



ADVANCE MITIGATION PROGRAM
Aliso-San Onofre, Newport Bay, Santa Ana,
and Seal Beach Sub-basins and Five
Watersheds Within the San Gabriel Sub-basin
Regional Advance Mitigation
Needs Assessment

Version 1.0

Establishing Caltrans' Need for Advance Mitigation
for the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach
Sub-basins and Five Watersheds Within the San Gabriel Sub-basin,
forecast fiscal years 2023/24 to 2032/33

California Department of Transportation – District 12

July 2026

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LIST OF ACRONYMS

Acronym	Definition
ACE	Areas of Conservation Emphasis
ADC	Area of Deferred Certification
AMA	Advance Mitigation Account
AMP	Advance Mitigation Program
AMP Guidelines	<i>Advance Mitigation Program Final Formal Guidelines</i>
ASBS	area of special biological significance
Basin Plan	water quality control plan
BEI	Bank Enabling Instrument
BLM	Bureau of Land Management
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CalTrout	California Trout
CCA	Critical Coastal Area
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEHC	California Essential Habitat Connectivity Project
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNRA	California Natural Resources Agency
Corps	U.S. Army Corps of Engineers
CoSMoS	Coastal Storm Modeling System
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DPS	distinct population segment
EFH	essential fish habitat
EPA	U.S. Environmental Protection Agency
ESHA	environmentally sensitive habitat area

ESU	evolutionarily significant unit
FESA	federal Endangered Species Act
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FishPAC	Fish Passage Advisory Committee
FWS	U.S. Fish and Wildlife Service
GAI	geographic area of interest
GAP	Gap Analysis Program
GIS	geographic information system
HAPC	habitat area of particular concern
HCP	habitat conservation plan
HFE	Hill For Everyone
HU	hydrologic unit
HUC	hydrologic unit code
HUC-6	6-digit hydrologic unit code
HUC-8	8-digit hydrologic unit code
HUC-12	12-digit hydrologic unit code
ILF	in-lieu fee
LCP	local coastal program
LUP	land use plan
Master Process Agreement	<i>Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program</i>
MCA	mitigation credit agreement
MPO	metropolitan planning organization
MSCP	Multiple Species Conservation Program
MSHCP	multiple species habitat conservation plan
NCCP	natural community conservation plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NPS	National Park Service
OCTA	Orange County Transportation Authority
OPC	Ocean Protection Council
RAFSS	Riversidian alluvial fan sage scrub
RAMNA	Regional Advance Mitigation Needs Assessment
RCIS	regional conservation investment strategy
RipZET	Riparian Zone Estimator Tool
RTPA	regional transportation planning agency
RWQCB	Regional Water Quality Control Board
SAMNA	Statewide Advance Mitigation Needs Assessment
SAMNA Reporting Tool	Statewide Advance Mitigation Needs Assessment Reporting Tool
SFEI	San Francisco Estuary Institute
SHC	Streets and Highways Code
SHOPP	State Highway Operation and Protection Program
SHOPP Ten- Year Book	<i>State Highway Operation & Protection Program Ten-Year Project Book 2023/24–2032/33</i>
SHS	State Highway System
SMMC/MRCA	Santa Monica Mountains Conservancy/Mountains Recreation & Conservation Authority
STIP	State Transportation Improvement Program
SWAP	State Wildlife Action Plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
UA	uncertified area
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
Water Boards	SWRCB and RWQCBs
WOTUS	waters of the U.S.

EXECUTIVE SUMMARY

This *Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach Sub-basins and Five Watersheds Within the San Gabriel Sub-basin Regional Advance Mitigation Needs Assessment* (“RAMNA”) was developed with the goal of realizing the benefits of long-range planning to help manage the risks and priorities of the California Department of Transportation (“Caltrans”) Advance Mitigation Program (“AMP”). It was developed in accordance with the AMP Final Formal Guidelines (“AMP Guidelines”)¹ and incorporates information and feedback received from outreach to the natural resource regulatory agencies,² the Federal Highway Administration, other transportation agencies, Native American tribes, interested parties, and the public. Caltrans District 12 is the lead district for this planning-level effort.

Background. In 2017, the California Streets and Highways Code (“SHC”) § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account (“AMA”), to be operated by Caltrans as a revolving account. The stated intent of the legislation was for Caltrans, through the AMP, to realize the potential of advance mitigation to “accelerate transportation project delivery” and to “protect natural resources through transportation project [compensatory] mitigation” [SHC § 800(a)]. To this end, SHC § 800.6(a) identifies 11 specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. The 11 activities authorized by SHC § 800 et seq. consist of purchasing or establishing compensatory mitigation credits^{3,4} developed through an authorized regulatory mechanism.⁵ Upon delivery, the credits are expected to be both available and at hand for Caltrans and natural resource regulatory agencies to use as offsets to transportation project impacts. The actual finding, however, of a specific credit’s adequacy and/or suitability to offset an impact, as well as the placement of natural resource regulatory agency compensatory mitigation conditions on transportation projects is conducted in the future through each transportation project’s environmental studies and permits.

¹ <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/amp-final-formal-guidelines-a11y.pdf>

² For the AMP, “natural resource regulatory agencies” refers specifically to the signatories to the 2020 *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program*. The signatories are California Department of Fish and Wildlife (“CDFW”); State Water Resources Control Board; U.S. Army Corps of Engineers Los Angeles, Sacramento, and San Francisco districts; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; National Marine Fisheries Service; and California Coastal Commission (“CCC”).

³ Compensatory mitigation is a mitigation strategy that is preferentially applied only after it has been determined that there will be unavoidable adverse impacts on natural resources and other efforts to minimize, rectify, and reduce the impact have been incorporated into a transportation project’s design. Traditionally, this determination occurs late in a transportation project’s development process, at which time, the compensatory mitigation action is both funded and implemented concurrently with the transportation project.

⁴ Credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established.

⁵ Authorized regulatory mechanisms include the regulatory processes to establish mitigation banks and in-lieu fee programs.

Purpose. Described in the AMP Guidelines, advance mitigation planning is the AMP's process for justifying, proposing, scoping, and securing internal Caltrans AMA funding approval for advance mitigation projects. Advance mitigation planning consists of five steps. Steps 1 and 2 serve to focus the assessment (see Section ES.1). Step 3 is this RAMNA. Steps 4 and 5 of the AMP's advance mitigation planning process narrow down the suite of potential advance mitigation projects to a few that have a high probability of meeting the AMP's goals (see Section ES.9).

A RAMNA is a desktop study that consists of the best readily available information for Caltrans Districts to refer to when scoping and proposing advance mitigation projects to be funded by the AMA. The information was sensibility checked by other Caltrans functional units, natural resource regulatory agencies, and others before it was finalized. When the Caltrans AMP invests in advance mitigation projects to purchase compensatory mitigation credits, Caltrans assumes that the credits are aligned with existing natural resource regulatory agency goals and objectives. When the Caltrans AMP invests in advance mitigation projects to establish compensatory mitigation, it will aim to establish credits approved by multiple natural resource regulatory agencies. Whether purchased or established, Caltrans intends for credits to be delivered on a schedule that will revolve the AMA.

Through the RAMNA's review process, the conservation goals and objectives provided in the RAMNA were vetted with the natural resource regulatory agencies. Caltrans thinks incorporating natural resource regulatory agency goals and objectives into advance mitigation project scopes improves the chances that the compensatory mitigation credits will be (1) usable as transportation project impact offsets and (2) "protect natural resources through transportation project [compensatory] mitigation" [SHC § 800(a)]. Each chapter is briefly summarized below.

Figure ES-1 shows the geographic area of interest ("GAI") road infrastructure.

ES.1 Geographic Area of Interest and Resource Focus

Focusing this assessment improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Focusing the assessment also improves the chances that resultant credits will be available on a timeframe that will revolve the AMA. Hence, for advance mitigation planning, Caltrans focused the RAMNA on a specific time period, a specific area, and typical compensatory mitigation needs.

The time period assessed in this RAMNA is for fiscal years 2023/24 through 2032/33, a planning period consistent with Caltrans:

- Long-term transportation plans conceptualized in the State Highway Operation & Protection Program Ten-Year Project Book 2023/24—2032/33 (“SHOPP Ten-Year Book”; Caltrans 2023a). Transportation projects in the SHOPP Ten-Year Book have not undergone the environmental and permitting process.
- Modeled compensatory mitigation needs published in the *Statewide Advance Mitigation Needs Assessment⁶ Report Second Quarter 2021/22 Fiscal Year* (“SAMNA Report”; Caltrans 2023b). Compensatory mitigation needs in the SAMNA Report are modeled and do not reflect an environmental and permitting process.

The GAI assessed in this RAMNA consists of four sub-basins: Aliso-San Onofre (eight-digit hydrological unit code [“HUC-8”] 18070301), Newport Bay (HUC-8 18070204), Santa Ana (HUC-8 18070203), and Seal Beach (HUC-8 18070201) and overlaps part of one sub-basin and five watersheds within the San Gabriel (HUC-8 18070106). GAIs are established at an ecoregion or HUC-8 scale to define appropriate planning areas for mitigation implementation and anticipated use areas that align with natural resource regulatory agency practices (Caltrans 2019a). Caltrans District 12 selected the GAI because implementing landscape-scale mitigation in the sub-basins is likely to maximize State Highway Operation and Protection Program (“SHOPP”) and State Transportation Improvement Program (“STIP”) funded transportation project acceleration while maximizing environmental benefits.

Because the SAMNA model forecast impacts on hundreds of species’ habitats, to further focus the planning effort, Caltrans District 12 identified species for which natural resource regulatory agencies condition transportation projects and those transportation projects that would most likely benefit if compensatory mitigation credits were available. These “species of mitigation need” are the federally and state threatened arroyo toad (*Anaxyrus californicus*), coastal California gnatcatcher (*Poliophtila californica californica*), least Bell’s vireo (*Vireo bellii pusillus*), and Southern California distinct population segment (“DPS”) steelhead (*Oncorhynchus mykiss*). Arroyo toad is federally listed as endangered and is a state species of special concern. Coastal California gnatcatcher is federally listed as threatened and a state species of special concern. Least Bell’s vireo and Southern California DPS steelhead are both federally and state-listed as endangered.

⁶ The Statewide Advance Mitigation Needs Assessment Reporting Tool (“SAMNA Reporting Tool”) is a geographic information system (“GIS”) overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2018).

Compensatory mitigation for wetlands, non-wetland waters, and riparian habitat within the GAI was also identified as both a historical transportation project compensatory mitigation need and an anticipated future transportation project compensatory mitigation need within the GAI.

ES.2 Environmental Setting

Information on the GAI's environmental setting is provided in Chapter 2 and its associated appendices. To develop an understanding of the GAI that is consistent with natural resource regulatory agency tools and references, geospatial data from the SAMNA Reporting Tool, CDFW's Biogeographic Information and Observation System ("BIOS"), and other readily available information are summarized and presented. Climate change resiliency, wildlife connectivity, biodiversity, and conserved lands are among the information presented. A critical habitat map is provided.

The GAI consists of approximately 2 million acres within the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin, which is overlapped by portions of the Mojave Desert, Southern California Coast, and Southern California Mountains and Valleys Ecoregion Sections.

ES.3 Relevant Plans, Policies, and Regulations

Compensatory mitigation is informed by regulatory requirements, regulatory mechanisms for credit establishment, and conservation. Laws; regulations; and comprehensive, conservation, and land management plans that are applicable and relevant to the GAI will be consulted by Caltrans to inform both regional understanding and advance mitigation project scoping.

Caltrans identified 222 documents that may be relevant to advance mitigation planning and advance mitigation project delivery: 37 state and federal laws, guidelines, and regulations; 29 statewide and regional resource management plans; 22 plans and permits and other documents focused on species of mitigation need; 25 state agency, federal agency, U.S. military, and local government land management plans; 4 water resources plans and documents; 97 county, city, and local government general plans; and 8 nongovernmental organization conservation and management documents. A summary and links to these documents can be found in Chapter 3, *Relevant Plans, Policies, and Regulations*.

ES.4 Existing Mitigation Opportunities

For the purposes of the RAMNA, existing mitigation opportunities are potential opportunities for Caltrans to use AMA funds to purchase compensatory mitigation that was previously approved by one or more natural resource regulatory agencies. In

accordance with SHC § 800.6(a), the approved credits or values eligible for purchase may have been established through a conservation bank, mitigation bank, natural community conservation plan (“NCCP”), habitat conservation plan (“HCP”), in-lieu fee program, or mitigation credit agreement (“MCA”) developed in accordance with a CDFW approved regional conservation investment strategy (“RCIS”).

Chapter 4, *Existing Mitigation Opportunities*, presents readily available information regarding existing mitigation opportunities for the GAI. In brief, Caltrans identified 3 NCCPs or HCPs for which Caltrans is a participant or may be eligible to participate, 20 pending or active conservation and mitigation banks, 3 in-lieu fee programs, one approved RCISs, and no MCAs. Existing mitigation opportunities can also inform both regional understanding and advance mitigation project scoping because they may be expressions of resource agency conservation goals and objectives⁷ as well as suitable for concurrent transportation project mitigation.

ES.5 Estimated Impacts

Prior to developing a focused advance mitigation project scope to purchase or establish mitigation credits or values, as authorized by SHC § 800.6(a), Caltrans must determine whether it needs advance mitigation credits. Since environmental and permitting processes have not yet taken place, Caltrans must rely on estimating future SHOPP transportation projects⁸ impacts through the SAMNA model, as well as qualitative assessments of STIP-eligible transportation project needs,⁹ to define the range of its potential advance mitigation needs.

Chapter 5, *Modeled Estimated Impacts*, provides transportation project impact estimates for fiscal years 2022/23 to 2031/32. In the GAI, 68 SHOPP transportation projects and no non-SHOPP STIP eligible transportation projects are in their conceptualization phase for the planning period. Of the SHOPP transportation projects evaluated, 11 are forecast to affect 12.1 acres of arroyo toad habitat, 7 are forecast to affect 5 acres of coastal California gnatcatcher habitat, and 1 is forecast to affect 0.1 acre of least Bell's vireo habitat in the GAI. This is summarized in Tables ES-1 through ES-3.

⁷ For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.

⁸ Caltrans undertakes SHOPP transportation projects to address maintenance, safety, operation, and rehabilitation of the State Highway System (“SHS”); such projects do not add new capacity to the system.
<https://catc.ca.gov/programs/state-highway-operation-and-protection-program>

⁹ Metropolitan planning organizations, regional transportation planning agencies, and other public agencies also undertake transportation projects to address non-SHOPP, STIP-funded transportation improvements.

Table ES-1. Summary of Estimated SHOPP Impacts on Special-status Species Habitat in the GAI

Ecoregion Section	Number of Caltrans SHOPP Projects ^a	Number of Habitats	Number of Special-status Species ^{b,c}	Estimated Total Habitat Impact (acres)
Mojave Desert	1	3	34	7.3
Southern California Coast	14	13	67	4.5
Southern California Mountains and Valleys	26	17	80	16.5
Total^d	40	24	104	28.4

^a Transportation projects are listed in Appendix B.

^b Special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.

^c Included in the SAMNA. See SAMNA Report (Caltrans 2024c).

^d Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Table ES-2. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need in the GAI

Ecoregion Section	Arroyo Toad Habitat: Number of Caltrans SHOPP Projects ^a	Arroyo Toad: Estimated Habitat Impact (acres) ^b	Coastal California Gnatcatcher Habitat: Number of Caltrans SHOPP Projects ^a	Coastal California Gnatcatcher: Estimated Habitat Impact (acres) ^b	Least Bell's Vireo Habitat: Number of Caltrans SHOPP Projects ^a	Least Bell's Vireo: Estimated Habitat Impact (acres) ^b	Total
Mojave Desert	1	7.3	0	0.0	0	0.0	7.3
Southern California Coast	2	0.3	4	1.3	0	0.0	1.4
Southern California Mountains and Valleys	8	4.5	3	3.7	1	0.1	7.3
Total^b	11	12.1	7	5.0	1	0.1	16.0

^a Transportation projects are listed in Appendix B.

^b Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section.

Table ES-3. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need in the Coastal Zone of the GAI

Ecoregion Section	Coastal California Gnatcatcher Habitat: Number of Caltrans SHOPP Projects^a	Coastal California Gnatcatcher: Estimated Habitat Impact (acres)^b	Total
Southern California Coast	1.0	0.1	0.1
Total	1.0	0.1	0.1

^a Transportation projects are listed in Appendix B.

Impact estimates for special-status species habitat, wetlands, non-wetland waters, riparian habitat, and vernal pools from SHOPP transportation projects included in the SAMNA are summarized in Tables ES-4 through ES-12.

Of the 68 SHOPP transportation projects evaluated, 13 are forecast to affect 2.6 acres of aquatic species of threatened and endangered fish habitat, 2 are forecast to affect 1.5 acres of threatened and endangered fish habitat within the coastal zone, 7 are forecast to affect 0.4 acre of wetland habitat, 0.4 acre of freshwater forested/shrub wetland habitat, 1 is forecast to affect less than 0.1 acre of estuarine and marine wetland habitat, 21 are forecast to affect 4.0 acres of non-wetland waters, 2 are forecast to affect 1.6 acres of coastal non-wetland waters, 44 could potentially affect 1.04 to 40.31 acres of areas with potential riparian function, 2 could potentially affect 0.10 to 0.87 acre of areas with potential riparian function in the coastal zone, and 3 could result in impacts on 0.8 acres of vernal pool invertebrate habitat.

Table ES-4. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)^{a,b,c}

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Southern Steelhead DPS	Mohave Tui Chub	Santa Ana Sucker	Tidewater Goby	Unarmored Threespine Stickleback	Total^d
San Gabriel	18070106	5	0.0	1.8	0.1	1.3	0.0	1.8
Santa Ana	18070203	8	0.0	0.0	0.1	0.0	0.8	0.8
Total	Not applicable	13	0.0	1.8	0.1	1.3	0.8	2.6

- ^a Threatened and endangered fish species habitat impacts are forecast by the SAMNA Reporting Tool.
^b The SAMNA forecasts impacts on threatened and endangered fish habitat for 2 of the 5 HUC-8s in the GAI.
^c Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.
^d For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the total impact across all habitat types is provided.

Table ES-5. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat within the Coastal Zone of the GAI (acres)^{a,b}

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Mohave Tui Chub	Tidewater Goby	Total ^c
San Gabriel	18070106	2	1.5	1.3	1.5
Total	Not applicable	2	1.5	1.3	1.5

- ^a Threatened and endangered fish species habitat impacts are forecast by the SAMNA Reporting Tool.
^b The SAMNA forecasts impacts on threatened and endangered fish habitat in the coastal zone for 1 of the 5 HUC-8s in the GAI.
^c For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the total impact across all habitat types is provided.

Table ES-6. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Estuarine and Marine Wetland	Freshwater Forested/Shrub Wetland	Total ^b
Aliso-San Onofre	18070301	2	<0.1	<0.1	<0.1
San Gabriel	18070106	4	<0.1	0.4	0.4
Santa Ana	18070203	1	<0.1	<0.1	0.4
Total^{b,c}	Not applicable	7	<0.1	0.4	0.4

- ^a The SAMNA forecasts impacts on wetlands for 3 of the 5 HUC-8s in the GAI.
^b Totals may be different on account of rounding.
^c Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect wetlands.

Table ES-7. Summary of Estimated SHOPP Impacts on Wetlands in the Coastal Zone of the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Estuarine and Marine Wetland	Total
Aliso-San Onofre	18070301	1	<0.1	<0.1
Total	Not applicable	1	<0.1	<0.1

- ^a The SAMNA forecasts impacts on wetlands for 1 of the 5 HUC-8s in the GAI.

Table ES-8. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Canal/ Ditch	Sea/ Ocean	Stream/ River	Wash	Total ^b
Aliso-San Onofre	18070301	3	<0.1	0.0	0.6	0.0	0.6
Newport Bay	18070204	1	0.2	0.0	0.0	0.0	0.2
San Gabriel	18070106	6	<0.1	1.3	0.5	0.0	1.8
Santa Ana	18070203	9	0.1	0.0	0.8	0.1	1.0
Seal Beach	18070201	2	0.4	0.0	<0.1	0.0	0.4
Total^{b,c}	Not applicable	21	0.7	1.3	1.9	0.1	4.0

^a The SAMNA forecasts impacts on wetlands for all 5 HUC-8s in the GAI.

^b Totals may be different on account of rounding.

^c Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect non-wetland waters.

Table ES-9. Summary of Estimated SHOPP Project Impacts on Non-wetland Waters in the Coastal Zone of the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Sea/ Ocean	Stream/ River	Total
San Gabriel	18070106	2	1.3	0.3	1.6
Total	Not applicable	2	1.3	0.3	1.6

^a The SAMNA forecasts impacts on non-wetland waters within the coastal zone for 1 of the 5 HUC-8s in the GAI.

Table ES-10. Summary of Estimated SHOPP Project Impacts on Areas of Potential Riparian Function in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Slope-based Estimate (acres) ^b	Vegetation Process-based Estimate (acres) ^b
Aliso-San Onofre	18070301	7	0.02	6.59
Newport Bay	18070204	4	<0.01	1.59
San Gabriel	18070106	16	0.68	7.48
Santa Ana	18070203	18	0.34	17.78
Seal Beach	18070201	3	0.00	6.86
Total^{c,d}	Not applicable	44	1.04	40.31

^a Impacts were estimated for all 5 HUC-8s in the GAI.

^b Vegetation polygon features used for the analysis are consistent with the SAMNA.

^c Totals may be different on account of rounding.

^d Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect areas of potential riparian function.

Table ES-11. Summary of Estimated SHOPP Project Impacts on Areas of Potential Riparian Function in the Coastal Zone of the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Slope-based estimate (acres) ^b	Vegetation process-based estimate (acres) ^b
Aliso-San Onofre	18070301	1	0.10	0.10
San Gabriel	18070106	1	0.00	0.77
Total^{c,d}	Not applicable	2	0.10	0.87

^a Two of the 5 HUC-8s in the GAI overlap the coastal zone.

^b Vegetation polygon features used for the analysis are consistent with the SAMNA.

^c Totals may be different on account of rounding.

^d Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect areas of potential riparian function.

Table ES-12. Summary of Estimated SHOPP Project Impacts on Vernal Pool Habitat in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Riverside Fairy Shrimp	San Diego Fairy Shrimp	Total
Aliso-San Onofre	18070301	3	0.4	0.3	0.4
Newport Bay	18070204	1	0.1	0.0	0.1
Total^{b,c}	Not applicable	3	0.5	0.3	0.5

^a The SAMNA forecasts impacts for 2 of the 5 HUC-8s in the GAI.

^b Totals may be different on account of rounding.

^c Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect non-wetland waters.

ES.6 Benefiting Transportation Project Considerations

One intent of the AMP's founding legislation is for Caltrans to realize the potential of advance mitigation to accelerate transportation project delivery. At this time (July of fiscal year 2025/26), Caltrans is 2 years into the SHOPP Ten-Year Book planning period. Therefore, the time period under consideration is fiscal years 2023/24 to 2032/33. District 12 intends to prioritize purchasing or developing mitigation credits or values that are planned for the middle to the end of the 10-year planning period.

Chapter 6, *Benefiting Transportation Project Considerations*, provides a temporal analysis of Caltrans needs organized by aquatic resources, riparian habitat, and species of mitigation need. Prior to proposing advance mitigation projects, Caltrans District 12 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

It should be noted that at this time, several transportation projects have been delayed or eliminated, and the timing of Caltrans needs may change. Caltrans will consider the updated transportation schedule when scoping and funding advance mitigation projects. The feasibility of addressing the needs through the SHC § 800.6(a) authorized activities is discussed in Chapter 9, *Assessment of Authorized Activities*.

ES.7 Conservation Goals and Objectives

To increase the probability that advance mitigation project scopes promoted within and/or undertaken by Caltrans will successfully meet natural resource regulatory agency goals and objectives, this RAMNA was reviewed by these agencies and their comments and suggestions were incorporated.

Wildlife Resources Goals and Objectives

When establishing wildlife resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies with the authority to approve wildlife resource-related credit establishment and with the authority to approve their application to offset transportation project-related impacts. At a broad scale, Caltrans' understanding of the wildlife resources goals and objectives presented in this RAMNA encompasses protecting, preserving, and enhancing largescale ecological processes, environmental gradients, biological diversity, and regional linkages.

Informed by relevant plans, policies, and regulations, the goals and objectives presented summarize how state and federal natural resource regulatory agencies, land managers, and other interested parties have prioritized regional conservation that preserves intact habitat and provides habitat linkages and connectivity. In recognition of transportation project acceleration needs, wildlife goals and objectives place an emphasis on species of mitigation need habitats in the GAI; however, advance mitigation for the benefit of species of mitigation need is anticipated to have broader benefits for multiple special-status species that rely on the same habitats. Caltrans' understanding of natural resource regulatory agency wildlife goals gathered for this RAMNA include:

- Conserving and expanding habitat for the terrestrial species of mitigation need · Preserving, enhancing, and increasing connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations
- Supporting resiliency of the landscape to climate change and sea-level rise · Decreasing mortality and competition, and protecting population health for species of mitigation need
- Prioritizing multi-species and multi-resource benefits

Objectives and sub-objectives are provided under each of the above goals in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, to guide Caltrans advance mitigation project scoping toward those actions that would create the greatest functional lift for wildlife resources in the GAI. Sub-objectives capture more specific measures from conservation and land management plans that address threats to the aforementioned resources.

Aquatic Resources Goals and Objectives

When establishing aquatic resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies that have the authority to approve aquatic resource-related credit establishment and have the authority to approve their application to satisfy conditions on transportation projects. At a broad scale, Caltrans' understanding of aquatic resources goals and objectives presented in the RAMNA encompasses restoring, maintaining, and enhancing largescale ecological processes, environmental gradients, biological diversity, and regional linkages. Aquatic resources goals developed for this RAMNA prioritize:

- Providing for no net loss of area, functions, values, and conditions of wetland and non-wetland water resources
- Restoring and/or enhancing the chemical, physical, and biological integrity of wetlands and non-wetland waters
- Restoring and/or enhancing and expanding habitat for the fish species of mitigation need
- Supporting resiliency of aquatic resources to climate change and sea-level rise
- Providing multi-resource benefits

Sub-objectives are included for each goal in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*, to guide Caltrans project scoping toward those actions that would create the greatest functional lift for aquatic resources in the GAI. Sub-objectives also capture more specific measures from conservation and land management plans that address threats to the aforementioned resources.

ES.8 Authorized Activity Summary

A summary of Caltrans' need for compensatory mitigation credits in the GAI and the feasibility of each SHC § 800.6(a) authorized activity to address is provided in Chapter 9, *Assessment of Authorized Activities*. At this time (July of fiscal year 2025/26), Caltrans is almost 2 years into the SHOPP Ten-Year Book planning period. Therefore, for the time interval under consideration, fiscal years 2023/24 to 2032/33, Caltrans District 12 intends to prioritize purchasing or developing mitigation credits or values that address Road Repair and Accountability Act of 2017 (also known as Senate Bill 1) priorities that are planned for the middle and end of the planning period. As pointed out in Chapter 6, *Benefiting Transportation Project Considerations*, given the expected timing of mitigation need, at this time (July of fiscal year 2025/26) mitigation that can be purchased or established by fiscal year 2027/28 (within the next 2 years) could potentially address approximately:

- 7.3 acres of arroyo toad habitat impact in the Mojave Desert Ecoregion Section, potentially contributing to the acceleration of 1 transportation project
- 0.2 acre of arroyo toad habitat and 1.2 acres of coastal California gnatcatcher habitat impacts in the Southern California Coast Ecoregion Section, potentially contributing to the acceleration of 1 and 3 transportation projects, respectively
- 0.2 acre of non-wetland waters, 0.4 acre of vernal pool habitat, and <0.1 to 0.7 acre of riparian area impacts in the Aliso-San Onofre sub-basin, potentially contributing to the acceleration of 1, 2, and 2 transportation projects, respectively
- Up to 0.2 acre of riparian area impacts in the Newport Bay sub-basin, potentially contributing to the acceleration of 1 transportation project
- 1.3 acres of fish habitat, 1.3 acres of non-wetland waters, and up to 0.1 acre of riparian area impacts in the San Gabriel sub-basin, potentially contributing to the acceleration of 1, 1, and 1 transportation projects, respectively
- 0.4 acre of fish habitat, <0.1 acre of wetland, 0.4 acre of non-wetland waters, and <0.1 to 4 acres of riparian area impacts in the Santa Ana sub-basin, potentially contributing to the acceleration of 2, 1, 2, and 3 transportation projects, respectively
- 0.4 acre of non-wetland waters and up to 6.8 acres of riparian area impacts in the Seal Beach sub-basin, potentially contributing to the acceleration of 2 and 2 transportation projects, respectively

All or some of these needs could form the basis for the Caltrans District to develop an advance mitigation project scope implementing one or more SHC § 800.6(a) authorized activity.

Broadly speaking, SHC § 800.6(a) authorized activities can be divided into two groups: (1) purchasing compensatory mitigation that has been previously established and

approved by the natural resource regulatory agencies through a conservation/mitigation bank, HCP/NCCP, in-lieu fee program, or MCA; or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance. The time it takes to perform each authorized activity varies; however, purchasing or paying fees for compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans Districts will consider all feasible options when developing advance mitigation project scopes. At this time (July of fiscal year 2025/26), purchasing credits approved through a bank or in-lieu fee instrument, or establishing new credits through a bank or in lieu fee instrument, is likely feasible. The feasibility of each authorized activity to meet the forecast mitigation need in time to accelerate transportation projects will depend on the availability of a regulatory and administrative pathway as well as other conditions. As pointed out above, when Caltrans scopes advance mitigation projects to establish mitigation, Caltrans intends to center the advance mitigation projects on the species of mitigation need and aquatic resources, as well as address conservation benefits and values for other special-status terrestrial species and resources. Caltrans also intends to scope credit establishment projects that align with conservation goals and objectives, address multi-resource benefits, and address overlapping jurisdictions.

ES.9 Next Steps

Caltrans Districts will use the advance mitigation options identified in the RAMNA to inform advance mitigation project scoping, which will consider needs; conservation data and plans; input received from natural resource regulatory agencies, the Federal Highway Administration, metropolitan planning organizations, regional transportation planning agencies, other public agencies that implement transportation improvements, Native American tribes, interested parties, and the public; feasibility in consideration of mitigation need and timing; and other information presented here and that is publicly available to develop a high-level advance mitigation project scope to be included in an advance mitigation project's nomination materials. Once a nominated advance mitigation project is approved by the Caltrans Director, the Caltrans District will begin advance mitigation project delivery, which includes stakeholder engagement, project alternative analysis, coordination with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third parties and/or credit sponsors, and developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement.

As with all compensatory mitigation established through any advance mitigation process, the mitigation's suitability to address a specific transportation project's impact is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

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1. INTRODUCTION

California's State Highway System ("SHS") relies on long-range planning documents to guide its operation and maintenance. In this *Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach Sub-basins and Five Watersheds Within the San Gabriel Sub-basin Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 12 presents its forecast of natural resource compensatory mitigation¹ needs for the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin for a 10-year planning horizon. Sources used for this RAMNA are cited throughout this document, and links to geographic information system ("GIS") sources are provided in Appendix A, *GIS Sources*.

The RAMNA was developed with the goal of realizing the benefits of advance mitigation, which:

- anticipates that unavoidable impacts will be identified in the future, and
- consists of having mitigation available that has already been vetted and agreed upon by natural resource regulatory agencies as representing mitigation actions before transportation projects are completely designed and funded.

When compensatory mitigation actions are independent of transportation project delivery timelines, there is an opportunity to (1) improve the schedule and cost predictability of complying with natural resource regulatory agency compensatory mitigation conditions on transportation projects and (2) consolidate the anticipated compensatory mitigation from multiple transportation projects into fewer and larger mitigation actions, establishing mitigation credits that provide a greater ecological value than implementing multiple small project-by-project actions. Credits are the usual currency of advance mitigation actions.

This document is intended to be both an internal communication tool between Caltrans' functional units² and an external communication tool for Caltrans to communicate with the Federal Highway Administration ("FHWA"), natural resource regulatory agencies, other transportation agencies (that is, metropolitan planning organizations ["MPOs"], regional transportation planning agencies ["RTPAs"], and other public agencies that implement transportation improvements), Native American tribes, interested parties, and

¹ Compensatory mitigation is a mitigation strategy that is preferentially applied only after it has been determined that there will be unavoidable adverse impacts on natural resources, and other efforts to minimize, rectify, and reduce the impact have been incorporated into a transportation project's design. Traditionally, this determination occurs late in a transportation project's development process, at which time the compensatory mitigation action is both funded and implemented concurrently with the transportation project.

² "Functional unit" is a general term used by Caltrans to describe its organizational structure. Caltrans functional units include, but are not limited to, transportation planning, environmental, surveys, right-of-way, real property asset management, materials, traffic, structure design, hydraulics, construction, maintenance, landscape architecture, utilities, and engineering.

the public. It will be posted on the Advance Mitigation Program (“AMP”) website: www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation.

1.1. AMP Overview

In 2017, the California Streets and Highways Code (“SHC”) § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account (“AMA”), to be operated by Caltrans as a revolving account. The stated intent of the legislation is for Caltrans, through the AMP, to realize the potential of advance mitigation to both “accelerate transportation project delivery” and “protect natural resources through transportation project [compensatory] mitigation” [SHC § 800(a)]. To this end, the legislation identifies specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. Generally speaking, the 11 activities authorized in SHC § 800.6(a) consist of purchasing or establishing compensatory mitigation credits developed through an appropriate regulatory mechanism, which are then available for use by transportation projects to offset adverse impacts (Table 1-1). Natural resource regulatory agencies and Caltrans will determine the appropriateness of a credit’s use on a case-by-case basis, when Caltrans proposes use of the credit to satisfy a specific condition placed on a transportation project.

Table 1-1. Advance Mitigation Project Types^a

Advance Mitigation Project Type	Authorization
Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved natural community conservation plan (“NCCP”) ^b and/or an approved habitat conservation plan (“HCP”).	SHC § 800.6(a)(2)
Caltrans purchases credits from an existing conservation bank.	SHC § 800.6(a)(1)
Caltrans purchases credits from an existing mitigation bank.	SHC § 800.6(a)(1)
Caltrans purchases credits from an existing in-lieu fee program.	SHC § 800.6(a)(1)
Caltrans purchases credits developed through a mitigation credit agreement (“MCA”), established under a California Department of Fish and Wildlife (“CDFW”)-approved regional conservation investment strategy (“RCIS”). ^c	SHC § 800.6(a)(3)(A)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)

Advance Mitigation Project Type	Authorization
Caltrans funds the implementation of conservation actions and habitat enhancement actions ^{c,d} to generate mitigation credits pursuant to an MCA ^b established under a CDFW-approved RCIS. ^c The scope may include Caltrans first entering into or funding the preparation of an MCA. ^c The scope may also include Caltrans first entering into or funding the preparation of an RCIS. ^c	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation ^e of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.	SHC § 800.6(a)(3)(B)
When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan ^f pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS. ^c	SHC § 800.6(a)(4) SHC § 800.9

^a Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.

^b When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP

^c See <https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

^d Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with the California Fish and Game Code ("FGC") § 1850–1861.

^e The State Water Resources Control Board ("SWRCB") and Regional Water Boards do not approve the establishment of, or accept, preservation credits as the sole or primary type of mitigation.

^f Programmatic mitigation plans are defined in 23 U.S. Code ("USC") § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

1.1.1. AMP Guidelines

Approved at the end of 2019, the *Advance Mitigation Program Final Formal Guidelines* ("AMP Guidelines") describe how—through advance mitigation planning and advance mitigation project delivery—the Caltrans AMP will fulfill its intended purpose (Caltrans 2019a). As shown in Figures 1-1 and 1-2, the AMP Guidelines present a 10-step process: the first 5 of which are the advance mitigation planning phase, and the next 5 are the advance mitigation project delivery phase. Implementation of each step of the planning phase improves the probability that advance mitigation projects undertaken by Caltrans in the project delivery phase will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. The AMP Guidelines also describe how State Highway Operation and Protection Program ("SHOPP") and State Transportation Improvement Program ("STIP")³ transportation projects will reimburse the AMA for advance mitigation project investments, thereby making the funds available to undertake the next advance mitigation project.

³ Only SHOPP- and STIP-funded transportation projects are eligible to use the AMA-funded pre-transfer credits (SHC § 800.7).

Figure 1-1. Advance Mitigation Planning Phase



Source: Caltrans (2019a)

Figure 1-2. Advance Mitigation Project Delivery Phase



Source: Caltrans (2019a)

1.1.2. Advance Mitigation Planning Phase

Caltrans advance mitigation planning starts with modeled estimates of potential impacts on more than 600 wildlife and aquatic resources and, through successive steps, focuses and refines Caltrans' need for advance mitigation to inform advance mitigation project scopes that will be approved by the Caltrans Director. At this time, Steps 1 and 2 of the AMP's 5-step advance mitigation planning phase are complete.

This RAMNA satisfies Step 3 (Figure 1-1; Caltrans 2019a) and provides the results of a regional assessment of Caltrans' advance mitigation needs in the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin.⁴

Caltrans District 12 will first use the information and analysis presented in this RAMNA to inform Step 4 of the advance mitigation planning phase. Step 4 is the point when Caltrans justifies, proposes, and scopes an advance mitigation project based on its needs

⁴ Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

(Figure 1-1; Caltrans 2019a). Advance mitigation project scopes informed by this RAMNA will provide enough information, at the appropriate level of detail, for an advance mitigation project to be nominated to the Caltrans Director for funding approval. The advance mitigation planning phase will conclude when the Caltrans Director approves a specific nominated Caltrans District 12 advance mitigation project for funding (Step 5; Figure 1-1; Caltrans 2019a). Thereafter, Caltrans District 12 will use the RAMNA as a reference (Caltrans 2019a).

1.1.3. Advance Mitigation Project Delivery Phase

Steps 6 through 10 consist of the AMP's advance mitigation project delivery phase (Figure 1-2; Caltrans 2019a). Advance mitigation project delivery is undertaken after an advance mitigation project has been approved by the Caltrans Director and programmed⁵ (Figure 1-2; Caltrans 2019a). This phase consists of implementing one or more of the 11 authorized advance mitigation activities (Table 1-1).

1.1.4. Program Constraints

Implicit to the AMP, the AMP Guidelines, advance mitigation planning, and advance mitigation project delivery are a number of established laws, policies, and processes including, but not limited to, the following:

- Gas tax-derived funds may be used to develop only those mitigation credits or values anticipated to be needed to fulfill the mitigation requirements of transportation improvements [California Constitution, Article XIX § 2(a)].
- AMA funds are likely not sufficient to address all of Caltrans' anticipated compensatory mitigation needs.
- Long-term transportation planning is dynamic, and compensatory mitigation needs may change over a 10-year planning horizon as funding sources and transportation project lists are refined and updated.
- Advance mitigation planning does not imply an endorsement of a transportation project alternative.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that a future transportation project impact will be authorized by a natural resource regulatory agency. Avoidance and minimization considerations continue to be required.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that the advance compensatory mitigation will be considered adequate and/or suitable by a natural resource regulatory agency for a specific transportation project's impact. Appropriateness of use of advance mitigation credits developed will be assessed on a case-by-case basis. For example, using mitigation credits from a conservation bank where only

⁵ Programming refers to the process Caltrans employs to set priorities for funding advance mitigation projects at the Caltrans District and project level. Through programming, Caltrans commits revenues over a multiyear period to a specific advance mitigation project.

preservation exists would not qualify for wetland or riparian impacts at some regulatory agencies.

- Natural resource regulatory agency approvals are discretionary and often conditional; well-executed advance mitigation does not necessarily increase the likelihood of obtaining agency approval for any particular transportation project.
- The 2008 Mitigation Rule, 2023 U.S. Fish and Wildlife Service (“FWS”) Mitigation Policy, FWS Endangered Species Act Compensatory Mitigation Policy, and 2022 National Oceanic and Atmospheric Administration (“NOAA”) Mitigation Policy for Trust Resources express a preference for advance mitigation (in several forms) but also provide flexibility for off-site and out-of-kind mitigation where important aquatic resources in a watershed area have been identified as priority areas because of the importance of such resources, widespread loss of such resources, and/or the likelihood of successful execution of mitigation at priority sites.
- Advance mitigation projects should optimize their conservation benefit in such a way that the number and types of mitigation credits (or similar) are maximized.
- Advance mitigation projects, like transportation projects and conservation projects, have financial, technical, and strategic risks and require a scope, schedule, and budget.
- Advance mitigation projects to establish credits allow for longer timelines for plant establishment, which is crucial to success.
- Transportation projects must include mitigation costs in the scoping and programming of their budgets because they are required by law to reimburse the AMA for use of mitigation produced by the AMP [SHC § 800.6(b)].
- The AMA is a revolving account. With a revolving account, reimbursed funds are reinvested into new advance mitigation projects.

The above list is not presented in any order or priority.

1.2. Caltrans District 12 Transportation Infrastructure⁶

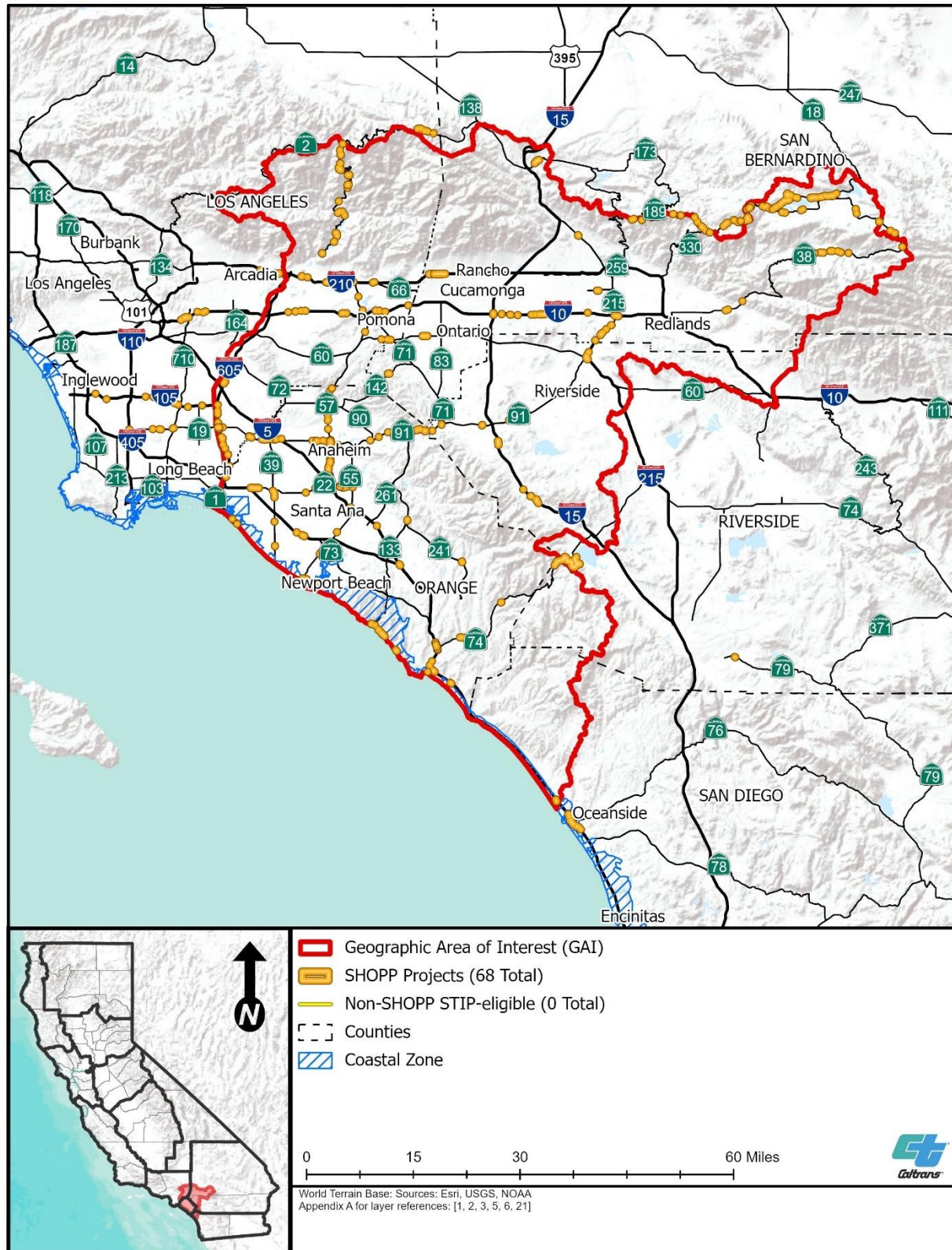
Headquartered in Santa Ana, Caltrans District 12 is located in southern California in Orange County. Caltrans District 12 headquarters maintains and operates over 1,502 centerline miles of freeways, expressways, and conventional highways. These SHS roadways range from scenic two-lane highways to controlled-access freeways. Interstate 5, Interstate 405, State Route 1, State Route 39, State Route 55, and State Route 133 are major north-to-south routes. State Route 22, State Route 74, and State Route 90 are major east-to-west routes that traverse District 12.

⁶ Adapted from <https://dot.ca.gov/caltrans-near-me/district-12>

Other transportation agencies that implement transportation improvements in the geographic area of interest (“GAI”) for this RAMNA (MPOs, RTPAs, and other public agencies) are the Orange County Transportation Authority, Transportation Corridor Agencies, Los Angeles County Metropolitan Transportation Authority, San Bernardino County Transportation Authority, Riverside County Transportation Commission, San Diego Association of Governments, and Southern California Association of Governments. The aforementioned transportation agencies are eligible for STIP funding.

Figure 1-3 shows the road infrastructure in the GAI for this RAMNA.

Figure 1-3. GAI Road Infrastructure



1.3. Regulatory Framework Summary

Unavoidable adverse natural resource impacts that could result from transportation projects are defined under environmental policies, laws, and regulations, including, but not limited to:

- California Coastal Act (Public Resources Code § 30000 et seq.)
- California Endangered Species Act (“CESA”) (California FGC § 2050 et seq.)
- California Environmental Quality Act (“CEQA”) (Public Resources Code § 21000 et seq.)
- federal Clean Water Act (“CWA”), Sections 401 and 404 (33 USC § 1251–1376)
- federal Endangered Species Act (“FESA”) of 1973 (16 USC § 1531–1543), as amended
- Lake and Streambed Alteration Program (FGC § 1600 et seq.)
- National Environmental Policy Act (“NEPA”) (42 USC § 4321 et seq.)
- Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.)
- Rivers and Harbors Act of 1800, Section 10 (33 USC § 403)

Natural resource regulatory agencies that may need to be engaged for transportation projects that may adversely impact natural resources in the GAI are listed in Table 1-2.

