

Other transportation projects may contribute to cumulative impacts to lagoon wetlands. The I-5/Genesee Bridge Widening and Interchange Improvements project would contribute to wetland impacts upstream of Los Peñasquitos Lagoon. The LOSSAN project could impact up to 27 acres of wetlands and other waters of the U.S., some of which are within the wetlands and other waters of the U.S that would be affected by the I-5 NCC project.

As discussed in Subpart H below, Caltrans plans for the I-5 NCC project and the LOSSAN project are being coordinated with the resource and regulatory agencies planning and executing regional restoration and enhancement work. Nonetheless, without mitigation, the I-5 NCC project, LOSSAN, and other transportation projects in the I-5 NCC would contribute to the loss of wetlands and other waters of the U.S. in the I-5 corridor in San Diego County. A REMP is being developed collaboratively for the I-5 NCC project, LOSSAN rail project, smaller transportation projects, and the lagoon restoration projects, which, if implemented, would be expected to compensate for the unavoidable impacts to wetlands and other waters of the U.S. (and State) associated with these projects (See Subpart H, below).

Subpart H: Actions Taken to Minimize Adverse Effects

Design Iterations and Wetland/Special Aquatic Site/Other Waters Impact Minimization Efforts

Many impacts of the proposed widening of the I-5 lagoon crossings, with respect to ACOE and state jurisdictional habitats, would be unavoidable because I-5 is an existing north-south transportation corridor that transects the east-west lagoons and other drainages. An effort to minimize impacts was an objective of the design effort for each of the build alternatives in the DEIR/DEIS. The following minimization efforts have been included in the project plans and would apply to each of the four build alternatives:

- To minimize impacts to all sensitive habitats, the freeway slopes were designed at a steeper 2:1 grade versus the standard 4:1 grade.
- To further minimize impacts, retaining walls were also included in the project design on cut slopes, but could not be used on fill slopes. Through analysis of lagoon sediment data from geotechnical borings, it was determined that lagoon soil liquefaction would prevent the use of large retaining walls to minimize the roadbed fill in the lagoon. Soil liquefaction requires that any structures taller than approximately 6 feet have support piles that are driven to bedrock, which is located at a depth of over 100 feet. All pilings for the bridge supports would be driven to this depth, but this would not be practical for retaining walls.
- Riprap is currently used to protect the existing abutments of the I-5 bridges, and would also be used to protect the abutments of the proposed bridges. Due to the depth of bridge pilings, riprap is not required to armor the channel bottoms (the current condition at the Batiquitos Lagoon channel).
- To avoid impacts to wetlands /other aquatic sites from fill associated with creation of 12-foot-wide bike/pedestrian paths, short retaining walls (6 feet or lower in height) would be used. In

addition, bike/pedestrian paths would be attached to the existing I-5 bridge structure where they directly cross over the lagoons, eliminating additional impacts to waters of the U.S.

- Caltrans funded studies to determine the optimum channel dimensions/cross-sections, combined with bridge lengths, to optimize tidal flushing and flood condition flows at the lagoons. At three lagoons, San Elijo, Batiquitos, and Buena Vista, where the results showed longer bridges would be needed, the longer bridges and channel design were integrated into the proposed project.
- Removal of the DAR at Cannon Road reduced the originally contemplated wetland/other special aquatic site impacts at Agua Hedionda Lagoon.
- The proposed project/LPA was designed to Caltrans standards to ensure the smallest-impact footprint. In addition, design exceptions were requested, reducing the footprint even more at spot locations.
- Auxiliary lanes were identified at only the locations where Caltrans standards require them for traffic purposes.
- DARs were designed to have a smaller central structure where vehicles leave and enter I-5 within the centermost lane. For example, instead of having two bridges, one for northbound and one for southbound traffic, these were combined to further reduce the project footprint.
- The DAR at Manchester Avenue was redesigned to be below grade, which shifted the alignment north, away from San Elijo Lagoon. In addition, the park and ride lot was reduced from 470 parking spaces to 150 parking spaces to further reduce the paved footprint.
- Additional funds were obtained to move replacement of the Batiquitos Lagoon Bridge to the first Phase of construction (prior to construction of a proposed HOV lane in the median). This would reduce the overall bridge widths required for staging the bridge replacements, thus reducing wetland/other special aquatic site impacts by more than one acre.

