneficial use in marine and estuarine waters, were adopted by the Water Board on April 14, 2010 (Regional Water Board Resolution R2-2010-0066) and approved by the State Water Resources Control Board (State Water Board) on April 5, 2011. The amendment contained implementation requirements for the new objectives, including a new water quality-based enterococcus effluent limitation for NPDES wastewater permits, mandatory inclusion of bacteriological effluent limitations in most NPDES wastewater permits, and limited flexibility for the Water Board to apply total coliform objectives in effluent limitations and to apply dilution credit in effluent limitations. However it did not address implementation for discharges to REC-2 waters.

The data, although limited, that are presented in Table 1 indicate that the new enterococcus objectives, if they were applicable to Hayward Marsh, would not be met throughout the Marsh. As the Marsh empties into the Bay, surface waters generally meet REC-1 enterrococci objectives. Within Basins 3A and 3B, the data do not meet REC-1 objectives for enterrococci. All available data indicate that REC-2 water quality objectives are met.

[6] USD, 2008.

5. EXISTING BENEFICIAL USES

Hayward Marsh is located within the Hayward Regional Shoreline (Figure 1), a 1700-acre area managed by EBRPD, which includes salt, fresh and brackish water marshes, rocky shoreline, and former landfills.[7] The shoreline changes from wide mudflats at low tide to wave-washed rocky and terraced shores at high tide. The Bay Trail runs through the Hayward Regional Shoreline on dirt levees originally built for salt ponds and across newly-built bridges. Activities at the shoreline include hiking, bicycling, jogging, and bird-watching. Picnicking and fishing are allowed in designated areas along the Shoreline, but are not allowed in Hayward Marsh.[8]

The muddy and rocky terrain generally is not conducive to swimming or wading. Hayward Marsh is designed to provide nesting habitat and feeding grounds for wildlife, and therefore disturbance by humans is prevented and/or discouraged, as described in Section 4.3 above. The treated effluent input to Hayward Marsh creates a salinity transition zone that provides attractive habitat for the rearing of juvenile bay fish, such as top smelt and rainwater killifish.

The existing beneficial uses of Hayward Marsh are listed below with a brief definition of the use. Each of these uses is protected and enhanced by the operation of Hayward Marsh.

- Estuarine habitat (EST) - Uses that support estuarine ecosystems, including estuarine habitats, vegetation, fish, shellfish, wildlife, organisms
- Preservation of rare and endangered species (RARE) - Uses that support habitats of plant or animal species established under state and/or federal law as rare, threatened, or endangered
- Fish spawning (SPWN) - Uses that support high quality aquatic habitats suitable for reproduction and early development of fish
- Wildlife habitat (WILD) - Uses that support wildlife habitats including vegetation and prey species, such as waterfowl
- Noncontact water recreation (REC2) - Uses for recreational activities involving proximity to water, but not normally involving contact with water where ingestion is reasonably possible.

With the exception of RARE, each of these is designated as a beneficial use of wetlands in the Hayward area in Basin Plan Table 2-4. Special status species found on Hayward Marsh include western snowy plover and California least tern.[9] The proposed amendment designates RARE as an additional beneficial use for Hayward Marsh.

[7] Horii, R., 1999.
[8] EBRPD, N.D.
[9] EBRPD, 2011. USD, 2008.

6. USE ATTAINABILITY ANALYSIS

A UAA is a structured assessment of the factors affecting the attainment of one or more beneficial uses in a given water body. Clean Water Act regulations provide the basis for a UAA and the factors to be assessed. The UAA for the REC-1 beneficial use for Hayward Marsh is presented in this section.

6.1 Basis of UAA

Clean Water Act regulations (40 CFR 131.10(j)) provide two scenarios under which a UAA is necessary or appropriate:

- In cases where a beneficial use, such as municipal water supply (MUN) or fish spawning (SPWN), has been designated for a water body, but that use can no longer be attained in the water body.
- To demonstrate that any "presumptive use" cannot be attained in a water body. "Presumptive uses" are associated with what is more commonly known as the "fishable, swimmable waters goal" of the Clean Water Act (CWA) and include REC-1 and REC-2, as well as warm freshwater habitat (WARM) and wildlife habitat (WILD). Because CWA Section 101(a)(2) creates a "rebuttable presumption" that fishable and swimmable uses are attainable[10], a UAA must be conducted when such uses are not assigned to a water body, regardless of whether the use actually exists in the water body.

Hayward Marsh falls under the second scenario. USD and EBRPD have provided the information required by a UAA to demonstrate that body-contact recreation is not attainable in Hayward Marsh.

The physical, chemical, biological, and economic factors that may be considered when conducting a UAA are listed at 40 CFR 131.10(g)(1)-(6), and any one of these factors may provide the basis for removing a beneficial use. Two of these factors are applicable to Hayward Marsh:

- 40 CFR 131.10(g)(1): Naturally occurring pollutant concentrations prevent the attainment of the REC-1 use. The large numbers of waterfowl and other wildlife at Hayward Marsh contribute substantially to bacteria counts in the Marsh.
- 40 CFR 131.10(g)(3): Human-caused conditions or sources of pollution prevent the attainment of the REC-1 use, and these conditions cannot be remedied or would cause more environmental damage to correct than to leave in place. This criterion applies because Hayward Marsh was created and is sustained using reclaimed wastewater to create wildlife habitat. The Marsh was never intended to be used for REC-1 activities.