Table 1-2. Natural Resource Regulatory Agencies with the Authority to Approve Compensatory Mitigation Credits (or Values) in the GAI

Partner	Web Address
California Coastal Commission (“CCC”)	https://www.coastal.ca.gov/
CDFW, Inland Deserts Region	https://wildlife.ca.gov/Regions/6
CDFW, Marine Region	https://wildlife.ca.gov/Regions/Marine
CDFW, South Coast Region	https://wildlife.ca.gov/Regions/5
SWRCB	https://www.waterboards.ca.gov/
California Regional Water Quality Control Board (“RWQCB”), Los Angeles Region	https://www.waterboards.ca.gov/losangeles/
RWQCB, San Diego Region	https://www.waterboards.ca.gov/sandiego/
RWQCB, Santa Ana Region	https://www.waterboards.ca.gov/santaana/
National Marine Fisheries Service (“NMFS”), California Coastal Office	https://www.fisheries.noaa.gov/west-coast/about-us/west-coast-area-offices#california-coastal-office
U.S. Army Corps of Engineers (“Corps”), South Pacific Division, Los Angeles District	https://www.spl.usace.army.mil/
U.S. Environmental Protection Agency (“EPA”), Region 9	http://www.epa.gov/region9/
FWS, Carlsbad Fish and Wildlife Office	https://www.fws.gov/office/carlsbad-fish-and-wildlife

Each of the natural resource regulatory agencies listed in Table 1-2 may include compensatory mitigation as a transportation project condition after it has been determined that there will be unavoidable permanent, adverse impacts and that other efforts to minimize, rectify, and reduce the impact have been incorporated in the transportation project's design and delivery. These natural resource regulatory agencies may also recognize the use or application of a compensatory mitigation credit that was established through an instrument or other formal interagency agreement as satisfying a transportation project's compensatory mitigation condition(s). As a lead agency under CEQA and NEPA, Caltrans may also determine compensatory mitigation is required.

Some natural resource regulatory agencies also have established regulatory frameworks for establishing compensatory mitigation. These are defined under environmental laws, regulations, policies, and guidelines including, but not limited to:

- *Memorandum of Understanding Concerning Mitigation and Conservation Banking and In-Lieu Fee Programs in California* (California Natural Resources Agency ["CNRA"] et al. 2011)
- *Conservation Bank and Mitigation Bank Applications and Fees* (FGC § 1797 et seq.)
- *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* (33 Code of Federal Regulations ["CFR"] Parts 230, 325, and 332 and 40 CFR Part 230)
- *Advance Mitigation and Regional Conservation Investment Strategies*, mitigation credit agreements (FGC § 1856)
- *Final Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015)

As discussed previously, credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established. Establishing conservation banks, mitigation banks,⁷ and in-lieu fee programs requires an instrument. Existing policies and regulations prescribe what an instrument must contain and address, as well as the terms of use for the credits generated by the mitigation bank, conservation bank, or in-lieu fee program. Similarly, establishing HCPs and NCCPs requires an agreement.

1.4. SAMNA

Predicting likely future transportation project effects on natural resources takes place at the intersection of transportation planning and conservation planning. In 2024, consistent with Step 1 of the advance mitigation planning process (Figure 1-1), the AMP forecast Caltrans' statewide compensatory mitigation needs for the transportation improvements conceptualized in the *State Highway Operation & Protection Program Ten-Year Project Book 2023/24–2032/33* ("SHOPP Ten-Year Book"; Caltrans 2024a) for fiscal years 2023

⁷ The goal of conservation banks is, typically, to offset adverse impacts on a species, while the goal of mitigation banking is to replace the functions and values of specific wetland and other aquatic habitats that will be adversely affected.

to 2032 (Caltrans 2024b). The forecast was performed using the Caltrans Statewide Advance Mitigation Needs Assessment Reporting Tool (“SAMNA Reporting Tool”), a GIS overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2024c). Potential impacts for all 12 Caltrans Districts were estimated. Statewide, almost 1,000 transportation projects and over 600 wildlife and aquatic resources were evaluated through the SAMNA Reporting Tool, yielding thousands of results (Caltrans 2024c). The subset of the Caltrans District 12 transportation projects that are planned in the GAI during the planning period covered by this RAMNA and the eight-digit hydrologic unit code (“HUC-8”) and ecoregion section, advertised year, and planned activities for each planned transportation project are included in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, of this RAMNA.

For consistency and as appropriate, tables, figures, and information presented throughout this document, including in Chapter 2, *Environmental Setting*, are consistent with the geospatial data within the SAMNA Reporting Tool. SAMNA Reporting Tool geospatial data and model assumptions are described more fully in Caltrans (2024c). Results are presented in four different reports: terrestrial and aquatic species and subspecies, threatened and endangered fish, wetlands, and non-wetland waters. The unit of measure for impacts is acres.

SAMNA Caveats: The Statewide Advance Mitigation Needs Assessment (“SAMNA”) is strictly and specifically intended to be used by Caltrans to justify, propose, and scope advance mitigation projects (Caltrans 2024c). The SAMNA results:

- are not to be used to substitute for or preempt any requirements to conduct detailed transportation project-level environmental scoping and analysis to inform the programming of individual transportation projects;
- do not relieve Caltrans project planners from first avoiding and then minimizing impacts;
- do not preclude the requirements under CEQA and NEPA for environmental analysis of and permitting for individual transportation projects; and
- do not constitute a commitment on the part of an individual transportation project to implement the estimated compensatory mitigation. A transportation project’s actual impacts and compensatory mitigation commitments will be determined during its environmental and permitting processes.

Use of these methods shall not support the endorsement of or any other conclusion concerning any transportation project or transportation project alternative. Use or misuse of these methods and results for any purpose other than that which is intended shall be the sole responsibility of the individuals or entities conducting or supporting that use or misuse, who shall be fully liable, therefore.

1.4.1. Riparian Landcover Dataset

The Riparian Zone Estimator Tool (“RipZET”) is a Microsoft Excel and GIS-based decision support tool developed by the San Francisco Estuary Institute (“SFEI”) to estimate the extent of riparian areas based on the concept of “functional riparian width.”

According to this concept, various riparian functions can extend different distances from their adjacent surface waters, depending on local topographic slope, vegetation, and position along a drainage network. More information about the science behind RipZET can be found in SFEI (2015a).

Since 2015, RipZET has been used in smaller and more regional studies across California and has been refined a number of times by SFEI. However, in 2023, SFEI developed a larger scale statewide riparian landcover dataset for Caltrans to assist with advance mitigation planning (Caltrans 2023a). For this statewide product, SFEI used readily available data that were appropriate for the larger scale of the analysis (Caltrans 2023a). For example, SFEI used elevation data that are less detailed than recommended in SFEI (2015b) because high-resolution statewide data are not available—SFEI used 5-meter NextMAP data, not the recommended 0.5-meter LiDAR data. More information regarding the inputs to the statewide landcover dataset can be found in Caltrans (2023a). Further, it was not feasible to perform the field verification step used for the smaller-scale efforts. More information regarding the process and computations within RipZET's modules can be found in SFEI (2015b).

Whether the statewide riparian landcover dataset developed for Caltrans improves forecasts of Caltrans riparian-related mitigation needs is currently unknown. Statewide outputs are not regarded as riparian maps *per se* because they do not depict actual boundaries based on field observations. Instead, they represent modeled areas where riparian functions are likely to be supported based on hillslope and vegetation processes (Caltrans 2023a). Hence, the modeled impacts presented in this RAMNA using the statewide riparian landcover dataset layer are better understood to be forecast impacts on areas of potential riparian function, more so than on riparian habitat itself, and are likely more extensive than actual impacts to riparian habitat or to the vegetation associated with the bed and bank of streams or lakes. For transportation project environmental studies and permits, the extent of potential impacts on fish and wildlife resources associated with modification of the bed and bank of wetland and non-wetland water resources will ultimately be determined by biologists in the field.

1.5. GAI and Resource Focus

Given the quantity of resources evaluated through the SAMNA, limited AMA funding, and the need for the AMP to revolve the account, Caltrans focused this analysis on a geographic area with wildlife habitats and aquatic resources where planned transportation project schedules would likely benefit from (1) having compensatory mitigation credit purchase transactions completed and/or (2) having compensatory mitigation credit supplies increased.

Focusing this analysis improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Caltrans intends for any mitigation-related measures to support these environmental resources in the GAI to also benefit other environmental resources.

1.5.1. GAI

As pointed out in Section 1.4, the RAMNA is consistent with SAMNA Reporting Tool geospatial data and model assumptions. In consultation with the natural resource regulatory agencies, it was determined that presenting SAMNA results by HUC-8 sub-basin and ecoregion, and not political boundaries, would steer advance mitigation planning toward better ecological outcomes. The 2008 Mitigation Rule specifies the HUC-8 as the basis of service areas for mitigation banks, and CDFW's State Wildlife Action Plan ("SWAP") is organized by ecoregion. To identify a focus area, consistent with Step 2 of the advance mitigation planning process (Figure 1-1), in 2025, Caltrans District 12 subject matter specialists:

- reviewed the entirety of Caltrans District 12's SAMNA results by HUC-8 and ecoregion (Caltrans 2024c; available on www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation);
- reviewed the SAMNA results' associated potential future transportation project locations and activities anticipated for the SHOPP (Caltrans 2024a);
- reviewed non-SHOPP STIP-eligible transportation improvement plans for the next 10 years;
- observed that the portions of Caltrans District 12 located within the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin in the GAI have forecast compensatory mitigation needs during the planning period; and
- identified the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin as locations where Caltrans District 12 and other public agencies that implement transportation improvements could benefit from advance mitigation planning—hereafter called the "GAI" (Figure 1-3).

Because the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin form an ecological boundary and not a political boundary, some portions of the GAI overlap Caltrans Districts 7, 8, and 11. In addition to Caltrans District 12, Caltrans Districts 7, 8, and 11 may choose to take the lead on an advance mitigation project that would address its needs in the GAI.

1.5.2. Terrestrial Species of Mitigation Need

Compensatory mitigation for species in the GAI was identified as both a historical and anticipated future transportation project compensatory mitigation need within Caltrans District 12. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for some species more routinely than others and have benefited from mitigation credits, when available.

Caltrans does not typically need compensatory mitigation credits for species where impacts can be avoided or minimized. Hence, to further focus the planning effort, Caltrans District 12 identified species that, if compensatory mitigation credits were available and in-hand, transportation project schedules could potentially benefit. The determination is

made after reviewing SAMNA results for the planning period. These “species of mitigation need” are arroyo toad (*Anaxyrus californicus*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell’s vireo (*Vireo bellii pusillus*), and Southern California distinct population segment (“DPS”) steelhead (*Oncorhynchus mykiss*). Arroyo toad is federally listed as endangered and is a state species of special concern. Coastal California gnatcatcher is federally listed as threatened and a state species of special concern. Least Bell’s vireo and Southern California DPS steelhead are both federally and state-listed as endangered.

These species inform the analysis of estimated impacts provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, and the discussion in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

1.5.3. Aquatic Resources

For the purposes of this document, aquatic resources include all wetlands and non-wetland waters that may be subject to CCC, Corps, EPA, Water Boards (SWRCB and RWQCBs, or “Water Boards”), and/or CDFW regulations, as well as special-status fish that may be subject to CCC, CDFW, FWS, and/or NMFS regulations. Riparian habitat is described in Section 2.19.

Compensatory mitigation needs for aquatic resources and riparian habitat in the GAI were identified as both historical transportation project compensatory mitigation needs and anticipated future transportation project compensatory mitigation needs within District 12. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for these resources and have benefited from mitigation credits, when available.

The Aliso-San Onofre (HUC-8 18070301), Newport Bay (HUC-8 18070204), Santa Ana (HUC-8 18070203), and Seal Beach (HUC-8 18070201) sub-basins and five watersheds within the San Gabriel (HUC-8 18070106) sub-basin inform the analysis of estimated compensatory mitigation needs provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, as well as the discussion in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

1.6. RAMNA

This RAMNA is a planning-level document that:

- provides a desktop analysis of relevant available information pertaining to the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins and five watersheds within the San Gabriel sub-basin, referred to as the GAI;
- applies to fiscal years 2023/24 to 2032/33 (planning period), which is concurrent with the time period addressed by the SHOPP Ten-Year Book (Caltrans 2024a);
- discusses potential compensatory mitigation conditions that may be placed on future transportation projects by the seven natural resource regulatory agency

signatories⁸ to the *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program* (“Master Process Agreement”; Caltrans et al. 2020);

- focuses on wildlife habitats and aquatic resources that have a high probability of requiring transportation project-related compensatory mitigation in the GAI and planning period;
- documents Caltrans’ forecast of potential wildlife and aquatic resource⁹ compensatory mitigation needs for the GAI and planning period, as reported by the SAMNA (Caltrans 2024c);
- identifies information that will be important to Caltrans when scoping any of the AMP’s authorized activities in the GAI, in accordance with SHC § 800.6(a), including documenting the existing compensatory mitigation supply;
- incorporates information and feedback received from outreach to the natural resource regulatory agencies, FHWA, MPOs, RTPAs, other public agencies that implement transportation projects, Native American tribes, interested parties, and the public; and
- analyzes Caltrans’ options to meet its compensatory mitigation needs in the GAI through the AMP’s authorized activities.

Because early technical assistance and communication may increase the probability that advance mitigation projects promoted within and/or undertaken by Caltrans will successfully meet the AMP’s purpose, in accordance with the AMP Guidelines, Caltrans has requested that this RAMNA be reviewed by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Their reviews and any information they provide will also be consulted by Caltrans when it promotes and approves specific advance mitigation projects for development and funding (Caltrans 2019a).

1.7. Coordination History

With respect to external communications, the AMP Guidelines describe communication milestones within the advance mitigation project planning process (Caltrans 2019a). Each is summarized in the following sections.

1.7.1. MPOs, RTPAs, and Other Transportation Agencies that Implement Transportation Improvements

Caltrans is authorized to provide AMA-funded mitigation credits to MPOs, RTPAs, and other public agencies that implement transportation projects, upon reimbursement, for their use to satisfy STIP-funded transportation project mitigation. Transportation projects

⁸ Natural resource regulatory signatories are CDFW; SWRCB; Corps Los Angeles, Sacramento, and San Francisco Districts; EPA; FWS; NMFS; and CCC.

⁹ *Aquatic resources* is defined in Section 1.5.3.

eligible for STIP funding may increase the potential demand for compensatory mitigation in an area. At this time (July 2026), no STIP transportation projects in their planning phase and located in the GAI were identified for the planning period.

1.7.2. RAMNA Review

The AMP Guidelines (Caltrans 2019a) state:

Before the RAMNA will be used to support advance mitigation project planning, Caltrans will, per 23 USC 169(a): consult with each natural resource regulatory agency with jurisdiction over the environmental resources considered in the RAMNA; make a draft of the RAMNA available for review and comment by applicable natural resource regulatory agencies, FHWA, Native American Tribes, local transportation agencies, local advance mitigation programs, local interested parties, and the public; request that, along with their review, natural resource regulatory agencies, Native American Tribes, FHWA, local transportation agencies, local advance mitigation programs, interested parties, and the public provide Caltrans any additional information relevant to and appropriate for the RAMNA; consider any comments and information received from natural resource regulatory agencies, FHWA, Native American Tribes, local transportation agencies, local advance mitigation programs, local interested parties, and the public on the draft RAMNA; and incorporate information and address such comments in the final RAMNA as appropriate.

In February 2025, Caltrans distributed this RAMNA for review by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Table 1-3 lists the commenters and the date of their communication. All comments received were considered, addressed, and incorporated into the document, as appropriate.

Table 1-3. Comments Received by Caltrans on the RAMNA

Commenter	Date of Comment Letter
CDFW ^a	May 9, 2025
NMFS	April 23, 2025
FWS	April 29, 2025
Corps	May 8, 2025
CCC	May 9, 2025

^a SHC § 800 et seq. specifically directs Caltrans to consult with CDFW on all activities pursuant to the AMP.

1.7.3. Interagency Meeting and Coordination

The Master Process Agreement states that prior to finalizing the RAMNA, “Caltrans will arrange and facilitate at least one ... meeting [with natural resource regulatory agencies]

to discuss the RAMNA, conservation goals and objectives, overlapping agency statutory and regulatory requirements, and other relevant topics” (Section IV, Subsection A, Provision 6). In accordance with the Master Process Agreement, a meeting between Caltrans and the natural resource regulatory agencies was held within 60 days of distribution of the RAMNA. The meeting participants and meeting dates are presented in Table 1-4. The discussion has informed this document.

Table 1-4. Interagency Meetings

Meeting Participants	Meeting Date
CDFW, CCC, State Water Boards, CDFW, Corps, FWS, and Caltrans	April 29, 2025
CCC and Caltrans	June 17, 2025
State Water Boards and Caltrans	June 20, 2025
CDFW and Caltrans	June 23, 2025
Corps and Caltrans	June 24, 2025
FWS and Caltrans	June 25, 2025
Hills for Everyone (HFE)	June 26, 2025

1.8. Document Organization

This document is organized as shown in Table 1-5.

Table 1-5. Document Organization

Chapter	Title	Content
Chapter 1	Introduction	This chapter introduces the RAMNA, placing it in the context of the AMP Guidelines, transportation network, and regulatory framework.
Chapter 2	Environmental Setting	This chapter describes the GAI analyzed in the RAMNA. It relies on geospatial data from the SAMNA Reporting Tool and other readily available information.
Chapter 3	Relevant Plans, Policies, and Regulations	This chapter briefly describes laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI that can inform both regional understanding and advance mitigation scoping.
Chapter 4	Existing Mitigation Opportunities	This chapter summarizes the mitigation credits (or similar) currently available to Caltrans and/or pending that are applicable to the environmental resources discussed in the RAMNA and located within or near the GAI.
Chapter 5	Modeled Estimated Impacts	This chapter summarizes the SAMNA forecast and regional estimates of compensatory mitigation need for the GAI.

Chapter	Title	Content
Chapter 6	Benefiting Transportation Project Considerations	This chapter summarizes relevant information about potentially benefiting transportation projects, including scheduling considerations and constraints. A time frame for the need for forecast mitigation is provided and analyzed. The potentially benefiting transportation projects' acceleration priorities are documented in this chapter.
Chapter 7	Wildlife Resources Conservation Goals and Objectives	This chapter presents Caltrans' understanding of the GAI's wildlife conservation goals and objectives, with which Caltrans seeks to align its advance mitigation projects.
Chapter 8	Aquatic Resources Conservation Goals and Objectives	This chapter presents Caltrans' understanding of the GAI's aquatic, wetland, and water resources conservation goals and objectives, with which Caltrans seeks to align its advance mitigation projects.
Chapter 9	Assessment of Authorized Activities	This chapter describes options and analyzes the feasibility of purchasing and/or establishing mitigation credits (or similar) in the GAI that have a high probability of successfully accelerating transportation project delivery and protect natural resources through transportation project mitigation.
Chapter 10	References	This chapter lists references cited in the RAMNA.
Appendices	Various	Appendices supporting this document: Appendix A – GIS Sources Appendix B –Transportation Projects Planned for the GAI during the Planning Period Appendix C – Local Coastal Programs Appendix D – Land Cover Types Appendix E – Complete SAMNA Species Results Appendix F – Hydrologic Units Appendix G – List of 303(d) Impaired Waters Appendix H – Aquatic Resource Locations

2. ENVIRONMENTAL SETTING

In this chapter, Caltrans describes the GAI in terms of ecoregion sections, land ownership, topography, coastal zone, climate, land cover types, invasive species, special-status species, critical habitat, essential fish habitat, areas of special biological significance, connectivity, sub-basins, hydrology, flood hazard areas, water quality, wild and scenic rivers, aquatic resources,¹ riparian habitat, and fire severity zones. Intended to inform advance mitigation project scoping, this assessment relied on readily available literature and GIS sources, including the vegetation and other geospatial data layers developed for the SAMNA Reporting Tool (Caltrans 2024b). Sources used for this assessment are cited throughout the chapter, and links to GIS sources are provided in Appendix A, *GIS Sources*.

On each figure, Caltrans has provided the general location of planned SHOPP transportation projects that, during the 10-year planning period addressed by this document, natural resource regulatory agencies may condition with compensatory mitigation.² The GAI's road infrastructure is described in Chapter 1, *Introduction*, and additional information about planned transportation projects is provided in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, and Chapter 5, *Modeled Estimated Impacts*.

2.1. Ecoregion Sections

The GAI consists of approximately 2 million acres within the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins (HUC-8s) and five watersheds within the San Gabriel sub-basin (HUC-8), which is overlapped by portions of the Mojave Desert, Southern California Coast, and Southern California Mountains and Valleys Ecoregion Sections (Figure 2-1, Table 2-1). Ecoregion sections are defined as the largest ecological unit of the U.S. Department of Agriculture ("USDA"), U.S. Forest Service ("USFS") National Hierarchical Framework of Ecological Units, which are nested within larger provinces (Cleland et al. 1997). The Mojave Desert Ecoregion Section is within the larger American Semidesert and Desert Province. The Southern California Coast Ecoregion Section is within the larger California Coastal Chaparral Forest and Shrub Province. The Southern California Mountains and Valleys Ecoregion Section is within the larger California Coastal Open Range – Woodland – Shrub – Coniferous Forest – Meadow Province (McNab et al. 2007; Table 2-1).

¹ For the purposes of advance mitigation planning, aquatic resources consist of wetlands and non-wetland waters that may be subject to CCC, Corps, EPA, RWQCB, and/or CDFW regulations, as well as special-status fish that may be subject to management by CCC, CDFW, FWS, and/or NMFS regulations.

² Since no STIP-eligible transportation projects are anticipated, no STIP-eligible transportation projects are mapped.

Figure 2-1. Ecoregion Sections

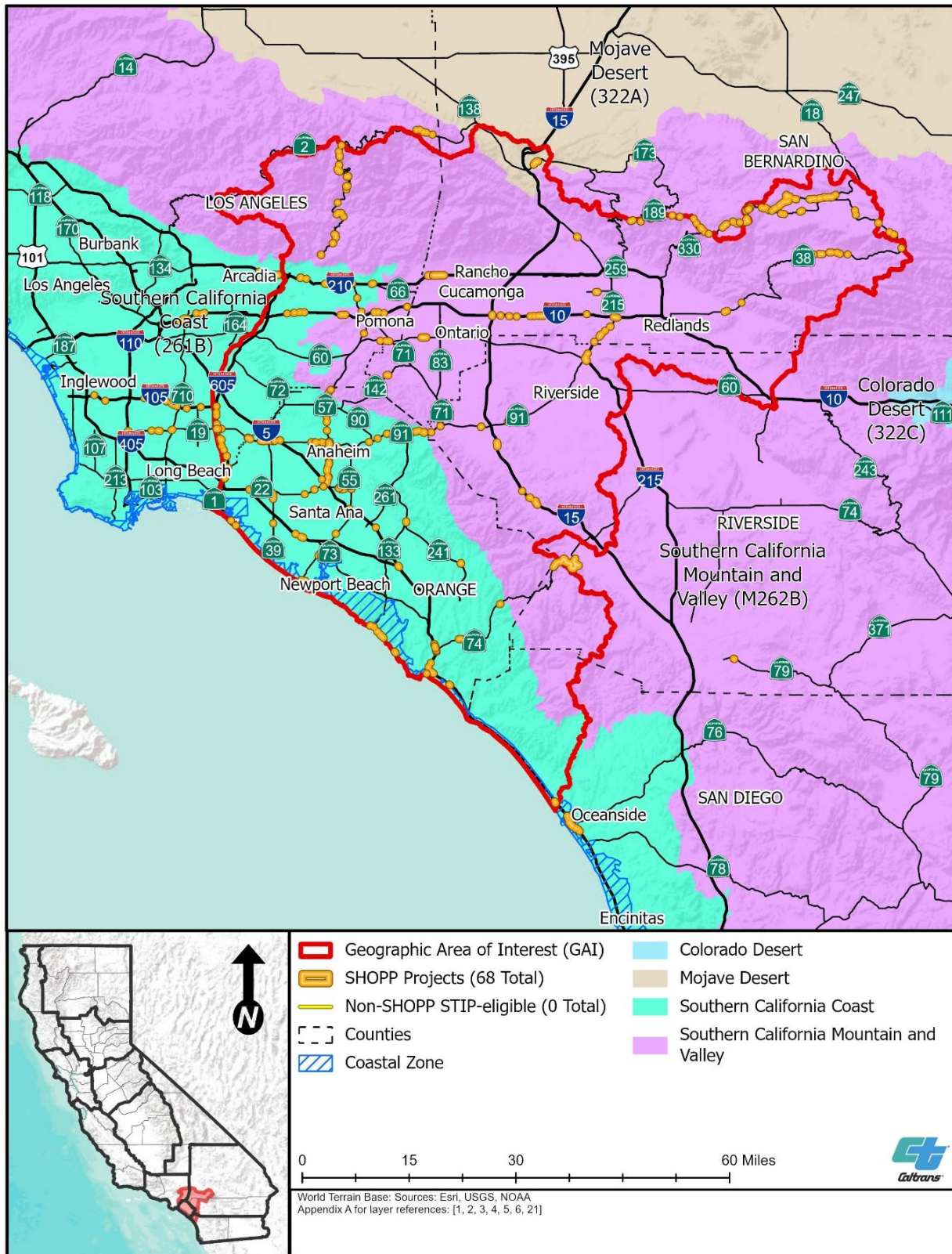


Table 2-1. Ecoregion Sections in the GAI

Section	Province ^a	Acreage ^b	Ecoregion Section as Percentage of GAI
Mojave Desert	American Semidesert and Desert	22,643	1.1
Southern California Coast	California Coastal Chaparral Forest and Shrub	632,076	32.0
Southern California Mountains and Valleys	California Coastal Open Range – Woodland – Shrub – Coniferous Forest – Meadow	1,321,679	66.9
Not applicable	Total	1,976,398	100%

Source: Caltrans (2024b)

^a McNab et al. 2007

^b Numbers were rounded to the nearest whole number.

2.2. Land Ownership

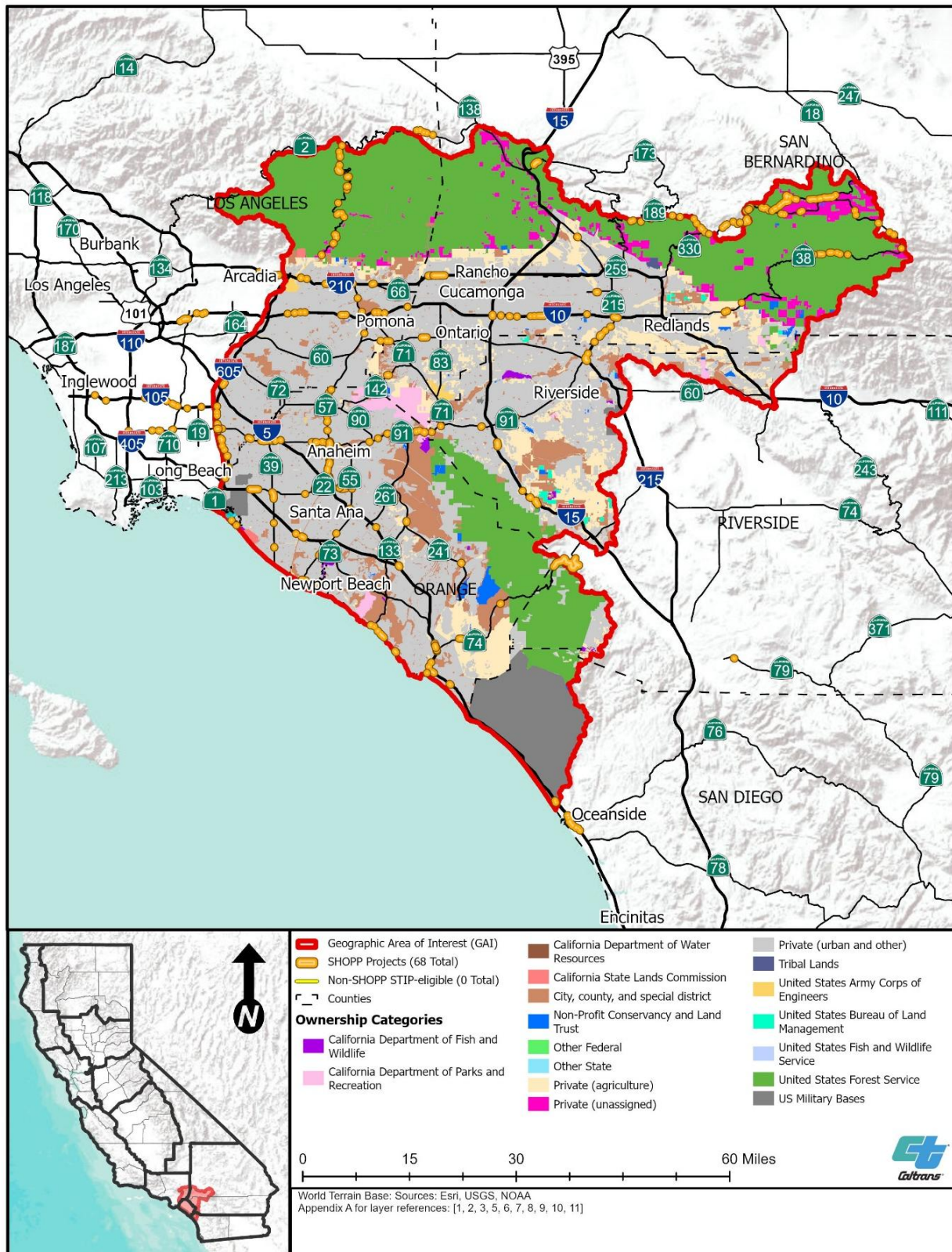
The GAI encompasses Orange County and parts of Los Angeles, Riverside, San Bernardino, and San Diego Counties (Figure 2-2). Privately owned and managed land accounts for most of the land in the GAI (56.3 percent). Federal lands, which account for 34.2 percent of land in the GAI, are administered and managed by USFS, FWS, Corps, U.S. Department of the Interior Bureau of Land Management (“BLM”), U.S. Department of Defense (military bases), and other federal entities. Land governed by counties, cities, and special districts account for 7.5 percent of land in the GAI. State lands, which account for 1.3 percent of land in the GAI, include lands owned and managed by the California Department of Parks and Recreation, California Department of Water Resources, Caltrans, CDFW, California State Lands Commission, and other state entities. Only 0.6 percent is managed by nonprofit conservancies and land trusts, and less than 0.1 percent is owned by Native American tribes (Table 2-2, Figure 2-2).

Table 2-2. Land Ownership

Land Owner or Land Use	Total Acreage per Agency/Owner ^a	Ownership as Percentage of GAI
Private (urban and other)	902,693	45.5
USFS	573,967	28.9
Private (agriculture)	159,800	8.1
City, county, and special district	149,546	7.5
U.S. military bases	93,116	4.7
Private (unassigned)	54,653	2.8
California Department of Parks and Recreation	19,683	1.0
Nonprofit conservancy and land trust	12,876	0.6
Corps	4,625	0.2
BLM	4,595	0.2
CDFW	4,084	0.2
California State Lands Commission	1,949	0.1
Tribal lands	966	<0.1
Other state lands	440	<0.1
Other federal lands	102	<0.1
Caltrans	47	<0.1
FWS	27	<0.1
California Department of Water Resources	19	<0.1
Total	904,624	100%

Sources: U.S. Bureau of Indian Affairs; California Protected Areas Database; California Conservation Easement Database; Caltrans (2024b); U.S. Census Bureau; USDA; and California Department of Technology for land parcels
^a Numbers were rounded to the nearest whole number.

Figure 2-2. Land Ownership



2.2.1. Protected Lands

The California Protected Areas Database, developed by GreenInfo Network, provides an inventory of lands that are owned in fee or protected for open space purposes throughout California by more than 1,000 public and nonprofit organizations. These protected lands are managed for the preservation of biological diversity and other natural, recreational, and cultural uses. It is important to note, however, that these data are based on best available public information at the time of development and, as such, may not represent all protected lands in California.

In the California Protected Areas Database, lands are assigned U.S. Geological Survey (“USGS”) Gap Analysis Program (“GAP”) status ranks that define the degree of protection for biodiversity conservation using a 1 to 4 coding system. Areas with a GAP status of 1 are managed for biodiversity; areas with a GAP status of 2 are managed for biodiversity with disturbance events suppressed; areas with a GAP status of 3 are managed for multiple uses, potentially including mining or off-road vehicle use; and areas with a GAP status of 4 have no known mandate for biodiversity protection. The method of applying these California Protected Areas Database ranks is done in collaboration with the USGS’ Protected Areas Database of the United States.

Not all California Protected Areas Database lands have GAP status ranks, and some may be out of date. Nevertheless, available protected lands and their associated GAP status ranks are indicated on Figure 2-3. Most of the planned SHOPP transportation projects are in areas with no GAP status or a GAP status of 1, associated with the San Gabriel and Santa Ana Mountain Ranges (Figure 2-3).

In addition, the California Conservation Easement Database, also developed by GreenInfo Network, provides an inventory of easements and deed-based restrictions on private land. These restrictions limit land uses to those compatible with maintaining the land as open space. These lands under easement may be actively farmed, grazed, forested, or held as nature reserves. Easements are typically held on private lands with no public access and may include easements held by land trusts and nonprofit organizations, local jurisdictions (city and county), and state and national agencies.

2.3. Topography

The GAI is located in southern California, encompassing the entirety of Orange County and portions of Los Angeles, Riverside, San Bernardino, and San Diego Counties. The GAI is generally bounded by the San Gabriel Mountains in the north, the coast on the west, and the Santa Ana Mountains to the south. Elevations in the GAI range from sea level to 11,432 feet above mean sea level (Figure 2-4).

Figure 2-3. Protected Lands

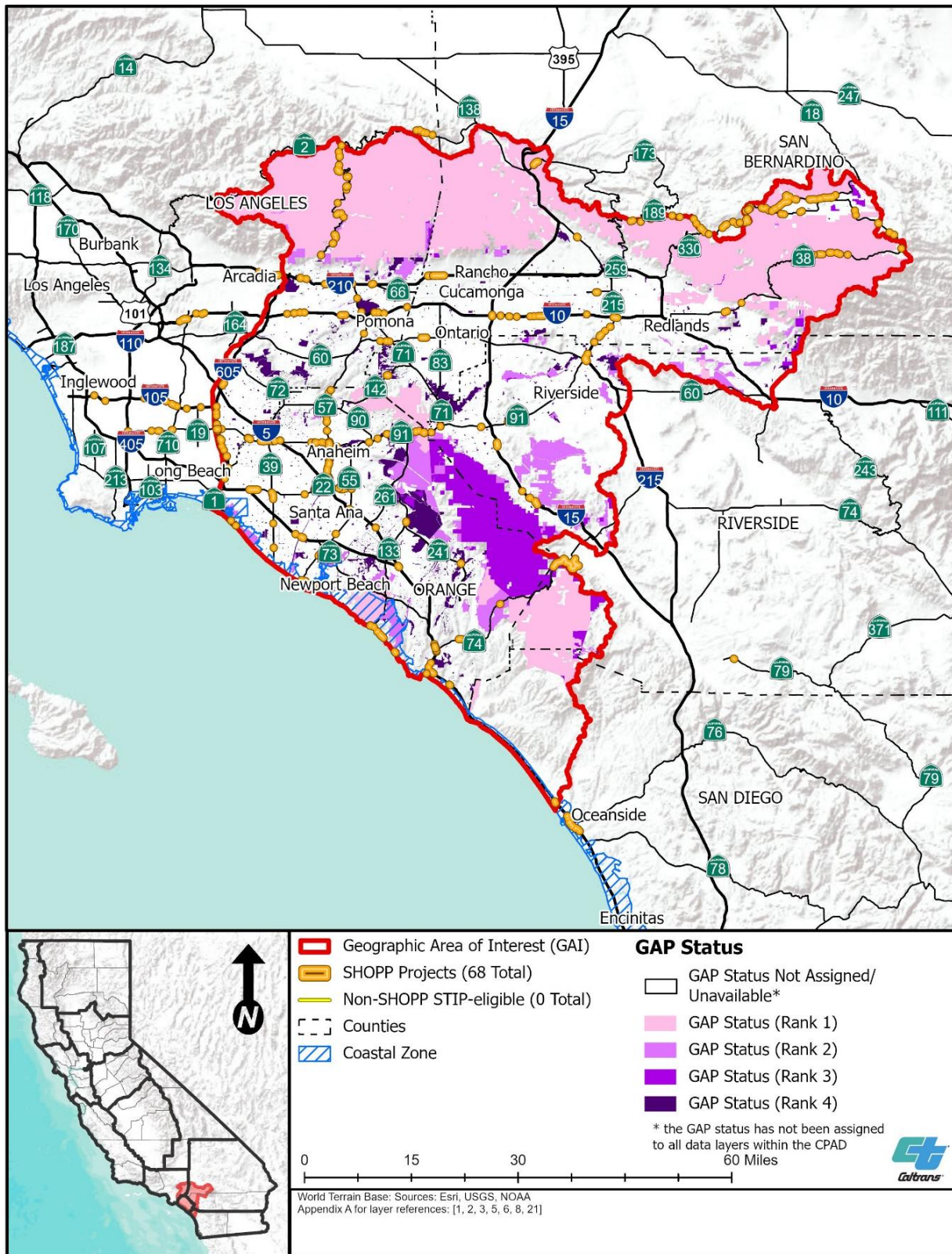


Figure 2-4. Topography



2.4. Coastal Zone

Public Resources Code § 30103(a) of the California Coastal Act defines California's coastal zone as the land and water area of the State of California from the Oregon border to the border with the Republic of Mexico, as depicted on maps identified and set forth in the Coastal Act of 1976 and represents the jurisdiction of the CCC. The coastal zone extends seaward to the state's outer limit of jurisdiction, including all offshore islands, and extends inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas, the coastal zone extends inland to the first major ridgeline paralleling the sea or 5 miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. As indicated on Figure 2-5, the coastal zone overlaps the western edge of the GAI, and only a few planned SHOPP transportation projects intersect with the coastal zone.

2.4.1. Local Coastal Programs

The Coastal Act requires mitigation for impacts on coastal habitats, which are within the scope of this document, and other types of coastal resource impacts (for example, visual impacts), which are outside the scope of this document. The CCC regulates potentially impactful projects in the coastal zone primarily through the issuance of Coastal Development Permits ("CDPs"). Local coastal programs ("LCPs") are planning tools used to guide development in the coastal zone through preparation of land use plans ("LUPs") and implementation of zoning ordinances. In coastal local jurisdictions where the CCC has reviewed an LCP for consistency with Coastal Act requirements and certified the LCP, the local government assumes CDP authority within its jurisdiction, with certain exceptions. For example, the CCC retains jurisdiction on tidelands—including former tidelands—submerged land, and land subject to the public trust. In addition, for projects within the jurisdiction of both the CCC, regulated by the Coastal Act, and a local government, regulated by the certified LCP, a consolidated coastal permit may be pursued with the approval of the CCC, local government, and the applicant. The consolidated coastal permit would be subject to review and approval only by the CCC because the Coastal Act would be the regulating mechanism for the entire project, with the LCP providing guidance for review.

Mapped in Appendix C, *Local Coastal Programs*, 27 LCPs are used by local governments to guide development in the coastal zone in coordination with the CCC. Of these, there are eight LCPs that have not been certified by the CCC, six Areas of Deferred Certification ("ADCs"), and the Hearthside/Brightwater Annexation uncertified area ("UA"). A UA may be an area that was created through annexation, an area that was subsequently identified but may not have been included in an LCP segment, or an area that has applied for certification but has not yet been accepted by the CCC. A type of UA, ADCs are geographic areas that have not been officially segmented for purposes of LCP preparation and were not certified during review of the LCP. The CCC retains permit authority until an LCP is effectively certified for these areas.

2.4.2. Environmentally Sensitive Habitat Areas

The California Coastal Act defines an environmentally sensitive habitat area (“ESHA”) as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments” (§ 30107.5). Under the Coastal Act § 30240, an ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources (for example, nature study) are allowed in those areas. Furthermore, development in areas adjacent to an ESHA must be sited and designed to prevent significant degradation of the ESHA. Whether a habitat or location is considered an ESHA is determined by evaluating on-the-ground resources and the surrounding ecological context.

Although maps or descriptions of ESHAs are included in some of the LCPs covering the GAI, there may be ESHAs that have been added or mapping of ESHAs may have changed since the LCPs were certified. Specific ESHA definitions and policies vary among the 10 CCC-certified LCPs in the GAI (Appendix C). LCPs may list specific species habitats or specific natural communities as ESHAs or may designate geographic areas as ESHAs because of the presence of rare or valuable plants species or animal species, natural communities, or habitat. Designation of ESHAs is not limited to habitat for federally or state listed species or designated critical habitat. SWRCB-designated ocean areas of special biological significance (“ASBSs”) (see Section 2.11), coastal wetlands and lagoons, tidepools, wilderness and primitive areas, and more may also be considered ESHAs.

ESHAs are often threatened by habitat fragmentation, disturbance, degradation, or other anthropogenic factors; however, while a type of ESHA may be determined to be sensitive because of demonstrated effects of such threats as those listed, it does not necessitate that a particular location must be so threatened itself to qualify as an ESHA. Areas identified as ESHAs in the LCPs in the GAI include, but are not limited to, wetlands, pickleweed marsh, alkaline flats, brackish water channel, tidal pools, coastal bluffs, dune, riparian, coastal sage scrub, eucalyptus groves, native grasslands, vernal pools, emergent wetlands, alkali marsh, alkali seep, coastal valley freshwater marsh, southern arroyo willow freshwater riparian forest, nonnative riparian, southern coastal salt marsh, southern riparian scrub, southern riparian woodland, southern willow scrub, coast live oak woodland, and maritime succulent scrub.

2.4.3. Critical Coastal Areas

California’s Critical Coastal Areas (“CCAs”) program fosters collaboration among local stakeholders and government agencies to coordinate efforts to protect high resource value coastal waters from polluted runoff. This nonregulatory program, which is part of California’s Nonpoint Source Pollution Program, is coordinated by CCC staff through a multiagency statewide committee. The committee includes, but is not limited to, the CCC, Caltrans (stormwater), CDFW, SWRCB, RWQCBs, and EPA.

The criteria for identifying CCAs reflect the CCA program's dual goals of improving degraded coastal water quality and providing extra protection from polluted runoff to coastal waters with a recognized high resource value. To be a CCA, an area must meet one or more of the following criteria:

- Coastal watershed areas where an impaired waterway on the 1994 303(d) list is, or flows into, a bay or estuary;
- Coastal watershed areas where an impaired waterway on the 1998 303(d) list flows into a state or federal Marine Managed Area;
- Shoreline areas within San Francisco Bay where an impaired waterway on the 1998 303(d) list flows into wildlife refuges, waterfront parks, and beaches, as specified in the San Francisco Bay Plan;
- Coastal watershed areas that flow into an ASBS;
- Coastal watershed areas where an impaired waterway on the 2010 303(d) list is, or flows into, a Principal Bay or Estuary, as identified in CDFW (2001); and
- Coastal watershed areas where an impaired waterway on the 2010 303(d) list is adjacent to a state Marine Protected Area, as defined in 14 Code of California Regulations § 632(a)(1)(A–C).

For more information on water quality and the 303(d) list, see Appendix G, *List of 303(d) Impaired Waters*. ASBSs are discussed in Section 2.11.

Statewide, 119 CCAs have been identified, 9 of which occur in the GAI (Figure 2-5). These include:

- Aliso Creek
- Bolsa Chica
- Dana Point
- Heisler Park
- Irvine Coast
- Newport Beach (Robert E. Badham)
- San Juan Creek
- Santa Margarita River Estuary
- Upper Newport Bay

The inland boundary of a CCA is the coastal zone boundary, as defined in the California Coastal Act. The shoreline boundary is determined on a case-by-case basis.

Figure 2-5. Critical Coastal Areas



2.5. Climate

The GAI has a Mediterranean climate characterized by mild, wet winters and warm, dry summers (Caltrans 2019b). Mean temperatures throughout the winters range from 45 to 70 degrees Fahrenheit and 75 to 100 degrees Fahrenheit throughout the summer. Coastal areas may experience more moderate temperatures due to ocean breezes. Rainy season typically occurs from November to March with an average annual rainfall of 10 to 15 inches (Orange County 2020).

In the next 30 years, the climate is expected to change. Sea-level rise predictions used in California for planning purposes are summarized in Section 2.5.1. Results of Caltrans' climate vulnerability assessment are summarized in Section 2.5.2. The predicted resilience of the GAI to effects resulting from climate change is summarized in Section 2.5.3.

2.5.1. State of California Sea-level Rise Guidance

CNRA and the Ocean Protection Council ("OPC") *State of California Sea-Level Rise Guidance: 2018 Update* provides guidance to California state agencies for incorporating sea-level rise projections into planning, permitting, investment, and other decisions (CNRA and OPC 2018).

The stepwise approach provides guidance on how to select sea-level rise projections by evaluating risk and vulnerability. The following recommendations provide guidance on preferred sea-level rise planning and adaptation approaches, with an understanding that the diversity of communities, uses, and natural resources along California's coastline, as well as planning for new development versus existing structures, may merit different approaches to building resilience. Adaptation planning and strategies should:

1. Prioritize social equity, environmental justice, and the needs of vulnerable communities;
2. Prioritize protection of coastal habitats and public access;
3. Consider the unique characteristics, constraints, and values of existing water-dependent infrastructure, ports, and public trust uses;
4. Consider episodic increases in sea-level rise caused by storms and other weather-related events;
5. Coordinate and collaborate with local, state, and federal agencies when selecting sea-level rise projections; where feasible, use consistent sea-level rise projections across multiagency planning and regulatory decisions;
6. Consider local conditions to inform decision making;
7. Include adaptive capacity in design and planning; and
8. Assess risk and conduct adaptation planning at community and regional levels, when possible.

The guidance includes sea-level rise projections centered on the year 2030, which overlaps the RAMNA's planning period (CNRA and OPC 2018). The guidance is based on the *Rising Seas in California: An Update on Sea-Level Rise Science* report (OPC 2017), which reflects the most current understanding of sea-level rise science and

modeling of global sea-level rise. Based on the CNRA and OPC (2018) guidance report, the 2030 sea-level rise projections for the area that includes the GAI range from 0.2 to 0.7 foot.

2.5.2. Climate Vulnerability Assessment

In 2017 through 2019, Caltrans performed a statewide climate change vulnerability assessment for the SHS (Caltrans 2019b). The analysis provided in the *Caltrans Climate Change Vulnerability Assessments: District 12 Technical Report* (Caltrans 2019b) is based on global climate change data compiled by the Intergovernmental Panel on Climate Change. Caltrans applies three future emissions scenarios for greenhouse gas emission concentrations in the technical report—representative concentration pathway 2.6, which assumes global annual greenhouse gas emissions will peak in the next few years and then begin to decline substantially; representative concentration pathway 4.5, which assumes emissions will peak around 2040 and then begin to decline; and representative concentration pathway 8.5, which assumes that high emission trends continue to the end of the century—for three future 30-year periods centered on the years 2025 (2010 to 2039), 2055 (2040 to 2069), and 2085 (2070 to 2099).