Buena Vista Lagoon was also proposed as a candidate to obtain funds to replace this bridge during the first phase of construction. However, due to funding shortfalls, and the proposed interchange improvements at I-5 and State Route 78, adjacent to the lagoon, a wider bridge may be necessary in the future. Because auxiliary lanes in each direction are proposed at Agua Hedionda Lagoon, resulting in the need for a wider finished bridge, accelerated timing of bridge replacement would not minimize wetland/other special aquatic site impacts at this location. The option to advance Buena Vista Lagoon Bridge is still being pursued, but it depends on finding funding and the I-5/78 interchange project; therefore, the larger footprint (conservative) is used for impact quantification in the current analysis.

Conservation Measures

The following conservation measures would be required for implementation of any of the four build alternatives, as proposed by Caltrans and FHWA.

1. All native habitats outside the permanent and temporary construction limits would be designated as Environmentally Sensitive Areas (ESAs) on project maps. ESAs would be temporarily fenced during construction with orange plastic snow fence. No access would be allowed within the ESAs.
2. Due to the phased nature and duration of the project, preconstruction surveys would be completed to confirm sensitive species locations. This would ensure that the incidental take of species allowed by USFWS (BO) is accurate .
3. All removal of native vegetation or nonnative shrubs and trees within the impact areas would be completed outside of the bird breeding season (February 15 through September 15), if possible, to avoid impacts to nesting birds. Otherwise, a qualified biologist would thoroughly survey all vegetation during preconstruction surveys to ensure no nesting birds are on site. If nesting birds are identified on site, vegetation removal would be delayed until the chicks have fledged or the nest has failed.
4. Exclusion devices would be installed on bridge drain holes and ledges of bridges to be demolished during the nonbreeding season (September 1 through February 15) to prevent swallows, swifts, and any other birds or bats from nesting on or in them.
5. If pile driving is necessary for construction of bridge falsework and/or coffer dams for construction of cast-in-drilled hole bridge pilings, all pile driving near the lagoons would be completed outside the bird breeding season (February 15 through September 15) to minimize construction noise impacts to resident bird species.
6. Noise barriers would be installed at the edge of temporary impact areas near ESAs where feasible, depending on inundation and effective heights required for walls. Noise walls would not be effective where fill slopes are significantly higher than the affected area.
7. A channel large enough for fish movement would be kept open throughout construction at the San Luis Rey River and all of the lagoons.
8. Cofferdams, silt curtains, and/or other barriers would be used around column construction in the river or lagoons to contain sediment and debris.
9. All debris from the replacement of old bridges or construction of new bridges would be contained, so debris does not fall into rivers, streams, and lagoons.
10. During bridge construction activities in water at all lagoons and the San Luis Rey River, bubble curtains or other methods to minimize acoustical impacts to aquatic species would be implemented. These measures would be developed in conjunction with the resource agencies when the project design and construction methodology is further developed.
11. Preconstruction eelgrass surveys would be completed at all lagoons with the exception of Buena Vista Lagoon. In lagoons where eelgrass is identified in proximity to I-5 widening, eelgrass

surveys would continue during and after construction. If eelgrass is identified, mitigation would be implemented in accordance with the Resource Management Enhancement Management Program (REMP).