[10] CWA Section 101(a)(2) establishes as an interim national goal that, "wherever attainable…water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved…" Further, Section 101(a)(2) states that the objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To meet these CWA objectives, states must provide water quality for the protection and propagation of fish and wildlife, and for recreation in and on the water where attainable. Thus, propagation of fish and wildlife, and recreation in and on the water are presumptive surface water uses.

Supporting information for each of these two factors is given in the following sections.

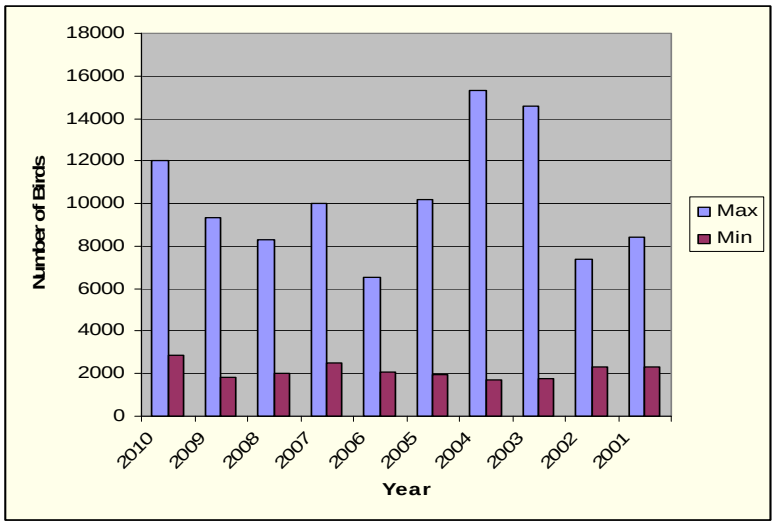
6.2 Naturally Occurring Pollutants

Naturally occurring pollutants, whose sources are the wildlife inhabiting the Marsh, prevent the attainment of the REC-1 use. Hayward Marsh provides habitat for up to 64 species of birds as well as other wildlife species, as outlined in Sections 4.2 and 5. The results of monthly bird surveys conducted by EBRPD personnel, shown on Table 2, demonstrate the magnitude of the populations of waterfowl and shorebirds inhabiting the Marsh. Figure 5 demonstrates that a minimum of about 2000 birds inhabit the Marsh at any one time, while up to about 15,000 birds can be supported at the Marsh during migratory peaks.

Table 2. Summary of Monthly Bird Survey Data[11]

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Month	Number of Birds Counted									
Jan	4650	3101	3963	4687	3190	4946	3315	4423	9366	5059
Feb	3095	2292	2594	3563	4238	4390	5662	3389	2818	4121
Mar	4937	4007	4273	4312	4057	4702	9983	5159	3837	4023
April	3236	3581	2734	3090	3360	5038	7134	2839	3338	3248
May	2350	3261	1771	1696	1930	2070	3511	2604	2521	2876
June	2959	3220	2768	2775	2251	2122	3324	2012	1800	2968
July	3313	2332	2727	2520	2405	2237	2510	2834	2224	3375
Aug	2672	3861	3843	2737	4282	3076	3437	2158	1996	3224
Sept	6812	7039	12,451	15,292	7798	6008	6631	5272	7760	4619
Oct	8423	7380	14,607	7779	10,178	6505	7874	7180	5053	6701
Nov	8345	3868	5977	6110	6008	6231	6135	8269	5765	12,010
Dec	4374	4551	5171	6087	5852	4068	4413	5707	4093	3562

Figure 5. Annual Maximum & Minimum Number of Birds in Monthly Census



Given the large bird population, it follows that bacteria in the Marsh would exceed the current water quality objectives for fecal coliform and total coliform, and/or would exceed the adopted water quality objective for enterococcus.[12] Currently available data (Table 1 in Section 4.4)

[11] EBRPD, 2011.

[12] Water quality objectives for enterococcus were adopted by the Water Board on April 14, 2010 (Regional Water Board Resolution R2-2010-0066) and approved by the State Board on April 5, 2011. At this time, these objectives have not received approval from the U.S. EPA.

confirm that any applicable coliform and enterococcus objectives for the REC-1 beneficial use would be exceeded, either frequently or episodically, in the Marsh.