The effects of climate change in the GAI pose risks for transportation infrastructure reliability and capacity. Transportation systems were designed for historical climate conditions; changing climatic conditions, including an increased frequency of extreme weather events, are expected to disrupt and damage the SHS. Predicted climate change effects consist of increased summer temperatures and extreme heat events; increased heavy precipitation events, with dry years becoming drier and wet years becoming wetter; and an increased risk of wildfire and flooding over the three time periods analyzed in the technical report (Caltrans 2019b). Climate change effects during the three future 30-year periods are expected to exacerbate coastal hazards, including storm surges that increase tidal bay flooding in coastal areas, erosion, scour, and washouts underneath the SHS, damaging highways, drainage infrastructure, and rock slope shore protection; increase flooding, landslide, and mudslide frequency; and worsen the severity of wildfires, which can destabilize slopes, destroy roadside infrastructure, and cause debris to collect in drainage infrastructure (Caltrans 2019b).

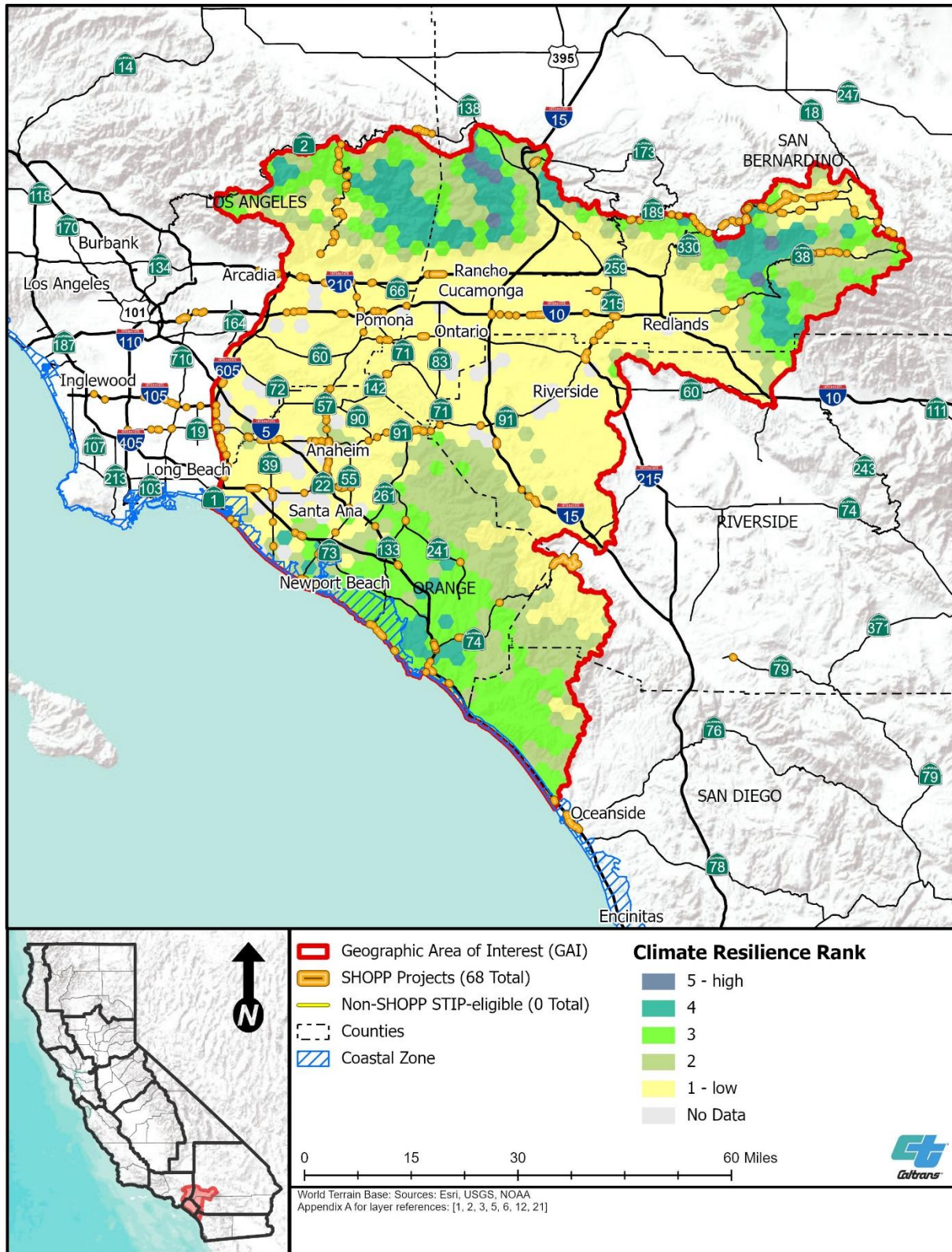
Based on the NOAA model for estimated sea-level rise presented in the *Caltrans Climate Change Vulnerability Assessments: District 12 Technical Report*, portions of the SHS in the northern half of the coast, from the Los Angeles County border to Corona Del Mar, are vulnerable to sea-level rise and storm surge events, with portions of the Pacific Coast Highway particularly exposed (Caltrans 2019b).

2.5.3. Climate Resiliency

A climate change-resilient natural community area is a terrestrial location expected to remain stable in the face of climate change (CDFW 2018). The predicted resilience of the GAI to effects resulting from climate change was acquired from CDFW's Areas of Conservation Emphasis ("ACE," version 3) terrestrial climate change resilience dataset. This dataset consists of the modeled probability that a given terrestrial location may function as a plant or wildlife refugium from climate change, meaning that it would be relatively buffered from the effects of climate change, conditions would likely remain suitable for plants and wildlife currently residing in the area, and ecological functions would be more likely to remain intact. The ACE dataset combines climate refugia model results from eight future climate scenarios based on different combinations of global climate models, emissions scenarios, and time horizons. The eight scenarios assessed included (1) two potential future climates—a hotter and drier future, and a warmer and wetter future; (2) two future carbon dioxide scenarios—one with no reductions in carbon dioxide emissions and one with a peak in 2040 followed by a significant decline in carbon dioxide emissions; and (3) two 29-year time intervals—2040 to 2069 and 2070 to 2099. Terrestrial locations were assigned climate resilience ranks ranging from 1 (low resilience or low probability that the terrestrial location will contain climate refugia) to 5 (high resilience or high probability that the terrestrial location will contain climate refugia) (CDFW 2018).

Resiliency is an important consideration when establishing compensatory mitigation. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018) is presented on Figure 2-6. The majority of the GAI ranges from areas with low resilience to a level of 3; however, high resilience is shown associated with the San Gabriel Mountain range and the coast (Figure 2-6).

Figure 2-6. Terrestrial Climate Resilience Rankings



2.6. Land Cover Types

General land cover types are depicted on the maps provided in Appendix D, *Land Cover Types*. Land cover types in the GAI were extracted from the SAMNA, which developed its vegetation data layer by merging CDFW's California Wildlife Habitat Relationships ("CWHR") Vegetation Classification and Mapping Program GIS database, the USFS Classification and Assessment with LandSat of Visible Ecological Groupings, and the California Department of Forestry and Fire Protection vegetation layer (Caltrans 2024d). Based on these data, developed and non-vegetated habitat types account for the largest habitat type in the GAI, encompassing 39.1 percent of the GAI, with urban being the most common (Table 2-3, Appendix D). Shrub-dominated habitats account for 34.9 percent of the GAI, with mixed chapparal the most common. Tree-dominated habitats account for 13.2 percent of the GAI, with Sierran mixed conifer the most common. Herbaceous-dominated habitats account for 12.2 percent of the GAI, with annual grassland the most common. Aquatic habitats account for 0.7 percent of the GAI, with lacustrine the most common. Land cover is generally shown on Figure 2-7.

Table 2-3. Land Cover Types

CWHR Habitat Type	Acres^a	Cover as Percentage of GAI^b (%)
Tree-dominated Habitats	261,065	13.21
Closed-Cone Pine-Cypress	1,258	0.06
Coastal Oak Woodland	36,366	1.84
Desert Riparian	302	0.02
Eastside Pine	18,049	0.91
Eucalyptus	1,225	0.06
Jeffrey Pine	9,581	0.48
Joshua Tree	519	0.03
Juniper	975	0.05
Lodgepole Pine	7	<0.01
Montane Hardwood	61,097	3.09
Montane Hardwood-Conifer	27,856	1.41
Montane Hardwood; Montane Hardwood-Conifer	51	<0.01
Montane Riparian	1,900	0.10
Palm Oasis	3	<0.01
Pinyon-Juniper	8,312	0.42
Ponderosa Pine	589	0.03
Sierran Mixed Conifer	67,832	3.43

CWHR Habitat Type	Acres ^a	Cover as Percentage of GAI ^b (%)
Subalpine Conifer	7,885	0.40
Valley Foothill Riparian	17,146	0.87
White Fir	114	0.01
Shrub-dominated Habitats	689,477	34.89
Akali Desert Scrub	89	<0.01
Chamise-Redshank Chaparral	28,627	1.45
Chamise-Redshank Chaparral; Mixed Chaparral	381	0.02
Coastal Scrub	170,037	8.60
Desert Scrub	8,882	0.45
Desert Scrub; Desert Wash	139	0.01
Desert Succulent Shrub; Desert Wash	9	<0.01
Desert Wash	21,791	1.10
Mixed Chaparral	432,475	21.88
Montane Chaparral	23,097	1.17
Sagebrush	3,951	0.20
Herbaceous-dominated Habitats	240,977	12.19
Annual Grassland	176,092	8.91
Fresh Emergent Wetland	2,147	0.11
Pasture	31,082	1.57
Perennial Grassland	28,996	1.47
Saline Emergent Wetland	1,555	0.08
Wet Meadow	1,104	0.06
Aquatic Habitats	12,912	0.65
Lacustrine	10,504	0.53
Lacustrine; Riverine	5	<0.01
Riverine	2,402	0.12
Developed Habitats	728,896	36.88
Cropland	1,017	0.05
Cropland; Orchard-Vineyard	760	0.04
Deciduous Orchard	13,793	0.70
Deciduous Orchard; Vineyard	54	<0.01

CWHR Habitat Type	Acres ^a	Cover as Percentage of GAI ^b (%)
Evergreen Orchard	2,615	0.13
Urban	710,171	35.93
Vineyard	485	0.02
Non-vegetated Habitats	43,071	2.18
Barren	43,071	2.18
Total	1,976,398	100%

Source: Caltrans (2024d)

^a Numbers were rounded to the nearest whole number.

^b Numbers were rounded to the hundredths.

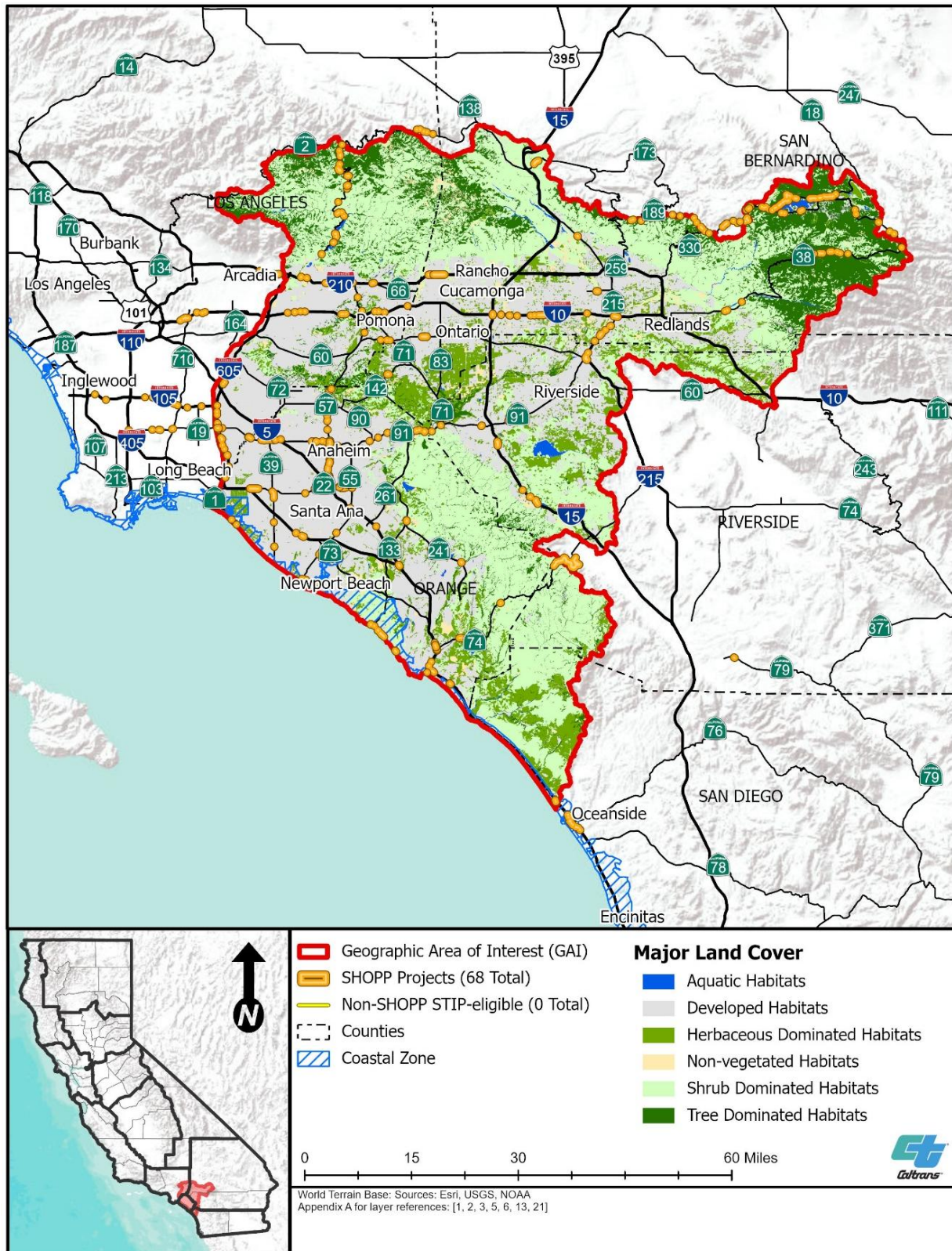
2.7. Invasive Species

Both invasive plant and animal species are known to occur in the GAI. Invasive species include plants and animals that are not native to an area, typically have high growth and reproductive rates, and are able to outcompete native plants and animals, often because of a lack of natural predators or controls (National Wildlife Federation 2019). Invasive species may affect native species, including special-status species, by directly competing for resources, preying on native species, introducing or spreading diseases, reducing the complexity and biodiversity of ecosystems, altering soil chemistry and water availability, and increasing wildfire potential (CDFW 2022a).

Three organizations maintain invasive species databases for California. The Invasive Species Council of California maintains a list of invasive plant and animal species throughout the State of California (California Invasive Species Advisory Committee 2010). The California Department of Food and Agriculture also maintains a list of noxious weeds for California (USDA Natural Resources Conservation Service 2003). The California Invasive Plant Council (“Cal-IPC”) maintains a California invasive plant inventory that categorizes nonnative plant species based on the severity of their potential ecological impacts (Cal-IPC 2024a).

In the GAI, invasive plant species have been specifically identified as threats or stressors to terrestrial and aquatic biological resources. Nonnative, invasive plant species with a high ranking by Cal-IPC are those that have the most severe ecological effects and are the most widely distributed geographically, although species with a moderate or limited ranking can also have negative local ecological effects.

Figure 2-7. Major Land Cover^a



^a For greater detail, see Appendix D.

Invasive plant species in the GAI that are identified as problematic in the California SWAP or the Cal-IPC inventory include, but are not limited to, tree-of-heaven (*Ailanthus altissima*), giant reed (*Arundo donax*), onionweed (*Asphodelus fistulosus*), Australian saltbush (*Atriplex semibaccata*), wild oat (*Avena barbata* and *A. fatua*), five horn bassia (*Bassia hyssopifolia*), annual false-brome (*Brachypodium distachyon*), black mustard (*Brassica nigra*), Saharan mustard (*Brassica tournefortii*), ripgut grass (*Bromus diandrus*), soft chess (*Broums hordeaceus*), red brome (*Bromus rubens*), cheatgrass (*Bromus tectorum*), Italian thistle (*Carduus pycnocephalus* or *C. tenuiflorus*), sea fig (*Carpobrotus chilensis*), freeway iceplant (*Carpobrotus edulis*), tocalote (*Centaurea melitensis*), yellow thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), poison hemlock (*Conium maculatum*), pampas grass (*Cortaderia selloana*), artichoke thistle (*Cynara cardunculus*), bermuda grass (*Cynodon dactylon*), orchard grass (*Dactylis glomerata*), cape-ivy (*Delairea odorata*), flax weed (*Descurainia sophia*), perennial veldt grass (*Ehrharta calycina*), redstem filaree (*Erodium cicutarium*), rattail sixweeks grass (*Festuca myuros*), fennel (*Foeniculum vulgare*), crown daisy (*Glebionis coronaria*), English ivy (*Hedera helix*), short-pod mustard (*Hirschfeldia incana*), perennial pepperweed (*Lepidium latifolium*), hyssop loosestrife (*Lythrum hyssopifolium*), crystalline iceplant (*Mesembryanthemum crystallinum*), tree tobacco (*Nicotiana glauca*), Bermuda buttercup (*Oxalis pes-caprae*), crimson fountain grass (*Pennisetum setaceum*), rabbits foot grass (*Polypogon monspeliensis*), castorbean (*Ricinus communis*), Russian thistle (*Salsola tragus*), London rocket (*Sisymbrium irio*), Spanish broom (*Spartium junceum*), tamarisk or saltcedar (*Tamarix* spp.), and Mexican fan palm (*Washingtonia robusta*) (Cal-IPC 2024b; CDFW 2015).

Nonnative animals that are/may be present in the GAI and that can negatively affect aquatic species include bullfrogs (*Lithobates catesbiana*), African clawed frogs (*Xenopus laevis*), quagga mussels (*Dreissena bugensis*), New Zealand mud snail (*Potamopyrgus antipodarum*), Asian clam (*Corbicula fluminea*), nonnative crayfish, western mosquitofish (*Gambusia affinis*), and introduced sport and bait fish (including sunfish, bass, bluegill [*Lepomis macrochirus*], carp [*Cyprinus carpio*], and fathead minnow [*Pimephales promelas*]) (CDFW 2015).

Nonnative animals that are/may be present in the GAI and that can negatively affect terrestrial wildlife through competition, predation, or parasitism include Argentine ants (*Linepithema humile*), goldspotted oak borer (*Agrilus auroguttatus*), polyphagous shot hole borer (*Euwallacea* spp.), European starlings (*Sturnus vulgaris*), and brownheaded cowbirds (*Molothrus ater*). Invasive animal species that are/may be associated with urban areas include domestic dogs (*Canis lupus familiaris*) and domestic cats (*Felis catus*) (CDFW 2015).

2.8. Special-status Terrestrial Species

Special-status terrestrial species are discussed below, with additional detail provided in Appendix E, *Complete SAMNA Species Results*. Threatened and endangered fish species with the potential to occur in the GAI are discussed in Section 2.18.2.

Special-status species with the potential to both occur in the GAI and be affected by future transportation projects were extracted from the SAMNA Reporting Tool's species-attributed vegetation data layer, which was developed using the CWHR (CDFW 2019a), the Jepson Herbarium's floristic province layer, CDFW's RareFind 5 database (CDFW 2021a), and other information (Caltrans 2024d; Appendix E).

Special-status terrestrial species included in the SAMNA are those that are considered federally and/or state threatened or endangered species, state candidate threatened or endangered species, state fully protected species, state species of concern, state rare species, and federal sensitive species (which includes species that are USFS sensitive and/or BLM sensitive). Based on a search of the SAMNA Reporting Tool's species-attributed vegetation layer, 190 non-fish special-status species are known to occur or have the potential to occur in the GAI, including 58 plants, 3 invertebrates, 9 amphibians, 19 reptiles, 59 birds, and 42 mammals.

Although it is the best information currently available, the SAMNA Reporting Tool's species list is uncertain (Appendix E). The species-attributed list developed for the SAMNA Reporting Tool depends on a species having a defined geographic range within the CWHR or having occurrences documented in the California Natural Diversity Database (Caltrans 2024d). When CWHR home range and/or California Natural Diversity Database occurrence information is incorrect or out of date, the probability that a species will be misidentified as potentially present increases. Hence, SAMNA results go through a sensibility evaluation prior to being used to inform advance mitigation scoping (Appendix E). Further, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

2.9. Critical Habitat

FWS and NMFS regulate impacts on critical habitat under the FESA. The FESA (16 USC § 1531–1544) defines critical habitat for a threatened or endangered species as (i) “specific areas within the geographical area occupied by the species at the time it is listed ... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection;” and (ii) “specific areas outside the geographical area occupied by the species at the time it is listed ... upon a determination by the Secretary that such areas are essential for the conservation of the species.” Further, the FESA clarifies that critical habitat “shall not include the entire geographical area which can be occupied by the threatened or endangered species.” Critical habitat designations reflect a rigorous process. Before publishing the rule finalizing the critical habitat designation, FWS publishes proposals to designate critical habitat in the *Federal Register* and considers information received during the public comment period (FWS 2017).

The GAI includes federally designated final critical habitat for 22 species (FWS 2021a; NMFS 2021a):

- Arroyo toad (*Anaxyrus californicus*)
- Ash-grey paintbrush (*Castilleja cinerea*)
- Bear Valley sandwort (*Eremongone ursina*)
- Braunton's milk-vetch (*Astragalus brauntonii*)
- California taraxacum (*Taraxacum californicum*)
- Coastal California gnatcatcher (*Polioptila californica californica*)
- Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)
- Least Bell's vireo (*Vireo bellii pusillus*)
- Mountain yellow-legged frog (*Rana muscosa*)
- Munz's onion (*Allium munzii*)
- Riverside fairy shrimp (*Streptocephalus woottoni*)
- San Bernardino bluegrass (*Poa atropurpurea*)
- San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvus*)
- San Bernardino Mountains bladderpod (*Physaria kingii* ssp. *bernardina*)
- San Diego ambrosia (*Ambrosia pumila*)
- San Diego fairy shrimp (*Branchinecta sandiegonensis*)
- Santa Ana sucker (*Catostomus santaanae*)
- Southern mountain wild-buckwheat (*Eriogonum kennedyi* var. *austromontanum*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Thread-leaved brodiaea (*Brodiaea filifolia*)
- Tidewater goby (*Eucyclogobius newberryi*)
- Western snowy plover (*Charadrius alexandrinus nivosus*)

Critical habitat is an important consideration when establishing compensatory mitigation. Designated critical habitat for these species is indicated on Figure 2-8. Note that designated critical habitat represented by points on Figure 2-8 are units too small to depict at the regional level assessed in this RAMNA.

2.10. Essential Fish Habitat

NMFS is responsible for ensuring impacts on essential fish habitat (“EFH”) are addressed. EFH was defined by Congress in 1996 in an amendment to the Magnuson-Stevens Fishery Conservation and Management Act. EFH covers federally managed fish and invertebrate species that are not found strictly in fresh water and includes all aquatic habitat types where fish spawn, breed, feed, or grow to maturity (NMFS 2017). Habitat types include coral reefs, kelp forests, bays, wetlands, rivers that connect to the ocean, and deep ocean habitat. EFH is protected by imposing fishing limitations and requiring consultation with NMFS prior to any federal work with the potential to affect fish habitat. NMFS designates EFH for sharks, tuna, and other migratory species that cross regional boundaries. Habitat for other managed fish species is determined by regional fishery management councils (NMFS 2017). The GAI includes EFH for krill, finfish, coastal pelagic species, and groundfish (Figure 2-9).

2.10.1. Habitat Areas of Particular Concern

The Pacific Fishery Management Council identifies habitat areas of particular concern (“HAPCs”) and recommends HAPCs to NOAA Fisheries consistent with the Magnuson-Stevens Fishery Conservation and Management Act. HAPCs are a discrete subset of EFH that consist of areas considered a high priority for conservation, management, or research because they provide important ecosystem functions that can be especially sensitive to degradation as a result of human activities, can be stressed by development, or are notable because of their rarity. An area designated as an HAPC prioritizes and focuses conservation efforts rather than automatically requiring its protection or restrictions. HAPCs may be important for healthy fish populations; however, other EFH areas can also provide ecological functions necessary to support and maintain sustainable fisheries and a healthy ecosystem (NMFS 2021b).

In the GAI, HAPCs include kelp canopy, rocky reefs, and seagrass along most of the coastline and near the western coast. HAPCs that intersect the SHS are shown on Figure 2-10.

2.11. Areas of Special Biological Significance

The California Ocean Plan, originally adopted by SWRCB in 1972 and updated most recently in 2019, establishes water quality objectives for ocean waters and provides the basis for the regulation of wastes discharged into coastal waters from both point and non-point sources (SWRCB 2019a). It defines ASBSs as “those areas designated by the SWRCB as ocean areas requiring protection of species or biological communities...” and requires that waste be discharged a sufficient distance from an ASBS to ensure “maintenance of natural water quality” (SWRCB 2019a). According to Resolution Numbers 74-28, 74-32, and 75-61, SWRCB designated 34 ocean areas along the coast of California as ASBSs (SWRCB 2019a). These areas typically support a variety of aquatic life and often host unique individual species (SWRCB 2017). Figure 2-11 shows ASBSs located in proximity to the GAI.

Figure 2-9. Essential Fish Habitat

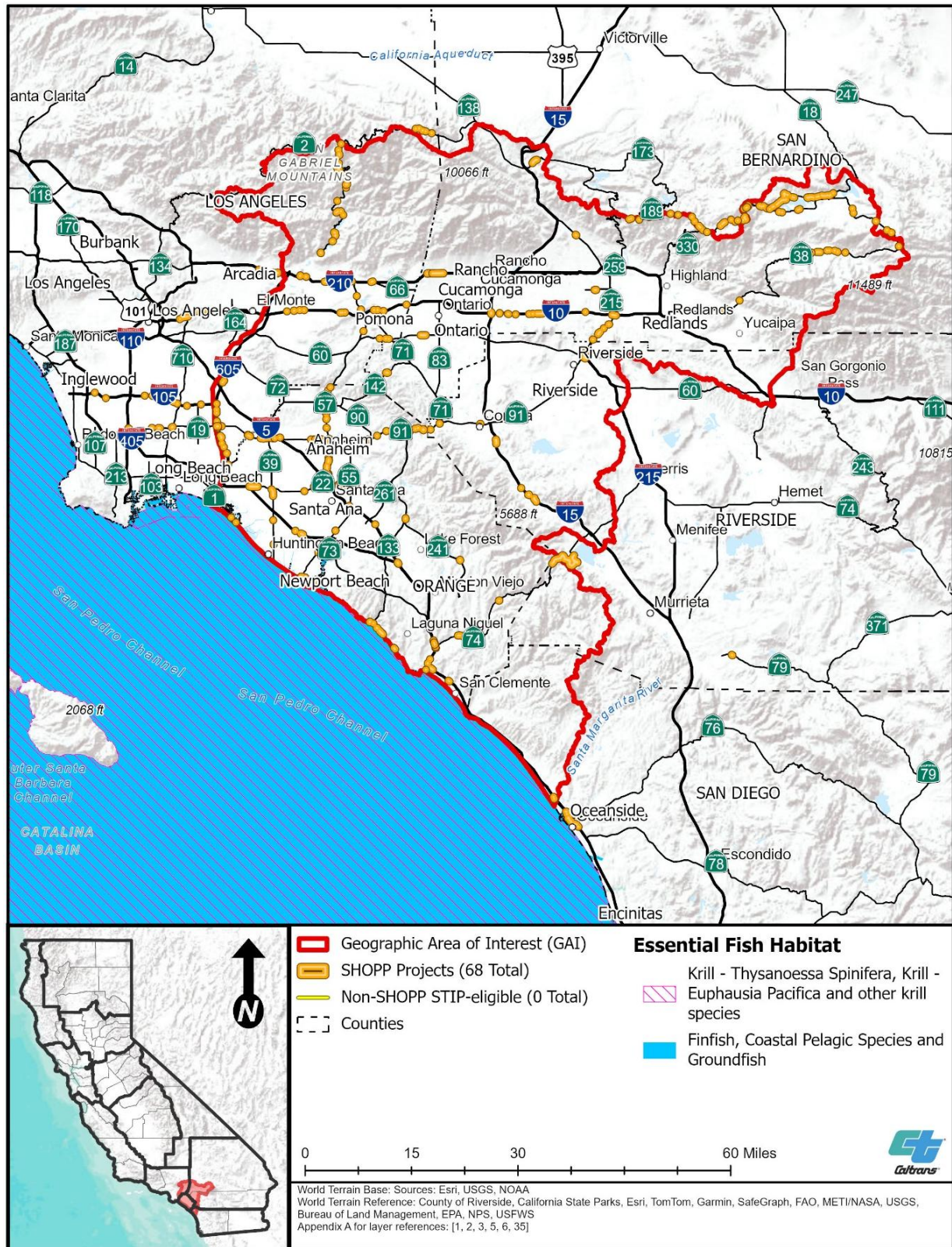


Figure 2-10. Habitat Areas of Particular Concern

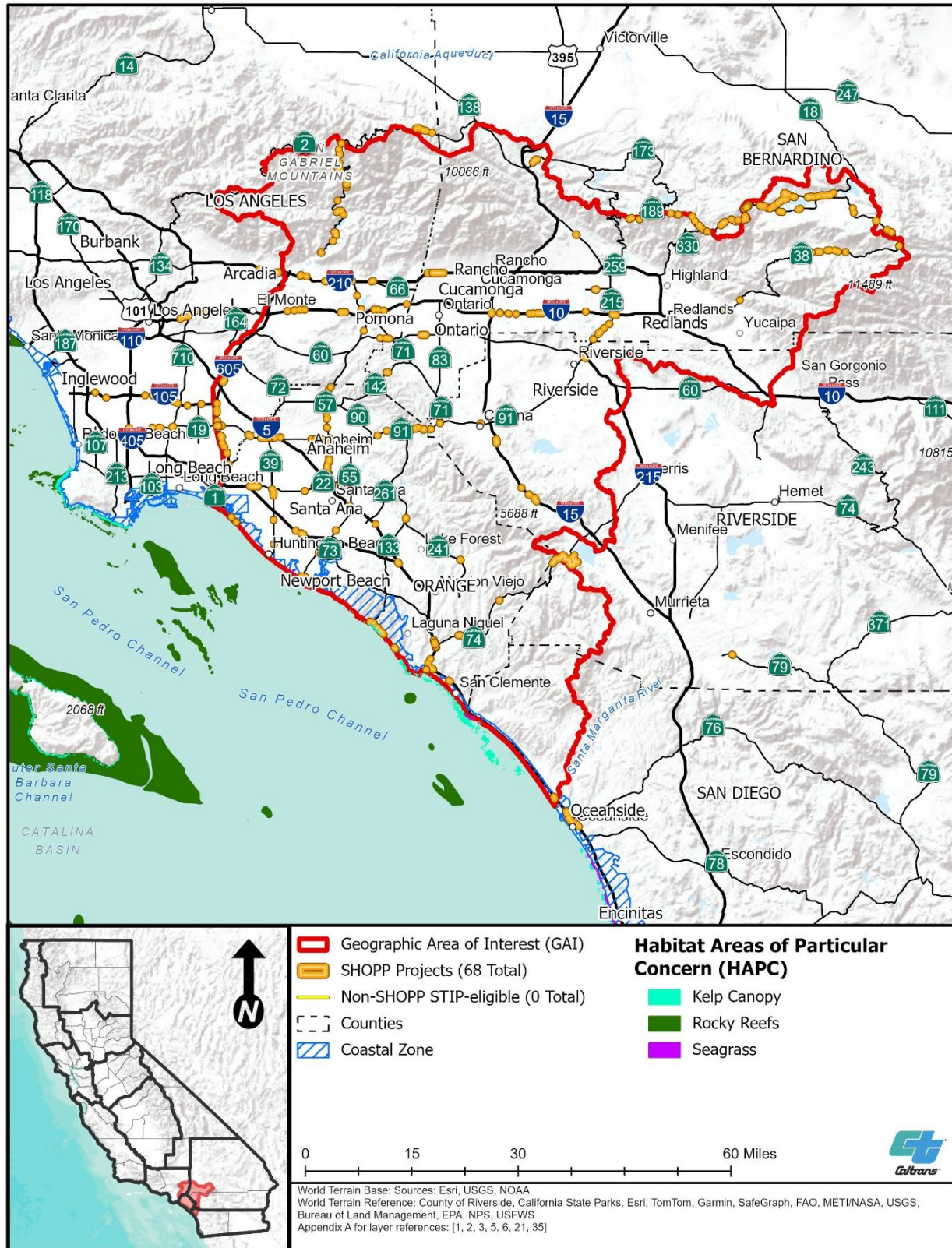


Figure 2-11. Areas of Special Biological Significance



From the north to the south, the GAI's coastline is adjacent to the following ASBSs: (1) Robert E. Badham ASBS, which encompasses 0.7 mile of the coastline in Orange County; (2) Irvine Coast ASBS, which encompasses 3.4 miles of the coastline in the city of Laguna Beach; and (3) Heisler Park ASBS, which encompasses 0.5 mile of coastline in Orange County (SWRCB 2017).

2.12. Connectivity

Roads can be barriers to special-status wildlife species movement and block migration and access to and from suitable upstream habitat for special-status fish species. Improving habitat connectivity and permeability of the SHS may provide a mechanism for maintaining biodiversity in the face of California's human population growth and climate change (CDFW 2022b).

2.12.1. Wildlife Movement

Caltrans identified three connectivity assessments applicable and relevant to the GAI: California Essential Habitat Connectivity ("CEHC") Project, ACE, and CDFW's *Restoring California's Wildlife Connectivity 2022* report. Each is briefly summarized below.

California Essential Habitat Connectivity

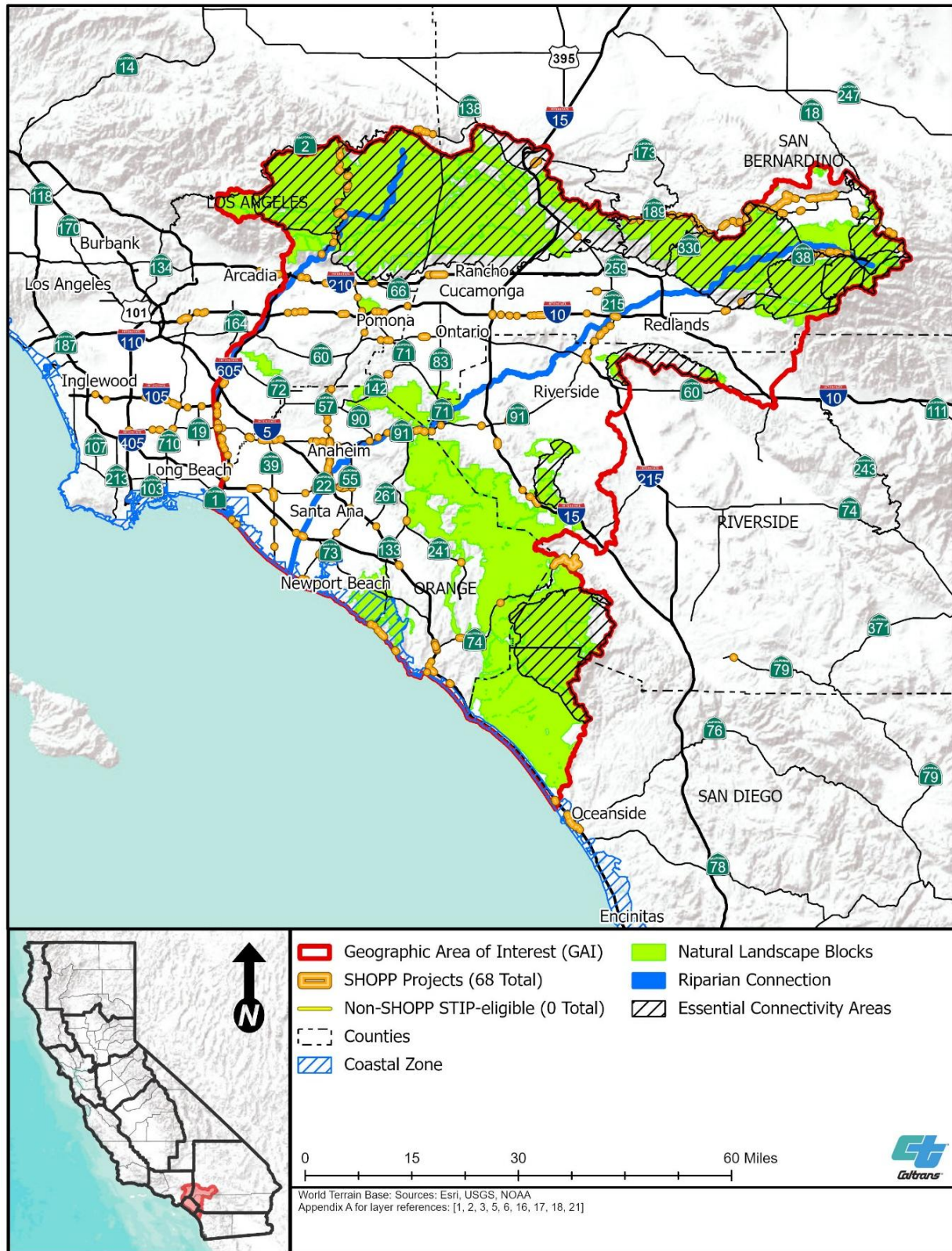
The CEHC Project, a statewide assessment commissioned by CDFW and Caltrans, identified large remaining blocks of intact habitat or natural landscape that support native biodiversity and modeled linkages or essential connectivity areas between them that need to be maintained, particularly as corridors for wildlife (CDFW 2022b; Spencer et al. 2010). These connectivity areas were broadly defined, focusing on ecological integrity rather than species-specific habitat needs, and included potential riparian connections between landscape blocks. For instance, connectivity areas were selected to connect existing reserves across land that has been highly altered and fragmented by agriculture, urbanization, and roads, which typically constrain wildlife movement (Figure 2-12, Spencer et al. 2010).

CDFW's Areas of Conservation Emphasis

CDFW's ACE version 3 terrestrial connectivity dataset builds on the CEHC Project and includes mapped corridors or linkages and where they occur in relation to large, contiguous natural areas (Figure 2-13). It also incorporates species-specific, fine-scale linkage information developed at a regional scale, where available, and includes areas not evaluated by the CEHC Project. Connectivity ranks in the terrestrial connectivity dataset were assigned as follows:

- Rank 5 (irreplaceable and essential corridors) – includes channelized areas and priority species movement corridors
- Rank 4 (conservation planning linkages) – habitat connectivity linkages mapped in the CEHC and fine-scale regional connectivity studies that are based on species-specific models and represent the best connections between core natural areas

Figure 2-12. California Essential Habitat Connectivity



- Rank 3 (connections with implementation flexibility) – areas with connectivity importance, including core habitat areas and areas on the periphery of mapped habitat linkages
- Rank 2 (large natural habitat areas) – large blocks of natural habitat (greater than 2,000 acres) with relatively intact connectivity
- Rank 1 (limited connectivity opportunity) – areas where land use limits connectivity, including some lakes

Connectivity is an important consideration when establishing compensatory mitigation. Most of the planned SHOPP transportation projects occur in areas with a connectivity rank of 1, with fewer planned transportation projects occurring in areas with a connectivity rank of 3 or 4, and even fewer planned transportation projects occurring in areas with a connectivity rank of 5 (Figure 2-13).

CDFW's Restoring California's Wildlife Connectivity 2022 Report

CDFW's *Restoring California's Wildlife Connectivity 2022* report identified priority wildlife connectivity project locations based on barriers created by linear infrastructure across the state, including the SHS, railroads, canals, high-speed rail alignments, and local roads, to help focus financial resources on improving wildlife movement (CDFW 2022c). In addition to impeding wildlife movement, these barriers act as sources of mortality and affect population demographics, gene flow, resilience, and persistence of California's wildlife. Barriers were identified using existing connectivity and road crossing studies, collared-animal movement data, roadkill observations, and professional expertise. This report is an update to the 2020 priority barrier dataset; it includes an updated list of priority wildlife barriers in each region, identifies additional wildlife barriers across the state, and identifies two top priority barriers in each region. A total of 150 segments of linear infrastructure was identified as wildlife barriers, with 62 identified as priority wildlife barriers and 12 on the statewide top priority list (CDFW 2022c).

Four priority wildlife movement barriers were identified in the GAI. These barriers and the target species for movement include: (1) State Route 91, North-South Mountain Lion Movement Barrier ("B Canyon") in Orange and Riverside Counties (mountain lion, bobcat, coyote), (2) Interstate 15 Cajon Pass in San Bernardino County (mule deer, mountain lion, bear, bighorn sheep), (3) State Route 133 Coastal Newport Beach in Orange County (mountain lion, mule deer), and (4) Interstate 10 El Casco Bridge #56-370/Cherry Valley in Riverside County (mountain lion, bobcat, coyote) (CDFW 2022c).

2.12.2. Fish Passage

Article 3.5 of Chapter 1 of Division 1 of the SHC, also known as "Senate Bill 857" (Kuehl, Chapter 589 and Statute of 2005), prohibits the new construction or continued maintenance upgrades of SHS facilities that prevent or impede the passage of salmon and steelhead (*Oncorhynchus mykiss*). Most salmon and steelhead in California are listed as either threatened or endangered, and barriers on the SHS further block fish from gaining access to upstream habitat.

SHC § 156.1 requires Caltrans to:

1. Provide an annual list of fish passage priorities for the SHS to the legislature; Fish Passage Annual Reports are available on the Caltrans Legislative Affairs website, and the most recent report (Caltrans 2021) is available from <https://dot.ca.gov/programs/legislative-affairs/reports>.
2. Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds.
3. Submit assessments to the California Fish Passage Assessment Database.
4. Construct all new transportation projects in a way that does not pose or create a barrier to fish passage.

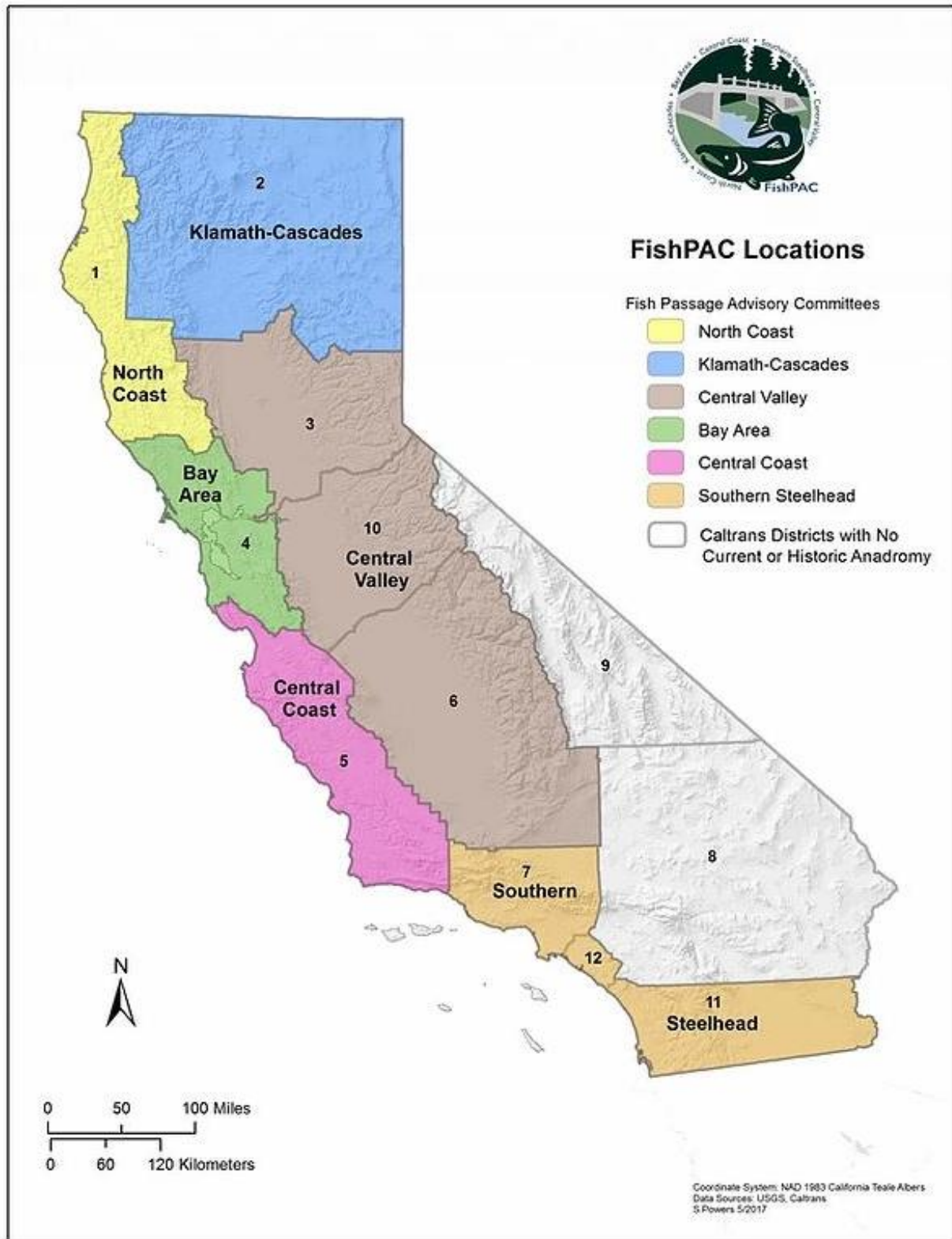
The CESA and FESA list 10 evolutionarily significant units (“ESUs”)/DPSs of salmon and steelhead as threatened or endangered. Barriers created by the SHS are known to block access to habitat for each of these species’ units. CDFW, in coordination with California Trout (CalTrout), estimates that without increased intervention, to include habitat remediation and restoration, the following species will be extinct in California in the next 40 years:

- Three identified species’ units currently listed as state and/or federally endangered: Central California Coast ESU coho salmon, Sacramento River winter-run ESU Chinook salmon (*Oncorhynchus tshawytscha*), and Southern California DPS of steelhead; and
- Seven identified species currently listed as state and/or federally threatened: Southern Oregon/Northern California ESU coho salmon; Central Valley spring-run ESU and California Coastal ESU Chinook salmon; and Central Valley DPS, Northern California DPS, Central California Coast DPS, and South-Central California Coast DPS of steelhead.