12. *Caulerpa* surveys would be completed before and after construction at each of the lagoons to ensure there is no infestation within the project limits. If *Caulerpa* is found, measures would be implemented to eradicate it from the area in coordination with the Regional Water Quality Control Board (RWQCB), NMFS, and CDFW.
13. Special care would be taken when transporting, using, and disposing of soils with invasive weed seeds. All heavy equipment would be washed and cleaned of debris before entering a lagoon area to minimize spread of invasive weeds.
14. A qualified biologist would be made available for both the preconstruction and construction phases to review grading plans, address protection of sensitive biological resources, and monitor ongoing work. The biologist shall be familiar with the habitats, plants, and wildlife of the project area, and shall maintain communications with the resident engineer, to ensure that issues relating to biological resources are appropriately and lawfully managed.
15. Bioswale locations have been identified along the freeway lanes and in loop ramps. Detention basins in loop ramps may also be constructed. Construction of these facilities would minimize potential impacts related to highway runoff constituents into wetlands.
16. Appropriate BMPs would be used to control erosion, sedimentation, and debris movement offsite into waters of the U.S. No eroded material, sediment, or debris would be allowed to enter the creeks, rivers, or lagoons.
17. Cut slopes would be revegetated with native upland habitats with composition similar to those habitats within the Study Area. Fill slopes and areas adjacent to wetlands and drainages would be revegetated with appropriate native upland and wetland species, similar to those currently found on site. The revegetated areas would have temporary irrigation and would be planted with native container plants and seeds selected by the qualified restoration biologist. At least 3 years of plant establishment/ maintenance on these slopes would be provided to control invasive weeds. Bioswales and detention basins would be planted with appropriate native species as determined by the qualified restoration biologist and storm water personnel. Slopes adjacent to developed urban areas would be vegetated with native and drought-tolerant noninvasive species selected by the qualified restoration biologist and landscape architect. Interchanges located in urban areas would be landscaped with native or ornamental noninvasive species. More than 86 acres of large slopes near lagoons and other open space would be revegetated with coastal sage scrub.

18. Duff from areas with coastal sage scrub, maritime succulent scrub, and maritime chaparral may be salvaged to the extent practicable to aid in revegetating slopes with native habitats. However, populations of African veldt grass and onion weed are expanding within the corridor, and duff would not be used from areas with infestations of these species, such as the areas between Del Mar Heights and Birmingham Drive.
19. All temporary impact areas would be revegetated with native species and reestablished to preexisting conditions, including return to original grade, as feasible.
20. Fueling of construction equipment would only occur at a designated area greater than 100 feet from drainages, lagoons, and associated plant communities to preclude adverse water quality impacts as required under Caltrans Storm Water Manuals and Specifications.
21. If lighting for construction is used at night, it would be shielded and directed away from ESAs and limited to the minimum amount needed for work.
22. Dust generated by construction operations would be controlled with construction site BMPs.
23. All trails would be fenced and signed to keep pedestrians on the trails and out of adjacent habitats. No night lighting would be used on trails. Some daytime lighting may be used under bridges for safety.
24. In dredging of waters of the U.S., no more than incidental fallback of dredged material would be allowed. Sediment would be placed in a Baker tank to separate sediment from water prior to disposal. Any barge, scow, or similar vessel used to temporarily store and/or haul the dredged material would be operated in a manner that precludes the spilling or other release of dredged material or the associated water back into waters of the U.S. Disposal of sediment either on the project site or offsite would be allowed only at sites with no possibility of return to waters of the U.S.

At San Elijo, Batiquitos, and Buena Vista Lagoons, bridge replacement, including bridge lengthening and channel optimization (wider and deeper), would involve removal of existing bridge abutments and removal of fill material from uplands immediately adjacent to waters of the U.S., which would allow establishment or reestablishment of wetlands and other waters of the U.S. in the removal areas. The new bike bridge proposed as part of this project on Old Sorrento Valley Road at Carmel Creek would replace existing culverts, also allowing reestablishment of wetlands and other waters of the U.S. The acreage suitable for reestablishment would be the same for all build alternatives, as presented in Table 12. These increases in waters of the U.S. would occur immediately in the vicinity where aquatic resource impacts would occur at San Elijo Lagoon, Batiquitos Lagoon, Buena Vista Lagoon, and Carmel Creek.

Table 12. Wetland Reestablishment Allowed by Replacement of Bridges, All Alternatives

Location	Wetlands Established
San Elijo Lagoon	1.10 acres
Batiquitos Lagoon	0.54 acre
Buena Vista Lagoon	0.47 acre
Carmel Creek	0.41 acre
Total	2.52 acres

Conservation measures would also be required for the 8+4 with Buffer Alternative by the BO issued by the USFWS (Attachment A).

Compensatory Mitigation

Overview

Caltrans worked collaboratively with various resource and regulatory agencies to develop the North Coast Corridor REMP to mitigate the unavoidable natural resource impacts of the I-5 NCC project, the LOSSAN rail project, and other surface transportation projects in the NCC. The program document describing the full scope of the REMP is attached. This overview describes the overarching concepts guiding the REMP and its implementation.