Additional bacteriologic data from two nearby former salt ponds in Alviso Slough confirm that avian populations are associated with high bacteria counts.[13] These ponds were restored to wetlands to support birds and other wildlife, and their freshwater input source is precipitation and runoff from the watershed. Samples were taken weekly for four weeks in both summer and winter, 2006, from about ten locations around the perimeter of each pond, as well as adjacent sloughs. These data, while not presented in a form that is directly comparable to water quality objectives (i.e., the mean, rather than the geometric mean or median, is presented; individual sample results are not presented), demonstrate that the ponds have significantly high concentrations of total coliform and enterococci, particularly in summer months [for reference the water quality objectives are total coliform (median < 240, no sample > 10,000) and enterococcus (geometric mean < 35, no sample > 104)].

Table 3. Select Bacteriologic Data from Wetland Ponds in South San Francisco Bay[14]

	Total Coliform (MPN/100 ml) Mean	**Enterococcus** (MPN/100 ml) Mean
Winter		
Pond A9	5452	67
Pond A10	1115	47
Sloughs	20,310	423
Summer		
Pond A9	15,720	6836
Pond A10	17,820	429
Sloughs	23,290	477

6.3 Human-Caused Conditions

U.S. EPA Region 9 guidance for basing a UAA on the criterion that human-caused pollutants prevent the attainment of REC-1 states that this criterion is intended to provide for a "net ecological benefit" where effluent-dependent ecosystems support aquatic habitats whose value exceeds the ecological benefits of removing the discharge from the water body.[15] Hayward Marsh is such an effluent-dependent ecosystem. Without the freshwater input of treated effluent from USD, the brackish habitat would not exist. The remainder of this section provides information on the net ecological benefits of the effluent-dependent ecosystem at Hayward Marsh. The ecological benefits and/or losses that could result from removing the discharge from the water body are discussed as part of the CEQA alternatives analysis in Section 7.

[13] Shellenbarger. 2008.
[14] Shellenbarger. 2008.
[15] Tuden, R., D. Smith, and M. Rea, 1992.

6.4 Environmental Benefits of Hayward Marsh

Hayward Marsh supports a great density of wintering waterfowl, and is an important migratory stopover for shorebirds each spring and fall. Over 100 species of birds have utilized the Marsh, which is a regionally significant refuge for nesting shorebirds and waterfowl.

Notable environmental benefits associated with the marsh include:[16]

- The unique complex of islands within Hayward Marsh protects ground-nesting birds from predation by mainland-based predators, with an average of 500 nesting pairs of birds in the marsh.
- The unvegetated islands in Hayward Marsh provide optimal conditions for nesting Forster's tern. Hundreds of terns have nested on several islands within the marsh, resulting in some of the greatest reproductive success of terns nesting throughout the San Francisco Bay Estuary.
- The black skimmer nests on islands within the Marsh, which represent the northernmost known nesting locations for this species along the Pacific Coast.
- The California least tern, a federal- and State-endangered species, has nested successfully in the Marsh since 1990. During the 2010 nesting season, there were 53 nests, which produced 91 chicks and approximately 75 fledglings.[17] Establishing a viable California least tern colony is of regional significance because few nesting colonies exist within San Francisco Bay.
- Hayward Marsh at one time supported one of the largest colonies of nesting snowy egrets and black-crowned night herons in Lower San Francisco Bay. The federally-threatened western snowy plover and the Caspian tern also nest in the Marsh.
- The presence of waterfowl year round provides foraging opportunities for many raptors including peregrine falcons, a state endangered species, and Cooper's hawks and northern harriers, which are species of special concern.
- The Hayward Marsh discharge creates a salinity transition zone that provides suitable, attractive habitat for the rearing of juvenile bay fish. A 1991 California State University-Hayward study demonstrated a 400% increase in 12 species of juvenile bay fish in the transition habitat compared to more saline areas of the Bay nearby.[18] An October 2005 aquatic survey indicated that top smelt, *Atherinops affinis*, and rainwater killifish, *Lucania parva*, were present in abundance.[19] Both are euryhaline species predominantly found in saltwater but which also inhabit the lower reaches of coastal streams and upper estuaries where salinities vary from freshwater to brackish. Estuaries such as Hayward Marsh are used for spawning and as a nursery area for the young of the year for both species. The fish within the Marsh are important because the black skimmer, Caspian, Forster's and California least terns forage on small fish that inhabit the waters within the marsh complex.

[16] USD, 2008.
[17] Marschalek, D.A. 2011.
[18] Canabal, 1991.
[19] Bell, D. et al., 2005.

6.5 Other Benefits of Hayward Marsh

Hayward Marsh provides other benefits to society, as described below.

Water Reuse

One of the primary objectives of the Hayward Shoreline Marsh Expansion Project was to create a diversified marsh system using secondary effluent.[20] The beneficial reuse of treated wastewater is also a goal of the Water Boards. By reusing approximately 3 mgd of recycled water for over two decades, Hayward Marsh has provided a sustainable freshwater supply to support fish and wildlife habitat and a significant environmental benefit.