Figure 2-14 shows the six California Fish Passage Advisory Committee (“FishPAC”) locations throughout the state, including the GAI outlined in red. The FishPAC is a partnership between Caltrans, CalTrout, CCC, CDFW, FWS, NMFS, Pacific States Marine Fisheries Commission, and other local fish passage advocates. The FishPACs share science and data related to known fish barriers and prioritize SHS locations based on high-value habitat recovery.

FishPACs support the implementation of meaningful, long-term fish passage solutions for SHS projects within each FishPAC geographic area. FishPACs recommend technical solutions, explore options for accelerated delivery of transportation projects, and identify potential funding mechanisms for both new barrier removal projects and the long-term maintenance of existing fish passage facilities for the SHS. Stream simulation designs and full-span solutions to fish passage also consider and incorporate benefits for both terrestrial and wildlife species, and can also help to address sediment transport, water temperature, dissolved oxygen, and stream erosion issues.

Figure 2-14. California Fish Passage Advisory Committee Locations



FishPACs help advance the desired outcomes of legislative guidance included in the SHC and promote collaborative interjurisdictional solutions. Long-term, full-span fish passage solutions are key to enhancing connectivity for both aquatic and terrestrial species in California's watersheds. Providing access to upstream habitats will help ensure fish populations can respond and adapt to climate change stressors such as drought, wildfire, sea-level rise, changes in stream flow, and water temperature. The FishPAC network of more than 200 fish passage experts, advocates, and partners throughout the range of salmon and steelhead work collaboratively to address legacy transportation barriers with long-term solutions that facilitate both fish passage and climate resilience.

The FishPAC helps Caltrans advance the desired outcomes of SHC § 156 (J. Walth, Caltrans, personal communication, 2020). Since 2006, in collaboration with FishPAC, Caltrans has partially or fully remediated 51 barriers on the SHS and identified 556 additional barriers to salmon and steelhead statewide. Results of Caltrans and FishPAC's efforts to locate, assess, prioritize, and remediate fish passage barriers on the SHS are documented in the Fish Passage Annual Reports prepared by Caltrans and submitted to the legislature as required by SHC § 156.1. As specified above, the FishPAC also provides SHS-related information to the Fish Passage Assessment Database, to be incorporated into its periodic updates.³ Information regarding verified SHS fish passage barriers is available through the appropriate FishPAC.

2.13. Sub-basins

The Watershed Boundary Dataset maps the areal extent of surface water drainage in the U.S. It consists of a hierarchical system of nesting hydrologic units ("HUs") of various scales, each with an assigned HUC that is georeferenced to USGS topographic maps (USGS 2014). Each HUC classification consists of 2 to 12 digits. For example, 6-digit HUCs, or "HUC-6s," map to the basin level; 8-digit HUCs, or "HUC-8s," map to the sub-basin level; and 12-digit HUCs, or "HUC-12s," map to the sub-watershed level.

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins and, hence, information in this RAMNA is also presented by HUC-8 (Caltrans 2024d; USGS 2014). However, the California Department of Water Resources and the Water Boards do not necessarily use HUC-8 codes (California Department of Water Resources 2016). The Water Boards also use the Calwater system (that is, HUs) for state-level purposes such as assigning beneficial uses to waters. The Calwater system is a hierarchical system similar to USGS HUCs. Calwater levels begin with the division of the state into 10 hydrologic regions. Each hydrologic region is progressively subdivided into five smaller, nested levels: HUs, hydrologic areas, hydrologic sub-areas, super planning watersheds, and planning watersheds.

Appendix F, *Hydrologic Units*, provides a crosswalk between the HUC-8 and HU classification systems for each HUC-8 in the GAI. The GAI overlaps five sub-basins,

³ More information about the Fish Passage Assessment Database can be found in CalFish (2018).

which loosely correspond to the Antelope, Emerson, Johnson, Los Angeles River, Lucerne Lake, Mojave, San Gabriel River, San Jacinto Valley, San Juan, Santa Ana River, Santa Margarita, and Whitewater HUs. Figure 2-15 shows the overlap between sub-basins and state-level HUs in the GAI.

2.14. Hydrology

The five sub-basins of the GAI drain an area of 1,980,446 acres (3,094 square miles) (Table 2-4, Figure 2-15). Described individually in Appendix F, *Hydrologic Units*, these sub-basins include 3,451 rivers and streams that traverse 3,796 miles in the Santa Ana, southeastern Los Angeles, and northwestern San Diego RWQCB boundaries (Table 2-4). Sub-basin acreages shown in Table 2-4 may include areas outside the GAI. Major rivers in the GAI include the Santa Ana and San Gabriel Rivers.

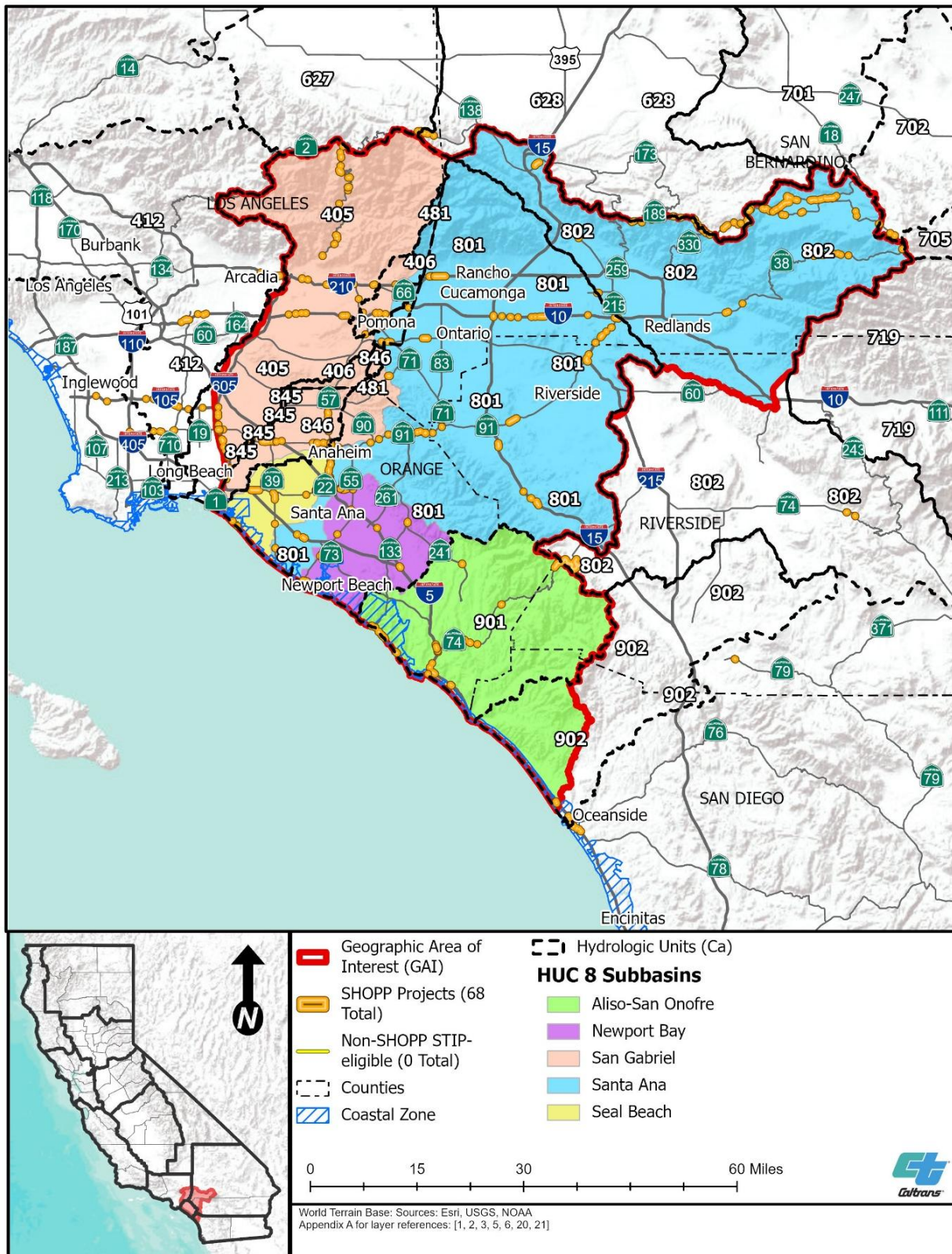
Table 2-4. Sub-basins

Sub-basin Name	Sub-basin Code (HUC-8)	Drainage Area (acres) ^a	Rivers and Streams (count)	Total Reach Length (miles) ^a
Aliso-San Onofre	18070301	317,770	634	772
Newport Bay	18070204	100,978	120	147
San Gabriel	18070106	421,253	662	822
Santa Ana	18070203	1,084,212	2,021	2,052
Seal Beach	18070201	56,232	14	3
Not applicable	Total	1,980,446	3,451	3,796

Source: California Department of Water Resources

^a Numbers were rounded to the nearest whole number.

Figure 2-15. HUC-8 Sub-basins and HUs



Note: Only five of the watersheds within the San Gabriel sub-basin are included in the GAI.

2.15. Flood Hazard Areas

As designated by the Federal Emergency Management Agency, a Special Flood Hazard Area is defined as the area of land that is covered by the floodwaters of a 100-year base flood (Federal Emergency Management Agency 2021). In accordance with Executive Order 11988, all federally approved projects that encroach into a 100-year base floodplain must try to:

- Avoid support of incompatible floodplain development,
- Minimize the impact of highway actions that adversely affect the base floodplain,
- Restore and preserve natural and beneficial floodplain values, and
- Be consistent with the standards/criteria of the National Flood Insurance Program of the Federal Emergency Management Agency (Caltrans 2015).

Flood hazard areas in the GAI are shown on Figure 2-16. Water bodies associated with the majority of flood hazard risk in the GAI include Anaheim Bay, Bolsa Chica Bay, Huntington Harbor, Prado Reservoir, San Gabriel River, and Santa Ana River. This information is important for scoping advance mitigation projects and transportation projects undertaken in the GAI, which will need to comply with Executive Order 11988.

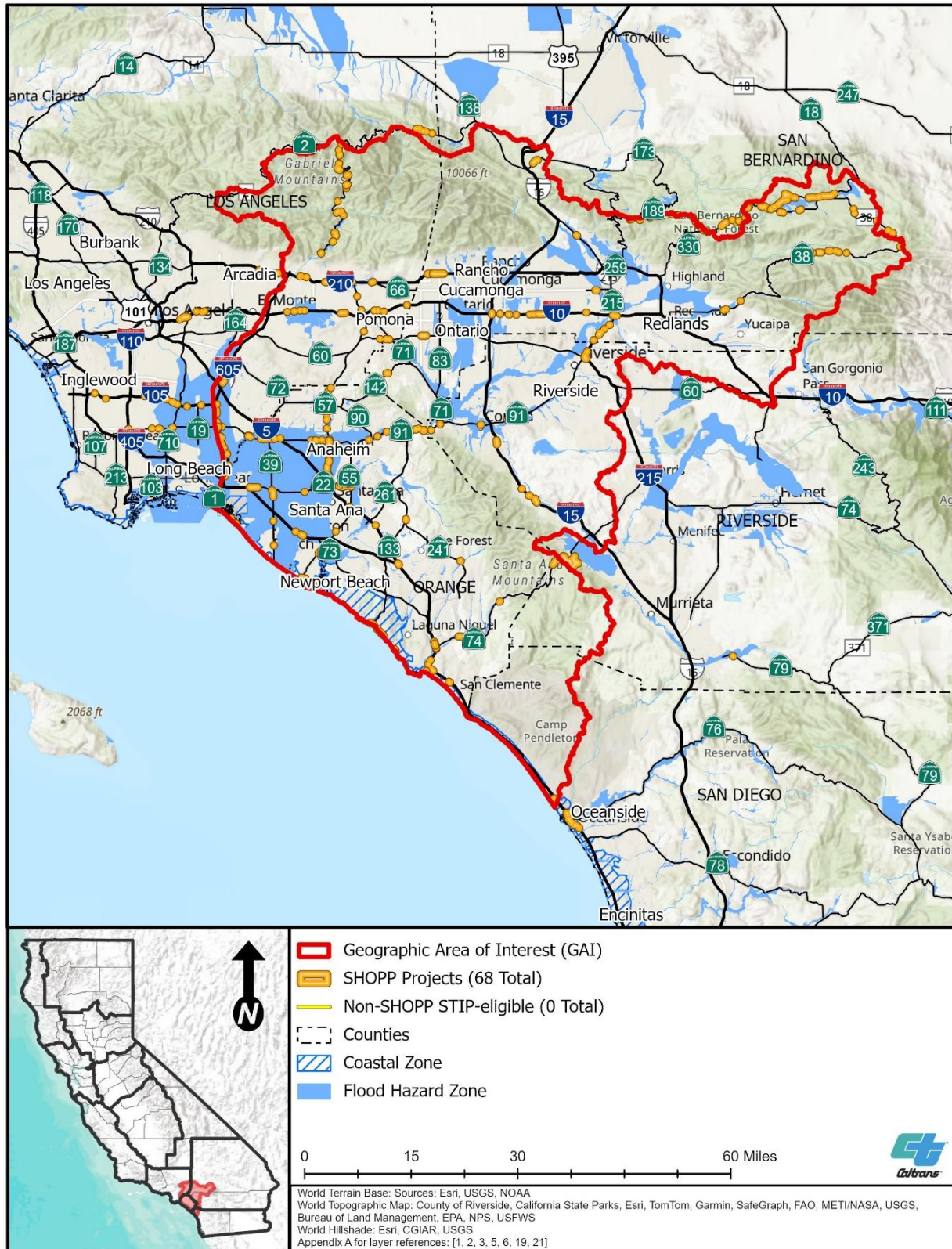
2.16. Water Quality

Water quality objectives for surface waters and groundwater in the GAI are provided in the Los Angeles, Santa Ana, and San Diego water quality control plans (“Basin Plans”) that cover the GAI (Los Angeles RWQCB 2014; San Diego RWQCB 2021; Santa Ana RWQCB 2019). Water quality objectives identified in the Basin Plans can be numerical or narrative. For example, the “chemical constituents” water quality objective for the protection of aquatic life and human health consists of federal water quality criteria for toxic “priority pollutants” under the California Toxics Rule (40 CFR § 131.38) and National Toxics Rule (40 CFR § 131.36). In contrast, the water quality objective for taste and odor is narrative. Undesirable tastes and odors in water are an aesthetic nuisance and can indicate the presence of other pollutants.

Beneficial uses⁴ for surface waters, groundwater, and coastal features are also identified in the Basin Plans (Los Angeles RWQCB 2014; San Diego RWQCB 2021; Santa Ana RWQCB 2019). If it cannot be avoided, a water body’s beneficial uses may be affected by the construction, operation, and maintenance of highways and bridges. Impacts on wildlife and aquatic resources can be adverse or beneficial. An example of an adverse impact would be the introduction of a variety of pollutants, including sediments, heavy metals, hydrocarbons, and toxic substances (EPA 2005).

⁴ RWQCBs may have region-specific definitions of beneficial uses or beneficial uses with no statewide equivalent. These definitions are in the latest version of the document entitled “bu_definitions” at https://www.waterboards.ca.gov/about_us/performance_report_1314/plan_assess/docs/

Figure 2-16. Flood Hazard Areas



An example of a beneficial impact would be repairs or retrofits that improve permeability or flows. Therefore, this RAMNA considers beneficial uses identified for water bodies located in the GAI relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP's objective to protect natural resources through transportation project mitigation (Table 2-5).

Table 2-5. Beneficial Uses

Beneficial Use	Los Angeles Basin Plan	Santa Ana River Basin Plan	San Diego Basin Plan	Relevant to RAMNA?^a
Agricultural Supply	Applicable	Applicable	Applicable	No
Aquaculture	Applicable	Not applicable	Applicable	Yes
Cold Freshwater Habitat	Applicable	Applicable	Applicable	Yes
Commercial and Sport Fishing	Applicable	Applicable	Applicable	Yes
Estuarine Habitat	Applicable	Applicable	Applicable	Yes
Freshwater Replenishment	Applicable	Not applicable	Applicable	Yes
Groundwater Recharge	Applicable	Applicable	Applicable	Yes
Hydropower Generation	Applicable	Applicable	Applicable	No
Industrial Process Supply	Applicable	Applicable	Applicable	No
Industrial Service Supply	Applicable	Applicable	Applicable	No
Inland Saline Water Habitat	Applicable	Not applicable	Not applicable	Yes
Limited Warm Freshwater Habitat	Not applicable	Applicable	Not applicable	Yes
Marine Habitat	Applicable	Applicable	Applicable	Yes
Migration of Aquatic Organisms	Applicable	Not applicable	Applicable	Yes
Municipal and Domestic Supply	Applicable	Applicable	Applicable	No
Navigation	Applicable	Applicable	Applicable	No
Non-Contact Water Recreation	Applicable	Applicable	Applicable	No
Preservation of Areas of Special Biological Significance	Applicable	Applicable	Applicable	Yes
Rare, Threatened, or Endangered Species	Applicable	Applicable	Applicable	Yes
Shellfish Harvesting	Applicable	Applicable	Applicable	No
Spawning, Reproduction, and/or Early Development	Applicable	Applicable	Applicable	Yes
Warm Freshwater Habitat	Applicable	Applicable	Applicable	Yes
Water Contact Recreation	Applicable	Applicable	Applicable	No

Beneficial Use	Los Angeles Basin Plan	Santa Ana River Basin Plan	San Diego Basin Plan	Relevant to RAMNA? ^a
Wetland Habitat	Applicable	Not applicable	Not applicable	Yes
Wildlife Habitat	Applicable	Applicable	Applicable	Yes

Sources: Los Angeles RWQCB (2014); San Diego RWQCB (2021); Santa Ana RWQCB (2019)

^a Beneficial uses are relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP's objective to protect natural resources through transportation project mitigation.

Through habitat and other improvements, advance mitigation projects have the potential to contribute to compliance with the SWRCB CWA Section 303(d) List of Total Maximum Daily Load Priority Schedule. For example, fish passage projects in impaired watersheds that increase road/stream crossing capacity; improve the alignment of the crossing; or implement weirs, baffles, or other grade/velocity control devices at undersized road/stream crossings will improve sediment transport and/or reduce scour, thereby improving water quality. Similarly, culvert replacement projects that increase flow and capacity would also reduce scour and improve sediment transport, resulting in improved channel function and flow and improved water quality.

The CWA Section 303(d) list of impaired waters includes 104 water bodies in the GAI (SWRCB 2021). This RAMNA considers a water body's CWA Section 303(d) impairment designation as relevant to the RAMNA when it indicates a water body's loss of a relevant aquatic resource-related beneficial use (Table 2-5). These water bodies, their impairments, and whether total maximum daily loads have been established are provided in Appendix G, *List of 303(d) Impaired Waters*. An RWQCB may need to consult with CDFW or other natural resource regulatory agencies to determine whether a beneficial use may be affected by a water quality-related decision.

2.17. Wild and Scenic Rivers

The purpose of the federal Wild and Scenic Rivers Act of 1968 (16 USC Chapter 28) and the California Wild and Scenic Rivers Act of 1972 (Public Resources Code § 5093.50) is to protect and enhance the wild, scenic, and recreational values of designated rivers (National Wild and Scenic Rivers System 2021; Water Education Foundation 2022). Rivers designated under the Wild and Scenic Rivers Act are classified as wild, scenic, or recreational. Wild river areas include rivers or sections of rivers that are free of impoundments, inaccessible except by trail, and have unpolluted waters. Scenic river areas include rivers or sections of rivers that are free of impoundments, have relatively undeveloped shorelines, and are accessible in some places by roads. Recreational river areas include rivers or sections of rivers that are readily accessible by road or railroad, have some development along shorelines, and may have impoundments or diversions.

No nationally or state designated wild and scenic rivers are found in the GAI (National Wild and Scenic Rivers System 2021; Omnibus Public Land Management Act of 2009).

2.18. Aquatic Resources

A high-level view of major aquatic resources in the GAI is provided on Figure 2-17, and detailed maps of aquatic resources are provided in Appendix H, *Aquatic Resource Locations*. For the purposes of advance mitigation planning, aquatic resources in the GAI include wetlands and non-wetland waters that may be subject to CCC, Corps, EPA, SWRCB/RWQCB, and/or CDFW regulations, as well as special-status fish that may be subject to CCC, CDFW, FWS, and/or NMFS regulations. Riparian habitat is discussed separately in Section 2.19.

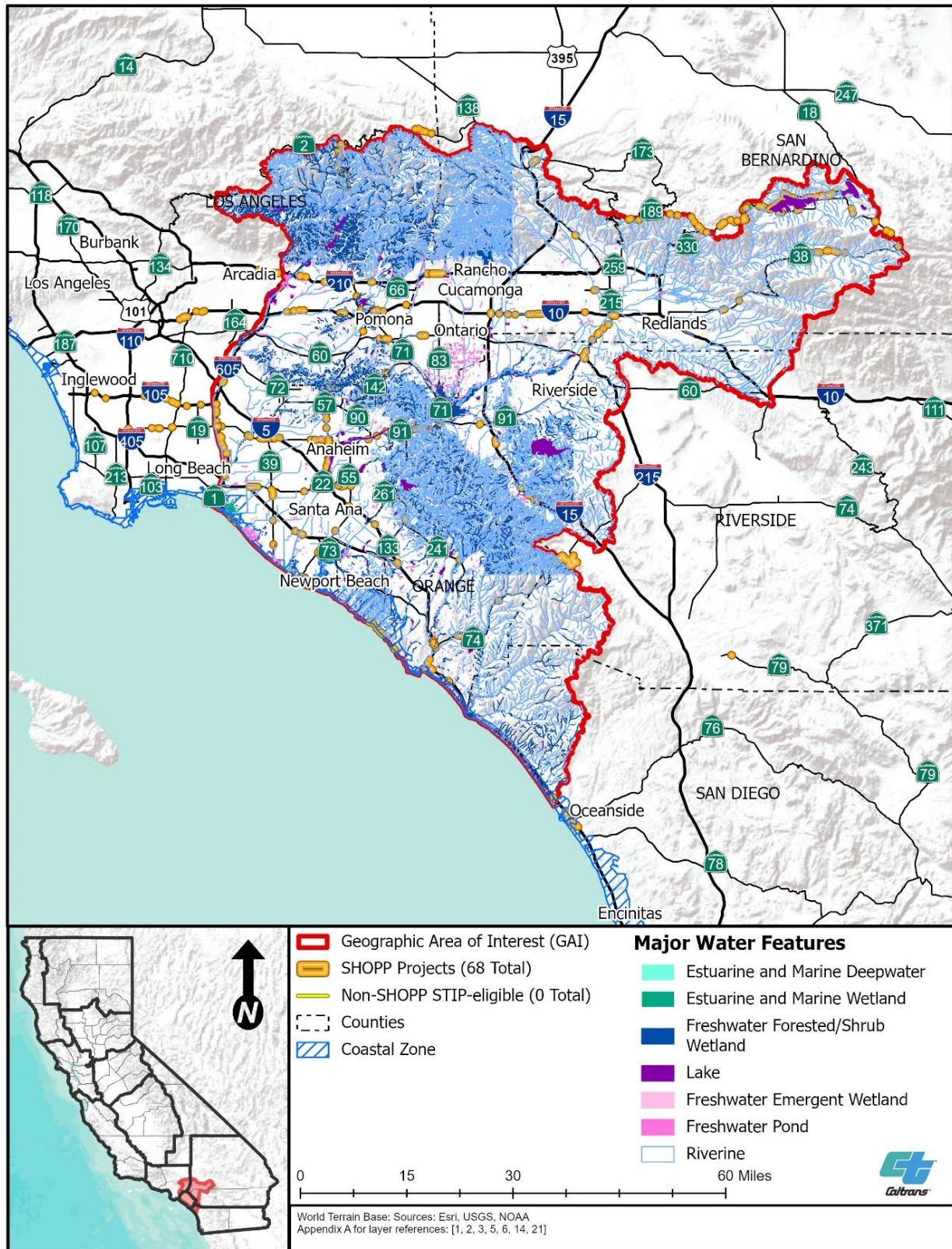
The CCC regulates impacts on coastal wetlands and marine and aquatic resources, and these resources receive special protections under Coastal Act § 30230 et seq. Corps and EPA jurisdiction under Section 404 of the CWA includes any activity that may cause a discharge of dredged or fill material into waters of the U.S. (“WOTUS”), including wetlands. Corps jurisdiction also includes any work or structure affecting navigable WOTUS, pursuant to Section 10 of the Rivers and Harbors Act and 33 CFR § 329, respectively. The SWRCB and RWQCB’s jurisdiction includes any activity that may cause a discharge of waste to waters of the state, including WOTUS, rivers, streams, and lakes, including ephemeral, intermittent, and perennial watercourses, and wetlands, seeps, and springs. CDFW regulates any activity that may divert or obstruct the natural flow of a river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake⁵; use material from any river, stream, or lake; and deposit or dispose of material into any river, stream, or lake.

2.18.1. Historical Context

Major rivers in the GAI include the Santa Ana and San Gabriel Rivers, both utilized by Native Americans and Spanish settlers. Missionaries and ranchers developed the land around the Santa Ana River to irrigate crops, diverting water to ditches. Development of the river’s resources included the use of groundwater supplies when surface supplies were inadequate, the development of hydroelectric power generation, floods and flood protection (Scott 1977). Most of the major rivers flowed nearly year-round, replenishing large groundwater basins in inland valleys and on the coastal plain. Diversion of most of the natural surface flows for agricultural and domestic uses dried up many rivers and creeks during parts of the year, when they carry only storm flows and runoff and experience diminishing natural groundwater recharge (Santa Ana RWQCB 2019).

⁵ Rivers, streams, and lakes include ephemeral, intermittent, and perennial watercourses.

Figure 2-17. Aquatic Resource Features and Major Stream Systems^a



^a For greater detail, see Appendix H.

2.18.2. Threatened and Endangered Fish Species

Special-status terrestrial species with the potential to occur in the GAI are discussed in Section 2.8. Threatened and endangered fish species are discussed below.

Threatened and endangered fish species with the potential to occur in the GAI were extracted from the SAMNA Reporting Tool's fish habitat layer, which was developed using the USGS National Hydrography Dataset and other information (Caltrans 2018, 2024e). Based on a search of the fish habitat layer, seven federally or state listed threatened or endangered fish species have the potential to occur in the GAI:

- Federally endangered and state listed endangered desert pupfish (*Cyprinodon macularius*)
- Federally endangered and state listed endangered Mohave tui chub (*Siphateles bicolor mohavensis*)
- Federally endangered and state listed endangered razorback sucker (*Xyrauchen texanus*)
- Federally threatened Santa Ana sucker (*Catostomus santaanae*)
- Federally endangered Southern California DPS of steelhead (*Onchorhynchus mykiss irideus*)
- Federally endangered tidewater goby (*Eucyclogobius newberryi*)
- Federally endangered and state listed endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)

Of the seven fish species, three are not known to occur in the GAI: desert pupfish, Mohave tui chub, and razorback sucker. The desert pupfish is isolated to shoreline pools, freshwater ponds, irrigation drains, as well as portions of creeks and washes that located near the Salton Sea (CDFW n.d.). The Mohave tui chub has only three known locations—all within San Bernardino County, outside of the GAI (FWS 2009a). The razorback sucker is isolated to large rivers within the Colorado River Basin (FWS 2002).

The Santa Ana sucker is known to occur within perennial flowing waters with a variety of coarse channel substrates, including gravel, cobble, or mixtures of gravel and cobble with sand. In the GAI, the species is known to occur within the Santa Ana River watershed from the San Gabriel and San Bernardino Mountains down to the Pacific Ocean (FWS 2011). The Southern California DPS of steelhead is known to occur within the San Gabriel and Santa Ana Rivers, Arroyo Trabuco, and San Juan, San Mateo, and San Onofre Creeks (NMFS 2012). The tidewater gobies are known to occur within brackish water along the California coast from Tillas Slough in Del Norte County, Oregon, to Cocklebur Canyon in northern San Diego County, California. In the GAI, tidewater gobies would be expected along the shoreline and within marshlands and lagoons near the Bolsa Chica Reserve (FWS 2007a). The unarmored threespine stickleback are historically known to occur within low-gradient parts of the Los Angeles, San Gabriel, and Santa Ana Rivers; however, today within the GAI, the species is known to occur within the San Bernardino Mountains near Big Bear Lake (FWS 2021b).

Although it is the best information currently available, the SAMNA Reporting Tool's fish species list is uncertain (Caltrans 2024e). Therefore, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

2.18.3. Wetlands

Wetland resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the FWS National Wetlands Inventory maps (FWS 2021c), and data from the SFEI (2018) California Aquatic Resource Inventory (Table 2-6, Appendix H; Caltrans 2024f). These data were used to estimate the extent of wetlands in the GAI; however, the data layers are largely based on aerial imagery, have not been ground-truthed, provide no information on plant species associated with mapped areas, and are therefore relatively coarse. Although suitable for advance mitigation project scoping, site-specific wetland studies that result in more detailed mapping and classification of wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. For example, under Section 404 of the CWA, in typical cases, the Corps considers wetlands to be jurisdictional WOTUS only if they have the three parameters of hydrology, hydrophytic vegetation, and hydric soils, and satisfy criteria to be connected to a traditionally navigable water.

Aquatic resource types outlined here follow the *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013). The SAMNA Reporting Tool wetlands data layer is separate from the land cover types discussed previously in Section 2.6; therefore, total acreages of wetland land cover types presented in Table 2-3 may not align with those presented in Table 2-6 (Caltrans 2024f).

Coastal Wetlands

Caltrans did not find any spatial data for the GAI that display “coastal wetlands” as defined by the CCC, in accordance with Public Resources Code § 30121⁶ [14 California Code of Regulations § 13577(b)].⁷ CCC wetlands only need to display one of the parameters typically used to define wetland areas (such as wetland hydrology, soils, or vegetation) and, therefore, may be more inclusive than Corps-defined wetlands, which require the presence of all three parameters. The SAMNA Reporting Tool's wetland layer does not report on coastal wetlands that meet the CCC's definition. It is likely that, if located in the coastal zone, all of the wetland types identified in Table 2-6 would be classified as coastal

⁶ Per Public Resources Code § 30121, “Wetlands mean lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.”

⁷ Per 14 California Code of Regulations § 13577(b), “Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate.”

wetlands. An unknown additional number may also meet the definition of coastal wetland using the CCC's criteria; identification would have to occur in the field.

Vernal Pools

Vernal pools are waters of the state. Vernal pools that do not have a relatively permanent or continuous surface connection to a traditionally navigable water would not be considered jurisdictional WOTUS. The SAMNA Reporting Tool's wetland layer does not include vernal pools. However, potential vernal pool habitat can be inferred from the modeled Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp habitat developed for the SAMNA that is based on California Natural Diversity Database vernal pool invertebrate species occurrences.⁸ Vernal pools mapped using CDFW's ACE vernal pools layer [ds2732] are shown on the left side of Figure 2-18, and the California Natural Diversity Database occurrence of vernal pool invertebrate species and a 4-mile buffer mapped with the SAMNA Reporting Tool are shown on the right side of Figure 2-18.

2.18.4. Non-wetland Waters

Other, non-wetland water resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the USGS National Hydrography Dataset (Table 2-6, Appendix H; Caltrans 2024g). Although suitable for advance mitigation project scoping, site-specific studies that result in more detailed mapping and classification of other, non-wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. Similar to the wetlands data, the waters data layer is separate from the land cover types discussed previously in Section 2.6; therefore, total acreages of water land cover types presented in Table 2-3 may not align with those presented in Table 2-6 (Caltrans 2024g).

⁸ Although the SAMNA Reporting Tool does not use California Natural Diversity Database occurrences of vernal pool plants to map vernal pools, vernal pool plant species impact forecasts are provided in Appendix E.

Table 2-6. Wetland and Non-wetland Water Types in the GAI

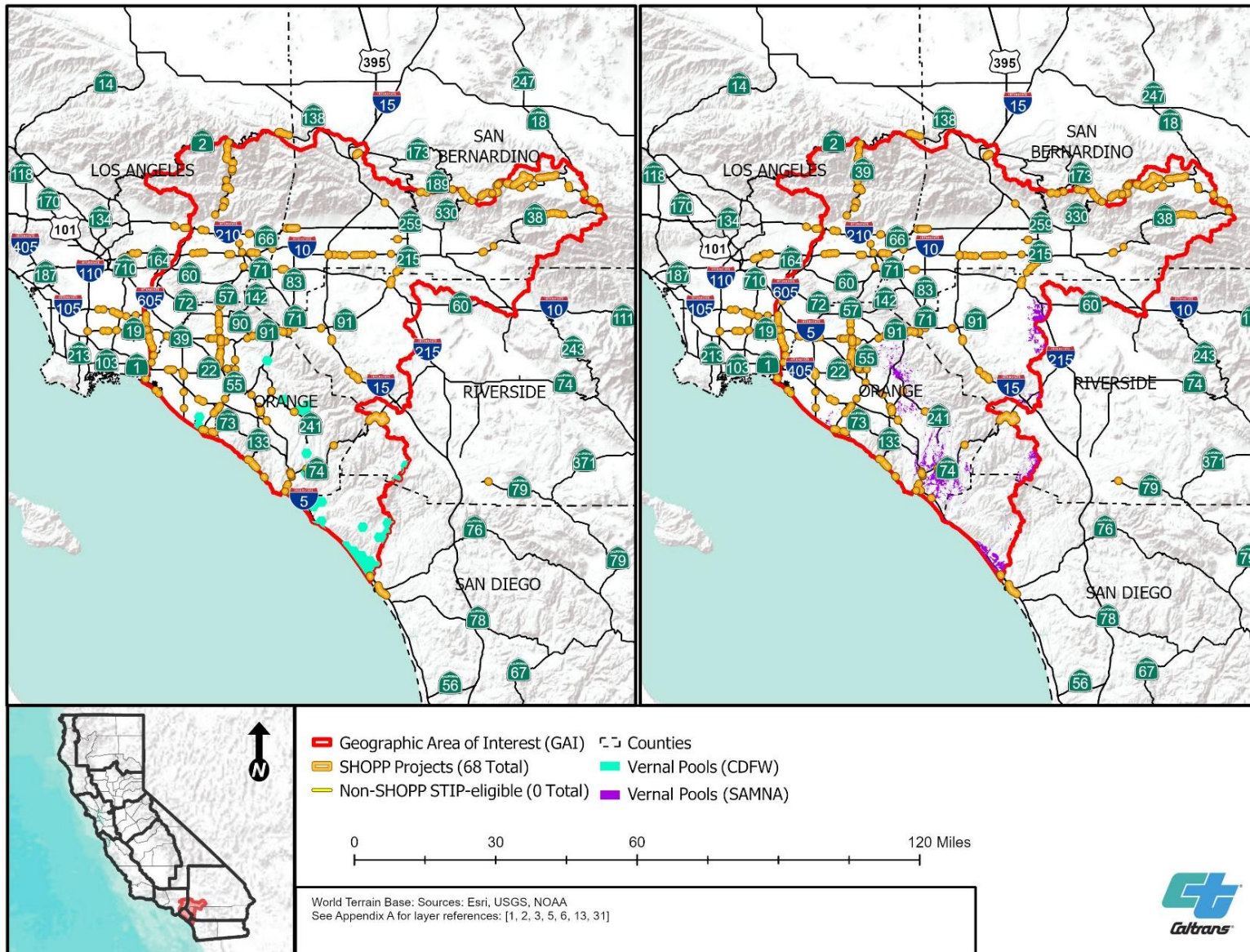
Type	Aliso-San Onofre (acres) 18070301	Newport Bay (acres) 18070204	San Gabriel (acres) 18070106	Santa Ana (acres) 18070203	Seal Beach (acres) 18070201
Depressional Perennial Non-vegetated	Not mapped	33.6	18.6	218.9	3.7
Depressional Perennial Unnatural Emergent	Not mapped	0.4	Not mapped	9.2	Not mapped
Depressional Perennial Unnatural Non-vegetated	0.2	21.8	Not mapped	30.9	<0.1
Depressional Perennial Unnatural Shrub-Scrub	Not mapped	Not mapped	Not mapped	0.1	Not mapped
Depressional Perennial Unnatural Vegetated	Not mapped	Not mapped	Not mapped	0.9	Not mapped
Depressional Seasonal	Not mapped	3.8	Not mapped	298.6	Not mapped
Depressional Seasonal Natural Emergent	0.5	4.5	<0.1	11.1	Not mapped
Depressional Seasonal Natural Forested	10.9	8.4	<0.1	4.4	Not mapped
Depressional Seasonal Natural Non-vegetated	<0.1	Not mapped	Not mapped	Not mapped	Not mapped
Depressional Seasonal Natural Shrub-Scrub	29.9	32.7	<0.1	4.7	Not mapped
Depressional Seasonal Unnatural Emergent	1.1	45.8	Not mapped	0.6	0.3
Depressional Seasonal Unnatural Forested	Not mapped	6.6	Not mapped	Not mapped	Not mapped
Depressional Seasonal Unnatural Non-vegetated	0.6	4.0	Not mapped	39.4	1.7
Depressional Seasonal Unnatural Shrub-Scrub	0.3	6.4	Not mapped	2.5	Not mapped
Depressional Unnatural Non-vegetated	Not mapped	Not mapped	Not mapped	1.2	Not mapped
Estuarine and Marine Deepwater	33.3	112.2	151.4	125.5	327.0
Estuarine and Marine Wetland	274.7	409.9	0.4	77.1	905.0
Estuarine Saline Natural Intertidal Emergent	Not mapped	1.6	Not mapped	<0.1	Not mapped
Estuarine Saline Natural Intertidal Non-vegetated	Not mapped	0.3	Not mapped	Not mapped	<0.1
Estuarine Saline Natural Subtidal Non-vegetated	<0.1	0.4	Not mapped	Not mapped	Not mapped

Type	Aliso-San Onofre (acres) 18070301	Newport Bay (acres) 18070204	San Gabriel (acres) 18070106	Santa Ana (acres) 18070203	Seal Beach (acres) 18070201
Estuarine Saline Subtidal Non-vegetated	Not mapped	3.2	Not mapped	0.3	<0.1
Estuarine Saline Unnatural Intertidal Emergent	Not mapped	Not mapped	Not mapped	0.5	0.6
Estuarine Saline Unnatural Intertidal Non-vegetated	Not mapped	Not mapped	Not mapped	7.0	Not mapped
Estuarine Saline Unnatural Muted Tidal Non-vegetated	Not mapped	Not mapped	Not mapped	0.4	0.3
Freshwater Emergent Wetland	427.0	284.6	428.4	2,028.1	318.7
Freshwater Forested/Shrub Wetland	2,949.2	654.5	3,933.3	11,683.0	41.2
Freshwater Pond	275.8	303.8	898.6	2,868.9	524.7
Lacustrine Natural Non-vegetated	Not mapped	Not mapped	Not mapped	<0.1	Not mapped
Lacustrine Unnatural Non-vegetated	Not mapped	3.4	Not mapped	70.1	Not mapped
Lake	335.5	208.3	1,981.6	9,171.9	50.6
Marine Natural Intertidal Non-vegetated	1.8	1.8	Not mapped	Not mapped	<0.1
Riverine	3,566.8	803.3	5,439.3	13,566.5	23,545.8
Total^a	7,907.7	2,955.1	12,851.6	40,222.0	2,343.9

Sources: Caltrans (2024f, 2024g)

^a Rounded to the nearest tenth. Numbers may not sum on account of rounding.

Figure 2-18. Vernal Pools



2.19. Riparian Habitat

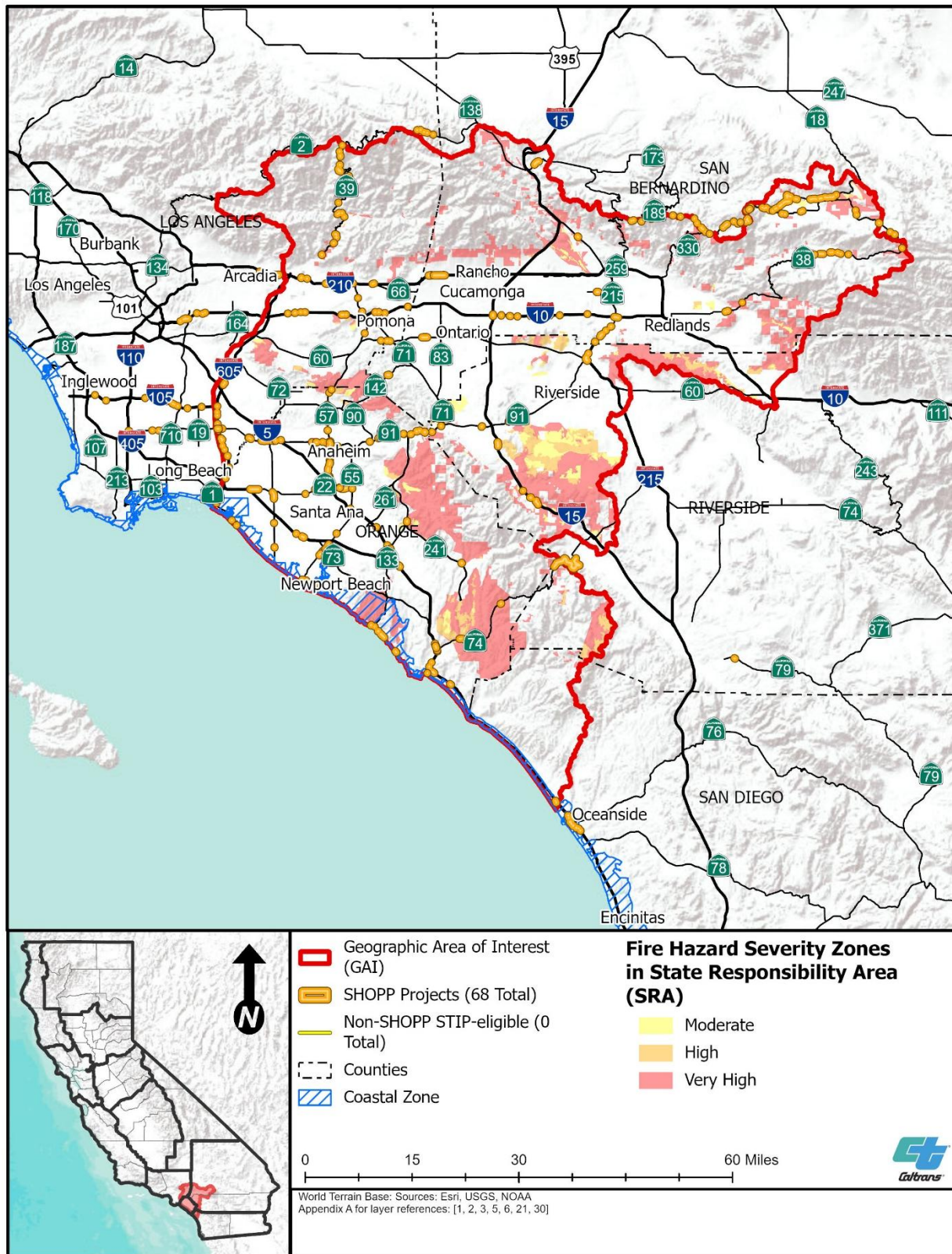
Riparian habitats may include portions that are wetlands or non-wetland waters, but they also may be outside of these categories. California does not have a GIS layer for riparian ecotones and the natural resource regulatory agencies with authority in California do not have a definition for riparian habitat. Riparian areas are water-dependent lands along streams and lakes where transitions occur between terrestrial and aquatic parts of a watershed. As a function of the riparian corridor, riparian area boundaries fluctuate with the flows of their adjacent aquatic feature. Riparian area boundaries are more distinct and separate throughout most of the year, while during periods of high water, topographically lower riparian areas that are typically part of the floodplain become a part of the aquatic feature (Kattlemann and Embury 1996).

In the GAI, riparian habitat is generally associated with undeveloped areas of aquatic features, such as the San Gabriel and Santa Ana Rivers, as well as the San Gabriel Mountains and San Bernardino National Forest. Major riparian vegetation in the GAI may include Mojave riparian forest, southern coast live oak riparian forest, southern cottonwood willow riparian forest, southern mixed riparian forest, southern riparian scrub, and southern sycamore alder riparian woodland (National Park Service [“NPS”] 2011). The SAMNA’s vegetation layer identifies desert riparian, montane riparian, and valley foothill riparian habitat in the GAI (Table 2-3). Caltrans riparian landcover dataset, briefly described in Section 1.4.1, predicts areas of potential riparian function in the GAI; however, results are not ground-truthed (Caltrans 2023a).

2.20. Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection prepares Fire Hazard Severity Zone maps that classify the severity of fire hazards in California (Figure 2-19). These maps are developed by assigning a hazard score based on factors that influence fire likelihood and behavior, including fire history, existing and potential fuel, predicted flame length, blowing embers, terrain, and typical fire weather. Hazard scores are averaged over zone areas to result in a moderate, high, or very high zone class. As indicated on Figure 2-19, high and very high fire hazard severity zones in the GAI primarily occur in the central, northern, and eastern part of the GAI at higher elevations. This information is important for scoping advance mitigation projects and transportation projects undertaken in the GAI and it may inform the types of materials that can be used in an area based on their fire resistance capabilities.

Figure 2-19. Fire Hazard Severity Zones



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3. RELEVANT PLANS, POLICIES, AND REGULATIONS

This chapter summarizes the references applicable to the GAI that, when relevant, Caltrans will consult when conceptualizing advance mitigation project scopes informed by this RAMNA. Table 3-1 is organized by subject: laws and regulations, statewide and regional resource management plans, plans and permits focused on the species of mitigation need, resource agency land management plans (separated by agency), water resources plans and documents, county and city general plans, and other organization conservation and management documents. HCP, NCCP, and RCIS documents are discussed separately in Chapter 4, *Existing Mitigation Opportunities*, because they represent or support current compensatory mitigation credit purchase opportunities for Caltrans. Table 3-1 provides the following information for each reference identified:

- Reference document title
- Status:
 - Final: The reference is completed.
 - Draft: The reference is not complete, and changes may occur when it is finalized.
 - In progress: A formal draft version has not been completed, and the document is being written.
 - In litigation: The reference is subject to at least one lawsuit and is not being revised.
 - Updated periodically: The reference is updated with new information on a somewhat frequent basis.
 - Not publicly available: The reference is known to exist but does not appear to be publicly available.
- Spatial data – whether a map is provided with the document
- Reference purpose – a summary of information relevant to advance mitigation planning and/or a summary of reference intent
- Link – where the reference can be found
- Date – when the reference was published or last updated

The list of relevant documents, policies, and regulations in Table 3-1 is not exhaustive. Caltrans may consult additional relevant resources as advance mitigation planning is conceptualized. When conducting advance mitigation project scoping, Caltrans will check to determine whether it has the most up-to-date version of a particular reference.