The 30 miles of coastline and coastal zone where the NCC is located contain unique and significant marine and environmentally sensitive resources. The Public Works Plan/Transportation Resource Enhancement Program (PWP/TREP) being developed under the California Coastal Act will identify and coordinate all of the surface transportation construction projects within the I-5 NCC and implement mitigation for impacts under one umbrella for California Coastal Commission permitting and federal consistency with the Coastal Act. Impacts of both the I-5 NCC project and the LOSSAN double-tracking project, along with some other projects (trails, train stations) would be mitigated through the REMP.

The REMP provides for mitigation planning and implementation through the I-5 NCC PWP/TREP process and the permitting processes of other regulatory and resource agencies to effectively mitigate I-5 NCC project impacts by addressing regionally significant resource establishment, restoration, enhancement, and preservation needs. Six major lagoon systems in the NCC coastal zone represent some of southern California’s most significant remaining natural resource areas. REMP measures include strategically acquiring reestablishment opportunities, preserving existing environmentally sensitive habitat areas, enhancing lagoon system function and values through transportation facility infrastructure improvements, and facilitating restoration plans, all within the I-5 NCC coastal zone area.

Protection of the I-5 NCC’s lagoon systems from potential future degradation and enhancement and expansion of habitat in these systems require comprehensive action, with mitigation efforts focused less on ratio-based mitigation and more on ecosystem-wide enhancements. Given the unique ecological value of the I-5 NCC’s lagoons, the benefits of improving the ecological function of the systems would exceed the benefits of pursuing only ratio-based mitigation efforts on the relatively small, fragmented, and isolated land areas remaining in the I-5 NCC that are suitable for biological establishment or

reestablishment. Using a broader, systemic approach to mitigation planning would also be in keeping with the 2008 Corps/USEPA Mitigation Rule.

REMP measures include strategically acquiring establishment and reestablishment opportunities, preserving existing environmentally sensitive resource areas, and potentially enhancing lagoon system function and values through optimized design of transportation facility infrastructure improvements and facilitation of large-scale restoration plans. The latter includes widening and deepening the inlet channels under the bridges at San Elijo, Batiquitos, and Buena Vista Lagoons to increase tidal and fluvial flows, which would improve hydraulic conditions at and through these locations and would accommodate and support the separate restoration projects being planned for these areas. As part of the REMF, an endowment would be established to increase the capacity for long-term stewardship of I-5 NCC resources for the foreseeable future, as well as funding of a Scientific Advisory Committee to evaluate, prioritize, and oversee implementation of the mitigation program. Given that multiple surface transportation projects (I-5 NCC, LOSSAN, etc.) in the corridor are being considered by the various resource and regulatory agencies in developing the REMF, there are sufficient opportunities identified in the REMF to compensate for all the Section 404-regulated impacts to waters of the U.S. associated with the I-5 NCC project.

Funding

The *TransNet* Extension Ordinance approved by San Diego voters in November 2004 established an Environmental Mitigation Program (EMP) for the advancement of mitigation for resource impacts associated with regional and local transportation projects. The REMF is structured to support the region's efforts to develop a comprehensive regional mitigation strategy using the *TransNet* EMP, to be implemented as an integrated element of the PWP/TREMP Implementation Plan for the I-5 NCC project. The REP prioritizes expenditure of EMP funds on a corridor-wide level, with an emphasis on advanced habitat establishment, restoration, preservation/enhancement, and improving the ecology of sensitive I-5 NCC habitats through funding of system-wide restoration plans, endowments, and a Scientific Advisory Committee. Optimized transportation facility infrastructure specifically designed to enhance lagoon system function and values are also proposed as part of this program to ensure avoidance and minimization of project impacts, but would be funded through capital expenditures.

The PWP/TREP includes formation of a REMF Working Group to serve as an oversight committee that would include resource and regulatory agency personnel. The REMF Working Group would provide oversight and advisory assistance for coordinating and implementing the specific REMF requirements in the I-5 NCC. The REMF Working Group would include staff representatives of federal and state agencies that are directly involved in permitting transportation projects, including USFWS, ACOE, CDFW, the California Wildlife Conservation Board, the Regional Water Quality Control Board, and the California Coastal Commission.