Public Education, Participation, Recreation and Aesthetic Value

The Marsh provides an outdoor classroom for local schools and a unique destination for environmental groups and bird watchers. The Hayward Area Recreation and Park District operates the Hayward Shoreline Interpretive Center which offers educational programs for Pre-K through college classes, including "bird walks" and "Bay Camp." Class topics include shoreline discovery, wetland ecology, and salt pond history. Approximately 800 children and adults visited Hayward Marsh through programs offered by the Hayward Shoreline Interpretive Center from June 1, 2010 through May 2011.[21]

The Marsh provides opportunities for citizens to participate in environmentally-focused activities as well. With the goal of encouraging successful nesting of the California least tern, more than 2,000 volunteers donated over 6,000 hours of volunteer service, creating over 15,000 square feet of new nesting habitat in 2004.[22]

The Bay Trail runs along the west end of Hayward Marsh (Figure 4), allowing further opportunity for strolling, hiking, bicycling, jogging, and bird-watching.

Marsh Research Opportunities

The avian diversity and density attracts researchers to the Marsh. EBRPD personnel facilitate research projects within Hayward Marsh, including a fish sampling project in brackish Basins 3A & 3B conducted by the San Francisco Estuary Institute. Other research projects have included fish surveys, a metals uptake study, and an avian cholera study done by the University of Wisconsin - National Wildlife Health Center. University campuses, including the University of California at Berkeley and San Francisco State University, have conducted field trips to observe how Hayward Marsh demonstrates the successful reuse of treated effluent for the creation of a marsh wetland.

Hayward Marsh has considerable value as a wetland restoration demonstration site for local, national and international scientists, academics, consultants, engineers, planners, politicians, delegates and other professionals. Visitors from South Korea, Russia, Japan, China, Vietnam and Taiwan have toured the Marsh and inquired about the concept, design, and operation and maintenance.[23]

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[20] U.S. Environmental Protection Agency (U.S. EPA), 1993. *Wetlands from Wastewater, The Hayward Marsh Expansion Projec*t. EPA832-R-93-005h. September 1993. Page 5 of 12.
[21] Hayward Shoreline Interpretive Center, 2011.
[22] Order No. R2-2006-0031
[23] USD, 2008.

7. CEQA ANALYSIS

This section presents the analyses required under CEQA when the Water Board adopts a Basin Plan amendment under the Water Board's certified regulatory program (California Public Resources Code § 15251[g]). The Water Board is the Lead Agency responsible for evaluating the potential environmental impacts of Basin Plan amendments. Staff prepared the required environmental documents, which include an Environmental Checklist Form (Appendix B of this Staff Report) and a written report (this Staff Report) that disclose any potentially significant environmental impacts of the Basin Plan amendment. This Staff Report, including the CEQA checklist and analyses, constitute a substitute environmental document. To satisfy CEQA's recommendation to engage the public and interested parties in consultation about the scope of the environmental analysis, a scoping meeting was held on March 17, 2011.

The State Water Board's regulations require a substitute environmental document to include 1) a brief project description; 2) an identification of any significant or potentially significant adverse impacts of the proposed project; 3) an analysis of reasonable alternatives to the project and mitigation measures to avoid or reduce any significant or potentially significant adverse environmental impacts; and 4) an analysis of the reasonably foreseeable methods of compliance. Tit. 23, Cal. Code Regs. § 3777(b). Where there is no fair argument that the project could result in any reasonable foreseeable environmental impacts, the substitute environmental document need not contain an analysis of reasonably foreseeable alternatives. Similarly where there is no fair argument that the reasonably foreseeable methods of compliance with the project could result in any reasonably foreseeable significant adverse environmental impacts, the substitute environmental document need not contain an analyses of reasonably foreseeable alternative methods of compliance or mitigation measures. Tit. 23, Cal. Code Regs., § 3777(e) and (f). As explained in this report, the proposed project will not have any significant adverse impacts to the environment; therefore, alternatives beyond the no project alternative are not explored. In addition, there are no adverse environmental impacts from compliance actions, because no compliance measures would be needed; the project would not result in new effluent limitations or change the way Hayward Marsh is operated.

7.1 Project Description

The project is a proposed Basin Plan amendment that would amend Table 2-4, *Beneficial Uses of Wetland Areas*, by refining the beneficial uses specifically for Hayward Marsh by removing REC-1 and adding RARE. REC-2 will remain as the highest attainable recreational use of the Marsh. In addition, Section 4.5.5, *Discharges to Inland Surface Waters, Enclosed Bays, and Estuaries*, is amended to clarify that discharges into REC-2 waters may meet water quality objectives in Table 3-1 that are associated with REC-2 uses. In addition, minor non-regulatory corrections to typographical errors made in a past amendment to the Basin Plan in Table 2-4 are included in this amendment.

Hayward Marsh was created in 1988 and was designed to use reclaimed, treated wastewater to create brackish marsh habitat. Since that time, the Marsh has been operated as brackish aquatic habitat to support numerous wildlife species and protect their nesting sites. Water contact recreation has never been allowed in the marsh, because human contact would be inconsistent with the purposes of Hayward Marsh.

To comply with the Clean Water Act, a UAA demonstrating that REC-1 does not apply must be completed. This project includes the necessary UAA for REC-1 in Hayward Marsh. Because Hayward Marsh has been operated since 1988 as though REC-1 is not a beneficial use, this project will not change how the Marsh is permitted or operated. Thus, this project will not require additional compliance measures, nor does it have environmental impacts.