3.1. Relationship to Goals and Objectives

As stated in Chapter 1, *Introduction*, the GAI for this RAMNA was selected by Caltrans District 12 based on the SAMNA results and other information. Caltrans District 12 identified compensatory mitigation specifically for arroyo toad, coastal California gnatcatcher, least Bell's vireo, steelhead (Southern California DPS), and aquatic resources as historical and anticipated mitigation needs. Therefore, Table 3-1

emphasizes documents related to the specified wildlife and aquatic resources, which, in turn, form the basis for the goals and objectives presented in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*. As much as practicable, however, Caltrans intends for any compensatory mitigation established in the GAI to support these specific wildlife and aquatic resources to benefit other wildlife and aquatic resources.

Table 3-1. Comprehensive Plans, Agreements, Resource Management Plans, Policies, and Regulations Relevant to the GAI

Title	Status	Spatial Data	Reference Purpose	Link	Date
State Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
Assembly Bill 1889 Conservation Element: Wildlife and Habitat Connectivity	Updated periodically (by California legislature)	No	Law that requires a conservation element and wildlife connectivity element to be included in city and/or county general plans.	https://legiscan.com/CA/text/AB1889/2023	9/27/2024 (last amended)
Assembly Bill 2344 Wildlife Connectivity: Transportation Projects	Updated periodically (by California legislature)	No	Law that requires the development of an inventory of connectivity needs on the SHS where wildlife passage features could reduce wildlife-vehicle collisions or enhance wildlife connectivity.	https://legiscan.com/CA/text/AB2344/id/2609212	9/30/2022 (last amended)
California Coastal Act of 1976	Updated periodically (by California legislature)	No	The California Coastal Act is the primary law that governs decisions of the CCC. It outlines, among other things, standards for development within the coastal zone. The California Coastal Act requires mitigation for impacts on coastal habitats and other types of coastal resource impacts—for example, visual impacts—that are outside the scope of this document. The CCC regulates potentially impactful projects within the coastal zone, primarily through the issuance of CDPs. In coastal local jurisdictions where the CCC has certified an LCP, the local government assumes CDP authority within its jurisdiction (with certain exceptions, such as some coastal wetlands, where the CCC retains original jurisdiction). LCPs are used by local governments to guide development in the coastal zone in coordination with the CCC. LCPs that overlap the GAI are listed in Appendix C, <i>Local Coastal Programs</i> .	https://www.coastal.ca.gov/coastact.pdf	10/25/2025 (last amended)
California Fish and Game Commission Wetlands Resources Policy	Updated periodically	No	California Fish and Game Commission’s policy to seek to provide for the protection, preservation, restoration, enhancement, and expansion of wetland habitat in California.	https://fgc.ca.gov/About/Policies/Miscellaneous#Wetlands	8/18/2005 (last amended)
California Water Boards 2010 Update to Strategic Plan 2008–2012	Final	No	Update to strategic plan from the Water Boards. Goals include implementing strategies to fully support beneficial uses for all water bodies listed in the 2006 report, improve and protect groundwater quality, increase sustainable local water supplies available for meeting beneficial uses by 1,725,000 acre-feet per year, comprehensively address water quality protection and restoration, improve transparency and accountability within the Water Boards, enhance consistency across the Water Boards, and ensure that the Water Boards have access to information and expertise.	https://www.waterboards.ca.gov/water_issues/hot_topics/strategic_plan/docs/2010/final_strategic_plan_update_report_062310.pdf	6/1/2010
2020 Fish Passage Annual Legislative Report	Final	No	Report identifies priority fish passage barriers on the SHS. Priorities are determined through FishPAC collaboration and are based on the following: - species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed; - habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species; and - best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts. Subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.	https://dot.ca.gov/programs/legislative-affairs/reports	10/1/2021 (most recent)
CCC Regulations	Updated periodically	No	California Code of Regulations section that allows CCC to implement provisions of the California Coastal Act.	https://www.law.cornell.edu/regulations/california/title-14/division-5.5	12/24/2021 (last updated)
CCC Sea Level Rise Policy Guidance	Updated periodically	No	CCC’s policy guidance document for integrating development projects in the coastal zone with sea-level rise projections for LCPs and CDPs.	https://www.coastal.ca.gov/climate/slrguidance.html	11/13/2024 (last updated)

Title	Status	Spatial Data	Reference Purpose	Link	Date
CESA	Updated periodically (by California legislature)	No	CESA prohibits the take of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in FGC § 2081, subdivisions (b) and (c) are met (see California Code of Regulations, Title 14, § 783.4).	https://www.wildlife.ca.gov/Conservation/CESA	9/10/2018 (last amended)
Definition and Delineation of Wetlands in the Coastal Zone	Final	No	Implemented by the CCC. Serves as a reference guide to help interpret CCC law and regulations, which, in part, define wetlands. Summarizes a wetland definition, set forth in the California Coastal Act and California Code of Regulations, Title 14, Division 5.5, that uses a one-parameter approach by which any of the three Corps' indicators constitutes a wetland. This document also includes wetland delineation procedures.	https://documents.coastal.ca.gov/reports/2011/10/W4-10-2011.pdf	10/5/2014
Executive Order W-59-93	Final	No	Governor of California's directive for a no net loss policy on the quantity, quality, and permanence of wetland acreages and values.	https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wrapp2008/executive_order_w59_93.pdf	8/23/1993
Native Plant Protection Act	Final	No	Enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the Native Plant Protection Act. The Native Plant Protection Act prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.	https://leginfo.ca.gov/faces/codes_displayText.xhtml?division=2.&chapter=10.&lawCode=FGC	1/1/1977
Porter-Cologne Water Quality Control Act	Updated periodically (by California legislature)	No	Law that governs water quality in California, establishing the nine RWQCBs and their jurisdiction to protect California's surface water and groundwater through water quality objectives and the beneficial uses of water as outlined in a project's waste discharge requirements.	https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf	1/1/2019 (last amended)
State Board Resolution No. 68-16	Final	No	Policy for maintaining high water quality.	https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf	10/28/1968
State of California Sea Level Rise Guidance: 2024 Science and Policy Update	Final	No	Drafted by CNRA and OPC. Provides guidance to state agencies for incorporating sea-level rise projections into planning, permitting, investment, and other decisions.	https://cawaterlibrary.net/document/state-of-california-sea-level-guidance/	5/31/2024
State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State	Final	No	Created by SWRCB and implemented by SWRCB and the RWQCBs. Creates a State of California wetland definition, a framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state.	https://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html	5/28/2020 (effective date)
Streambed Alteration Program FGC § 1602	Updated periodically (by California legislature)	No	Implemented by CDFW. Regulates activities that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In general terms, CDFW jurisdiction extends to top-of-bank of the outer extent of riparian habitat, if present. Additionally, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species.	https://www.wildlife.ca.gov/conservation/lisa	6/27/2017 (last amended)
Wildlife Connectivity Actions FGC § 1955	Updated periodically (by California legislature)	No	Law that declares the importance for habitat connectivity because of a changing climate and changes in land use across the state.	https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=FGC&sectionNum=1955	1/1/2022 (last amended)
Fish Passage FGC § 5901	Updated periodically (by California legislature)	No	Law that prohibits constructing or maintaining any device or contrivance that prevents or impedes, or tends to prevent or impede, the passing of fish up- and downstream.	https://california.public.law/codes/fish_and_game_code_section_5901#google_vignette	1/1/2024 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Water Quality Control Plan for the Los Angeles Region	Updated periodically	Yes	Implemented by the Los Angeles RWQCB. Establishes general and site-specific water quality standards and objectives in the Los Angeles Region. Identifies beneficial uses of water bodies.	https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/	2/13/2020 (last amended)
Water Quality Control Plan for the San Diego Region	Updated periodically	Yes	Implemented by the San Diego RWQCB. Establishes general and site-specific water quality standards and objectives in the San Diego Region.	https://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/	9/1/2021 (last updated)
Water Quality Control Plan for the Santa Ana River Basin	Updated periodically	Yes	Implemented by the Santa Ana RWQCB. Establishes general and site-specific water quality standards and objectives in the Santa Ana River Basin. Identifies beneficial uses of water bodies.	https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/	6/14/2019 (last amended)
Federal Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
12501-SPD Standard Operating Procedure for Determining Mitigation Ratios	Updated periodically	No	Corps' guidance document to establish processes for determining compensatory mitigation requirements as required for processing permits under Section 404 of the CWA; Section 10 of the Rivers and Harbors Act; and Section 103 of the Marine Protection, Research, and Sanctuaries Act.	https://www.spd.usace.army.mil/Missions/Regulatory/Public-Notices-and-References/Article/487060/12501-spd/	3/05/2021 (last updated)
2008 Final Compensatory Mitigation Rule	Final	No	Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on- and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS.	https://www.govinfo.gov/content/pkg/CFR-2012-title33-vol3/xml/CFR-2012-title33-vol3-part332.xml	7/9/2008
303(d) List of Impaired Water Bodies	Updated periodically	No	EPA and SWRCB's listing of regulated impaired water bodies.	https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html	4/11/2018 (last updated)
40 CFR § 131.12 California Antidegradation Policy	Final	No	Implemented by SWRCB. Required by federal law, the Antidegradation Policy applies to the disposal of waste to high-quality surface water and groundwater.	https://www.waterboards.ca.gov/plans_policies/antidegradation.html	8/21/2015 (last amended)
Corps Regulatory Guidance Letter 18-01	Final	No	Corps' guidance document on determining compensatory mitigation credits for the removal of obsolete dams and other structures from rivers and streams.	https://usace.contentdm.oclc.org/utis/getfile/collecion/p16021coll9/id/1473	9/25/2018
Current Implementation of Waters of the United States	Updated periodically	No	EPA's website on the implementation and definition of WOTUS, based on the most current agency rulemaking and legal decisions.	https://www.epa.gov/wotus/current-implementation-waters-united-states	5/30/2023 (last updated)
CWA	Updated periodically (by Congress)	No	Authorized by EPA and delegated to the Corps and SWRCB, the CWA establishes the basic structure for regulating discharges of pollutants into WOTUS and regulating quality standards for surface waters.	https://www.law.cornell.edu/uscode/text/33/1344	2/4/1987 (last amended)
CWA § 401	Updated periodically (by Congress)	No	Implemented by EPA and SWRCB. Regulates discharge of pollutants into WOTUS.	https://www.law.cornell.edu/uscode/text/33/1341	12/27/1977 (last amended)
CWA § 402 National Pollutant Discharge Elimination System MS4 Permit	Updated periodically (by Congress)	No	Implemented by EPA and SWRCB. Regulates discharge of stormwater from municipal sources that is a conveyance or system of conveyances that is: - owned by a state, city, town, village, or other public entity that discharges to WOTUS; - designed or used to collect or convey stormwater (for example, storm drains, pipes, ditches); - not a combined sewer; and - not part of a sewage treatment plant or publicly owned treatment works.	https://www.epa.gov/npdes/stormwater-discharges-municipal-sources	1/19/2019 (last amended)
CWA § 404	Updated periodically (by Congress)	No	Implemented by EPA and the Corps. Regulates discharge of dredge or fill material into WOTUS.	https://www.epa.gov/cwa-404/section-404-permit-program	11/6/1986 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
FESA	Updated periodically (by Congress)	No	Authorizes FWS and NMFS to protect federally listed threatened and endangered species.	https://www.fws.gov/endangered/laws-policies/	11/24/2003 (last amended)
Executive Order 11990, Protection of Wetlands	Final	No	Aims to minimize the destruction, loss, or degradation of wetlands and preserve and enhance the natural and beneficial values of wetlands.	https://www.epa.gov/cwa-404/protection-wetlands-executive-order-11990	3/24/1977
Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division	Final	No	Corps' guidelines for mitigation and monitoring in the South Pacific Division, including California.	https://www.spd.usace.army.mil/portals/13/docs/regulatory/mitigation/mitmon.pdf	12/19/2014 (last amended)
FWS Mitigation Policy	Final	No	FWS policy that builds upon the guidance in the 1981 Mitigation Policy for FWS recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife.	https://www.fws.gov/policy-library/A1501fw2	5/10/2023
FWS Endangered Species Act Compensatory Mitigation Policy	Final	No	FWS policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of FESA.	https://www.fws.gov/policy-library/a1501fw3	5/10/2023
National Wetlands Mitigation Action Plan	Final	No	EPA and Corps' comprehensive, interagency document to further achievement of the goal of no net loss of wetlands and to set forth the no net loss policy.	https://www.epa.gov/cwa-404/national-wetlands-mitigation-action-plan	12/26/2002
Section 10 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	Authorizes the Corps to protect navigable WOTUS by requiring a permit for construction of any structure over a navigable WOTUS. A Section 10 permit is required if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable WOTUS.	https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899	7/26/1947 (last amended)
Section 14 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	This Act is also known as 33 USC Section 408 or, more simply, Section 408. Implemented by the Corps. Regulates the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States.	https://www.law.cornell.edu/uscode/text/33/408a#a	10/23/2018 (last amended)
State Board Resolution No. 68-16	Final	No	Policy for maintaining high water quality.	https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf	10/28/1968
Wild and Scenic Rivers Act	Final	Yes	Reserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. All federal agencies must seek to avoid or mitigate actions that would adversely affect National River Inventory river segments.	https://www.law.cornell.edu/uscode/text/16/chapter-28	12/19/2014 (last amended)
Statewide and Regional Resource Planning Documents	See below	See below	See below	See below	See below
A Climate Change Vulnerability Assessment of California's Terrestrial Vegetation	Final	Yes	CDFW's document to assess the climate vulnerability of terrestrial vegetation.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116208&inline	1/1/2016
A Linkage Network for the California Deserts	Final	No	The primary goal of the California Desert Connectivity Project is to identify areas where maintenance or restoration of ecological connectivity is essential for conserving the unique biological diversity of California's deserts. Identification of these key areas of connectivity will help inform land management and conservation decisions, infrastructure improvements and mitigation options in the face of future land-use pressures as well as climate change. Species of mitigation need, including the Coastal California gnatcatcher and Least Bell's Vireo, are focal species in this report.	http://scwildlands.org/reports/ALinkageNetworkForTheCaliforniaDeserts.pdf	2/2012

Title	Status	Spatial Data	Reference Purpose	Link	Date
A Strategy for California @ 50 Million – Supporting California's Climate Change Goals	Final	Yes	Planning report from the California Governor's Office that focuses on sustainability efforts across California in response to climate change.	http://opr.ca.gov/docs/EGPR_Nov_2015.pdf	11/1/2015
ACE Connectivity Project Version 3.0	Updated periodically	Yes	A CDFW effort to analyze large amounts of map-based data to inform decisions around goals such as biodiversity conservation, habitat connectivity, and climate change resiliency.	https://wildlife.ca.gov/Data/Analysis/ACE	7/10/2019 (last updated)
California Biodiversity Initiative	Final	No	A CNRA, California Department of Food and Agriculture, and Governor's Office of Planning and Research high-level planning document. Provides a roadmap to secure California's biodiversity future.	https://californiabiodiversityinitiative.org/pdf/california-biodiversity-action-plan.pdf	9/2018
California Coastal Trail Mapping Viewer	In progress	Yes	GIS map created by CCC and the Coastal Conservancy showing existing segments of the California Coastal Trail. The majority of California Coastal Trail segments are located in public open space or Caltrans' right-of-way, and Caltrans is a statutory partner in maintaining and advancing the trail. Caltrans should be aware of any potential trail alignments when planning and designing mitigation projects.	https://the-california-coastal-trail-1-coastalcomm.hub.arcgis.com/	Updated frequently
Coastal Conservancy Strategic Plan 2023–2027	Final	No	Implemented by the Coastal Conservancy. Includes a discussion of issues and conservancy funded efforts in the GAI, including wetland and riparian habitat restoration.	https://scc.ca.gov/about/plan/	12/2022
California Eelgrass Mitigation Policy and Implementing Guidelines	Final	No	NMFS document describing its policy for mitigation of impacts on eelgrass habitats, which includes no net loss of eelgrass habitat.	https://www.fisheries.noaa.gov/resource/document/california-eelgrass-mitigation-policy-and-implementing-guidelines	10/1/2014
California Essential Habitat Connectivity Project	Final	Yes	CDFW and Caltrans assessment to identify large remaining blocks of intact habitat or natural landscape and model linkages between them that need to be maintained, particularly as corridors for wildlife.	https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC	2/1/2010
California Water Action Plan 2016 Update	Final	No	Calls for action to restore key mountain meadow habitat, manage headwaters, restore coastal watersheds, and enhance water flows in streams statewide.	http://resources.ca.gov/docs/california_water_action_plan/Final_California_Water_Action_Plan.pdf	1/01/2016
California Watershed Assessment Manual Volume I	Final	No	Prepared for CNRA and the California Bay-Delta Authority. Provides guidance for conducting a watershed assessment in California.	https://www.epa.gov/system/files/documents/2022-02/caliwam.pdf	5/1/2005
Caltrans Adaptation Priorities Report: District 12	Final	No	Caltrans initiated a major agency-wide effort to adapt its infrastructure so that it can withstand future conditions. The effort began by determining which assets are most likely to be adversely affected by climate change in each Caltrans District.	https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2020-adaption-priorities-reports/d12-adaptation-priorities-report-2020-a11y.pdf	9/1/2020
Caltrans Climate Change Vulnerability Assessments: District 12 Technical Report	Final	No	Caltrans assessment of climate change vulnerabilities for the District.	https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2019-climate-change-vulnerability-assessments/ada-remediated/d12-technical-report-a11y.pdf	11/21/2019
CCC Strategic Plan 2021–2025	Final	No	CCC draft to guide agency actions from 2020 to 2025. The plan currently contains 9 goals, 49 objectives, and 189 specific actions. Of these, Caltrans is identified in 16 specific actions, including coordination on biodiversity resources and advanced mitigation (3.1.3, 3.2.3, 3.2.4), climate change planning (4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.3.1, 4.4.2), LCP engagement (6.1.3, 6.1.5, 6.2.1), environmental justice (5.2.1, 5.2.3), and information/GIS collaboration (8.1.1, 8.1.7, 9.6.2, 9.6.4).	https://www.coastal.ca.gov/strategicplan/spindex.html	11/6/2020

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Coastal Storm Modeling System (CoSMoS)	Updated periodically	Yes	A tool developed by USGS to allow for detailed predictions of coastal flooding attributable to projected sea-level rise and storm systems. Includes projections of storm scenarios under different sea-level rise conditions. This system is integrated with the Our Coast Our Future: Coastal Storm Modeling System, noted below.	https://www.usgs.gov/centers/pcmssc/science/coastal-storm-modeling-system-cosmos?qt-science_center_objects=0#qt-science_center_objects	9/1/2021 (last piece added)
Conservation and Mitigation Banking	Updated periodically	No	CDFW's main public webpage describing the process for creating and using mitigation banks.	https://wildlife.ca.gov/Conservation/Planning/Banking	1/1/2022
Large Mammal-Vehicle Collision Hot Spot Analyses, California, USA	Final	Yes	Western Transportation Institute's report documenting the methods and results of hot spot analyses of large wild mammal-vehicle collisions in California, with an emphasis on mule deer. These analyses identified the road sections that had the highest concentration of deer-vehicle crashes and mule deer carcasses. Special-status species were not addressed.	https://westerntransportationinstitute.org/wp-content/uploads/2019/09/4W6693_Huijser-and-Begley-FINAL-Report-Caltrans-Statewide-20190913-reduced-image-size.pdf	9/13/2019
Master Plan for Marine Protected Areas	Final	No	CDFW's management plan for marine protected areas.	https://www.wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan	8/24/2016
Our Coast Our Future: Coastal Storm Modeling System	Updated periodically	Yes	A USGS mapping program tracking projected sea-level rise for the California coast. The portion of the GAI was covered in Version 3.0.	https://data.pointblue.org/apps/ocof/cms/	Information updated regularly
Pacific Coast Fishery Ecosystem Plan for the U.S. Portion of the California Current Large Marine Ecosystem	Final	Yes	Pacific Fishery Management Council's overarching plan for management of the marine ecosystem and fish population for the California coast.	https://www.pcouncil.org/managed_fishery/ecosystem-based-management/	3/1/2022
Restoring California's Wildlife Connectivity 2022: 2022 Priority Wildlife Connectivity Project Locations by Region	Final	Yes	CDFW's priority wildlife movement barriers across the state. This document is focused on large wild mammal game species; however, some priorities would benefit special-status species such as bighorn sheep.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=204648&inline	12/1/2022
Safeguarding California Plan: 2018 Update	Final	No	A conservation plan by CNRA. Includes goals to strengthen the climate adaptation component of conservation planning efforts, enhance habitat connectivity, protect climate refugia through strategic acquisition and protection activities, increase restoration and enhancement activities to increase climate resiliency of natural and working lands, increase biodiversity monitoring efforts, continue incorporating climate considerations into state investment decision processes, and provide educational opportunities to the public and state agency staff regarding climate impacts and adaptation options.	http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf	1/1/2018
Sanctuary Integrated Monitoring Network	Updated periodically	Yes	A NOAA-administered program to collect original research, gather historical records, and monitor and report on the condition of National Marine Sanctuaries in California.	https://sanctuariesimon.org/	Information updated regularly
South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion	Final	No	South Coast Missing Linkages is a highly collaborative inter-agency effort to identify and conserve the highest priority linkages in the South Coast Ecoregion. Linkages discussed in the report serve species of mitigation need, including arroyo toad and steelhead.	http://scwildlands.org/reports/SCMLRegionalReport.pdf	2008
Strategic Plan to Protect California's Coast and Ocean 2020-2025	Draft	Yes	OPC's plan for coastal and ocean protection. Includes goals and objectives centered on safeguarding coastal and marine ecosystems, advancing equity across ocean and coastal policies and actions, enhancing coastal and marine biodiversity, and improving ocean health with economic factors.	https://fisheries.legislature.ca.gov/sites/fisheries.legislature.ca.gov/files/OPC-2020-2025-Strategic-Plan-FINAL-20200228.pdf	2/28/2020
SWAP	Updated periodically (5-year intervals)	Yes	CDFW's plan for protection of species of greatest conservation need, in addition to habitats and other wildlife in California.	https://swap.wildlife.ca.gov/wp-content/uploads/2026/05/SWAP2025_Complete_2026Revision-1.pdf	10/2025

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SWAP Marine Resources Companion Plan	Final	Yes	CDFW's companion document to SWAP to assess the vulnerability and conservation strategies for the California coast and coastal waters.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=136127&inline	12/1/2016
SWAP Water Management Companion Plan	Final	Yes	CDFW's companion document to SWAP to recommend water management practices throughout the state of California.	https://cawaterlibrary.net/wp-content/uploads/2017/06/Water_CP_Final_December_2016.pdf	12/1/2016
SWAP Transportation Companion Plan	Final	Yes	CDFW's companion document to SWAP for protection of species specific to transportation project planning.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=136128&inline	12/1/2016
Special-Status Taxa^a Documents	See below	See below	See below	See below	See below
Arroyo Southwestern Toad (<i>Bufo microscaphus californicus</i>) Recovery Plan	Final	Yes	FWS' final recovery plan for the arroyo toad. The recovery criteria pertinent to the GAI that must be achieved before delisting can occur is the maintenance of at least 20 self-sustaining metapopulations in targeted river basins including the Los Angeles River, Mojave River, Santa Ana River, San Juan Creek, and San Mateo Creek Basins in the GAI.	https://ecos.fws.gov/ecp/species/3762	7/24/1999 (latest document)
Arroyo Toad (<i>Anaxyrus californicus</i>) 5-Year Review: Summary and Evaluation	Final	Yes	FWS' most recent formal review of the species condition.	https://ecos.fws.gov/ecp/species/3762	8/29/2023 (latest document)
Revised Designation of Critical Habitat for the Arroyo Toad (<i>Anaxyrus californicus</i>); Final Rule	Final	Yes	FWS' designation of critical habitat for the arroyo toad.	https://ecos.fws.gov/ecp/species/3762	2/9/2011
Arroyo Toad Biological Opinions	Updated periodically	No	FWS' list of 89 most recent biological opinions that have been used for arroyo toad, of which 77 were for projects in the GAI.	https://ecos.fws.gov/ecp/species/3762	3/5/2024 (latest document)
Arroyo Toad Presence/Absence Survey Protocol	Final	No	FWS' current survey protocol for arroyo toad.	https://fws.gov/media/survey-protocol-arroyo-toad	5/19/1999
Coastal California Gnatcatcher Recovery Plan	Draft	No	FWS' draft recovery plan for the coastal California gnatcatcher.	https://ecos.fws.gov/docs/recovery_plan/20250721%20CA%20Gnatcatcher%20Draft%20Recovery%20Plan.pdf	7/1/2025
Coastal California Gnatcatcher (<i>Poliophtila californica californica</i>) 5-Year Review: Summary and Evaluation	Updated periodically	Yes	FWS' most recent formal review of the species condition.	https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/19317.pdf	8/1/2024 (latest document)
Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (<i>Poliophtila californica californica</i>); Final Rule	Final	Yes	FWS' designation of critical habitat for coastal California gnatcatcher.	https://ecos.fws.gov/ecp/species/8178	12/19/2007
Coastal California Gnatcatcher Biological Opinions	Updated periodically	No	FWS' list of the 149 most recent biological opinions that have been used for coastal California gnatcatcher, of which 127 were for projects in the GAI.	https://ecos.fws.gov/ecp/species/8178	12/2/2021 (latest document)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Coastal California Gnatcatcher Presence/Absence Survey Protocol	Final	No	FWS' current survey protocol for coastal California gnatcatcher.	https://fws.gov/media/coastal-california-gnatcatcher-presenceabsence-survey-protocol	6/26/2019
Draft Recovery Plan for the Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	Draft	Yes	FWS' draft recovery plan for least Bell's vireo. The recovery criteria pertinent to the GAI that must be achieved before delisting can occur are: - Stable or increasing least Bell's vireo populations, each consisting of several hundred or more breeding pairs, protected at the Camp Pendleton/Santa Margarita River, Santa Ana River, and an Orange County/Los Angeles County metapopulation. - That the above trends occur for at least 5 consecutive years. - That threats are reduced or eliminated so that least Bell's vireo populations are capable of persisting without significant human intervention.	https://ecos.fws.gov/ecp/species/5945	5/6/1998
Least Bell's vireo (<i>Vireo bellii pusillus</i>) 5-Year Review: Summary and Evaluation	Updated periodically	Yes	FWS' most recent formal review of the species condition.	https://ecos.fws.gov/ecp/species/5945	9/26/2006
Designation of Critical Habitat for the Least Bell's Vireo	Final	Yes	FWS' designation of critical habitat for least Bell's vireo.	https://ecos.fws.gov/ecp/species/5945	2/2/1994
Least Bell's Vireo Biological Opinions	Updated periodically	No	FWS' list of 151 most recent biological opinions that have been used for least Bell's vireo, of which 99 were for projects in the GAI.	https://ecos.fws.gov/ecp/species/5945	10/07/2024 (latest document)
Incidental Take Permits for Least Bell's Vireo	Updated periodically	No	This is CDFW's list of incidental take permits issued for the least Bell's vireo from its publicly available document search website. There are 2 documents in the search.	https://nrm.dfg.ca.gov/documents/docviewer.aspx	4/10/2019 (latest document)
Southern California Steelhead Recovery Plan	Final	No	NMFS' recovery plan for Southern California DPS of steelhead. The GAI contains portions of the Mojave Rim and Santa Catalina Gulf Biogeographical Population Groups. The recovery criteria pertinent to the GAI that must be achieved before delisting can occur are: - The mean annual run size is sufficient to result in an extinction risk of <5% within 100 years. - This run size criterion is met during poor ocean conditions.	https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/southern-california-steelhead	1/1/2012
Steelhead (Southern California DPS) 5-Year Review	Final	Yes	NMFS' most recent 5-year review for Southern California DPS of steelhead.	https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/southern-california-steelhead	5/2/2023 (latest document)
Steelhead (Southern California DPS) Critical Habitat Designation	Final	Yes	NMFS' designation of critical habitat for Southern California DPS of steelhead. One hydrologic unit is in the GAI.	https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/southern-california-steelhead	9/2/2005
Steelhead (Southern California DPS) Biological Opinions	Final	No	NMFS' list of 175 most recent biological opinions that have been issued for steelhead, 5 of which were for projects in the GAI.	https://repository.library.noaa.gov/	6/5/2019 (latest document)
Steelhead Restoration and Management Plan for California	Final	Yes	CDFW's restoration and management plan for steelhead throughout the state. There are no management objectives for steelhead in the GAI because they have not been observed within the area in recent history.	https://www.google.com/url?client=internal-element-cse&cx=003744124407919529812:v2-t3gqht48&q=https://nrm.dfg.ca.gov/FileHandler.aspx%3FDocumentID%3D3490&sa=U&ved=2ahUKEwj1156Uz_fmAhXSHc0KHcG_CfY4ChAWMA_B6BAgGEAE&usq=AOvVaw1GUboKPeGb7OoS_OIk7IH7	2/1/1996

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Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	Final	Yes	FWS' recovery plan for vernal pool species in California and Oregon, which includes 25 plants, 7 invertebrates, and 1 amphibian, for a total of 33 species. In general, recovery criteria center on habitat protection and adaptive habitat management, which includes developing management plans, conducting status surveys, finding populations to be at least maintaining their population if not increasing, conducting research, and having additional public outreach and participation. Some species-specific criteria exist, such as seed banking for plants and preferential transition from intensive agriculture to grazing near western spadefoot toad conservation areas. Sixteen (16) regions are identified in this plan, along with 41 core areas.	https://ecos.fws.gov/docs/recovery_plan/060614.pdf	12/15/2005
Recovery Plan for Vernal Pools of Southern California	Final	Yes	FWS' recovery plan for seven vernal pool species in Southern California, including five plants and two aquatic invertebrates. In general, recovery criteria center on acquiring land where these species occur for conservation, enhancement or restoration at these pools occur such that populations of these species stabilize or increase, and that trends in stability or population growth must be sustained for 10 years.	https://sdmmp.com/download.php?cid=CID_ctam_anah@usgs.gov_5761a1cecf3fd	9/1/1998
State Land Management Plans	See below	See below	See below	See below	See below
General Planning Handbook for California State Parks	Final	Yes	California State Parks' guidelines for general plan development, which requires an inventory of known natural resources and general guidelines to comply with federal and state laws. State Park entities with specific management goals pertinent to Chapters 7 and 8 of this RAMNA are listed below.	http://www.parks.ca.gov/pages/21299/files/planning_handbook_april_2010.pdf	4/1/2010
Bolsa Chica State Beach General Plan	Final	No	General plan for Bolsa Chica State Beach. A development exclusion zone was established around coastal bluffs to protect from erosion. The plan states that no endangered or threatened species occur within the plan unit.	https://www.parks.ca.gov/pages/21299/files/c534_2.pdf	12/1/1987 (last amended)
California Citrus State Historic Park General Plan Amendment	Final	No	General plan amendment for California Citrus State Historic Park, which is located in a historic orange grove. No known endangered or threatened species occur within this park.	https://www.parks.ca.gov/pages/21299/files/570_1.pdf	3/1/1995 (last amended)
Chino Hills State Park General Plan	Final	Yes	Management plan for the park. The park has populations of mountain lions and coastal California gnatcatchers. Includes goals for enhancement of wildlife movement corridors, restoration of riparian habitat in the Lemon Grove Area, and removal of giant reed from the portion of the Santa Ana River that flows through the park.	https://www.parks.ca.gov/pages/21299/files/chino%20hills%20finalgp.pdf	2/1/1999 (last amended)
Crystal Cove State Park General Plan	Final	No	General plan for the park. There are no target species populations within the park. Establishes a bluff protection zone to protect against erosion and includes measures to remove exotic plant species.	https://www.parks.ca.gov/pages/21299/files/ccove_general_plan_facilities.pdf	11/1/2003 (last amended)
Doheny State Beach General Plan	Final	Yes	General plan for Doheny State Beach. Coastal California gnatcatcher is known to occur there. Includes policies to restore ecosystems using native plants, evaluate aquatic habitats, improve water quality, and protect cultural resources.	https://www.parks.ca.gov/pages/21299/files/DohenySBFinalGeneralPlan&EIR.pdf	2/27/2004 (last amended)
Huntington State Beach General Development Plan	Final	No	Management plan for Huntington State Beach. Management is focused on sustaining least tern populations by reducing invasive annual plant species and obtaining more land to restore wetlands.	https://www.parks.ca.gov/pages/21299/files/564.pdf	1/1/1976
Master Plan for Marine Protected Areas	Final	Yes	One master plan for all Marine Protected Areas in California. There are seven Marine Protected Areas in the GAI. The master plan aims to establish adaptive management strategies to protect marine ecosystems and monitor ecosystem function.	https://wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan	8/2016
Pio Pico State Historic Park General Plan	Final	No	General plan for Pio Pico State Historic Park. The park is an entirely urbanized landscape with no habitat value.	https://www.parks.ca.gov/pages/21299/files/551.pdf	6/1/1982

Title	Status	Spatial Data	Reference Purpose	Link	Date
San Clemente State Beach General Plan	Final	No	General plan for San Clemente State Beach. The plan does not address natural resources.	https://www.parks.ca.gov/pages/21299/files/c611.pdf	2/1/1983 (last amended)
San Onofre State Beach General Development Plan	Final	No	General plan for San Onofre State Beach. Least Bell's vireo has been observed there. A 400-foot bluff setback has been established to limit erosion. Policies encourage native plant restoration and establishment of natural preserves	https://www.parks.ca.gov/pages/21299/files/6631.pdf	6/1/1984 (last amended)
FWS Land Management Plans	See below	See below	See below	See below	See below
Seal Beach National Wildlife Refuge Final Comprehensive Conservation Plan	Final	Yes	Management and conservation plan for Seal Beach National Wildlife Refuge. None of the target species occurs here. Policies aim to control invasive species and restore habitats.	https://www.fws.gov/story/seal-beach-nwr-comprehensive-conservation-plan	9/30/2011
U.S. Military Land Management Plans	See below	See below	See below	See below	See below
Joint Integrated Natural Resources Plan for Camp Pendleton Marine Corps Base	Final	Yes	Integrated Natural Resources Plan for Camp Pendleton. Southern California steelhead, arroyo toad, coastal California gnatcatcher and least Bell's vireo occur on the base. Policies provide for adaptive management through invasive species removal and restoration of habitats.	https://www.bing.com/ck/a?!&p=38aac7eb02422f909912fcaebd579aaad8172de607495c4a04d33775afea417eJmltdHM9MTc4NTE5NjgwMA&ptn=3&ver=2&hsh=4&fclid=0409645d-4128-6762-23cc-7338407666aa&u=a1aHR0cHM6Ly9kb3dubG9hZHMucmVndWxhdGlbnMuZ292L0ZXUy1SOC1FUy0yMDE5LTAxMTMtMDAwNS9hdHRhY2htZW50XzM0LnBkZg&ntb=1	5/21/2018
Final Integrated Natural Resources Management Plan Naval Weapons Station Seal Beach, California	Final	Yes	The U.S. Navy's management plan for the base. Includes goals to restore historic acreage and function of freshwater and saline wetland/riparian habitats, along with upland transitional areas.	https://www.cnrc.navy.mil/regions/cnrs/om/envir/mental_support/environmental_core_support.html	1/17/2014
Integrated Natural Resources Management Plan March Air Force Base	Final	Yes	Integrated Natural Resources Plan for March Air Force Base. Includes policies to protect against invasive plants and to manage vernal pool habitats.	This document is no longer publicly available	9/29/2021
Native American Tribal Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	The San Manuel Band of Mission Indians has a reservation in the GAI; however, the band does not have a publicly available land management plan.	Not applicable	Not applicable
USFS Land Management Plans	See below	See below	See below	See below	See below
Angeles National Forest Land Management Plan	Updated periodically	Yes	Management plan for Angeles National Forest. Includes goals to reduce invasive species and improve watershed conditions.	https://www.fs.usda.gov/r05/angeles/planning	11/15/2024
Cleveland National Forest Land Management Plan	Final	Yes	USFS management plan for the Cleveland National Forest.	https://www.fs.usda.gov/main/cleveland/landmanagement/planning	9/1/2005
Design Criteria for the Southern California National Forests	Final	Yes	Provides an overall strategy for land management in Southern California National Forests. Includes goals to control riparian weed species such as giant reed and tamarisk in forest lands.	https://www.fs.usda.gov/main/sbnf/landmanagement/planning	9/1/2005
Ecological Restoration Implementation Plan	Final	Yes	USFS' internal restoration plan, which includes general strategies focused on increasing collaboration with other organizations, completion of land management plans, and forest-specific goals.	https://featherriver.org/catalog/files/EcologicalRestorationImplementationPlan.pdf	1/1/2013

Title	Status	Spatial Data	Reference Purpose	Link	Date
San Bernardino National Forest Strategy	Final	Yes	Land management plan for San Bernardino National Forest. Arroyo toad and least Bell's vireo are known to occur. Policies aim to control invasive species, restore habitat, and improve watershed function.	https://www.fs.usda.gov/main/sbnf/landmanagement/planning	9/1/2005
BLM Land Management Plans	See below	See below	See below	See below	See below
California Coastal National Monument Resource Management Plan	Final	Yes	BLM management plan for California Coastal National Monument.	http://www.npshistory.com/publications/blm/california-coastal/rmp-2005.pdf	9/1/2005
South Coast Resource Management Plan	Final	No	BLM management plan that covers all BLM land in all counties in the GAI. Management actions include water source improvement in wildlife habitat and general habitat enhancement.	https://eplanning.blm.gov/eplanning-ui/project/67040/570	5/26/1994
NPS Land Management Plans	See below	See below	See below	See below	See below
Nationwide Rivers Inventory	Final	No	Listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic River System. No listed national river segments are in the GAI.	https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm	10/10/2024
Local Government Land Management Plans	See below	See below	See below	See below	See below
I-5 North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program	Final	Yes	Program developed by Caltrans District 11 and San Diego Association of Governments in collaboration with the CCC, local cities, resource agencies, and the public. It details implementation of a 40-year program of rail and highway infrastructure improvements; enhanced and newly established bicycle and pedestrian coastal access routes; and preserved, restored, and enhanced sensitive coastal habitat through significant water quality, lagoon, and natural habitat improvements through the Resource Enhancement and Mitigation Program along 30 miles of northern San Diego County coastline.	https://dot.ca.gov/caltrans-near-me/district-11/programs/district-11-environmental/i-5pwp-toc	12/7/2016 (last amended)
TransNet Environmental Mitigation Program	Final	Yes	San Diego Association of Governments mitigation program for transportation projects in San Diego County. This includes a memorandum of agreement between San Diego Association of Governments, Caltrans, CDFW, and FWS.	https://www.sandag.org/projects-and-programs/environment/natural-resources/regional-habitat-conservation/transnet-environmental-mitigation-program	3/19/2008 (date of memorandum of agreement)
Water Resources Plans and Documents	See below	See below	See below	See below	See below
Carlsbad Watershed Management Area Water Quality Improvement Plan	Final	Yes	Plan developed by several local governments for water quality improvement in the watershed. Includes water quality improvement goals in line with the RWQCB's Basin Plan.	http://www.projectcleanwater.org/download/carlsbad-water-quality-improvement-plan-and-appendices-june-2016/	5/15/2018 (last amended)
Enhanced Watershed Management Program Plan	Draft	No	Management plan for the Upper San Gabriel River Enhanced Watershed Management Program Group. The plan is designed to increase controls and monitoring capabilities for improving water quality in the watershed.	https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/san_gabriel/upper_san_gabriel/index.html	8/1/2015
Sustainable Groundwater Management Act Portal	Updated periodically	Yes	California Department of Water Resources' central website to find information about groundwater sustainability agencies and to download groundwater sustainability plans.	https://sgma.water.ca.gov/portal/	Updated nearly continuously
Upper Santa Ana River Integrated Regional Water Management Plan	Final	Yes	Management plan of the Upper Santa Ana River Watershed Integrated Regional Water Management Region, which is made up of 14 local municipal water districts, for the Upper Santa Ana River Watershed. The plan includes goals to improve water quality and improve 1,200 acres of habitat in the watershed area.	https://www.sbvwd.org/our-projects/upper-santa-ana-integrated-regional-water-management-plan/	6/9/2021

Title	Status	Spatial Data	Reference Purpose	Link	Date
County General Plans	See below	See below	See below	See below	See below
County of Los Angeles General Plan 2035	Updated periodically	Yes	General plan for Los Angeles County. Five significant ecological areas occur in the GAI. Policies encourage habitat restoration. Includes a land use designation of open space conservation.	https://planning.lacounty.gov/long-range-planning/general-plan	4/15/2025 (latest document)
County of Orange General Plan	Updated periodically	Yes	General plan for Orange County. Includes a land use designation of open space conservation.	https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/codes-and-regulations/general-plan	6/1/2024 (latest document)
County of Riverside General Plan	Updated periodically	Yes	General plan for Riverside County. Includes a land use designation of open space conservation.	https://planning.rctlma.org/riverside-county-general-plan	6/29/2021 (latest document)
County of San Bernardino Countywide Plan	Updated periodically	Yes	General plan for San Bernardino County. Includes policies for the removal of invasive species. Includes a land use designation of open space conservation.	https://countywideplan.sbcounty.gov	10/27/2020 (latest document)
County of San Diego General Plan	Updated periodically	Yes	General plan for San Diego County. Includes a land use designation of open space conservation.	https://www.sandiegocounty.gov/pds/generalplan.html	8/1/2011 (latest document)
City General Plans	See below	See below	See below	See below	See below
City of Aliso Viejo General Plan	Final	Yes	General plan for Aliso Viejo. Includes an open space land use designation.	https://avcity.org/300/General-Plan-Specific-Plans	4/21/2004
City of Anaheim General Plan	Updated periodically	Yes	General plan for Anaheim. Includes an open space land use designation.	https://www.anaheim.net/712/General-Plan	5/1/2004
City of Arcadia General Plan	Final	Yes	General plan for Arcadia. Includes an open space land use designation.	https://www.arcadiaca.gov/government/development_services/planning_zoning_services/general-plan/index.php#doc_center_0_panel_0	11/16/2010
City of Artesia General Plan	Updated periodically	Yes	General plan for Artesia. Includes an open space land use designation.	https://www.cityofartesia.us/258/General-Plan-Update	1/1/2021
City of Azusa General Plan	Updated periodically	Yes	General plan for Azusa. Includes an open space land use designation.	https://www.azusaca.gov/160/General-Plan	4/1/2004
City of Baldwin Park 2020 General Plan	Final	Yes	General plan for Baldwin Park. Does not include a land use category for open space.	https://www.baldwinpark.com/211/Planning-Division	11/1/2002
City of Banning General Plan	Final	Yes	General plan for Banning. Includes an open space land use designation.	http://banning.ca.us/803/Planning-Resource-Documents	1/31/2006
Beaumont General Plan	Updated periodically	Yes	General plan for Beaumont. Coastal California gnatcatcher has been recorded in a 5-mile radius of the city. Includes a land use category for open space and conservation.	https://www.beaumontca.gov/121/General-Plan	12/1/2020
City of Bellflower General Plan	Final	No	General plan for Bellflower. Does not include a land use category for open space.	https://www.bellflower.org/departments/planning/planning_division/zoning_information.php#outer-247	12/1/1994

Title	Status	Spatial Data	Reference Purpose	Link	Date
City of Big Bear Lake	Final	Yes	General plan for Big Bear Lake. Includes a land use designation for open space.	https://www.citybigbearlake.com/index.php/en/component/content/article/420-general-plan?catid=2&Itemid=355	8/23/1999
City of Bradbury	Updated periodically	Yes	General plan for Bradbury. Includes an open space land use designation.	https://www.cityofbradbury.org/services/planning_department/index.php	2/1/2014
Brea General Plan	Final	Yes	General plan for Brea. Least Bell's vireo and coastal California gnatcatcher have been observed in the plan area, particularly in Chino Hills State Park. Includes an open space land use designation	https://www.ci.brea.ca.us/179/General-Plan	8/19/2003
Buena Park 2035 General Plan	Updated periodically	Yes	General plan for Buena Park. Includes an open space land use designation.	https://www.buenapark.com/city_departments/community_development/planning_division/general_plan.php	12/7/2010
City of Calimesa	Final	Yes	General plan for Calimesa. Includes policies to protect native species and establish habitat buffers of indeterminant size. Includes an open space land use designation.	https://www.calimesa.gov/DocumentCenter/Index/36	8/4/2014
City of Cerritos	Final	Yes	General plan for Cerritos. Includes an open space land use designation.	https://www.cerritos.gov/city-government/city-laws-codes-and-regulations/general-plan/	1/6/2004
City of Chino General Plan 2025	Final	Yes	General plan for Chino. Includes plans for the enhancement of riparian habitats along the Chino and Cucamonga/Mill Creeks and the Cypress and Magnolia Channels. Includes a land use category for recreation/open space.	https://www.cityofchino.org/1673/General-Plan	7/1/2010
City of Chino Hills General Plan	Final	Yes	General plan for Chino Hills. Coastal California gnatcatcher and least Bell's vireo are known to occur within Chino Hills. Includes land use designations for open space both private and public.	https://chinohills.org/124/General-Plan	2/24/2015
City of Claremont	Final	Yes	General plan for Claremont. Includes a park and resource conservation land use designation.	https://www.claremontca.gov/Business-Development/Planning-and-Land-Use/General-Plan	9/10/2020
City of Colton	Final	No	General plan for Colton. Includes an open space land use designation.	https://www.ci.colton.ca.us/778/Planning-Documents	12/11/2023
Corona General Plan 2020–2040	Final	Yes	General plan for Corona. Includes stream setbacks of indeterminant size and targets tamarisk and giant reed for removal. Includes an open space land use designation.	https://www.coronaca.gov/government/departments-divisions/planning-division/general-plan-update	6/3/2020
Costa Mesa General Plan	Final	Yes	General plan for Costa Mesa. Least Bell's vireo occurs within riparian areas. Does not include a land use category for open space.	https://www.costamesaca.gov/government/departments-and-divisions/economic-and-development-services/planning/general-plan/2015-2035-general-plan	11/13/2018
Covina General Plan	Final	No	General plan for Covina. Includes an open space land use designation.	https://covinaca.gov/city-departments/community-development/planning/resources/	7/6/2022
City of Cypress General Plan	Final	Yes	General plan for Cypress. There is no open space land use designation.	https://www.cypressca.org/departments/community-development/planning-division/general-plan	9/10/2001
City of Dana Point General Plan	Final	Yes	General plan for Dana Point. Includes an open space land use designation.	https://www.danapoint.org/City-Government/Community-Development/Planning/General-Plan	7/9/1991