The REMF Working Group would provide REMF project implementation and monitoring oversight, and advise the San Diego Association of Governments (SANDAG) and Caltrans on potential resource benefits of new mitigation or enhancement opportunities that may be determined necessary as

contingency mitigation, and/or those warranting consideration for incorporation into the REMP given their unique value. The REMP Working Group would also prioritize and coordinate disbursement of REMP funds for the San Elijo and Buena Vista Lagoon Restoration Projects, which are going through separate environmental review and planning processes.

A separate endowment may be established through SANDAG's EMP to fund an independent Scientific Advisory Committee to provide for expenses of researchers charged with conducting research, study, and evaluation of the REMP's effectiveness and success.

As detailed in the attached REMP document, the REMP provides the planning and implementation framework to ensure that the most valuable, highest-quality mitigation opportunities in the I-5 NCC are identified, secured, and prioritized for implementation in a cost-effective manner, using available mitigation funding to maximize benefits to the corridor's natural resources.

Preliminary LEDPA Identification and Consideration of Other Section 404 Discharge Requirements/Restrictions

As discussed in Chapters 1-3, four feasible build alternatives were evaluated in the DEIR/DEIS and SEIR/SEIS with the consent of ACOE, USFWS, NOAA, and EPA. These alternatives are also practicable in consideration of the Section 404(b)(1) Guidelines. Since the aquatic resource full avoidance alternatives are not practicable, and because each of the I-5 NCC build alternatives would result in some aquatic resource loss, the practicable alternative with the least damage to aquatic resources must be identified as the LEDPA, unless it has other significant adverse environmental consequences. Because the location of the I-5 NCC is fixed and the use of the areas already developed for the existing freeway would minimize impacts to natural habitats, including wetlands and other waters of the U.S., the DEIR/DEIS build alternatives are the only practicable alternatives (i.e., (1) other locations or corridors would not be practicable to construct and would result in more impacts [building new bridges and roadway at a different location] to the aquatic ecosystem and (2) complete avoidance of wetlands and other waters of the U.S. in the existing I-5 NCC would not be practicable to construct and would be far more costly). As noted, the No Build Alternative would not be practicable in light of the overall project purpose. Based on preliminary analysis and as discussed in detail in Chapter 3, the least environmentally damaging of these build alternatives appears to be the 8 + 4 with Buffer Alternative, especially with the design modifications described in SEIR/SEIS. The 8 + 4 with Buffer Alternative would have the least acreage of impacts on natural resources overall and the least acreage of impacts/Section 404 discharges to wetlands, other special aquatic sites, and overall waters of the U.S. (Tables 3-5). Therefore, the 8 + 4 with Buffer Alternative appears to be the Least Environmentally Damaging Practicable Alternative based on the analysis of alternatives.

It is also expected this alternative would meet the other requirements/restrictions specified in the Section 404(b)(1) Guidelines. Specifically, the issued Biological Opinion supports that the 8 + 4 with Buffer Alternative would not jeopardize the continued existence of any federally listed as endangered or threatened species or adversely modify designated critical habitat of any federally listed species, as

required. It is not expected any marine sanctuaries would be affected by this alternative (or any build alternative). Issuance of a Section 401 Water Quality Certification by the San Diego Regional Water Quality Control Board, which is required before an ACOE permit can be issued, would confirm it would not violate any applicable state water quality standard and would not violate any applicable toxic effluent standard or prohibition under Section 307 of the CWA, although with the various BMPs identified in Subpart C-H determinations, it is not expected a violation of applicable standards would occur. Moreover, considering the factual determinations in Subparts C-H, including the cumulative impact assessment, and the actions to minimize impacts specified in Subpart H, it is expected the 8 + 4 with Buffer Alternative would not result in severe degradation of waters of the U.S., as required by the Section 404(b)(1) Guidelines.

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Attachment A
Biological Opinion for the
Interstate 5 North Coast Corridor Project

See Appendix O of the I-5 Final EIR/EIS