A more detailed description of the project is given in Section 2.1 of this report.

7.2 Consideration of Alternatives to the Proposed Project

In the proposed project, the REC-1 beneficial use would not apply to Hayward Marsh, and NPDES permit requirements would continue to be protective of REC-2 beneficial uses. No change in the REC-2, noncontact recreation beneficial use, is proposed. REC-2 beneficial uses will apply in Hayward Marsh with or without adoption of the proposed Basin Plan amendment. As was mentioned above, this alternative is not expected to result in environmental impacts.

Though an alternative analysis is not required, below we do provide a level of analysis of the No Project alternative to illustrate that the proposed project would be *environmentally beneficial*, because under the No Project alternative, the REC-1 use would continue to apply, and the freshwater input to Hayward Marsh (i.e., treated effluent) would likely cease, which would cause a host of adverse environmental impacts, particularly to wildlife habitat.

Also, the only foreseeable alternative for the proposed project is the No Project alternative. Other possible alternatives to the project that might meet REC-1 water quality objectives, such as chemical or mechanical treatment within the marsh basins to remove pathogens, or measures to keep birds from using the Marsh, are not practicable because they would have significant environmental impacts, would degrade the habitat and would not support the other important wildlife and aquatic life beneficial uses in the marsh. Therefore, they were not considered in this analysis.

Alternative: No Project

Under this alternative, the Water Board would not amend the Basin Plan, and the REC-1 beneficial use would apply to Hayward Marsh, because the Basin Plan currently designates REC-1 for all wetlands in the Hayward area. The NPDES permit for Hayward Marsh would be reissued with permit effluent limitations consistent with Basin Plan Table 4-2A, *Effluent Limitations for Bacteriological Indicators.* To meet these effluent limitations, USD would have to either treat its 3 mgd of effluent at the plant to the standards required for discharge into the Marsh, or apply additional disinfection at the point of discharge (E-1 on Figure 3). In either case, it would not be reasonable to expect the Dischargers to continue diverting treated effluent to Hayward Marsh for the following reasons:

- Requirements for additional treatment of the effluent would provide an economic disincentive to divert treated effluent to Hayward Marsh.

- USD diverts only 10-15% of its treated effluent to the Marsh, and could feasibly discontinue this diversion by sending all treated effluent to the EBDA deep water discharge in San Francisco Bay.

- Even if the discharge were to meet REC-1 objectives, it isn't clear that the Marsh (Basins 3A and 3B) would then meet REC-1 objectives due to the presence of avian species.

Thus, this alternative would likely result in cessation of the beneficial reuse of treated effluent. Without a source of freshwater, the unique habitat provided by the salinity gradient and by the managed vegetation within Hayward Marsh would, over time, cease to exist.

The environmental impacts of this alternative would include the degradation or loss of other existing beneficial uses, such as RARE, SPWN, WILD, and REC-2. Examples of these impacts include:

- Hayward Marsh would cease to provide habitat and refuge for nesting shorebirds and waterfowl, including threatened, rare, and endangered species such as California least tern, Forster's tern, Caspian tern, black skimmers, and western snowy plover.
- The Hayward Marsh discharge into San Francisco Bay would cease to provide a salinity transition zone that provides habitat for rearing juvenile bay fish.
- The aesthetic value of the Marsh would be degraded or lost.
- Hayward Marsh would cease to provide an educational experience for schools, citizen groups, and individuals.
- Research opportunities at the Marsh would cease to exist.
- Treated effluent would not be put to beneficial reuse.

In addition, there are likely to be additional environmental impacts associated with any increased use of chlorine at the wastewater treatment plant or construction of facilities to support alternative disinfection treatments, e.g., ultraviolet treatment, that would be required to be implemented in order to achieve REC-1 objectives. These impacts could potentially include a substantial increase in the discharge of disinfection byproducts to the Bay.

Therefore, Water Board staff rejected this alternative because it is not an environmentally superior alternative nor does it meet the project objectives, including the following:

- Support timely reissuance of the Hayward Marsh NPDES permit and provide clarity to the Basin Plan Chapter 4, *Implementation Plan*, as to the approach for determining the permit effluent limitations protective of REC-2.
- Improve the specificity, accuracy and clarity of the Basin Plan by refining beneficial uses specific to Hayward Marsh, which is a unique marsh in the Hayward area.
- Provide certainty for the Dischargers in continued operation of Hayward Marsh, whose sole freshwater input is the reclaimed effluent from USD's wastewater treatment plant.

Preferred Alternative

The proposed Basin Plan amendment meets all the project objectives and will not result in any significant adverse environmental impacts. The alternative does not meet all the project objectives and is not environmentally superior. In addition, this Staff Report demonstrates that the REC-1 beneficial use is not attainable per 40 CFR 131.10(g)(3). Therefore, the proposed Basin Plan amendment is the preferred alternative.