Title	Status	Spatial Data	Reference Purpose	Link	Date
Diamond Bar General Plan 2040	Final	Yes	General plan for Diamond Bar. Includes a significant ecological area land use designation. California gnatcatcher and least Bell's vireo occur within Diamond Bar.	https://www.diamondbarca.gov/961/General-Plan-2040	12/17/2019
Downey Vision 2025	Final	Yes	General plan for Downey. Includes an open space land use designation.	https://www.downeyca.org/our-city/departments/community-development/planning/general-plan-map	1/25/2005
Duarte General Plan 2005–2020	Final	Yes	General plan for Duarte. Includes an open space land use designation.	https://www.accessduarte.com/government/departments/community-development/planning/general-plan	8/1/2007
Eastvale 2040 General Plan	Final	Yes	General plan for Eastvale. Policies aim to restore the Santa Ana River corridor to a more natural, riparian condition. Includes an open space land use designation.	https://www.eastvaleca.gov/our-city/what-s-new/eastvale-2040	3/27/2024
Vision El Monte General Plan	Final	Yes	General plan for El Monte. Includes an open space land use designation.	https://www.ci.el-monte.ca.us/266/Planning-Documents	6/20/2023
Fountain Valley General Plan	Final	Yes	General plan for Fountain Valley. Includes an open space land use designation.	https://www.fountainvalley.gov/413/General-Plan	3/21/1995
The Fullerton Plan	Final	Yes	General plan for Fullerton. Includes an open space land use designation.	https://www.cityoffullerton.com/government/departments/community-and-economic-development/planning-zoning/general-plan/the-fullerton-plan-current-version	5/1/2012
Garden Grove General Plan 2030	Final	Yes	General plan for Garden Grove. Includes an open space land use designation, but it is matched with developed parks.	https://ggcity.org/planning/general-plan	1/1/2014
Glendora Community Plan 2025	Final	Yes	General plan for Glendora. California gnatcatcher is known to occur within Wildwood Canyon. Includes an open space land use designation.	https://www.cityofglendora.gov/Explore/Community-Development/General-Plan-and-Zoning	12/1/2022
City of Grand Terrace General Plan	Final	Yes	General plan for Grand Terrace. Includes a land use designation of hillside open space for areas on the slopes of Blue Mountain.	https://www.grandterrace-ca.gov/departments/planning_development_services/planning	4/27/2010
City of Hawaiian Gardens	Final	Yes	General plan for Hawaiian Gardens. There is no open space land use designation.	https://www.hgcity.org/government/departments/community-development/planning-division/general-plan	1/26/2010
City of Highland General Plan	Final	Yes	General plan for Highland. Policies aim to improve hydrology and quality of watersheds. Includes an open space land use designation.	https://www.cityofhighland.org/191/General-Plan	3/1/2006
City of Huntington Beach General Plan	Final	Yes	General plan for Huntington Beach. Policies aim to improve wildlife habitat linkages. Includes an open space land use designation.	https://www.huntingtonbeachca.gov/departments/community_development/planning_zoning/general_plan.php#outer-741	10/2/2017
City of Industry General Plan	Final	Yes	General plan for the City of Industry. Includes an open space land use designation but not in a manner that precludes development.	https://www.cityofindustry.org/199/Codes-General-Plan-Regulations	6/12/2014
City of Irvine General Plan	Final	Yes	General Plan for Irvine. California gnatcatcher is known to occur. Includes an open space land use designation.	https://www.cityofirvine.gov/community-development/current-general-plan	8/13/2024
City of Irwindale General Plan	Final	Yes	General plan for Irwindale. Includes an open space land use designation, but it is for the flood control district.	https://www.irwindaleca.gov/138/Planning	6/1/2008

Title	Status	Spatial Data	Reference Purpose	Link	Date
Jurupa Valley General Plan	Final	Yes	General plan for Jurupa Valley. Least Bell's vireo is known to occur along the Santa Ana River, and coastal California gnatcatcher is known to occur in the coastal sage scrub. It includes an open space land use designation, with multiple subdesignations.	https://www.jurupavalley.org/339/General-Plan	9/7/2017
City of La Habra General Plan 2035	Final	Yes	General plan for La Habra. Protected areas at Westridge Golf Course support coastal California gnatcatcher. Policies include restoring habitats and improving watershed management. There is a land use designation for open space.	https://www.lahabraca.gov/1370/General-Plan-Documents	1/21/2014
La Habra Heights General Plan	Final	Yes	General plan for La Habra Heights. There is a land use designation for parks and open space.	https://www.lhhcity.org/166/Planning	1/1/2004
City of La Mirada	Final	Yes	General plan for La Mirada. There is a land use designation for parks and open space.	https://www.lamirada.gov/departments/community_development/planning/general_plan.php#doc_center_0_panel_0	3/25/2003
City of La Palma	Final	Yes	General plan for La Palma. There is an open space land use designation.	https://www.cityoflapalma.org/123/General-Plan	6/17/2014
City of La Puente General Plan	Final	No	General plan for La Puente. There is an open space land use designation.	https://lapuente.org/planning-division/	5/18/2004
City of La Verne General Plan	In progress	Yes	General plan for La Verne. There is an open space land use designation.	https://laverne.generalplan.org/documents-and-maps	9/23/2024
City of Laguna Beach General Plan	Final	No	General plan for Laguna Beach. Policies limit development in the coastal zone and provide for the restoration of Aliso Creek. There is an open space land use designation.	https://www.lagunabeachcity.net/government/departments/community-development/planning-zoning/land-use-plans/general-plan	11/27/2012
City of Laguna Hills General Plan	Final	Yes	General plan for Laguna Hills. Coastal California gnatcatcher has been reported to inhabit areas adjacent to the city. Includes policies to enhance habitat areas associated with Aliso Creek and Veeh Reservoir. Includes a land use designation for open space.	https://lagunahillsca.gov/174/Planning-Division	7/14/2009
City of Laguna Niguel General Plan	Final	No	General plan for Laguna Niguel. Includes policies for the enhancement of areas associated with Aliso, Sulphur, and Salt Creeks. Includes a land use designation for open space.	https://www.cityoflagunaniguel.org/132/General-Plan	8/4/1992
City of Laguna Woods General Plan	Final	Yes	General plan for Laguna Woods. Least Bell's vireo is known to occur. Includes a land use designation for open space.	https://www.cityoflagunawoods.org/general-plan/	10/2/2002
City of Lake Elsinore General Plan	Final	Yes	General plan for Lake Elsinore. Policies promote native revegetation. Includes a land use designation for open space.	https://www.lake-elsinore.org/465/Lake-Elsinore-General-Plan	12/13/2011
Lake Forest 2040	Final	Yes	General plan for Lake Forest. Includes a land use designation for open space.	https://www.lakeforestca.gov/departments/community_development/planning/plans_and_standard_guidelines.php#undefined	6/1/2020
City of Lakewood	Final	Yes	General plan for Lakewood. Includes a land use designation for open space.	https://www.lakewoodcity.org/Building-Planning/Zoning-Planning-and-the-Municipal-Code	3/1/2017
City of Loma Linda General Plan	Final	Yes	General plan for Loma Linda. Includes a requirement to establish a 100-foot development setback from primary ridgelines. The plan identifies 1,910 acres of the city's planning area as California gnatcatcher critical habitat and states that the species is known to occur. Includes a land use designation for open space.	https://www.lomalinda-ca.gov/our_city/general_plan	5/1/2009
City of Long Beach General Plan	Final	No	General plan for Long Beach. Includes a land use designation for open space.	https://www.longbeach.gov/lbcd/planning/advance/general-plan/	6/1/2023

Title	Status	Spatial Data	Reference Purpose	Link	Date
Los Alamitos General Plan	Final	Yes	General plan for Los Alamitos. An open space land use designation surrounds Coyote Creek and the San Gabriel River.	https://cityoflosalamitos.org/200/General-Plan	3/25/2015
City of Mission Viejo General Plan	Final	Yes	General plan for Mission Viejo. Includes a land use designation for open space.	https://www.cityofmissionviejo.org/departments/community-development/planning/general-plan	6/1/2021
City of Monrovia General Plan	Final	Yes	General plan for Monrovia. Includes open space land use designation.	https://www.monroviaca.gov/your-government/community-development/planning/general-plan	4/17/2018
City of Montclair General Plan	Final	Yes	General plan for Montclair. Includes an open space land use designation.	https://www.cityofmontclair.org/general-and-specific-plans/	1999
City of Moreno Valley General Plan 2040	Final	Yes	General plan for Moreno Valley. Includes policies to facilitate groundwater recharge. Includes a land use designation for open space.	https://moval.org/cdd/documents/general-plan-documents.html	4/2/2021
Newport Beach General Plan	Updated periodically	Yes	General plan for Newport Beach. Contains policies to restore nearshore marine habitats and manage the Upper Newport Bay Ecological Reserve. Includes a land use designation for open space.	https://www.newportbeachca.gov/government/departments/community-development/planning-division/general-plan-codes-and-regulations/general-plan	7/23/2024
City of Norco General Plan	Final	Yes	General plan for Norco. Policies require removal of Arundo plants in the Santa Ana River corridor. Includes a land use designation for open space.	https://www.norco.ca.us/departments/planning/general-plan-elements-zoning-maps	12/17/2014
Vision Norwalk	Final	No	General plan for Norwalk. Includes a land use designation for open space.	https://www.norwalk.org/departments_services/community_development/general_plan.php	2/29/1996
The Ontario Plan 2050	Final	Yes	General plan for Ontario. Includes a land use designation for open space, but this is limited to riparian corridors.	https://www.ontarioca.gov/Ontarioplan/Policyplan	1/1/2010
Orange General Plan	Final	Yes	General plan for Orange. Coastal California gnatcatcher is listed as occurring within natural habitats in the city. Contains policies to enhance the natural qualities of Santiago Creek. Includes a land use designation for open space.	https://www.cityoforange.org/our-city/departments/community-development/general-plan	4/13/2010
City of Pico Rivera General Plan	Updated periodically	Yes	General plan for Pico Rivera. Contains policies for the restoration of natural resources and associated habitats along the San Gabriel River. Includes a land use designation for park/open space.	https://www.pico-rivera.org/general-plan/	10/1/2014
City of Placentia General Plan	Final	Yes	General plan for Placentia. Includes an open space land use designation.	https://www.placentia.org/166/General-Plan	10/1/2019
Pomona Tomorrow	Final	Yes	General plan for Pomona. Coastal California gnatcatcher and least Bell's vireo occur within significant ecological areas in the city. Includes an open space land use designation.	https://www.pomonaca.gov/government/departments/development-services/planning-division/general-plan	3/1/2014
Plan RC	Final	Yes	General plan for Rancho Cucamonga. Arroyo toad and least Bell's vireo are known to occur in the plan area. Includes an open space land use designation.	https://www.cityofrc.us/GeneralPlanprocess	12/15/2021
Rancho Santa Margarita General Plan	Final	Yes	General plan for Rancho Santa Margarita. Policies restore areas of significant water quality value. Includes an open space land use designation.	https://www.cityofrsm.org/527/General-Plan-2020	1/1/2020

Title	Status	Spatial Data	Reference Purpose	Link	Date
City of Redlands General Plan 2035	Final	Yes	General plan for Redlands. Coastal California gnatcatcher is known to occur along the Santa Ana River. Contains policies for the enhancement of wildlife corridors, especially those associated with the San Bernardino National Forest, Santa Ana River Wash, Crafton Hills, San Timoteo and Live Oak Canyons, the Badlands. Other policies include enhancement of the Mill Creek Zanja and Morey Arroyo. Includes a land use designation for open space, hillside conservation, and resource preservation.	https://www.cityofredlands.org/post/planning-division-general-plan	12/5/2017
Rialto General Plan	Final	Yes	General plan for Rialto. Policies aim to create habitat corridors in the area. Includes an open space land use designation.	https://www.yourrialto.com/653/General-Plan	12/1/2010
Riverside General Plan 2025	Updated periodically	Yes	General plan for Riverside. Coastal California gnatcatcher is listed as present within the city. Contains policies for the enhancement of the Santa Ana River and establishment of a wildlife movement corridor between Sycamore Canyon Wilderness Park and the Box Springs Mountain Regional Park. Includes a land use designation for major open space and parks and greenbelt.	https://riversideca.gov/cedd/planning/city-plans/general-plan-0	1/1/2021 (last amended)
City of San Bernardino General Plan	Final	No	General plan for San Bernardino. Prohibits the development and grading within 50 feet of riparian corridors. Contains policies to establish a permanent corridor to connect the National Forest using Cable Creek and/or Devil Canyon. Promotes the enhancement of natural characteristics of the Santa Ana River, City Creek, and Cajon Creek. Includes a land use designation for open space.	https://futuresb2050.com/general-plan/	6/15/2025
City of San Clemente Centennial General Plan	Final	Yes	General plan for San Clemente. Includes an open space land use designation.	https://www.sanclemente.gov/292/General-Plan	2/14/2014
City of San Dimas General Plan	Final	No	General plan for San Dimas. Includes an open space land use designation.	https://sandimasca.gov/departments/community-development/planning_division/general_plan/index.php	9/1/1991
San Juan Capistrano General Plan	Updated periodically	Yes	General plan for San Juan Capistrano. Includes an open space land use designation.	https://sanjuancapistrano.org/251/General-Plan	5/7/2002
Santa Ana General Plan	Final	Yes	General plan for Santa Ana. Includes an open space land use designation.	https://general-plan-santa-ana-ca.proudcity.com/agencies/elements/	4/1/2022
Santa Fe Springs 2040 General Plan	Final	Yes	General plan for Santa Fe Springs. Includes an open space land use designation, which consists of only developed parks.	https://www.santafesprings.gov/DocumentCenter/Index/54	4/10/2026 (last amended)
City of Seal Beach General Plan	Final	No	General plan for Seal Beach. Includes an open space land use designation.	https://www.sealbeachca.gov/Departments/Community-Development/Planning-Development/General-Plan	12/1/2003
City of South El Monte General Plan	Final	Yes	General plan for South El Monte. There is no open space land use designation.	https://www.cityofsouthelmonte.org/186/General-Plan	10/1/2000
City of Stanton General Plan	Final	Yes	General plan for Stanton. Includes a land use designation of open space; however, this consists of developed parks, transmission line rights-of-way, and a channelized portion of the Santa Ana River.	https://www.stantonca.gov/departments/community-development/planning_division/plans.php	9/23/2008
City of Tustin General Plan	Final	Yes	General plan for Tustin. Policies aim to restore riparian habitat. Includes land use designations for planned community public/institutional that appear to overlay with Peters Canyon.	https://www.tustinca.org/396/General-Plan	10/1/2022
City of Upland General Plan	Final	Yes	City of Upland General Plan. Includes land use designations for park/open space, but these are primarily developed parks.	https://www.uplandca.gov/development_services/planning/general_plan_zoning_codes_maps.php#collapselinks-306-30b1	9/1/2015

Title	Status	Spatial Data	Reference Purpose	Link	Date
City of Villa Park General Plan	Final	Yes	City of Villa Park general plan. Policies aim to enhance the Wanda Greenbelt and increase groundwater recharge. Includes a land use designation for open space.	https://villapark.org/Departments/Planning/General-Plan?folderId=181&view=gridview&pageSize=10	10/26/2010
City of Walnut General Plan	Final	Yes	General plan for Walnut. Includes an open space land use designation.	https://www.walnutca.gov/For-Residents/Departments/Community-Development/Planning-Zoning	5/9/2018
West Covina General Plan	Final	Yes	General plan for West Covina. Includes a land use designation for parks and open spaces.	https://www.westcovina.gov/248/General-Plan	12/20/2016
City of Westminster General Plan	Final	Yes	General plan for Westminster. Policies include restoring the Bolsa Chica Channel. Includes a land use designation for parks and open spaces, but this is primarily developed parks.	https://www.westminster-ca.gov/departments/community-development/planning-division/general-plan	9/28/2016
Envision Whittier General Plan	Final	Yes	General plan for Whittier. Includes an open space land use designation.	https://www.cityofwhittier.org/government/community-development/planning-services/general-plan	10/12/2021
Yorba Linda General Plan	Final	Yes	General plan for Yorba Linda. Coastal California gnatcatcher and least Bell's vireo are known to occur in the plan area. Includes a general open space land use designation.	https://www.yorbalindaca.gov/337/General-Plan	10/1/2016
Yucaipa General Plan	Final	Yes	General plan for Yucaipa. Includes an open space land use designation.	https://yucaipa.gov/yucaipa-general-plan/	4/1/2016
Other Conservation and Management Documents	See below	See below	See below	See below	See below
California Coastkeeper Alliance – Ocean Climate Resiliency Action Plan	Final	No	California Coastkeeper's plan addressing climate change and rising sea levels. Plan includes preventing ocean wastewater discharges from causing ocean acidification and hypoxia hotspots, preventing agricultural nutrient inputs from causing harmful algal blooms and exacerbating ocean acidification and hypoxia hot spots, improving water quality in Marine Protected Areas, sequestering greenhouse gas emissions, and preventing coastal development in zones at risk from sea-level rise.	https://cacoastkeeper.org/wp-content/uploads/2019/11/CCKA_Ocean-Climate-Resiliency-Campaign_FINAL.pdf	11/19/2019
California EcoAtlas	Updated periodically (nearly daily)	Yes	Statewide database tracking the extent and condition of wetlands in California, managed by SFEI.	https://www.ecoatlas.org/	Updated nearly daily
Conserving California's Coastal Habitats – A Legacy and A Future with Sea Level Rise	Final	Yes	Statewide coastal conservation plan by the Coastal Conservancy and The Nature Conservancy. Contains plans to maintain and manage coastal lands to be resilient to sea-level rise. Plans include maintaining existing resilient conservation lands, conserving resilient landscapes, managing in place for resilience, conserving potential future habitat areas, and increasing adaptive capacity.	https://coastalresilience.org/project/conservation-assessment/	1/1/2018
Demonstrating the California Wetland Status and Trends Program: A Probabilistic Approach for Estimating Statewide Aquatic Resource Extent, Distribution and Change Over Time	Final	No	A report from the Southern California Coastal Water Research Project describing a pilot study in tracking wetland conditions statewide.	https://www.sccwrp.org/publications/	4/1/2015
Green Vision Map	Updated annually	Yes	Friends of Harbors, Beaches, and Parks' map that highlights potential acquisition opportunities for the conservation of natural and historic sites in Orange County. Through its Green Vision Project, the non-profit organization works with conservation groups, land trusts, and governmental agencies to protect public lands.	https://www.fhbp.org/resources/green-vision-map/	3/1/2024

Title	Status	Spatial Data	Reference Purpose	Link	Date
Rising to the Challenge: Strategic Plan for Responding to Accelerating Climate Change	Updated periodically	No	Addresses adaptation, mitigation, and engagement strategies to achieve goals and objectives of minimizing the impact of climate change on fish and wildlife by applying science in managing species and habitats; reducing levels of greenhouse gases; and collaborating with other organizations to determine solutions to challenges and threats to fish and wildlife conservation posed by climate change.	https://www.fws.gov/story/2009-09/rising-challenge-strategic-plan-responding-accelerating-climate-change	9/23/2009
U.S. Pacific Coastal Wetland Resilience and Vulnerability to Sea-Level Rise	Final	No	An original research article describing and comparing climate models and scenarios with respect to coastal wetland resilience and sea-level rise.	https://advances.sciencemag.org/content/4/2/eaao3270	2/21/2018
Wetlands on the Edge. The Future of Southern California's Wetlands	Final	Yes	Regional strategy document from the Southern California Wetland Recovery Project. Includes goals to restore 7,700 acres of tidal wetlands, expand upland buffers to at least 40 percent of existing wetland perimeters and up to 1,600 feet from the wetland edge, restore 50,000 acres of non-tidal wetlands, and restore or maintain 189,400 acres of streams and associated adjacent habitats.	https://scwrp.org/wp-content/uploads/2019/01/RSU-010819_lowres.pdf	1/1/2018

^a Consistent with the Caltrans SAMNA and Chapter 4, *Existing Mitigation Opportunities*, for the purposes of this document, special-status species are defined as federally and State of California threatened, endangered, or sensitive species; state fully protected or rare species; and state species of special concern.

4. EXISTING MITIGATION OPPORTUNITIES

SHC § 800.6(a)-authorized advance mitigation project types include purchasing credits and paying fees associated with existing mitigation sources. This chapter summarizes the mitigation credits and values currently available to Caltrans and/or pending through existing HCPs, NCCPs, mitigation and conservation banks, in-lieu fee programs, and MCAs. RCISs, which are a prerequisite to MCAs, are also discussed.

4.1. SHOPP Advance Mitigation Credits

The 2016 SHOPP, with California Transportation Commission approval, released the first funds used to program Caltrans advance mitigation projects in several Caltrans Districts. The projects were programmed against the \$40 million reserve created in the 2016 SHOPP for advance mitigation project delivery. Thirteen (13) pilot advance mitigation projects were programmed in the SHOPP, and their delivery is underway. However, none is located in District 12.

4.2. HCPs and NCCPs

HCPs¹ and NCCPs² define covered activities that consist of specific projects and actions that may have adverse effects on covered species and natural communities. FWS and/or CDFW estimate adverse effects associated with the covered activities and issue incidental take permits. Once the HCP, NCCP, or HCP/NCCP is adopted and the incidental take permits are issued, signatories and Participating Special Entities, where applicable, can request take authorization for project-related effects on covered species. Participation in an adopted HCP, NCCP, or HCP/NCCP streamlines permit processes by eliminating the need to obtain project-specific incidental take permits from FWS and/or CDFW and by providing early documentation of compliance with CESA and FESA.

When Caltrans is not an NCCP permittee, under specific conditions and with signatory agency approval, Caltrans may be able to qualify as a Participating Special Entity under the plan, gaining some of the NCCP permittee's privileges; however, not all NCCPs have a Participating Special Entity clause.

Caltrans identified the following active HCPs and NCCPs in the GAI that apply to transportation-related activities and that Caltrans may be able to use to meet its compensatory mitigation needs in the GAI:

- County of Orange Central/Coastal Subregion NCCP/HCP
- Orange County Transportation Authority NCCP/HCP
- Western Riverside County Multiple Species Habitat Conservation Plan ("MSHCP")

Figure 4-1 depicts the locations of the above-listed HCPs and NCCPs. Table 4-1 summarizes the signatories, status or date of the plan, plan area, participating

¹ Pursuant to Section 10 of the FESA or consultations under Section 7 of the FESA.

² Pursuant to FGC § 2835.

transportation agency, covered species, and covered natural communities. Multiple project-specific HCPs in the GAI were not included in Table 4-1 because they were determined to not be a viable mitigation option for Caltrans. For example, they applied to a non-Caltrans single user, covered activities that were not road infrastructure-related, or could not be adapted to be applicable to road infrastructure. In addition, when Caltrans and/or RTPAs are not signatories or Participating Special Entities in any of the NCCPs listed in Table 4-1, their participation and coverage under any NCCP is at the discretion of the implementing entity/plan manager. The HCPs included in this discussion cover large geographic areas that intersect with many planned Caltrans projects.

Table 4-1. Overview of HCPs and NCCPs in the GAI^a

Name	Signatories ^b	Date	Area (acres)	Participating Transportation Agencies	Covered Species	Covered Natural Communities
County of Orange Central/Coastal Subregion NCCP/HCP	FWS, CDFW	1996	208,000	Transportation Corridor Agencies	Coastal California gnatcatcher (<i>Polioptila californica californica</i>), southwestern willow flycatcher (<i>Empidonax traillii extimus</i>), plus 28 other wildlife species and 15 plant species ^c	Coastal sage scrub
Orange County Transportation Authority NCCP/HCP	FWS, CDFW	2018	511,476	Orange County Transportation Authority, Caltrans	Coastal California gnatcatcher, southwestern willow flycatcher, mountain lion (<i>Puma concolor</i>), plus 10 other wildlife species and 3 plant species	Not applicable

Name	Signatories ^b	Date	Area (acres)	Participating Transportation Agencies	Covered Species	Covered Natural Communities
Western Riverside County MSHCP	FWS, CDFW	2004	1.26 million	Riverside County Transportation Commission, Caltrans	California red-legged frog (<i>Rana draytonii</i>), coastal California gnatcatcher, southwestern willow flycatcher, mountain lion, and 142 other plant and wildlife species	Not applicable

^a Up-to-date information on HCPs and NCCPs can be found at the following websites:
<https://ecos.fws.gov/ecp/report/conservation-plans-region-summary?region=8&type=HCP>
<https://wildlife.ca.gov/conservation/planning/nccp>

^b Agencies listed are signatories to the Master Process Agreement (Caltrans et al. 2020).

^c The Central/Coastal Plan allows for non-participating landowners to elect to pay a one-time Mitigation Fee to offset Incidental Take of habitat supporting a listed or unlisted CSS "Identified Species". The CSS species that are covered by the "Mitigation Fee" option are the San Diego woodrat, San Diego horned lizard, coastal cactus wren, coastal California gnatcatcher, orange-throated whiptail, coastal western whiptail, southern California rufous crowned sparrow and red diamond rattlesnake.

4.3. Conservation and Mitigation Banks

A conservation or mitigation bank is privately or publicly owned land managed for its natural resource values. In exchange for permanently protecting, managing, and monitoring the land, the bank sponsor is allowed to sell or transfer habitat and/or aquatic resource credits to permittees who—after all appropriate and practicable avoidance and minimization has been performed—need to satisfy legal requirements and compensate for their project’s unavoidable natural resource impacts. Conservation banks generally protect threatened and endangered species habitat, while mitigation banks generally protect, restore, create, and/or enhance aquatic resources. The legal document for the establishment, operation, and use of a conservation bank or mitigation bank is a Bank Enabling Instrument (“BEI”).

Caltrans identified 20 active or pending conservation and/or mitigation banks with service areas that overlap all or part of the GAI. Information on the agency approvals and types of credits available are provided in Table 4-2. Several of these conservation and mitigation banks do not provide credits for the species of mitigation need identified in this RAMNA; however, credits for other listed species or habitats are available. Information on the resource and regulatory agency approvals, the types of credits available, and brief descriptions of each bank are provided in Table 4-2. The location and extent of the service areas associated with the aforementioned banks are depicted on Figures 4-2 to 4-10.

Several additional conservation and/or mitigation banks have service areas that are partially in the GAI but do not overlap any state highways in the GAI. These banks were omitted from Table 4-2 because they would not be usable by Caltrans for fulfilling mitigation requirements.

Table 4-2. Overview of Conservation and Mitigation Banks in the GAI^a

Name	Year Approved	Current Status	Signatories ^b	Bank Location (County)	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Antelope Valley Conservation Bank	2022	Active – credits available	CDFW	Kern	Yes	700	Joshua tree, waters of the state
Barry Jones – Skunk Hollow Vernal Pool Mitigation Bank	1998	Active – sold out	FWS, CDFW, Corps	Riverside	No	140	Vernal pools
Big Tujunga Conservation Bank	Pending	Pending	FWS, CDFW are anticipated	Los Angeles	Unknown	22	Southern California ESU of mountain lion, Santa Ana sucker, 1600/LSA/SAA credits
Black Mountain Conservation Bank	2018	Active – credits available	CDFW	San Bernardino	No	1,940	Desert tortoise, Mohave ground squirrel, stream
Buena Creek Gnatcatcher Conservation Bank	2012	Active – credits available	FWS	San Diego	No	121.49	Coastal California gnatcatcher, Coastal sage scrub
Butte Valley Conservation Bank	Pending	Pending	CDFW is anticipated	Los Angeles	Yes (anticipated)	Unknown ^c	Western Joshua tree, waters of the state – stream habitat
Cajon Creek Conservation Bank	1996	Active – credits available	FWS, CDFW, Corps	San Bernardino	No	635	Coastal California gnatcatcher and 23 other threatened and endangered species and their associated habitats, including Riversidian alluvial fan sage scrub (RAFSS), San Bernardino kangaroo rat (CESA credits not approved by CDFW), Santa Ana woolly star, slender-horned spineflower

Name	Year Approved	Current Status	Signatories ^b	Bank Location (County)	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Cornerstone Lands Conservation Bank ^d	1997	Active – credits available	FWS, CDFW	San Diego	No	2,600	Coastal sage scrub/nonnative grassland
Daley Ranch Conservation Bank	1997	Active – credits available	FWS, CDFW	San Diego	No	2,842	Chaparral and coastal sage scrub, coast live oak woodland, Englemann oak woodland
Fenner Valley Desert Tortoise Conservation Bank	2015	Pending	CDFW	San Bernardino	No	7,500	At this time (July 2026), Fenner Valley Desert Tortoise Conservation Bank has not met the criteria to be fully established and does not have credits for sale
Lytle Creek Conservation Bank	2014	Active – credits available	FWS	San Bernardino	No	199	San Bernardino kangaroo rat and Santa Ana woollystar. Pending CDFW approval to offer coastal California gnatcatcher, stream and RAFSS habitat credits.
Mojave Desert Tortoise Umbrella Conservation Bank	2020	Active – credits available	FWS, CDFW	San Bernardino	No	4,700	Desert tortoise (Western Mojave and Colorado River Recovery Units), Mohave ground squirrel, burrowing owl, and streams (Mojave River Watershed and Colorado River Basin only)

Name	Year Approved	Current Status	Signatories ^b	Bank Location (County)	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Rancho San Diego (Caltrans)	1996	Active – credits available	Corps, FWS	San Diego	No	1,832	Coastal California gnatcatcher, least Bell's vireo, oak woodland, southern mixed chaparral, riparian woodland, coastal sage scrub, disturbed/ruderal, marsh riparian floodplain, native (perennial) grassland Bank is jointly owned by Caltrans, San Diego County, and San Diego Association of Governments
Riverpark Mitigation Bank	2020	Active – credits sold out	CDFW, Corps, RWQCB	Riverside	No	187.33	Wetland re-establishment and wetland rehabilitation
San Luis Rey Mitigation Bank	2014	Active – credits available	Corps, CDFW	San Diego	No	56.5	Wetlands and non-wetland WOTUS/waters of the State, State jurisdictional/non-waters, and grassland buffer
San Miguel Conservation Bank	1997	Active – credits available	FWS, CDFW	San Diego	No	1,852	Coastal sage scrub, southern mixed/chamise chaparral, native (perennial) grassland, seasonal stock pond, dry marsh/riparian scrub; San Diego barrel cactus, coastal scrub-chaparral, chamise chaparral, nonnative grassland
Soquel Canyon Mitigation Bank	2014	Active – credits available	CDFW, Corps, RWQCB	San Bernardino, Orange	No	313	Ephemeral, intermittent, and permanent stream/riparian, coastal sage scrub, chaparral, native grassland, walnut woodland, oak woodland, mulefat scrub

Name	Year Approved	Current Status	Signatories ^b	Bank Location (County)	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Watersedge Mitigation Bank	Pending	Pending	Corps, CDFW are anticipated	Riverside	Unknown	76	Proposed credits include wetland, non-wetland riparian, and non-wetland upland buffer, vernal pool and alkaline meadow, coastal sage scrub
West Harper Conservation Bank	2024	Active – credits available	FWS, CDFW	San Bernardino	Yes	654	Desert tortoise, Mohave ground squirrel, desert wash, Barstow wooly sunflower
West Mojave Conservation Bank (includes Inyo-Coso Preserve)	2017	Active – credits available	Corps, CDFW	Kern	No	914	Desert tortoise, Mohave ground squirrel, intermittent stream/riparian

^a Up-to-date information on approved conservation and mitigation banks, including available credits, can be found at the following websites:

<https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks>

<https://ribits.ops.usace.army.mil/ords/f?p=107:2:.....>

^b Agencies listed are signatories to the Master Process Agreement (Caltrans et al. 2020).

^c Service area is not publicly available.

^d Bank is owned and operated by the City of San Diego and is perhaps not usable for this GAI because the GAI is well outside of the city limits, although the City could approve its use. Because of this uncertainty, the bank is not shown in the following figures.

Figure 4-2. Conservation and Mitigation Bank Service Areas – Part 1

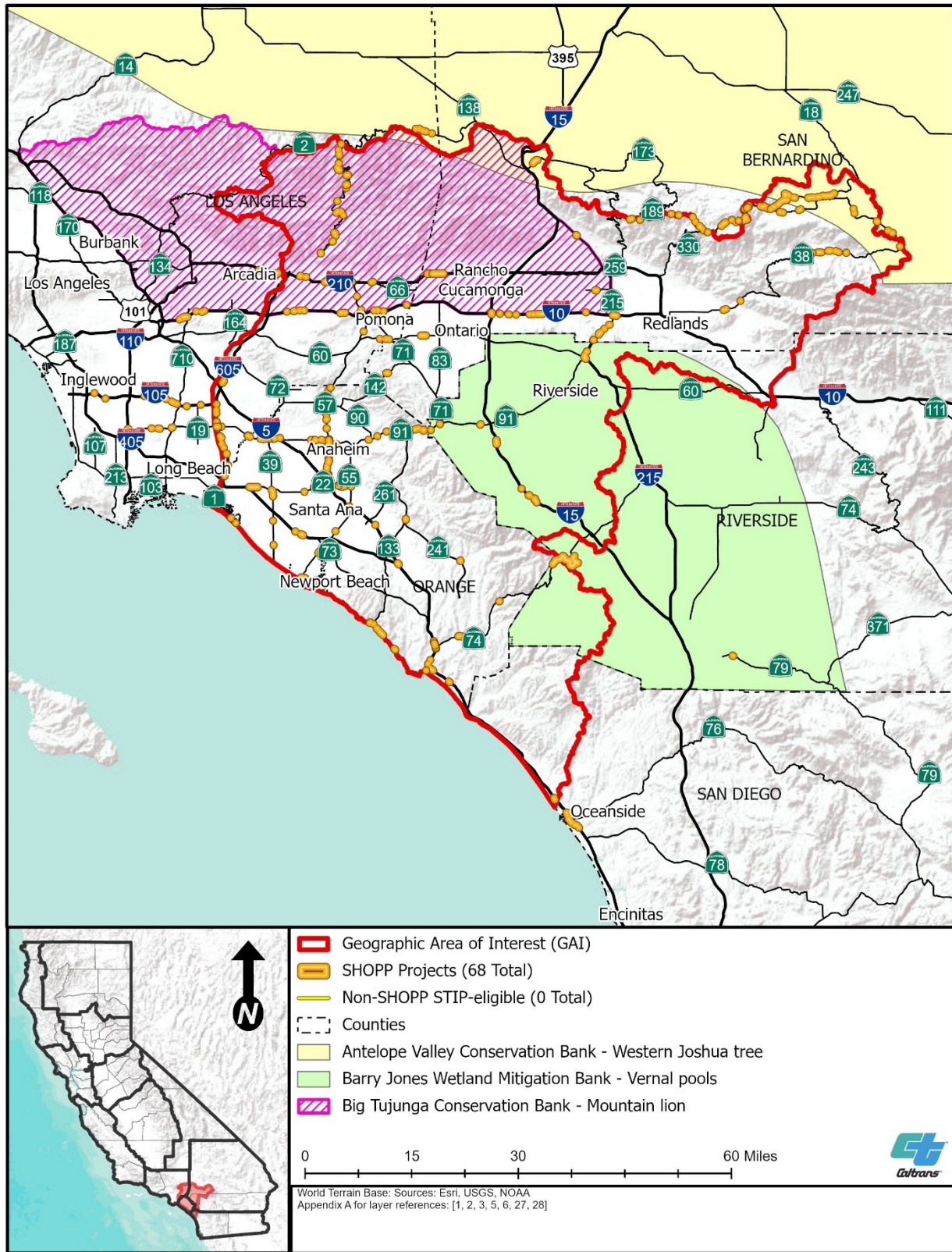


Figure 4-4. Conservation and Mitigation Bank Service Areas – Part 3

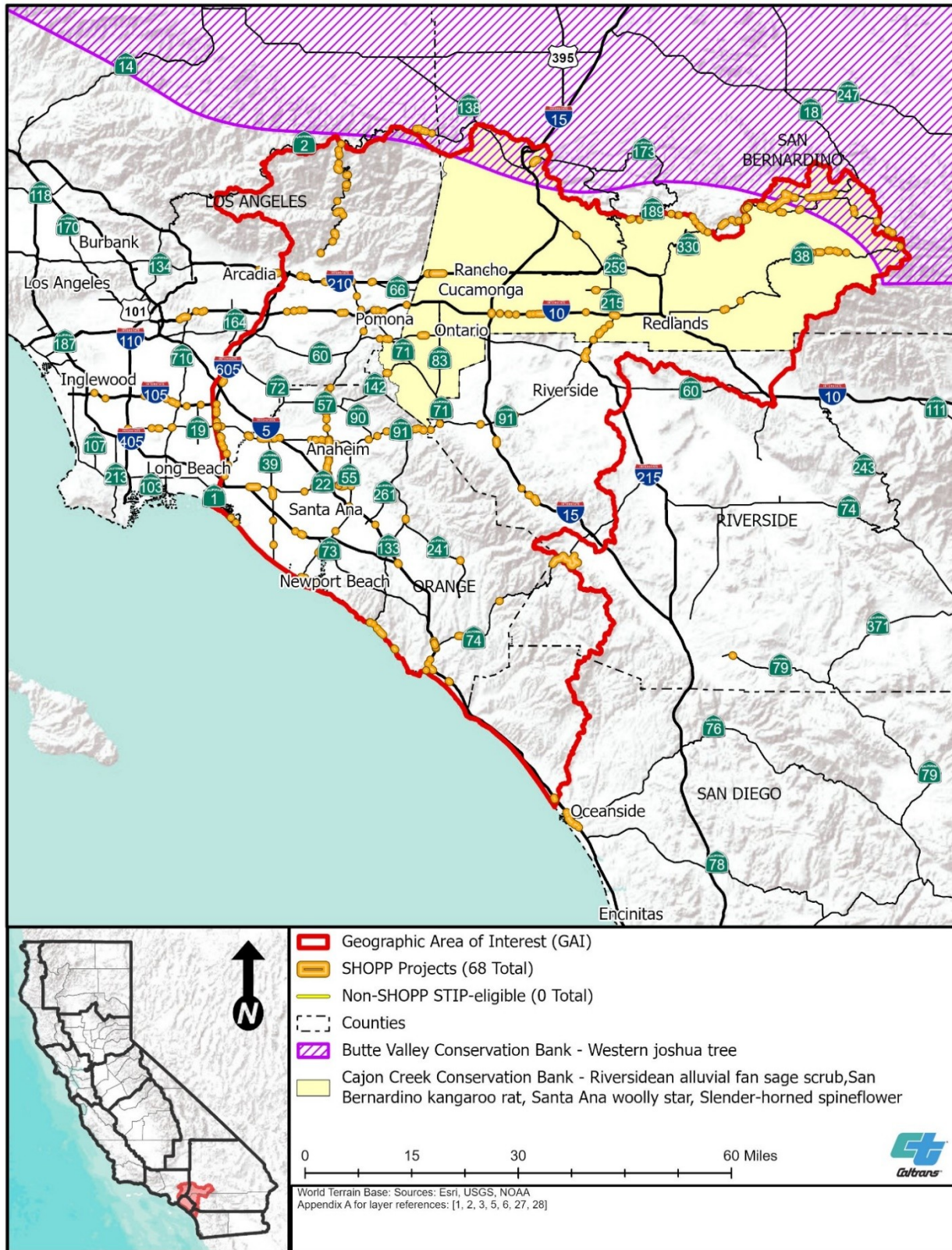


Figure 4-8. Conservation and Mitigation Bank Service Areas – Part 7

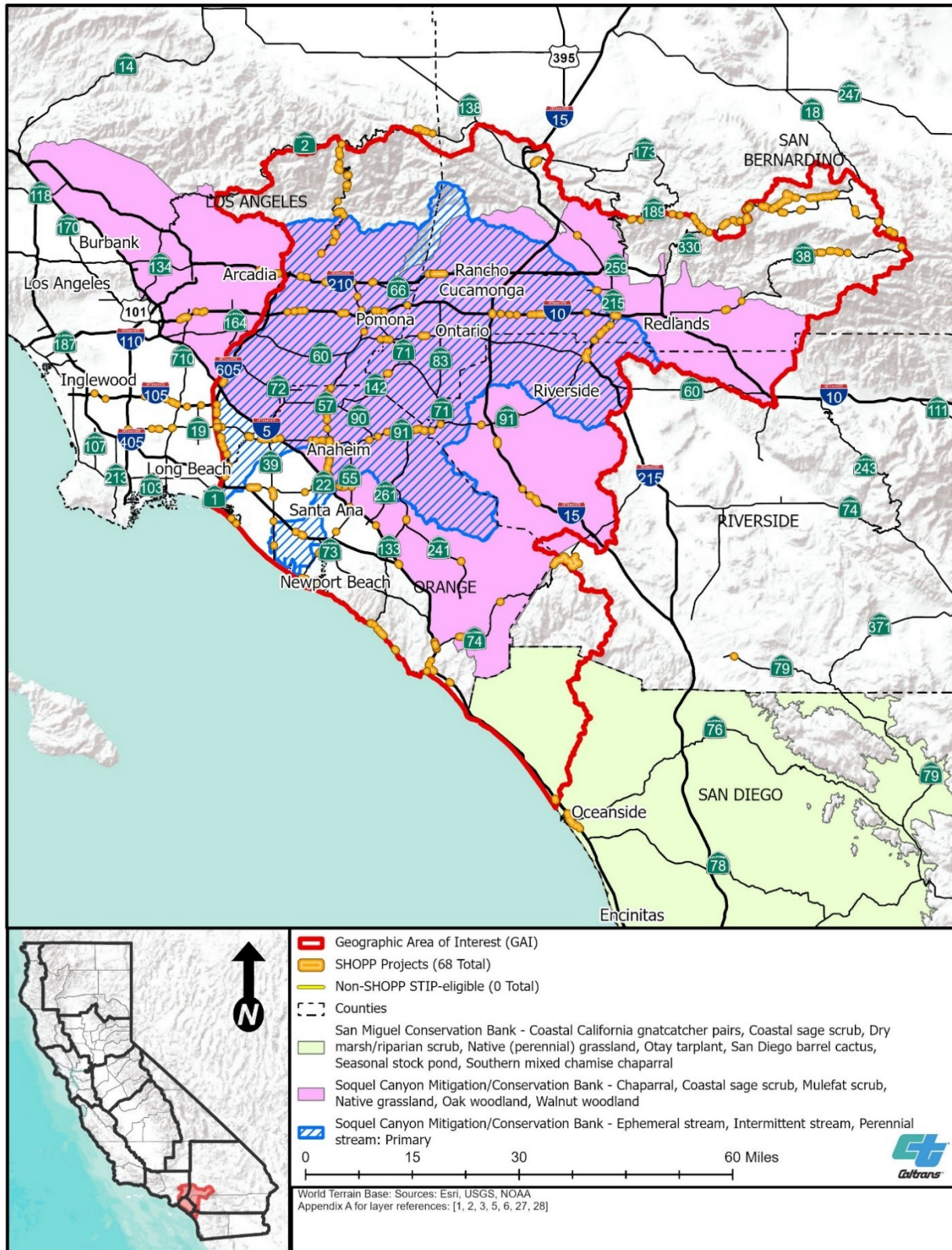


Figure 4-9. Conservation and Mitigation Bank Service Areas – Part 8

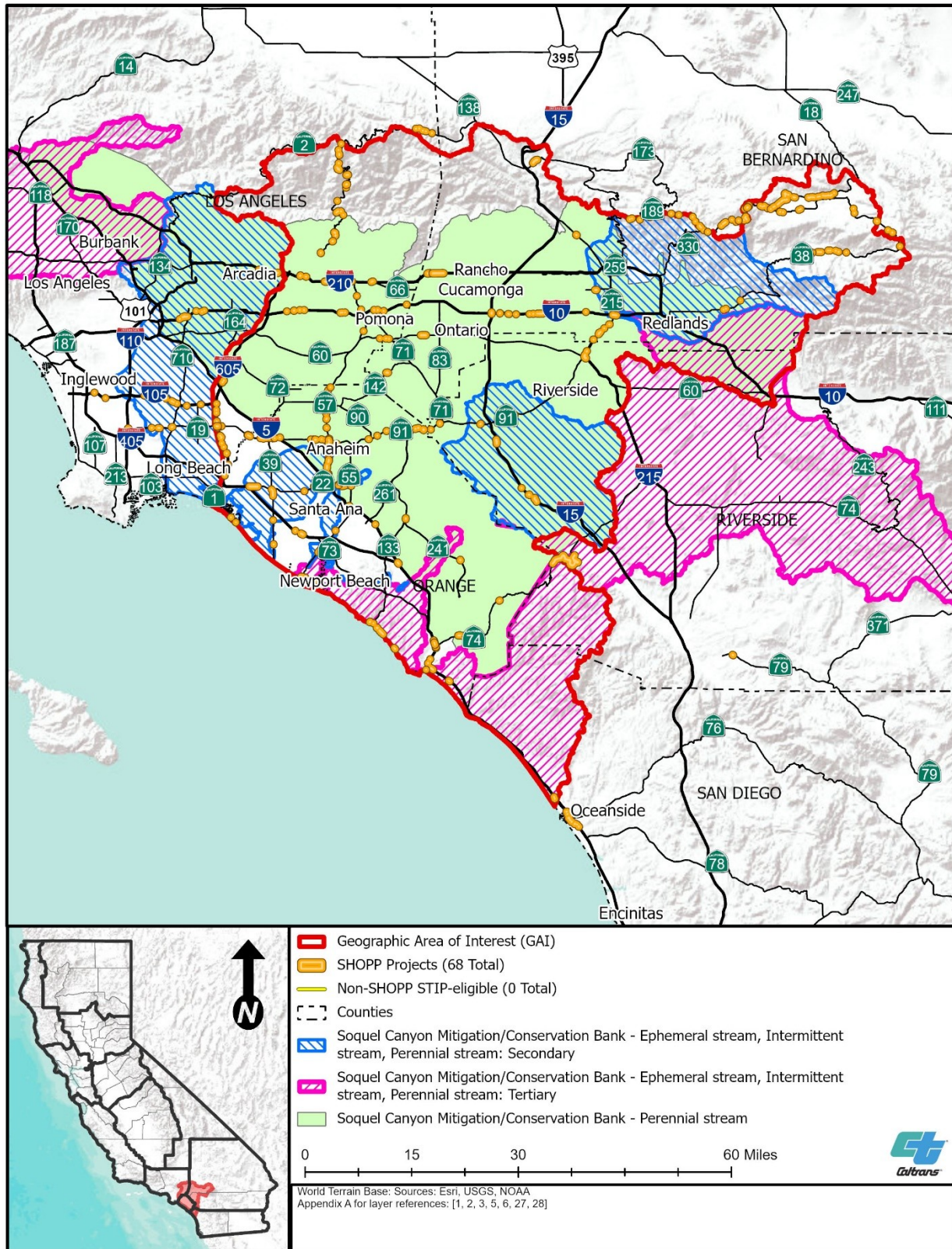
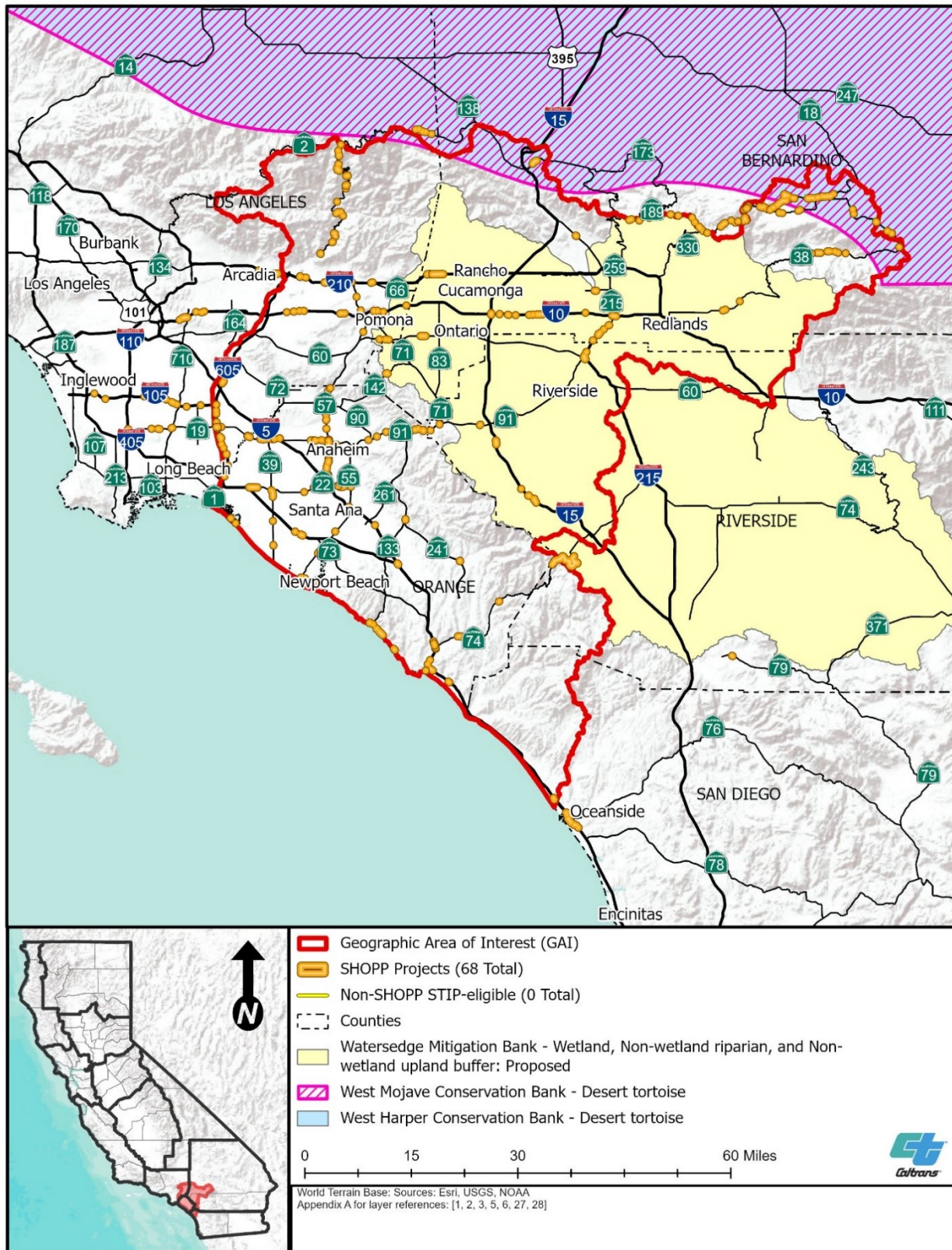


Figure 4-10. Conservation and Mitigation Bank Service Areas – Part 9



4.4. In-lieu Fee Programs

Compensatory mitigation can also be accomplished through participation in an in-lieu fee program, which is an agreement between a natural resource regulatory agency and a single in-lieu fee sponsor. In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing permittee-responsible mitigation or purchasing credits from a conservation or mitigation bank. An in-lieu fee sponsor can include entities such as public agencies or nonprofit organizations, and the fees are used to plan, build, and maintain a mitigation site. This method is similar to purchasing mitigation credits in that the mitigation is usually conducted “off site.” Often, the mitigation occurs after the permitted impacts.

Three active in-lieu fee programs have service areas that overlap the GAI (Table 4-3, Figure 4-11). These in-lieu fee programs have multiple service areas for different resources in different regions under their jurisdictions that overlap the GAI, as shown on Figure 4-11.

Table 4-3. In-lieu Fee Programs in the GAI^a

Name	Year Approved	Signatories ^b	Instrument Includes Pre-transfer Credit Purchases?	Location	Credit Types
Inland Empire Resource Conservation District ILF Program	2018	Corps	No	Santa Ana River Watershed: Los Angeles, Orange, San Bernardino, and Riverside Counties	▪ wetland ▪ stream^d
Santa Ana River Watershed ILF Program (formerly Riverside-Corona RCD ILF Program)	2012	Corps, EPA, RWQCB	No	Santa Ana River Watershed: Riverside County	▪ wetland ▪ stream
Santa Monica Mountains Conservancy/ Mountains Recreation & Conservation Authority (SMMC/MRCA) ILF Program ^c	2017	Corps, EPA	No	Los Angeles County (entire) and Santa Monica Mountains within Ventura County	▪ wetland ▪ stream

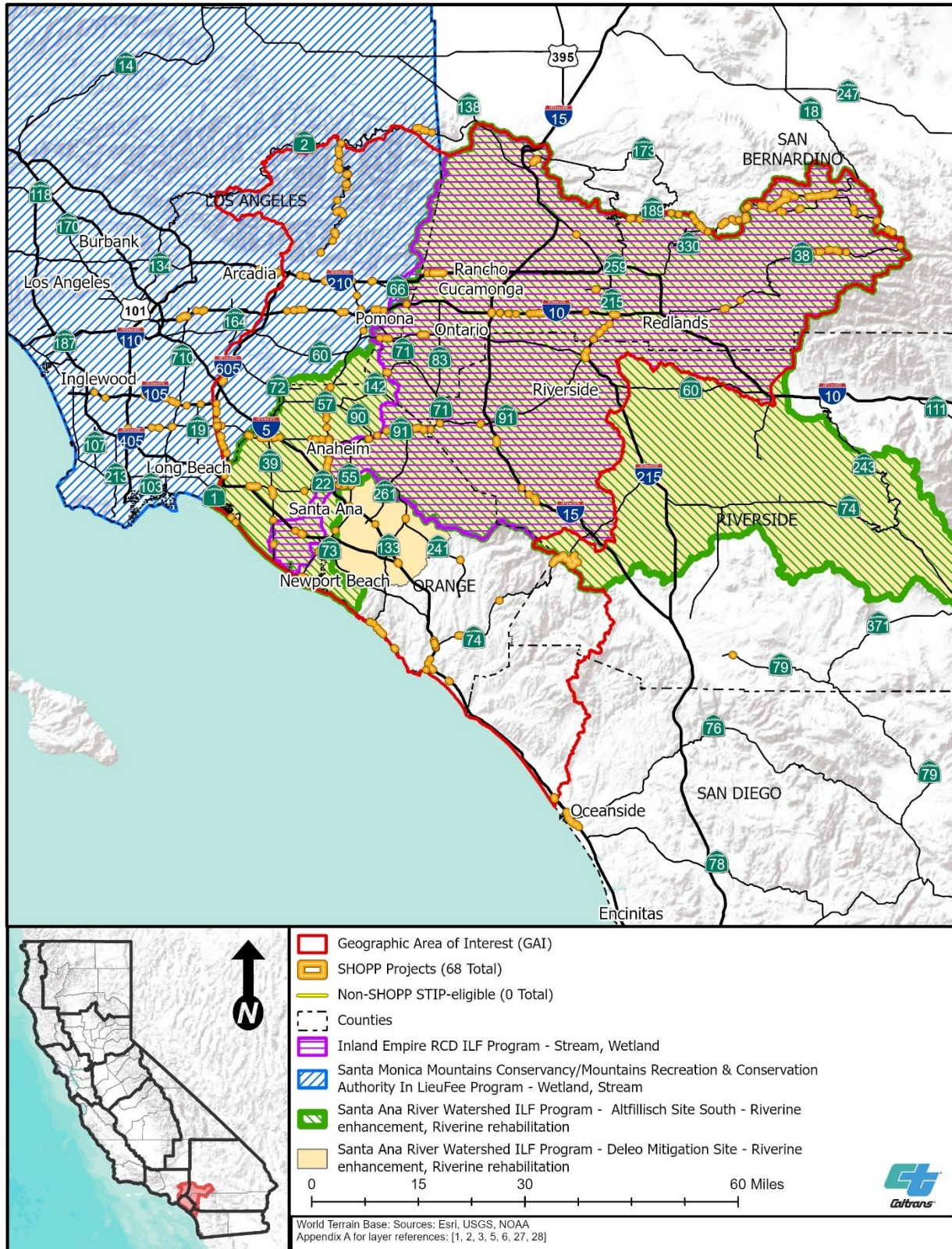
^a Up-to-date information on approved in-lieu fee programs, including available credits, can be found at <https://ribits.ops.usace.army.mil/ords/f?p=107:47:13453394859366::NO>

^b These signatory agencies are also signatories to the Master Process Agreement (Caltrans et al. 2020).

^c As of July 2026, there are no ILF sites listed for the SMMC/MRCA ILF program

^d As of July 2026, the Inland Empire Resource Conservation District is not in compliance.

Figure 4-11. In-lieu Fee Program Service Areas



4.5. RCISs and MCAs

Assembly Bill 2087 established CDFW's RCIS Program in 2016 (FGC Chapter 9, § 1850 et seq.), which created a voluntary framework for governments and other entities to strategically plan for conservation investments in their areas, including investments performed for compensatory mitigation. To promote the conservation quality of compensatory mitigation investments, the RCIS Program provides an advance mitigation tool that can be applied to resources subject to regulations implemented by CDFW. MCAs are developed when and where an RCIS is approved by CDFW and contains the elements described in FGC § 1856(b). Then, with respect to the SHS, a useful MCA would create credits that may be used as compensatory mitigation to offset impacts identified under CESA and the Lake and Streambed Alteration Program.

An MCA has numerous required elements, many of which parallel the requirements of a mitigation bank. These required elements can be found in FGC § 1856, and additional guidance is available in *Regional Conservation Investment Strategies Program Guidelines* (CDFW 2023). It is important to note that MCAs are not permits such as HCPs and NCCPs (Section 4.2). MCA advance mitigation credits are analogous to conservation and mitigation bank credits (Section 4.3). In other words, unlike an HCP and NCCP, RCISs and MCAs do not result in the issuance of incidental take permits for covered activities.

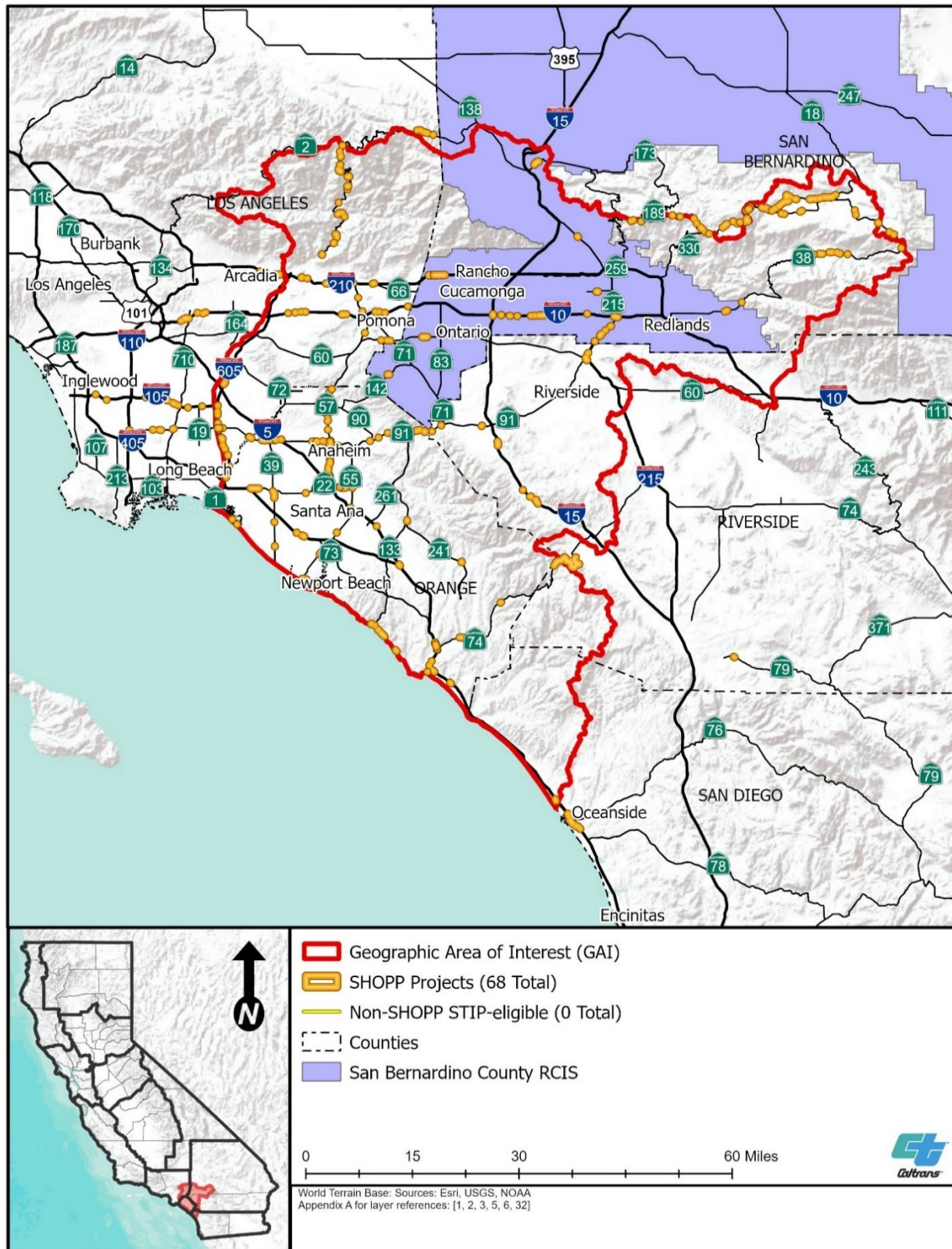
4.5.1. RCISs

Caltrans identified one approved RCIS with a service area that overlaps the GAI: the San Bernardino County RCIS (Figure 4-12).

San Bernardino County RCIS

The San Bernardino RCIS was finalized in 2023 (Dudek 2023) and approved by CDFW in April 2024. San Bernardino County, the San Bernardino Council of Governments, and the Environmental Element Group (a wide-ranging stakeholder group that includes public agencies, nonprofit organizations, and private interests) are the proponents. The RCIS covers 3.6 million acres of western San Bernardino County and analyzes 52 focal species, including 17 plant and 35 wildlife species. All of the terrestrial species of mitigation need identified in this RAMNA are also focal species in the RCIS, including arroyo toad, coastal California gnatcatcher, and least Bell's vireo. Conservation goals and objectives are based on vegetation types that serve as habitats for the various focal species. The RCIS includes a landscape-level analysis of areas that are priorities for acquisition, preservation, and enhancement of focal species habitats. Caltrans and the San Bernardino County Transportation Authority are included in the Environmental Element Group, which is one of the proponents of the San Bernardino County RCIS (Dudek 2023).

Figure 4-12. RCIS Areas



4.5.2. Mitigation Credit Agreements

As discussed previously, MCAs are developed when and where an RCIS is approved by CDFW, contains the elements described in FGC § 1856(b), and is consistent with the additional guidance available in *Regional Conservation Investment Strategies Program Guidelines* (CDFW 2023).³

Although no MCAs have been developed and no credits are available at this time, the San Bernardino RCIS may provide opportunities for an entity to enter into an MCA with CDFW within the RCIS areas. Once the CESA and/or the Lake and Streambed Alteration Program MCA credits are available, they may be eligible to be used to offset transportation project impacts.

4.6. Wildlife Crossing and Aquatic Corridor Enhancements

In 2022, FGC § 1955 et seq. authorized CDFW to approve compensatory mitigation credits for a “wildlife connectivity action” through its banking or RCIS programs. Therefore, when wildlife crossings and aquatic corridor enhancements improve the permeability of the SHS, through a BEI or MCA developed under an RCIS, CDFW is authorized to recognize CESA and Lake and Streambed Alteration credits for construction made separate and distinct from a specific transportation project. CDFW’s *Wildlife Connectivity Advance Mitigation Guidelines* (2024) will assist the process. Connectivity information for the GAI is summarized in Section 2.12.

³ <https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

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5. MODELED ESTIMATED IMPACTS

In this chapter, Caltrans documents the potential compensatory mitigation needs in the GAI for fiscal years 2023/24 to 2032/33. Needs were based on estimated potential compensatory mitigation requirements of Caltrans' anticipated SHOPP transportation projects and regional and local STIP-eligible transportation projects, as appropriate. Because the assessment is intended to inform advance mitigation project scoping, the impact estimates used to forecast compensatory mitigation needs do not distinguish between permanent or temporary impacts. Actual transportation project impacts, and natural resource regulatory agency compensatory mitigation conditions on transportation projects, will be determined in the future through each transportation project's environmental studies and permits.

In the sections below, Caltrans:

- describes its approach to, and major assumptions, when estimating transportation-related compensatory mitigation needs in the GAI; and
- provides its estimate of impacts for the 10-year planning period for species of mitigation need, special-status species potentially co-occurring with the species of mitigation need, aquatic resources, and riparian habitat.

Because Caltrans District 12 chose to focus the analysis on both terrestrial and aquatic resources (Section 1.5), the results presented below are organized by the Aliso-San Onofre, Newport Bay, Santa Ana, and Seal Beach sub-basins (HUC-8s) and five watersheds within the San Gabriel sub-basin (HUC-8), which also define the GAI.

5.1. Approach

Transportation projects eligible to use AMA-funded advance mitigation credits may only be SHOPP or STIP transportation projects (SHC § 800.7; Caltrans 2019a). Therefore, the compensatory mitigation needs for wildlife and aquatic resources in the GAI are based on Caltrans' anticipated SHOPP transportation project impacts. No local STIP-eligible transportation projects have been identified in the GAI.

At this time:

- SHOPP transportation project needs are forecast quantitatively through the SAMNA model developed for the AMP.

All estimates assume permanent losses, although it is likely that, in many cases, some of the effects of a transportation project may be avoided, may be temporary, or may not result in a full loss.

5.1.1. SHOPP Needs Assessment: SAMNA Model Results

SHOPP impacts were forecast through the SAMNA. The SAMNA consists of an intersection of assumed transportation project footprints with natural resource layers developed for the SAMNA, including the riparian landcover dataset. Briefly described in Section 1.4, more detailed SAMNA information is provided in the *Advanced Mitigation*

Needs Assessment GIS Tool Report for California Department of Transportation (Caltrans 2018) and the *Statewide Riparian Landcover Dataset* (Caltrans 2023a).

To identify the list of SHOPP projects planned for the GAI, Caltrans consulted the SHOPP Ten-Year Book for fiscal years 2023/24 to 2032/33 (Caltrans 2024a). The intent of the SHOPP Ten-Year Book is to raise awareness of planned future transportation projects, and detailed transportation project information is not provided. The SHOPP Ten-Year Book includes 68 SHOPP transportation projects in the GAI that are currently in the planning and conceptual phases (Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*). The general locations of all 68 planned transportation projects are shown on most of the maps in this document.

SAMNA estimates are not precise and are not intended to be used for transportation project permitting; however, they are suitable for informing advance mitigation project scopes. The AMP developed the SAMNA strictly and specifically for Caltrans' use in advance mitigation planning—that is, when Caltrans is justifying, proposing, and scoping advance mitigation projects (Caltrans 2019a, 2024a). The SAMNA model, its foundation, and assumptions are described in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2024c), and some of its uncertainties are highlighted in Appendix E, *Complete SAMNA Species Results*. All results are provided in acres. Some species and resources are not forecast to be affected.

Specific to this assessment, forecast impacts on wildlife species can be found in Section 5.2, and forecast impacts on aquatic resources can be found in Section 5.3. The SAMNA results for all habitats with at least one special-status species forecast to be affected are provided in Appendix E, *Complete SAMNA Species Results*.

5.1.2. Non-SHOPP STIP-eligible Needs Assessment

At this time, STIP-eligible needs are assessed qualitatively through coordination between the Caltrans District, MPOs, RTPAs, and other public agencies that implement transportation improvements.

Obtaining a reliable list of STIP transportation projects within the 10-year planning horizon is problematic. It is never known which transportation projects will be funded through the STIP until the funds are voted on by the California Transportation Commission, at which point the transportation projects are well past their planning and conceptualization phases and entering their delivery phases. Because of this timing, funded STIP projects will likely need compensatory mitigation before the AMP can deliver the needed mitigation. AMP planning, therefore, must glean a list of transportation projects from the broader set of non-SHOPP transportation projects that may or may not receive STIP funding, such as STIP-eligible transportation projects. Additionally, the STIP is currently receiving very little funding in favor of the “fix-it-first” philosophy of the Road Repair and Accountability Act of 2017, although a backlog exists of transportation projects that potentially need these funds.

At this time, no planned STIP-eligible transportation projects were identified in the GAI for fiscal years 2023/24 to 2032/33.

Non-SHOPP STIP-eligible Potential Impacts

Because no planned STIP-eligible transportation projects were identified in the GAI for fiscal years 2023/24 to 2032/33, no STIP-eligible related impacts or mitigation needs are anticipated.

5.2. Estimated Wildlife Impacts

The quantitative impacts presented in this document are estimates, pursuant to the SAMNA model. Specific wildlife resource impacts will be assessed in the future, as part of each transportation project's environmental studies.

Below, estimated impacts are presented for the ecoregion sections that overlap the GAI for species of mitigation need identified by Caltrans District 12, as well as for species that may co-occur in their habitats. The complete results of the SAMNA, inclusive of the 68 transportation projects planned in the GAI and listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, that may affect special-status plant and wildlife species are provided in Appendix E, *Complete SAMNA Species Results*.

The special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern (Caltrans 2024c). Based on a search of the species-attributed vegetation layer, 190 non-fish special-status terrestrial species have the potential to occur in the GAI (Section 2.8; Caltrans 2024b). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 40 SHOPP transportation projects could potentially affect 24 habitat types, which could support up to 104 special-status species in the three ecoregion sections in the GAI (Table 5-1).

Table 5-1. Summary of Estimated SHOPP Impacts on Special-status Species Habitat in the GAI

Ecoregion Section	Number of Caltrans SHOPP Projects ^a	Number of Habitats	Number of Special-status Species ^{b,c}	Estimated Total Habitat Impact (acres)
Mojave Desert	1	3	34	7.3
Southern California Coast	14	13	67	4.5
Southern California Mountains and Valleys	26	17	80	16.5
Total^d	40	24	104	28.4

^a Transportation projects are listed in Appendix B.

^b Special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.

^c Included in the SAMNA. See SAMNA Report (Caltrans 2024c).

^d Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Caltrans identified species of mitigation need from the suite of special-status species anticipated to inhabit the GAI. Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated (Section 1.5). The terrestrial species of mitigation need identified in Section 1.5—arroyo toad, coastal California gnatcatcher, and least Bell’s vireo—were included in the analysis, and each is discussed briefly in the subsections below.

5.2.1. Arroyo Toad

This species was chosen as a species of mitigation need because of its status and the ongoing need for compensatory mitigation for transportation projects in the GAI. Arroyo toad is a federally endangered amphibian species and a California species of special concern that occurs in washes, arroyos, sandy riverbanks, and riparian areas with willows, sycamores, oaks, or cottonwoods. This species also needs a more specialized habitat, including exposed sandy stream sides with stable terraces for burrowing, scattered vegetation for shelter, and areas of quiet water or pools free of predatory fishes with sandy or gravel bottoms without silt for breeding.

Using the methods described in Section 5.1.1, impacts on arroyo toad and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 68 SHOPP transportation projects evaluated, 11 are forecast to affect 12.1 acres of arroyo toad habitat in the GAI (Table 5-2; Caltrans 2024b).

5.2.2. Coastal California Gnatcatcher

This species was chosen as a species of mitigation need because of its status and the ongoing need for compensatory mitigation for transportation projects in the GAI. Coastal California gnatcatcher is a federally threatened bird species and a California species of special concern that occurs in coastal sage scrub habitats.

Using the methods described in Section 5.1.1, impacts on coastal California gnatcatcher and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 68 SHOPP transportation projects evaluated, 7 are forecast to affect 5 acres of coastal California gnatcatcher habitat in the GAI (Table 5-2; Caltrans 2024b).

5.2.3. Least Bell's Vireo

This species was chosen as a species of mitigation need because of its status and the ongoing need for compensatory mitigation for transportation projects in the GAI. Least Bell's vireo is a federally and state endangered subspecies of bird that nests exclusively in riparian habitats.

Using the methods described in Section 5.1.1, impacts on least Bell's vireo and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 68 SHOPP transportation projects evaluated, 1 is forecast to affect 0.1 acre of least Bell's vireo habitat in the GAI (Table 5-2; Caltrans 2024b).

5.2.4. Estimated Impacts on Terrestrial Species of Mitigation Need in the Coastal Zone

Using the methods described in Section 5.1.1, SAMNA forecast impacts on the following terrestrial species of mitigation need within the coastal zone: arroyo toad, coastal California gnatcatcher, and least Bell's vireo. Impacts on these species are described below.

Arroyo Toad

Using the methods described in Section 5.1.1, impacts on arroyo toad were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, none is forecast to affect arroyo toad habitat in the coastal zone that is under CCC's jurisdiction (Caltrans 2024b).

Coastal California Gnatcatcher

Using the methods described in Section 5.1.1, impacts on coastal California gnatcatcher were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, 1 is forecast to affect 0.1 acre of coastal California gnatcatcher habitat in the coastal zone that is under CCC's jurisdiction (Table 5-3; Caltrans 2024b).

Least Bell's Vireo

Using the methods described in Section 5.1.1, impacts on least Bell's vireo were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, none is forecast to affect least Bell's vireo habitat in the coastal zone that is under CCC's jurisdiction (Caltrans 2024b).

5.2.5. Potential Co-benefiting Species

The species of mitigation need co-occur with other protected plant, invertebrate, amphibian, reptile, bird, and mammal species. By procuring or establishing advance mitigation credits for one or more of the species of mitigation need, Caltrans District 12 will also benefit multiple special-status species that occur in and utilize the same habitats.

Using the methods described in Section 5.1.1, the SAMNA forecasts impacts on:

- An additional 34 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Mojave Desert Ecoregion Section (Table 5-4),
- An additional 58 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Southern California Coast Ecoregion Section (Table 5-5), and
- An additional 74 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Southern California Mountains and Valleys Ecoregion Section (Table 5-6).

Table 5-2. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need in the GAI

Ecoregion Section	Arroyo Toad Habitat: Number of Caltrans SHOPP Projects^a	Arroyo Toad: Estimated Habitat Impact (acres)^b	Coastal California Gnatcatcher Habitat: Number of Caltrans SHOPP Projects^a	Coastal California Gnatcatcher: Estimated Habitat Impact (acres)^b	Least Bell's Vireo Habitat: Number of Caltrans SHOPP Projects^a	Least Bell's Vireo: Estimated Habitat Impact (acres)^b	Total
Mojave Desert	1	7.3	0	0.0	0	0.0	7.3
Southern California Coast	2	0.3	4	1.3	0	0.0	1.4
Southern California Mountains and Valleys	8	4.5	3	3.7	1	0.1	7.3
Total^b	11	12.1	7	5.0	1	0.1	16.0

^a Transportation projects are listed in Appendix B.

^b Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section.

Table 5-3. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need in the Coastal Zone of the GAI

Ecoregion Section	Coastal California Gnatcatcher Habitat: Number of Caltrans SHOPP Projects^a	Coastal California Gnatcatcher: Estimated Habitat Impact (acres)^b	Total
Southern California Coast	1.0	0.1	0.1
Total	1.0	0.1	0.1

^a Transportation projects are listed in Appendix B.

Table 5-4. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Mojave Desert Ecoregion Section (acres)

Common Name	Species Name	Status	Desert Riparian	Desert Scrub	Mixed Chaparral
Not applicable	Not applicable	Total	0.5	3.8	3.0
Species of Mitigation Need	See below	See below	See below	See below	See below
Arroyo toad	<i>Anaxyrus californicus</i>	FE, SSC	0.5	3.8	3.0
Amphibians	See below	See below	See below	See below	See below
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	0.0	0.0	3.0
Western spadefoot	<i>Spea hammondi</i>	FS, SSC	0.0	0.0	3.0
Reptiles	See below	See below	See below	See below	See below
Blainville's horned lizard	<i>Phrynosoma blainvillii</i>	FS, SSC	0.0	0.0	3.0
Mohave desert tortoise	<i>Gopherus agassizii</i>	FT, ST	0.5	3.8	0.0
Mohave fringe-toed lizard	<i>Uma scoparia</i>	FS, SSC	0.5	3.8	0.0
Ring-necked snake	<i>Diadophis punctatus</i>	FS, SSC	0.0	3.8	3.0
Two-striped gartersnake	<i>Thamnophis hammondi</i>	FS, SSC	0.0	0.0	3.0
Western patch-nosed snake	<i>Salvadora hexalepis</i>	SSC	0.5	3.8	3.0
Birds	See below	See below	See below	See below	See below
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	0.5	3.8	3.0
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	0.5	3.8	3.0
Gray vireo	<i>Vireo vicinior</i>	FS, SSC	0.0	0.0	3.0
Le Conte's thrasher	<i>Toxostoma lecontei</i>	FS, SSC	0.0	3.8	0.0
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, SSC	0.5	3.8	3.0
Long-eared owl	<i>Asio otus</i>	SSC	0.5	3.8	3.0
Northern harrier	<i>Circus cyaneus</i>	SSC	0.5	3.8	3.0

Common Name	Species Name	Status	Desert Riparian	Desert Scrub	Mixed Chaparral
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	0.0	3.8	3.0
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.5	0.0	3.0
Mammals	See below	See below	See below	See below	See below
American badger	<i>Taxidea taxus</i>	SSC	0.5	3.8	3.0
Bighorn sheep	<i>Ovis canadensis</i>	FE, FS, SE, ST, SFP	0.5	3.8	0.0
Desert woodrat	<i>Neotoma lepida</i>	SSC	0.5	3.8	3.0
Fringed myotis	<i>Myotis thysanodes</i>	FS	0.5	0.0	3.0
Little pocket mouse	<i>Perognathus longimembris</i>	FS, SSC	0.5	3.8	3.0
Long-eared myotis	<i>Myotis evotis</i>	FS	0.5	0.0	3.0
Merriam's kangaroo rat	<i>Dipodomys merriami</i>	FE, SCE, SSC	0.0	2.7	0.0
Mohave ground squirrel	<i>Xerospermophilus mohavensis</i>	FS, ST	0.0	3.8	0.0
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	0.5	3.8	3.0
Ringtail	<i>Bassariscus astutus</i>	SFP	0.5	3.8	3.0
Small-footed myotis	<i>Myotis ciliolabrum</i>	FS	0.5	3.8	3.0
Southern grasshopper mouse	<i>Onychomys torridus</i>	FS, SSC	0.5	3.8	3.0
Spotted bat	<i>Euderma maculatum</i>	FS, SSC	0.5	3.8	0.0
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	0.5	3.8	3.0
Western mastiff bat	<i>Eumops perotis</i>	FS, SSC	0.5	3.8	3.0
Yuma myotis	<i>Myotis yumanensis</i>	FS	0.5	3.8	3.0

Source: Caltrans (2024b)

Notes: FE = federally endangered, FS = federally sensitive (USFS and/or BLM sensitive), FT = federally threatened, SCE = state candidate endangered, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SR = state rare, SSC = species of special concern (CDFW), ST = state threatened

Table 5-5. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Southern California Coast Ecoregion Section (acres)

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Eucalyptus	Mixed Chaparral	Perennial Grassland	Valley Foothill Riparian
Not applicable	Not applicable	Total	2.1	0.1	0.4	<0.1	0.1	0.0	0.1	0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Arroyo toad	<i>Anaxyrus californicus</i>	FE, SSC	0.0	0.0	0.0	<0.1	0.1	<0.1	0.0	0.1
Coastal California gnatcatcher	<i>Poliophtila polioptila californica</i>	FT, SSC	0.6	0.1	0.3	0.0	0.1	0.0	0.1	0.1
Plants	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Big-leaved crownbeard	<i>Verbesina dissita</i>	FT, ST	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Braunton's milk-vetch	<i>Astragalus brauntonii</i>	FE	2.1	0.0	0.4	0.0	0.0	<0.1	0.0	0.0
California orcutt grass	<i>Orcuttia californica</i>	FE, SE	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Encinitas baccharis	<i>Baccharis vanessae</i>	FT, SE	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0
Laguna Beach dudleya	<i>Dudleya stolonifera</i>	FT, ST	1.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Salt marsh bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	FE, SE, FS	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	FE, SE	2.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Eucalyptus	Mixed Chaparral	Perennial Grassland	Valley Foothill Riparian
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	FT, SE	2.1	0.0	0.4	0.0	0.0	<0.1	0.0	0.0
Ventura marsh milk-vetch	<i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i>	FE, SE	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	FE	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	FE	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Amphibians	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California newt	<i>Taricha torosa</i>	SSC	0.5	0.1	0.4	0.0	0.1	<0.1	0.0	0.1
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Western spadefoot	<i>Spea hammondi</i>	FS, SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.0
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Blainville's horned lizard	<i>Phrynosoma blainvillii</i>	FS, SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
California legless lizard	<i>Anniella pulchra</i>	SSC	0.0	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Eucalyptus	Mixed Chaparral	Perennial Grassland	Valley Foothill Riparian
Common gartersnake	<i>Thamnophis sirtalis</i>	SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Red diamond rattlesnake	<i>Crotalus ruber</i>	FS, SSC	1.9	0.1	0.4	0.0	0.1	<0.1	0.0	0.1
Ring-necked snake	<i>Diadophis punctatus</i>	FS, SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Two-striped gartersnake	<i>Thamnophis hammondi</i>	FS, SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.0	0.1
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	0.9	0.1	0.4	0.0	0.1	<0.1	0.0	0.1
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	1.9	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Long-eared owl	<i>Asio otus</i>	SSC	0.9	0.1	0.0	0.0	0.1	<0.1	0.0	0.1
Northern harrier	<i>Circus cyaneus</i>	SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Eucalyptus	Mixed Chaparral	Perennial Grassland	Valley Foothill Riparian
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	SSC	0.9	0.1	0.0	0.0	0.1	<0.1	0.0	0.0
Purple martin	<i>Progne subis</i>	SSC	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
San Diego cactus wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	FS, SSC	0.0	0.0	0.1	0.0	0.0	<0.1	0.0	0.0
Short-eared owl	<i>Asio flammeus</i>	SSC	0.6	0.1	0.3	0.0	0.1	<0.1	0.1	0.0
Tricolored blackbird	<i>Agelaius tricolor</i>	FS, ST, SSC	2.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.0	0.1	0.4	<0.1	0.1	<0.1	0.0	0.1
Yellow-breasted chat	<i>Icteria virens</i>	SSC	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
American badger	<i>Taxidea taxus</i>	SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Big-eared woodrat	<i>Neotoma macrotis</i>	FS, SSC	0.0	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Black-tailed jackrabbit	<i>Lepus californicus</i>	None	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Eucalyptus	Mixed Chaparral	Perennial Grassland	Valley Foothill Riparian
California pocket mouse	<i>Chaetodipus californicus</i>	SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.0	0.0
Desert woodrat	<i>Neotoma lepida</i>	SSC	0.0	0.0	0.4	<0.1	0.0	<0.1	0.0	0.0
Fringed myotis	<i>Myotis thysanodes</i>	FS	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Little pocket mouse	<i>Perognathus longimembris</i>	FS, SSC	0.0	0.1	0.4	<0.1	0.0	<0.1	0.0	0.0
Long-eared myotis	<i>Myotis evotis</i>	FS	0.0	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Ringtail	<i>Bassariscus astutus</i>	SFP	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
San Diego pocket mouse	<i>Chaetodipus fallax</i>	SSC	0.9	0.0	0.4	0.0	0.0	<0.1	0.0	0.0
Small-footed myotis	<i>Myotis ciliolabrum</i>	FS	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1
Southern grasshopper mouse	<i>Onychomys torridus</i>	FS, SSC	2.0	0.0	0.4	<0.1	0.0	<0.1	0.0	0.1
Spotted bat	<i>Euderma maculatum</i>	FS, SSC	0.8	0.1	0.0	<0.1	0.0	0.0	0.0	0.0
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	FT, ST	0.9	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Western mastiff bat	<i>Eumops perotis</i>	FS, SSC	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1
Western red bat	<i>Lasiurus blossevillii</i>	SSC	2.1	0.1	0.4	0.0	0.1	<0.1	0.1	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Eucalyptus	Mixed Chaparral	Perennial Grassland	Valley Foothill Riparian
Western yellow bat	<i>Lasiurus xanthinus</i>	SSC	0.0	0.1	0.0	<0.1	0.0	0.0	0.0	0.1
Yuma myotis	<i>Myotis yumanensis</i>	FS	2.1	0.1	0.4	<0.1	0.1	<0.1	0.1	0.1

Source: Caltrans (2024b)

Notes: FE = federally endangered, FS = federally sensitive (USFS and/or BLM sensitive), FT = federally threatened, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SR = state rare, SSC = species of special concern (CDFW), ST = state threatened

Table 5-6. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Southern California Mountains and Valleys Ecoregion Section (acres)

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Mixed Chaparral	Valley Foothill Riparian
Not applicable	Not applicable	Total	1.1	4.0	1.1	1.9	3.1	0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below
Arroyo toad	<i>Anaxyrus californicus</i>	FE, SSC	0.0	0.0	0.0	1.9	2.5	0.1
Coastal California gnatcatcher	<i>Poliophtila californica californica</i>	FT, SSC	0.1	2.7	0.1	0.0	0.9	0.0
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE, SE	0.0	0.0	0.0	0.0	0.0	0.1
Plants	See below	See below	See below	See below	See below	See below	See below	See below
Braunton's milk-vetch	<i>Astragalus brauntonii</i>	FE	1.1	0.0	1.1	0.0	2.7	0.0
Encinitas baccharis	<i>Baccharis vanessae</i>	FT, SE	0.0	0.0	0.0	0.0	1.1	0.0
Mt. Gleason paintbrush	<i>Castilleja gleasoni</i>	FS, SR	0.0	0.0	0.0	0.0	1.5	0.0
Munz's onion	<i>Allium munzii</i>	FE, ST	1.1	0.0	0.7	0.0	1.1	0.0
Nevin's barberry	<i>Berberis nevinii</i>	FE, SE	0.0	0.0	1.1	0.0	3.1	0.0
Parish's checkerbloom	<i>Sidalcea hickmanii</i> ssp. <i>parishii</i>	FS, SR	0.0	0.0	0.0	0.0	0.5	0.0
Salt marsh bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	FE, SE, FS	0.0	0.0	0.3	0.0	0.0	0.0

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Mixed Chaparral	Valley Foothill Riparian
San Bernardino Mountains bladderpod	<i>Physaria kingii</i> ssp. <i>bernardina</i>	FE	0.0	0.0	0.0	0.0	0.5	0.0
San Diego ambrosia	<i>Ambrosia pumila</i>	FE	1.1	0.0	0.7	0.0	1.1	0.0
San Jacinto Valley crowscale	<i>Atriplex coronata</i> var. <i>notatior</i>	FE	0.7	0.0	0.0	0.0	0.0	0.0
Santa Ana River woollystar	<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	FE, SE	0.0	0.0	0.3	0.0	0.2	0.0
Slender-horned spineflower	<i>Dodecahema leptoceras</i>	FE, SE	0.0	0.0	1.1	0.0	3.1	0.0
Southern mountain buckwheat	<i>Eriogonum kennedyi</i> var. <i>austromontanum</i>	FT	0.0	0.0	0.0	0.0	0.5	0.0
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	FT, SE	1.1	0.0	0.7	0.0	1.6	0.0
Amphibians	See below	See below	See below	See below	See below	See below	See below	See below
California newt	<i>Taricha torosa</i>	SSC	0.4	2.7	1.1	0.0	2.5	0.0
California red-legged frog	<i>Rana draytonii</i>	FT, SSC	1.1	4.0	1.1	0.0	3.1	0.1
Foothill yellow-legged frog	<i>Rana boylei</i>	FCE, FCT, FS, SE, ST, SSC	0.0	0.0	0.1	0.0	0.6	0.0
Southern California slender salamander	<i>Batrachoseps major</i>	FE, SE	0.0	0.0	0.0	1.2	0.0	0.0
Western spadefoot	<i>Spea hammondi</i>	FS, SSC	1.1	1.3	0.7	0.0	0.9	0.0

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Mixed Chaparral	Valley Foothill Riparian
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below
Blainville's horned lizard	<i>Phrynosoma blainvillii</i>	FS, SSC	1.1	4.0	1.1	0.0	3.1	0.1
California legless lizard	<i>Anniella pulchra</i>	SSC	0.0	4.0	1.1	1.9	3.1	0.1
Common gartersnake	<i>Thamnophis sirtalis</i>	SSC	1.1	4.0	1.0	0.0	2.0	0.1
Red diamond rattlesnake	<i>Crotalus ruber</i>	FS, SSC	0.8	3.9	0.6	0.0	1.1	0.1
Two-striped gartersnake	<i>Thamnophis hammondi</i>	FS, SSC	1.1	4.0	1.1	0.0	3.1	0.1
Western patch-nosed snake	<i>Salvadora hexalepis</i>	SSC	1.1	4.0	1.1	1.9	3.1	0.1
Birds	See below	See below	See below	See below	See below	See below	See below	See below
Bald eagle	<i>Haliaeetus leucocephalus</i>	FS, SE, SFP, SFS	1.1	4.0	1.1	0.0	3.1	0.1
Black swift	<i>Cypseloides niger</i>	SSC	0.0	0.1	0.0	0.0	1.6	0.0
Burrowing owl	<i>Athene cunicularia</i>	FS, SSC	0.8	0.0	0.5	1.2	0.1	0.0
California gnatcatcher	<i>Poliophtila californica</i>	FT, SSC	0.1	2.7	0.1	0.0	0.9	0.0
California spotted owl	<i>Strix occidentalis occidentalis</i>	FS, SSC	0.0	0.1	0.0	0.0	0.0	0.0
Golden eagle	<i>Aquila chrysaetos</i>	FS, SFS, SFP	1.1	4.0	1.1	1.9	3.1	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Mixed Chaparral	Valley Foothill Riparian
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SSC	0.8	0.0	0.0	0.0	0.0	0.0
Least Bell's vireo	<i>Vireo bellii pusillus</i>	FE, SE	0.0	0.0	0.0	0.0	0.0	0.1
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE, SSC	1.1	4.0	1.1	1.9	3.1	0.1
Long-eared owl	<i>Asio otus</i>	SSC	1.1	4.0	0.0	0.0	3.1	0.1
Mountain plover	<i>Charadrius montanus</i>	FS, SSC	0.3	0.0	0.0	0.0	0.0	0.0
Northern goshawk	<i>Accipiter gentilis</i>	FS, SSC, SFS	0.0	0.0	0.0	0.0	0.9	0.0
Northern harrier	<i>Circus cyaneus</i>	SSC	1.1	4.0	1.0	1.2	2.5	0.1
Olive-sided flycatcher	<i>Contopus cooperi</i>	SSC	0.0	0.0	0.0	0.0	2.3	0.0
Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	SSC	1.1	3.9	0.0	0.0	1.1	0.0
Purple martin	<i>Progne subis</i>	SSC	0.5	4.0	0.0	0.0	0.0	0.1
Tricolored blackbird	<i>Agelaius tricolor</i>	FS, ST, SSC	0.7	0.0	0.0	0.0	0.0	0.1
White-tailed kite	<i>Elanus leucurus</i>	FS, SFP	1.1	3.9	0.6	0.0	1.1	0.1
Yellow warbler	<i>Setophaga petechia</i>	SSC	0.0	4.0	1.1	1.9	3.1	0.1
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FT, FS, SE	0.0	0.0	0.0	0.0	0.0	0.1
Yellow-breasted chat	<i>Icteria virens</i>	SSC	0.0	0.0	0.6	0.0	0.0	0.1
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC	0.3	0.0	0.0	0.0	0.0	0.0
Mammals	See below	See below	See below	See below	See below	See below	See below	See below
American badger	<i>Taxidea taxus</i>	SSC	1.1	4.0	1.1	1.9	3.1	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Mixed Chaparral	Valley Foothill Riparian
Big-eared woodrat	<i>Neotoma macrotis</i>	FS, SSC	0.0	4.0	1.1	0.0	3.1	0.1
Bighorn sheep	<i>Ovis canadensis</i>	FE, FS, SE, ST, SFP	0.0	0.0	0.0	1.9	0.0	0.0
Black-tailed jackrabbit	<i>Lepus californicus</i>	None	1.1	4.0	1.1	1.9	2.7	0.1
California pocket mouse	<i>Chaetodipus californicus</i>	SSC	1.1	4.0	1.1	0.0	3.1	0.0
Desert woodrat	<i>Neotoma lepida</i>	SSC	0.0	0.0	1.1	1.9	3.1	0.0
Fringed myotis	<i>Myotis thysanodes</i>	FS	1.1	4.0	1.1	1.9	3.1	0.1
Little pocket mouse	<i>Perognathus longimembris</i>	FS, SSC	0.0	1.3	0.6	1.2	1.2	0.0
Long-eared myotis	<i>Myotis evotis</i>	FS	0.0	4.0	1.1	1.9	3.1	0.1
Merriam's kangaroo rat	<i>Dipodomys merriami</i>	FE, SCE, SSC	0.2	0.0	0.1	1.2	0.0	0.0
Pallid bat	<i>Antrozous pallidus</i>	FS, SSC	1.1	4.0	1.1	1.9	3.1	0.1
Ringtail	<i>Bassariscus astutus</i>	SFP	1.1	4.0	1.1	1.9	3.1	0.1
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	FE, SCE, SSC	0.2	0.0	0.1	1.2	0.0	0.0
San Diego pocket mouse	<i>Chaetodipus fallax</i>	SSC	1.1	0.0	0.6	1.2	1.1	0.0
Small-footed myotis	<i>Myotis ciliolabrum</i>	FS	1.1	4.0	1.1	0.0	3.1	0.1
Southern grasshopper mouse	<i>Onychomys torridus</i>	FS, SSC	1.1	0.0	1.1	1.9	3.1	0.1
Spotted bat	<i>Euderma maculatum</i>	FS, SSC	1.1	4.0	1.1	1.9	0.0	0.1

Common Name	Species Name	Status	Annual Grassland	Coastal Oak Woodland	Coastal Scrub	Desert Wash	Mixed Chaparral	Valley Foothill Riparian
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	FT, ST	1.1	0.0	0.6	0.0	0.0	0.0
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FS, SSC	1.1	4.0	1.1	1.9	3.1	0.1
Western mastiff bat	<i>Eumops perotis</i>	FS, SSC	1.1	4.0	1.1	1.9	3.1	0.1
Western red bat	<i>Lasiurus blossevillei</i>	SSC	1.1	3.9	0.7	0.0	1.3	0.1
Western yellow bat	<i>Lasiurus xanthinus</i>	SSC	0.0	4.0	0.0	1.9	0.0	0.1
White-eared pocket mouse	<i>Perognathus alticolus</i>	FS, SSC	0.0	0.0	0.0	0.0	0.4	0.0
Yuma myotis	<i>Myotis yumanensis</i>	FS	1.1	4.0	1.1	1.9	3.1	0.1

Source: Caltrans (2024b)

Notes: FCE = federal candidate endangered, FCT = federal candidate threatened, FE = federally endangered, FS = federally sensitive (USFS and/or BLM sensitive), FT = federally threatened, SCE = state candidate endangered, SE = state endangered, SFP = state fully protected, SFS = state fire sensitive, SR = state rare, SSC = species of special concern (CDFW), ST = state threatened

5.3. Estimated Aquatic Resources Impacts

The quantitative impacts presented in this document are estimates, pursuant to the SAMNA model and Caltrans riparian landcover dataset. Specific aquatic resource impacts will be assessed in the future as part of each transportation project's environmental studies.