8. ANTIDEGRADATION

Before a beneficial use can be removed, careful consideration must be given to federal and State antidegradation policies under 40 CFR 131.12 and State Water Board Resolution No. 68-16, respectively. The federal antidegradation policy requires, among others, that existing water uses and the level of water quality necessary to protect the existing use be maintained and protected and for high quality waters to be maintained and protected unless a lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are located. Similarly, the State antidegradation policy requires high quality waters to be maintained until it has been demonstrated that any change will be consistent with the maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in policies.

There is no evidence that the proposed action would lower existing water quality, because this action will not change how Hayward Marsh is operated. As described in Section 4.4, the NPDES permit for Hayward Marsh contains effluent limitations protective of REC-2 beneficial uses. Removal of REC-1 from Hayward Marsh would not, by itself, allow any new or increased volume or concentration of waste to be discharged to surface waters. Furthermore, any new or increased discharge would have to undergo a permit-specific antidegradation analysis in order to be authorized, if at all.

Finally, although REC-1 is a Clean Water Act § 101(a)(2) presumptive use, there is no evidence water contact recreation has ever occurred in Hayward Marsh, and water quality does not support contact recreation. The Marsh was designed and constructed in 1988 from degraded former salt ponds for the purpose of creating wildlife habitat, and REC-1 uses would be detrimental to the wildlife uses.

The proposed Basin Plan amendment is consistent with antidegradation policies.

REFERENCES

Bell, D, et al., 2005. *Aquatic Survey of Hayward Freshwater Marsh.* East Bay Regional Park District. October 28, 2005.

Canabal, F., 1991. *Immediate Effects of Treated Sewage on Densities of Epibenthic Animals in San Francisco Bay Marsh.* Thesis, California State University, Hayward. July 1991.

East Bay Dischargers Authority (EBDA), 1995. *Justification for Fecal Coliform Effluent Limitation*.Letter report to L. Kolb, SF Bay Regional Water Quality Control Board. August 2.

East Bay Regional Park District (EBRPD), N.D. *Hayward Regional Shoreline*. Available at: http://www.ebparks.org/node/124/print. Accessed June 9, 2011.

EBRPD, 2011. East Bay Regional Park District, Compilation of Bird Census Data. April 15, 2011.

Hayward Shoreline Interpretive Center, 2011. Compilation of Visitor Data. May 12, 2011.

Horii, R., 1999. *Hayward Shoreline*. December 5, 1999. Available at http://baytrail.abag.ca.gov/vtour/map4/access/BTHayward/BTHayward.htm. Accessed June 9, 2011.

Marschalek, D.A., 2011. *California Least Tern Breeding Survey, 2010 Season*. California Department of Fish and Game, Wildlife Branch, Nongame Wildlife Program Report. Revised 18 July 2011.

San Francisco Bay Regional Water Quality Control Board, Order No. R2-2006-031/NPDES No. CA00386361. Adopted May 6, 2006.

Shellenbarger, G.G., et al., 2008. *Fecal Indicator Bacteria and Salmonella in Ponds Managed as Bird Habitat*, San Francisco Bay, California, USA. Elsevier Ltd. March 17, 2008. Available at http://www.southbayrestoration.org/pdf_files/Fecal%20indicator%20bacteria%20and%20Salmonella%20in%20ponds.pdf.

Tuden, R., D. Smith, M. Rea, 1992. *Guidance for Modifying Water Quality Standards and Protecting Effluent-Dependent Ecosystems*. Interim Final. U.S. Environmental Protection Agency, Region 9. June 1992.

Union Sanitary District (USD), 2008. *Bacteriological Monitoring Study Report* – 2006 Hayward Shoreline Marsh NPDES Permit Implementation. Prepared by Oakley Water Strategies. November 25, 2008.

USD, 2008. *Compilation of Information to Support Development of Use Attainability Analysis for Hayward Marsh.* Prepared by Oakley Water Strategies. November 1, 2006, revised and updated February 25, 2008.

U.S. Environmental Protection Agency (U.S. EPA), 1993. *Wetlands from Wastewater, The Hayward Marsh Expansion Projec*t. EPA832-R-93-005h. September 1993.

U.S. EPA, 2007. *Water Quality Standards Handbook: Second Edition*, Chapter 2 Designation of Uses. EPA-823-B-94-005. August 1994 (revisions June 2007). Available at: http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm.

U.S. EPA, N.D. *What is a Use Attainability Analysis?* Available at: http://water.epa.gov/scitech/swguidance/waterquality/standards/uses/uaa/about_uaas.cfm. Accessed June 9, 2010.

Staff Report Attachment A

Proposed Basin Plan Amendment

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Amend Table 2-4 and text in Chapter 4, as follows. Underline indicates new text, strikethrough indicates deleted text.

Table 2-4 Beneficial Uses of Wetland Areas[a]

Basin/Marsh Area	*Wetland Types*			*Beneficial Uses*									
	Fresh	Brackish	Salt	EST	MAR	MIGR	COMM	RARE	REC1	REC2	~~SALT~~	SPWN	WILD
ALAMEDA COUNTY													
Arrowhead			•	•				•	•	•	~~•~~	•	•
Coyote Hills			•	•				•	•	•	~~•~~	•	•
Emeryville Crescent			•	•				•	•	•	~~•~~	•	•
Hayward (e.g., Cogswell, Hayward Area Recreation District, Oro Loma, & Triangle marshes)			•	•					•	•	~~•~~	•	•
Hayward Marsh		•		•				•		•		•	•
CONTRA COSTA COUNTY													
North Contra Costa		•	•	•				•	•	•	~~•~~	•	•
Point Edith		•		•				•		•		•	•
San Pablo Creek			•	•				•	•	•	~~•~~	•	•
Wildcat Creek				•				•	•	•		•	•
MARIN COUNTY													
Abbotts Lagoon			•		•				•	•	~~•~~		•
Bolinas Lagoon			•		•				•	•	~~•~~		•
Corte Madera			•	•				•	•	•	~~•~~	•	•
Drakes Estero			•						•	•	~~•~~	•	•
Gallinas Creek		•	•	•				•	•	•	~~•~~	•	•
Limantour Estero			•		•				•	•	~~•~~		•
Corte Madera Ecological Reserve			•	•					•	•	~~•~~		•
Novato Creek		•	•	•		•		•	•	•	~~•~~	•	
Richardson Bay			•	•				•	•	•	~~•~~	•	•
Rodeo Lagoon			•		•				•	•	~~•~~		•
San Pedro		•	•	•			•	•		•	~~•~~	•	•
San Rafael Creek		•	•	•				•	•	•	~~•~~		•
Tomales Bay			•		•	•			•	•	~~•~~	•	•
NAPA COUNTY													
Mare Island			•	•						•	~~•~~		•
Napa		•		•		•	•	•	•	•		•	
San Pablo Bay			•	•		•	•	•	•	•	~~•~~	•	•
SAN MATEO COUNTY													
Bair Island			•	•				•	•	•	~~•~~		•
Belmont Slough			•	•				•	•	•	~~•~~	•	•
Pescadero	•		•		•	•		•	•	•	~~•~~	•	•
Princeton		•	•						•	•	~~•~~		•
Redwood City Area				•				•	•	•			•
SANTA CLARA COUNTY													
South San Francisco Bay			•	•		•	•	•	•	•	~~•~~	•	•
SOLANO COUNTY													
Southhampton Bay			•	•				•	•	•	~~•~~	•	•
Suisun	•	•		•		•		•	•	•		•	•
White Slough			•	•		•		•	•	•	~~•~~	•	•

SONOMA COUNTY											
Petaluma	•	•	•	•	•	•	•	•		•	•

4.5.5.1 LIMITATIONS FOR CONVENTIONAL POLLUTANTS

Table 4-2A contains both daily maximum and longer-term effluent limitations for bacteriological indicator organisms. All NPDES permits for discharges that contain sanitary waste shall include the applicable effluent limitations from Table 4-2A, except for discharges into Hayward Marsh, for which REC-1 is not a designated beneficial use. The water quality based effluent limitations in Table 4-2A may be adjusted to account for dilution in a manner consistent with procedures in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (see footnotes 'a' and 'e' in Table 4-2A).

Staff Report Attachment B

Environmental Checklist

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STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER QUALITY
P.O. BOX 100
SACRAMENTO, CA 95812-0100

Environmental Checklist

I. Background

Project Title: Beneficial Uses of Hayward Marsh

Contact Person: Jan O'Hara, Water Resource Control Engineer, San Francisco Bay Regional Water Quality Control Board, 510.622.5681

Project Description: The project is a proposed Basin Plan amendment that would amend Table 2-4, *Beneficial Uses of Wetland Areas*, by refining the beneficial uses specifically for Hayward Marsh, including removing REC-1 and adding the Rare and Endangered Species beneficial use. REC-2 will remain as the highest attainable recreational use for the Marsh. Table 2-4 currently has an entry for wetlands in the Hayward area, which includes a number of marshes and wetlands. Hayward Marsh was created in 1988 for the purpose of reclaiming treated wastewater to create brackish marsh habitat, and thus is distinct from other wetlands in the Hayward vicinity.

Beneficial uses currently designated in the Basin Plan for wetlands in the Hayward area include REC-1. However, REC-1 should not apply in Hayward Marsh because the Marsh was created for the purpose of reusing treated effluent as a source of freshwater to create wildlife habitat, and the Marsh is managed to prevent human disturbance of habitat. The current NPDES permit for discharge of treated effluent into Hayward Marsh does not identify REC-1 as a beneficial use of the Marsh. Instead, the Order requires the Dischargers to provide information that would enable Water Board staff to conduct a Use Attainability Analysis (UAA), so that the Water Board could refine the beneficial uses for Hayward Marsh in a future Basin Plan amendment.

In addition, the project includes the addition of implementation language to Chapter 4 of the Basin Plan, clarifying that NPDES permits for Hayward Marsh are not required to contain effluent limitations from Table 4-2A. This is needed because Table 4-2A contains limitations for discharges into water bodies with REC-1 uses, and currently states that all NPDES permits shall include the limitations from Table 4-2A. The amendment also includes non-regulatory corrections to the Basin Plan for typographical errors made during the 1995 Basin Plan adoption. Table 2-4 is being amended to correct an error when SALT was identified as a beneficial use on the table instead of a wetland type. There is no such beneficial use in the Basin Plan. This correction is consistent with an earlier (1985) and correct version of the Basin Plan.

Because Hayward Marsh has been operated since 1988 as though REC-1 was **not** a beneficial use, this proposed Basin Plan amendment would not result in environmental impacts or additional compliance measures.

II. Environmental Impacts

The environmental factors checked below could be potentially affected by this project. See the checklist on the following pages for more details.

☐	Aesthetics	☐	Agriculture and Forestry Resources	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Geology/Soils
☐	Greenhouse Gas Emissions	☐	Hazards & Hazardous Materials ☐	☐	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources	☐	Noise
☐	Population/Housing	☐	Public Services	☐	Recreation
☐	Transportation/Traffic	☐	Utilities/Service Systems	☐	Mandatory Findings of Significance

1. AESTHETICS. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no aesthetic impacts, because it would result in no direct or indirect change in the environment.

2. AGRICULTURAL AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental impacts, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potential-ly Sig-nificant Impact	Less Than Significant with Mitigation Incorpor-ated	Less Than Significa nt Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping & Monitoring Program of the California Resources Agency, to non-agricultural uses?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no agricultural and forest resource impacts. It would result in no change in land use or land use policy.

3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☑
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☑
d) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☑
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no air quality, because it would result in no direct or indirect change in the environment.

4. BIOLOGICAL RESOURCES. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the DFG or USFWS?	☐	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the DFG or USFWS?	☐	☐	☐	☑
c) Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the federal Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, *etc.*) through direct removal, filling, hydrological interruption or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no adverse biological resource impacts, because it would result in no direct or indirect change in the environment.

5. CULTURAL RESOURCES. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☑
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☐	☑
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no impacts on cultural resources, because it would result in no construction projects or otherwise cause direct or indirect change in the environment.

6. GEOLOGY and SOILS. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☑
i) Rupture of a known earthquake fault, as delineated in the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines & Geology Special Publication 42.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☐	☐	☑
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☑
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☑
d) Be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternate wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no geologic or soil impacts, because it would result in no direct or indirect change in the environment.

7. GREENHOUSE GAS EMISSIONS -- Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☑
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no greenhouse gas emission impacts, because it would result in no construction project or otherwise change the environment directly or indirectly.

8. HAZARDS and HAZARDOUS MATERIALS. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☑
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☑
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	☐	☐	☐	☑
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or to the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no such impacts, because it would result in no direct or indirect change in the environment.

9. HYDROLOGY and WATER QUALITY. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☑
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (*e.g.*, the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☑
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☑
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
f) Otherwise substantially degrade water quality?				☑
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				☑
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☑
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☑
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no impacts to hydrogeology or water quality, because it would result in no direct or indirect change in the environment.

10. LAND USE AND PLANNING. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no land use impacts. The proposed action would not create or change any policy or program, nor will it result in no direct or indirect change in the environment.

11. MINERAL RESOURCES. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	☐	☐	☐	☑
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☑

No mineral resources would be affected by the proposed action.

12. NOISE. Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b) Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☑
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing in or working in the project area to excessive noise levels?	☐	☐	☐	☑
f) For a project within the vicinity of a private airstrip, would the project expose people residing in or working in the project area to excessive noise levels?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no noise impacts.

13. POPULATION AND HOUSING. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area either directly (*e.g.*, by proposing new homes and businesses) or indirectly (*e.g.*, through extension of roads or other infrastructure)?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no impacts on population and/or housing; it would result in no direct or indirect change in the environment; and it will not create or change any plan, policy or program.

14. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?	☐	☐	☐	☑
b) Police protection?	☐	☐	☐	☑
c) Schools?	☐	☐	☐	☑
d) Parks?	☐	☐	☐	☑
e) Other public facilities?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no impact on public services, and it would result in no need to alter or construct governmental facilities.

15. RECREATION. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no impact on the demand or need for recreational facilities.

16. TRANSPORTATION / TRAFFIC. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed the capacity of the existing circulation system, based on an applicable measure of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☑
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☐	☑
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no transportation impacts, because it would result in no direct or indirect change in the environment. Nor would the proposed action change any policy, plan, or program.

17. UTILITIES AND SERVICE SYSTEMS. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☑
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	☐	☐	☐	☑
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts?	☐	☐	☐	☑
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☑

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☑
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☑
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no impacts on utilities and service systems.

18. MANDATORY FINDINGS OF SIGNIFICANCE.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☐	☑
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☑

This proposed Basin Plan amendment would have no direct or indirect impact on the environment, including aquatic and terrestrial wildlife and flora and humans.