Below, estimated aquatic resource impacts are presented for the HUC-8 sub-basins that make up the GAI. Aquatic resources impacts are categorized as potential impacts on threatened and endangered fish, wetlands, and non-wetland waters. Coastal wetlands, riparian habitat, and vernal pools are also discussed. Refer to Appendix H, *Aquatic Resource Locations*, for maps depicting the location and extent of wetlands and non-wetland waters in the GAI. Riparian habitat is described in Section 2.19.

5.3.1. Estimated Impacts on Threatened and Endangered Fish Species

Using the methods described in Section 5.1.1, impacts on threatened and endangered fish species habitat were estimated for the 68 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, 13 are forecast to affect 2.6 acres of aquatic species of threatened and endangered fish habitat (Table 5-7; Caltrans 2024e).

Table 5-7. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)^{a,b,c}

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Southern Steelhead DPS	Mohave Tui Chub	Santa Ana Sucker	Tidewater Goby	Unarmored Threespine Stickleback	Total ^d
San Gabriel	18070106	5	0.0	1.8	0.1	1.3	0.0	1.8
Santa Ana	18070203	8	0.0	0.0	0.1	0.0	0.8	0.8
Total	Not applicable	13	0.0	1.8	0.1	1.3	0.8	2.6

^a Threatened and endangered fish species habitat impacts are forecast by the SAMNA Reporting Tool.

^b The SAMNA forecasts impacts on threatened and endangered fish habitat for 2 of the 5 HUC-8s in the GAI.

^c Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.

^d For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the total impact across all habitat types is provided.

Estimated Impacts on Threatened and Endangered Fish Habitat in the Coastal Zone

Using the methods described in Section 5.1.1, impacts on threatened and endangered fish habitat within the coastal zone were estimated for the 68 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, 2 are forecast to affect 1.5 acres of threatened and endangered fish habitat within the coastal zone that is under the jurisdiction of CCC (Table 5-8; Caltrans 2024e). These impacts are limited to the San Gabriel sub-basin.

Table 5-8. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat within the Coastal Zone of the GAI (acres)^{a,b}

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Mohave Tui Chub	Tidewater Goby	Total ^c
San Gabriel	18070106	2	1.5	1.3	1.5
Total	Not applicable	2	1.5	1.3	1.5

^a Threatened and endangered fish species habitat impacts are forecast by the SAMNA Reporting Tool.

^b The SAMNA forecasts impacts on threatened and endangered fish habitat in the coastal zone for 1 of the 5 HUC-8s in the GAI.

^c For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the total impact across all habitat types is provided.

5.3.2. Estimated Impacts on Wetlands

Using the methods described in Section 5.1.1, impacts on wetlands were estimated for the 68 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, 7 are forecast to affect 0.4 acre of wetland habitat in the GAI, comprising less than 0.1 acre of estuarine and marine wetland habitat and 0.4 acre of freshwater forested/shrub wetland habitat (Table 5-9; Caltrans 2024f).

Note that the SAMNA's terrestrial habitat layers include wetland types (for example, freshwater emergent wetland, saline emergent wetland, and wet meadow, as shown in Table 2-3). However, wetland forecasts based on the SAMNA's wetland layer are considered more accurate than wetland habitat forecasts based on the SAMNA's terrestrial habitat layers. Therefore, the wetland estimates below are based solely on the SAMNA's wetland data layer (Caltrans 2024f).

Table 5-9. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Estuarine and Marine Wetland	Freshwater Forested/Shrub Wetland	Total ^b
Aliso-San Onofre	18070301	2	<0.1	<0.1	<0.1
San Gabriel	18070106	4	<0.1	0.4	0.4
Santa Ana	18070203	1	<0.1	<0.1	0.4
Total^{b,c}	Not applicable	7	<0.1	0.4	0.4

^a The SAMNA forecasts impacts on wetlands for 3 of the 5 HUC-8s in the GAI.

^b Totals may be different on account of rounding.

^c Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect wetlands.

Estimated Impacts on Wetlands in the Coastal Zone

As pointed out in Section 2.18.3, Caltrans did not find any coastal wetland spatial data for the GAI. Further, no species or other element from the SAMNA data layers was found to be a suitable proxy for coastal wetlands. Nevertheless, for the purposes of this RAMNA, it is assumed that wetland impacts forecast within the coastal zone would be evaluated under the CCC's coastal wetland impact standards. Hence, of the 68 SHOPP transportation projects evaluated, 1 is forecast to affect less than 0.1 acre of estuarine and marine wetland habitat in the GAI (Table 5-10). These impacts are limited to the Aliso-San Onofre sub-basin.

As pointed out in Section 2.18.3, CCC would likely identify as present more coastal wetlands than are included in the SAMNA's wetland layer, which is based on the National Wetland Inventory. Consequently, it is possible that the forecast presented in Table 5-10 is an underestimate.

Table 5-10. Summary of Estimated SHOPP Impacts on Wetlands in the Coastal Zone of the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Estuarine and Marine Wetland	Total
Aliso-San Onofre	18070301	1	<0.1	<0.1
Total	Not applicable	1	<0.1	<0.1

^a The SAMNA forecasts impacts on wetlands for 1 of the 5 HUC-8s in the GAI.

5.3.3. Estimated Impacts on Non-wetland Waters

Using the methods described in Section 5.1.1, impacts on non-wetland waters were estimated for the 68 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 68 SHOPP transportation projects evaluated, 21 are forecast to affect 4.0 acres of non-wetland waters in the GAI, comprising

0.7 acre of canal/ditch, 1.3 acres of sea/ocean, 1.9 acres of stream/river, and 0.1 acre of wash habitat (Table 5-11; Caltrans 2024g).

Table 5-11. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Canal/Ditch	Sea/Ocean	Stream/River	Wash	Total ^b
Aliso-San Onofre	18070301	3	<0.1	0.0	0.6	0.0	0.6
Newport Bay	18070204	1	0.2	0.0	0.0	0.0	0.2
San Gabriel	18070106	6	<0.1	1.3	0.5	0.0	1.8
Santa Ana	18070203	9	0.1	0.0	0.8	0.1	1.0
Seal Beach	18070201	2	0.4	0.0	<0.1	0.0	0.4
Total^{b,c}	Not applicable	21	0.7	1.3	1.9	0.1	4.0

^a The SAMNA forecasts impacts on wetlands for all 5 HUC-8s in the GAI.

^b Totals may be different on account of rounding.

^c Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect non-wetland waters.

Estimated Impacts on Non-wetland Waters in the Coastal Zone

Estimated impacts on non-wetland waters from planned SHOPP transportation projects in the GAI that are in the coastal zone and under the jurisdiction of the CCC are shown in Table 5-12. A total of 1.6 acres of impact on coastal non-wetland waters is anticipated from 2 projects, consisting of 1.3 acres of impact on sea/ocean habitat and 0.3 acre of impact on stream/river habitat. These impacts are limited to the San Gabriel sub-basin.

Table 5-12. Summary of Estimated SHOPP Project Impacts on Non-wetland Waters in the Coastal Zone of the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Sea/Ocean	Stream/River	Total
San Gabriel	18070106	2	1.3	0.3	1.6
Total	Not applicable	2	1.3	0.3	1.6

^a The SAMNA forecasts impacts on non-wetland waters within the coastal zone for 1 of the 5 HUC-8s in the GAI.

5.3.4. Estimated Impacts on Areas of Potential Riparian Function

Potential impacts on areas of potential riparian function were estimated using the statewide riparian landcover dataset developed for Caltrans by SFEI (Section 1.4.1; Caltrans 2023a). The analysis consisted of an intersection of assumed transportation project footprints for the 68 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, with the riparian landcover

dataset. Given uncertainties in the dataset, results are shown in two ways, based on slope and based on vegetation. Vegetation polygon features used for the analysis are consistent with the SAMNA. Of the 68 SHOPP transportation projects evaluated, 44 could potentially affect 1.04 to 40.31 acres of areas with potential riparian function (Table 5-13).

Table 5-13. Summary of Estimated SHOPP Project Impacts on Areas of Potential Riparian Function in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Slope-based Estimate (acres) ^b	Vegetation Process-based Estimate (acres) ^b
Aliso-San Onofre	18070301	7	0.02	6.59
Newport Bay	18070204	4	<0.01	1.59
San Gabriel	18070106	16	0.68	7.48
Santa Ana	18070203	18	0.34	17.78
Seal Beach	18070201	3	0.00	6.86
Total^{c,d}	Not applicable	44	1.04	40.31

^a Impacts were estimated for all 5 HUC-8s in the GAI.

^b Vegetation polygon features used for the analysis are consistent with the SAMNA.

^c Totals may be different on account of rounding.

^d Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect areas of potential riparian function.

Estimated Impacts on Areas of Potential Riparian Function in the Coastal Zone

Potential impacts on areas of potential riparian function from planned SHOPP transportation projects in the GAI that are in the coastal zone are shown in Table 5-14. Of the 68 SHOPP transportation projects evaluated, 2 could potentially affect 0.10 to 0.87 acre of areas with potential riparian function in the coastal zone (Table 5-14). These impacts are limited to the Aliso-San Onofre and San Gabriel sub-basins.

Table 5-14. Summary of Estimated SHOPP Project Impacts on Areas of Potential Riparian Function in the Coastal Zone of the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Slope-based estimate (acres) ^b	Vegetation process-based estimate (acres) ^b
Aliso-San Onofre	18070301	1	0.10	0.10
San Gabriel	18070106	1	0.00	0.77
Total^{c,d}	Not applicable	2	0.10	0.87

^a Two of the 5 HUC-8s in the GAI overlap the coastal zone.

^b Vegetation polygon features used for the analysis are consistent with the SAMNA.

^c Totals may be different on account of rounding.

^d Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect areas of potential riparian function.

5.3.5. Estimated Impacts on Vernal Pools

The SAMNA does not directly estimate vernal pool impacts, but vernal pool impacts can be estimated by proxy using the SAMNA vernal pool crustacean habitat impact forecast from the SAMNA's terrestrial layer. Critical habitat in the GAI for two vernal pool invertebrate species, Riverside fairy shrimp and San Diego fairy shrimp, is shown on Figure 2-8, and available vernal pool location information is shown in Figure 2-18. Of the 68 SHOPP transportation projects evaluated, 3 would result in impacts on 0.5 acre of Riverside fairy shrimp habitat and 0.3 acre of San Diego fairy shrimp habitat in the GAI (Table 5-15; Caltrans 2024d).

Table 5-15. Summary of Estimated SHOPP Project Impacts on Vernal Pool Habitat in the GAI (acres)^a

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Riverside Fairy Shrimp	San Diego Fairy Shrimp	Total
Aliso-San Onofre	18070301	3	0.4	0.3	0.4
Newport Bay	18070204	1	0.1	0.0	0.1
Total^{b,c}	Not applicable	3	0.5	0.3	0.5

^a The SAMNA forecasts impacts for 2 of the 5 HUC-8s in the GAI.

^b Totals may be different on account of rounding.

^c Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect non-wetland waters.

Estimated Impacts on Vernal Pools in the Coastal Zone

Of the 68 SHOPP transportation projects evaluated, none would result in impacts on vernal pool species in the GAI that are in the coastal zone and under the jurisdiction of the CCC.

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6. BENEFITING TRANSPORTATION PROJECT CONSIDERATIONS

Benefiting transportation projects have delivery schedules that would likely benefit from advance mitigation credits. Potentially benefiting transportation projects are identified in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, for advance mitigation planning to guide advance mitigation project scoping. Actual benefiting transportation projects will be determined in the future. Caltrans and relevant natural resource regulatory agencies will evaluate the appropriateness of using advance mitigation credits on a case-by-case basis as part of each future transportation project's permitting and technical assistance processes.

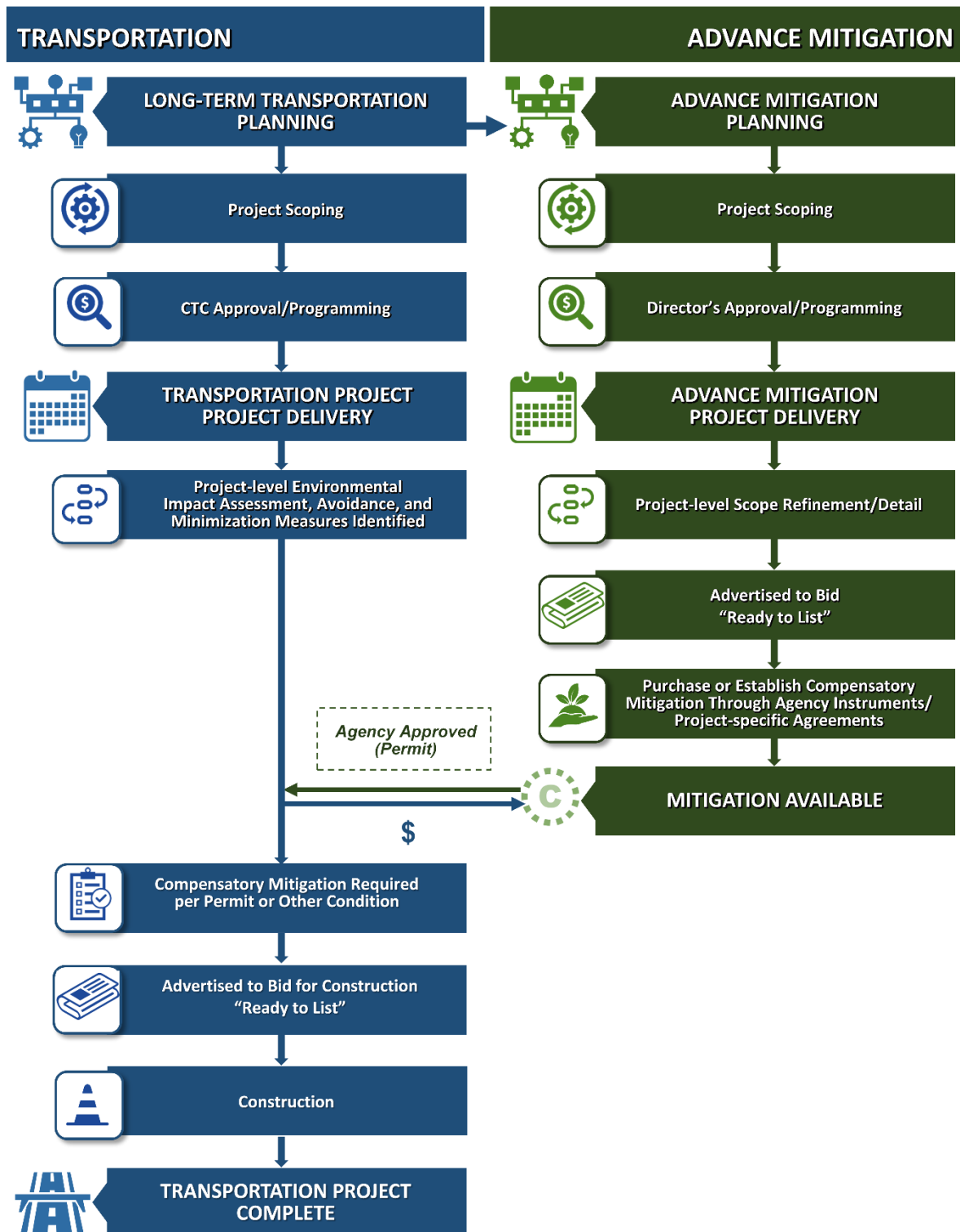
In this chapter, Caltrans summarizes the scheduling considerations and constraints of potential benefiting transportation projects in order to inform advance mitigation project schedules. A time frame for the forecast advance mitigation needs is provided and analyzed. The potentially benefiting transportation projects' acceleration priorities are documented in this chapter.

6.1. Why Timing Is Important

Broadly speaking, an advance mitigation project is an SHC § 800.6(a)-authorized activity that consists of (1) purchasing compensatory mitigation that has been previously approved by the natural resource regulatory agencies through a conservation bank, mitigation bank, HCP/NCCP, or in-lieu fee program or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance (see Table 1-1). Elaborated upon in Chapter 9, *Assessment of Authorized Activities*, the time it takes to deliver each authorized activity varies; however, purchasing compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans transportation projects must have permits and compensatory mitigation lined up before advertising and selecting a contractor to bid upon and construct a transportation project (Figure 6-1). Hence, for advance mitigation project scoping, the Caltrans District's nomination of a specific advance mitigation project type will be contingent, in part, on the anticipated timing of the potentially benefiting transportation project impacts. This is because, to benefit transportation projects as intended, the compensatory mitigation purchased or established through an advance mitigation project will need to be available to meet actual transportation project permit conditions established through an environmental study and document process undertaken prior to the transportation project incurring impacts (Figure 6-1).

Figure 6-1. Timing Advance Mitigation with Transportation Project Delivery



The date when a Caltrans potential transportation project is expected to be Ready to List¹ is an appropriate estimate for identifying when a Caltrans advance mitigation project will need to deliver compensatory mitigation to a potential benefiting transportation project. Approved credits must be in-hand before their offset value, with natural resource regulatory agency approval, may be applied to a transportation project.

6.2. Patterns of Estimated Potential Impacts

Given that the planning horizon for this assessment covers the 2023/24 through 2032/33 fiscal years, and that some of the transportation projects may have already gone to bid, it is necessary to consider which transportation projects:

- would need to acquire compensatory mitigation before the AMP can deliver, and hence the AMP cannot feasibly supply compensatory mitigation credits on the required schedule;
- would need compensatory mitigation delivered in a nearer time frame, which may favor seeking already existing credits as an AMP advance mitigation project scope; or
- would need compensatory mitigation farther out in time and, if so, whether there is time to establish new compensatory mitigation.

Initial estimated impact patterns are based on the planned SHOPP transportation project information provided in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*.

- As shown in Tables 6-1 to 6-3 and on Figures 6-2 to 6-4, when the SHOPP transportation projects identified previously have their forecast terrestrial species of mitigation need impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:
 - Compensatory mitigation needs within the Mojave Desert Ecoregion Section are concentrated on arroyo toad in fiscal year 2025/26.
 - Compensatory mitigation needs within the Southern California Coast Ecoregion Section are concentrated on arroyo toad in fiscal years 2026/27 and 2027/28 and on coastal California gnatcatcher in fiscal years 2025/26, 2026/27, and 2032/33.
 - Compensatory mitigation needs within the Southern California Mountains and Valleys are concentrated on arroyo toad in fiscal years 2023/24, 2028/29, 2029/30, 2030/31, 2031/32, and 2032/33; and coastal California gnatcatcher in

¹ Ready to List is a named milestone within the Caltrans project delivery process. It is the point when a complete package is ready for contractors to bid on and a transportation project has been approved to be advertised to bid for construction.

fiscal years 2023/24, 2028/29, and 2030/31; with lesser impacts to least Bell's vireo in fiscal year 2032/33.

- As shown in Tables 6-4 through 6-8 and on Figures 6-5 through 6-9, when the SHOPP transportation projects identified previously have their aquatic resource impacts examined relative to their expected advertising date, the compensatory mitigation needs for the 5 HUC-8 sub-basins are spread throughout the 10-year planning horizon, as described below:
 - Compensatory mitigation needs in the Aliso-San Onofre sub-basin are focused on areas of potential riparian function in fiscal years 2023/24, 2024/25, 2025/26, 2026/27, 2027/28, and 2030/31; non-wetland waters in fiscal years 2023/24 and 2026/27; and vernal pools in fiscal years 2025/26, 2026/27, and 2027/28; with lesser impacts to wetlands in fiscal years 2024/25 and 2030/31 and minor impacts to areas of potential riparian function in fiscal year 2031/32.
 - Compensatory mitigation needs in the Newport Bay sub-basin are focused on areas of potential riparian function in fiscal years 2023/24, 2024/25, 2025/26, 2027/28, and 2028/29; with lesser impacts to vernal pools in fiscal year 2027/28 and to non-wetland waters in fiscal year 2028/29; and minor impacts to areas of potential riparian function in fiscal year 2031/32.
 - Compensatory mitigation needs in the San Gabriel sub-basin are focused on areas of potential riparian function throughout the 10 years, except for fiscal year 2025/26; fish habitat and non-wetland waters in fiscal years 2023/24, 2024/25, 2025/26, 2027/28, 2030/31, and 2031/32; with lesser impacts to wetlands in fiscal years 2028/29, 2030/31, and 2031/32.
 - Compensatory mitigation needs in the Santa Ana sub-basin are focused on areas of potential riparian function throughout the 10 years, except for fiscal years 2024/25 and 2026/27, and on fish habitat and non-wetland waters in fiscal years 2023/24, 2025/26, 2027/28, 2029/30, and 2030/31; with minimal impacts to wetlands in fiscal year 2025/26.
 - Compensatory mitigation needs in the Seal Beach sub-basin are focused on non-wetland waters and areas of potential riparian function in fiscal years 2025/26 and 2026/27, with minor impacts to areas of potential riparian function in fiscal year 2031/32.

Spatially, these transportation projects are distributed throughout the GAI (Figure 6-10).

Table 6-1. Mojave Desert Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need in the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Arroyo Toad: Number of Transportation Projects	Arroyo Toad: Estimated Potential Impacts (acres)	Coastal California Gnatcatcher: Number of Transportation Projects	Coastal California Gnatcatcher: Estimated Potential Impacts (acres)	Least Bell's Vireo: Number of Transportation Projects	Least Bell's Vireo: Estimated Potential Impacts (acres)
2023/24	0	0.0	0	0.0	0	0.0
2024/25	0	0.0	0	0.0	0	0.0
2025/26	1	7.3	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0
2029/30	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	0	0.0	0	0.0
Total^a	1	7.3	0	0.0	0	0.0

^a Total may be different on account of rounding.

Figure 6-2. Mojave Desert Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need in the GAI, by Transportation Project Delivery Year

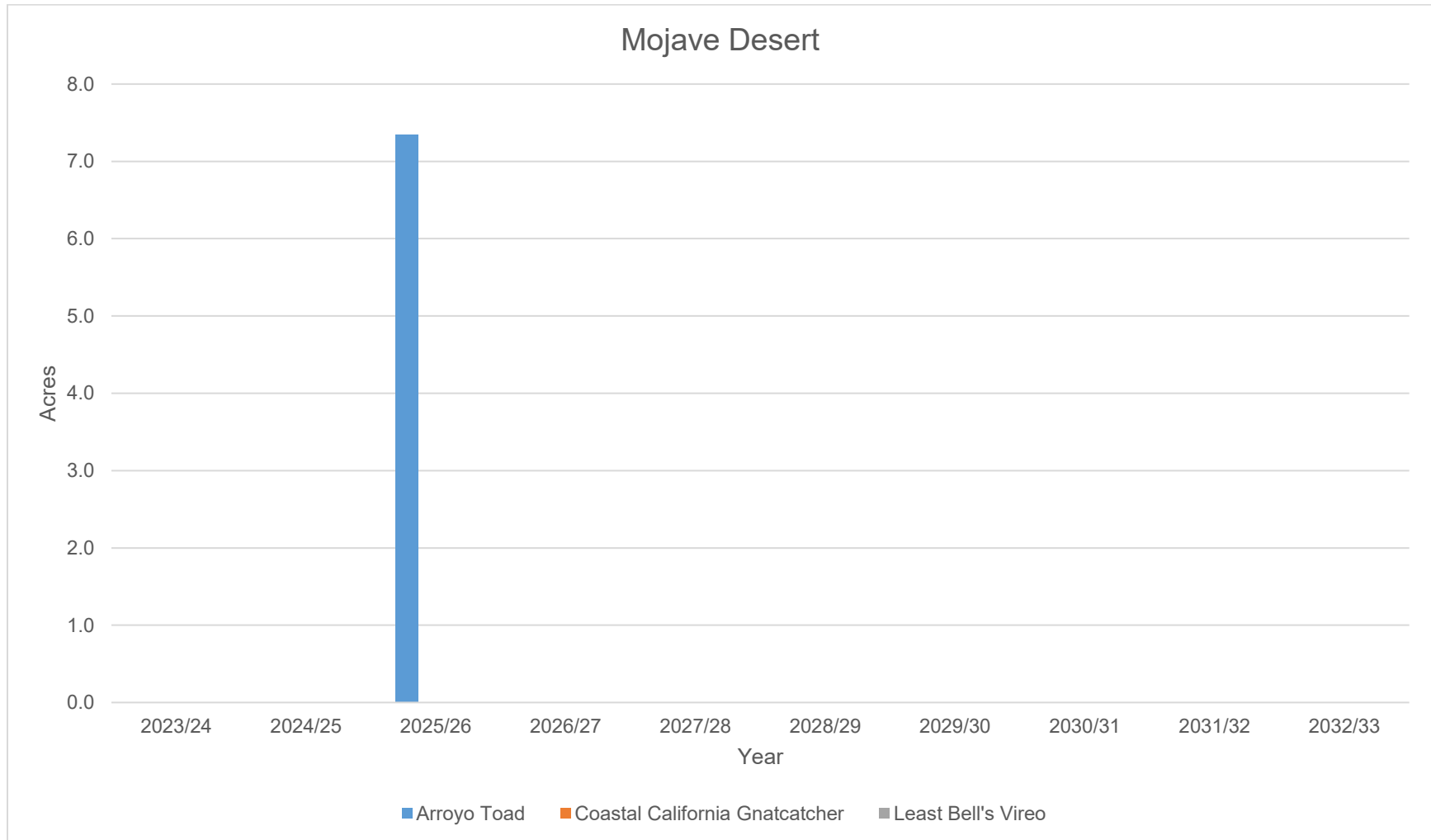


Table 6-2. Southern California Coast Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need in the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Arroyo Toad: Number of Transportation Projects	Arroyo Toad: Estimated Potential Impacts (acres)	Coastal California Gnatcatcher: Number of Transportation Projects	Coastal California Gnatcatcher: Estimated Potential Impacts (acres)	Least Bell's Vireo: Number of Transportation Projects	Least Bell's Vireo: Estimated Potential Impacts (acres)
2023/24	0	0.0	0	0.0	0	0.0
2024/25	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	2	0.6	0	0.0
2026/27	1	0.2	1	0.6	0	0.0
2027/28	1	<0.1	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0
2029/30	0	0.0	0	0.0	0	0.0
2030/31	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0
2032/33	0	0.0	1	0.2	0	0.0
Total^a	2	0.3	4	1.3	0	0.0

^a Total may be different on account of rounding.

Figure 6-3. Southern California Coast Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need in the GAI, by Transportation Project Delivery Year

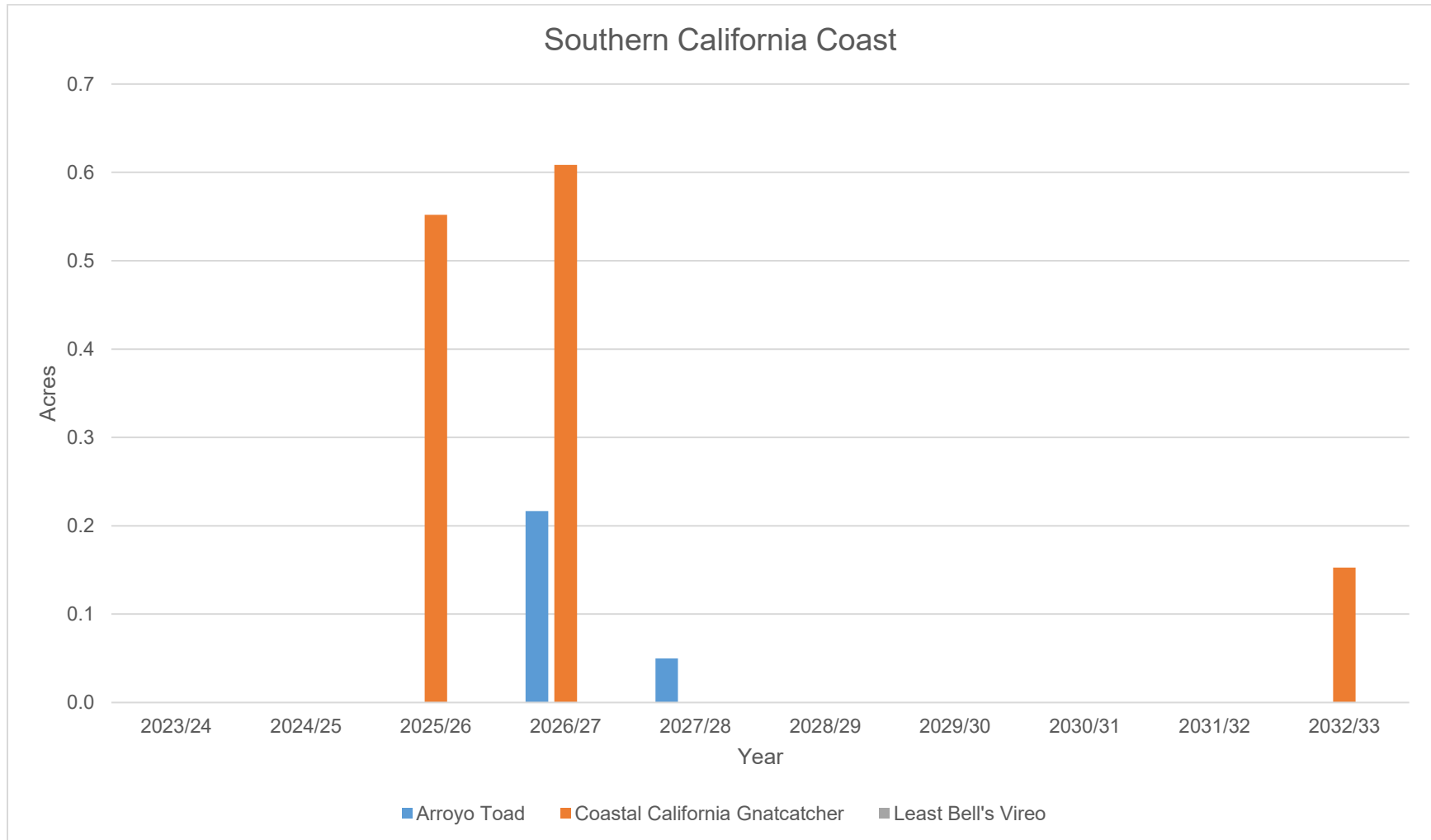


Table 6-3. Southern California Mountains and Valleys Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need in the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Arroyo Toad: Number of Transportation Projects	Arroyo Toad: Estimated Potential Impacts (acres)	Coastal California Gnatcatcher: Number of Transportation Projects	Coastal California Gnatcatcher: Estimated Potential Impacts (acres)	Least Bell's Vireo: Number of Transportation Projects	Least Bell's Vireo: Estimated Potential Impacts (acres)
2023/24	3	1.4	1	3.6	0	0.0
2024/25	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0
2028/29	1	0.7	1	0.1	0	0.0
2029/30	1	1.1	0	0.0	0	0.0
2030/31	1	1.1	1	0.1	0	0.0
2031/32	1	0.2	0	0.0	0	0.0
2032/33	1	0.1	0	0.0	1	0.1
Total^a	8	4.5	3	3.7	1	0.1

^a Total may be different on account of rounding.

Figure 6-4. Southern California Mountains and Valleys Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need in the GAI, by Transportation Project Delivery Year

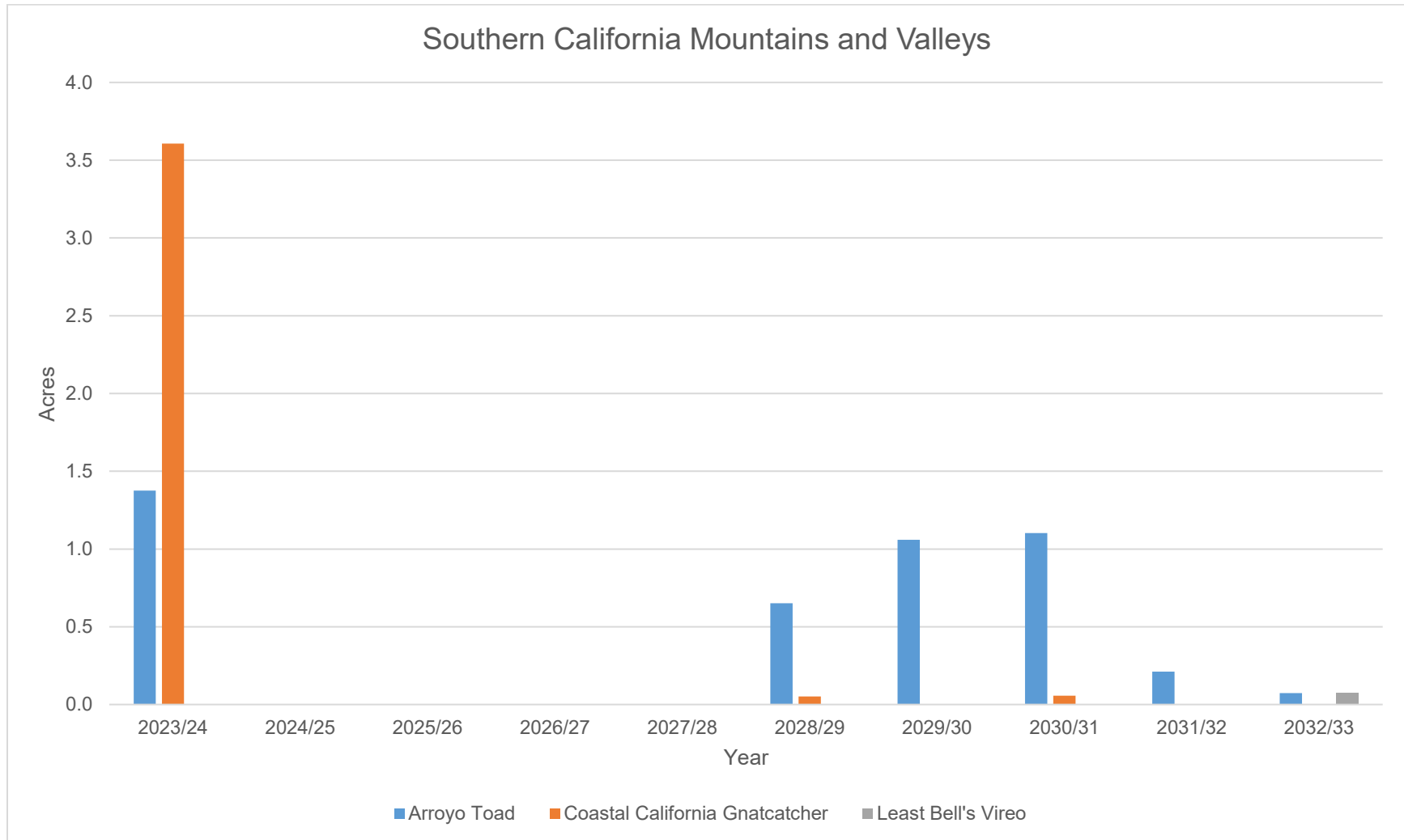


Table 6-4. Aliso-San Onofre Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Adver- tisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Non-Wetland Waters: Number of Transportation Projects	Non-Wetland Waters: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transportation Projects	Vernal Pool: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Slope-based Riparian: Estimated Potential Impacts (acres)	Vegetation- based Riparian: Estimated Potential Impacts (acres)
2023/24	0	0.0	0	0.0	1	0.4	0	0.0	2	0.0	5.7
2024/25	0	0.0	1	<0.1	1	<0.1	0	0.0	1	0.0	0.1
2025/26	0	0.0	0	0.0	0	0.0	1	0.1	1	0.0	0.2
2026/27	0	0.0	0	0.0	1	0.2	1	0.3	1	<0.1	0.5
2027/28	0	0.0	0	0.0	0	0.0	1	<0.1	1	0.0	<0.1
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2030/31	0	0.0	1	<0.1	0	0.0	0	0.0	1	0.0	0.1
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Total^a	0	0.0	2	<0.1	3	0.6	3	0.4	7	<0.1	6.6

^a Totals may be different on account of rounding.

Figure 6-5. Aliso-San Onofre Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

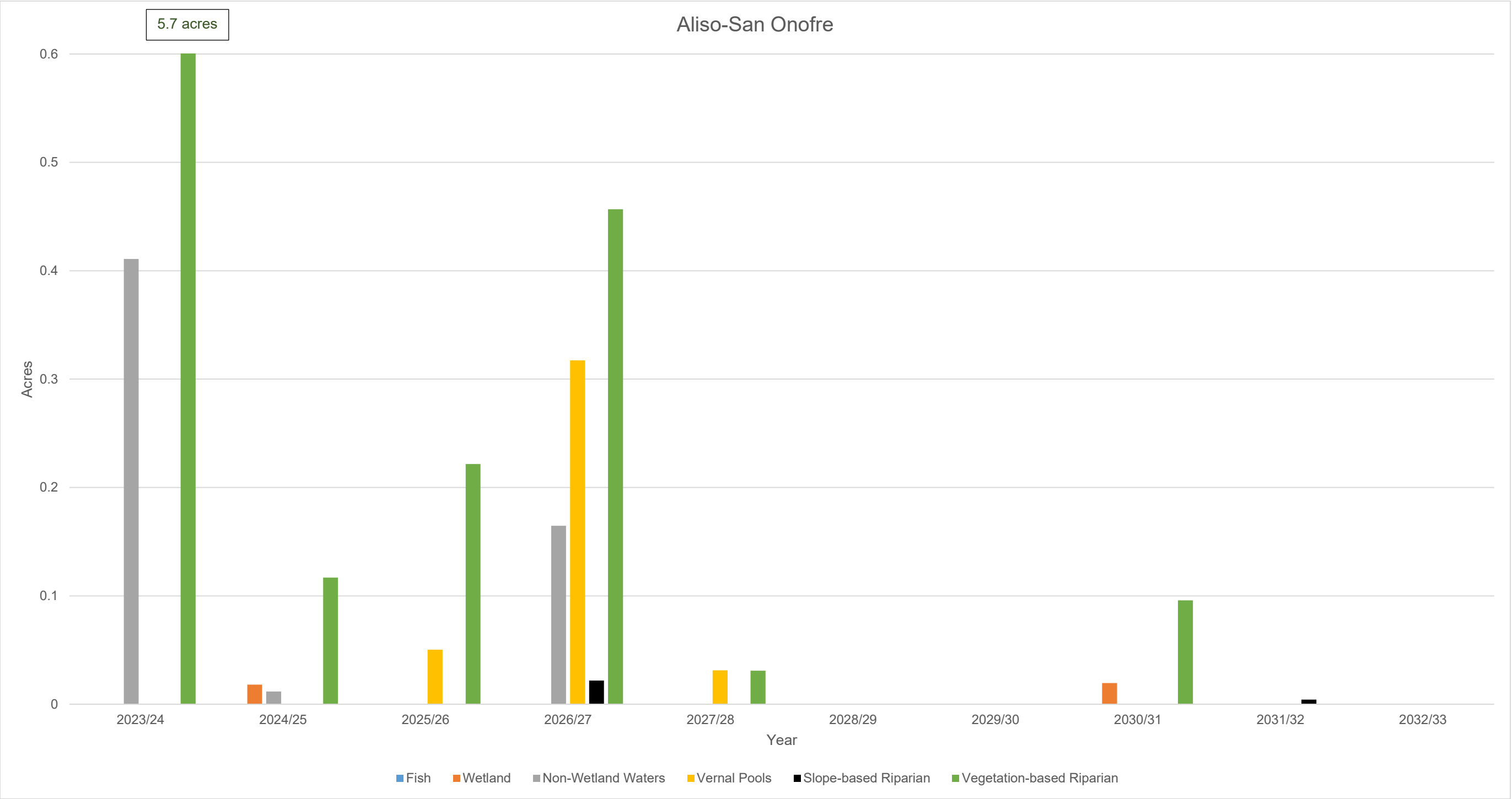


Table 6-5. Newport Bay Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Adver- tisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Non-Wetland Waters: Number of Transportation Projects	Non-Wetland Waters: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transportation Projects	Vernal Pool: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Slope-based Riparian: Estimated Potential Impacts (acres)	Vegetation- based Riparian: Estimated Potential Impacts (acres)
2023/24	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	<0.1
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0.1
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0.2
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2027/28	0	0.0	0	0.0	0	0.0	1	0.1	1	<0.1	0.7
2028/29	0	0.0	0	0.0	1	0.2	0	0.0	1	0.0	0.8
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Total^a	0	0.0	0	0.0	1	0.2	1	0.1	4	<0.1	1.6

^a Total may be different on account of rounding.

Figure 6-6. Newport Bay Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

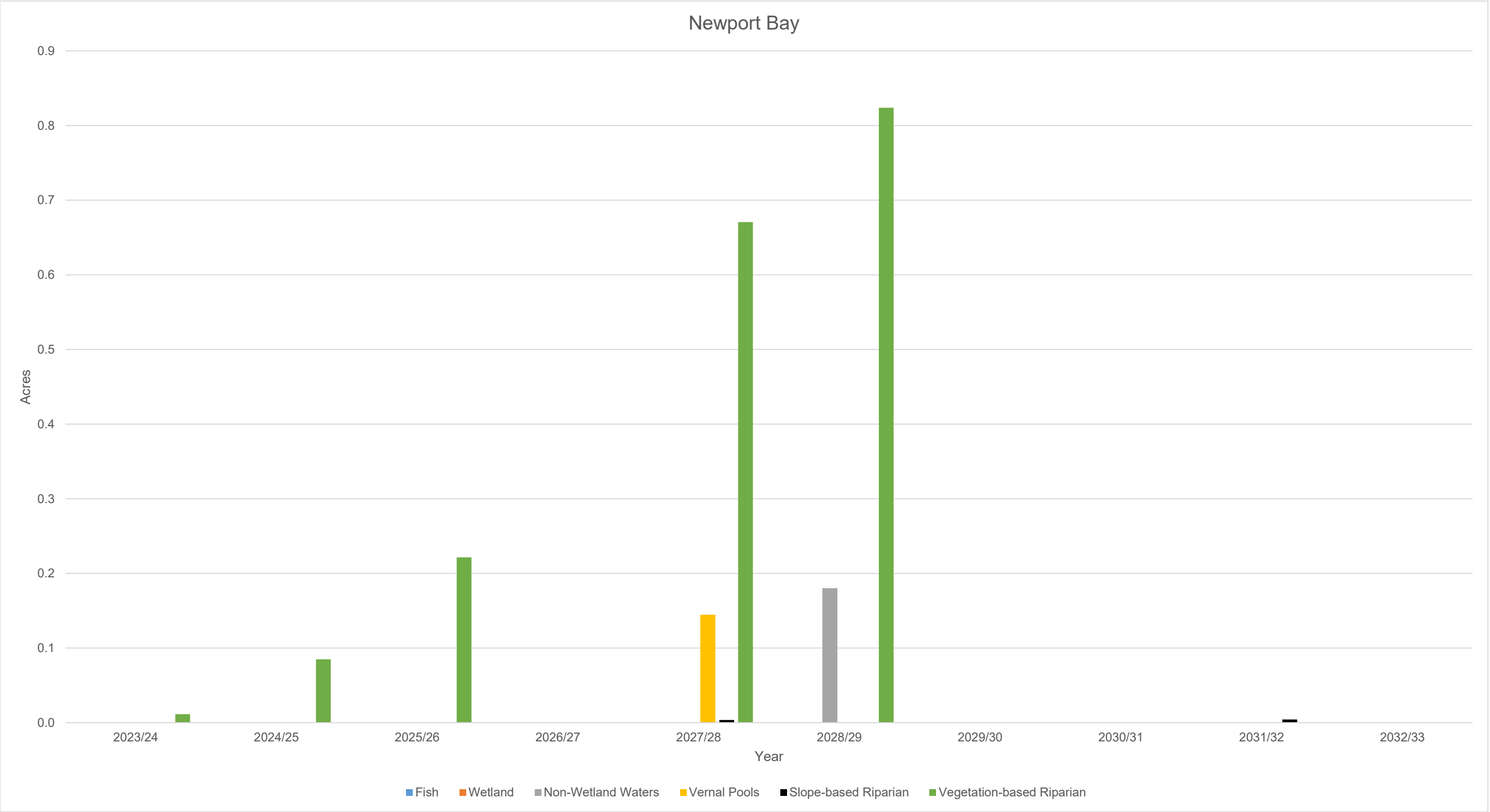


Table 6-6. San Gabriel Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Adver- tisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Non-Wetland Water: Number of Transportation Projects	Non-Wetland Water: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transportation Projects	Vernal Pool: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Slope-based Riparian: Estimated Potential Impacts (acres)	Vegetation- based Riparian: Estimated Potential Impacts (acres)
2023/24	0	0.0	0	0.0	1	<0.1	0	0.0	1	0.0	0.7
2024/25	1	0.3	0	0.0	1	0.3	0	0.0	1	0.0	0.8
2025/26	1	1.3	0	0.0	1	1.3	0	0.0	0	0.0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0.1
2027/28	1	0.1	0	0.0	1	0.1	0	0.0	2	<0.1	1.4
2028/29	0	0.0	1	<0.1	0	0.0	0	0.0	1	0.1	0.9
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0	0.6
2030/31	1	0.1	2	0.2	1	0.1	0	0.0	3	0.3	1.1
2031/32	1	0.1	1	0.2	1	0.1	0	0.0	1	0.2	0.1
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0	1.8
Total^a	5	1.8	4	0.4	6	1.8	0	0.0	16	0.7	7.5

^a Total may be different on account of rounding.

Figure 6-7. San Gabriel Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

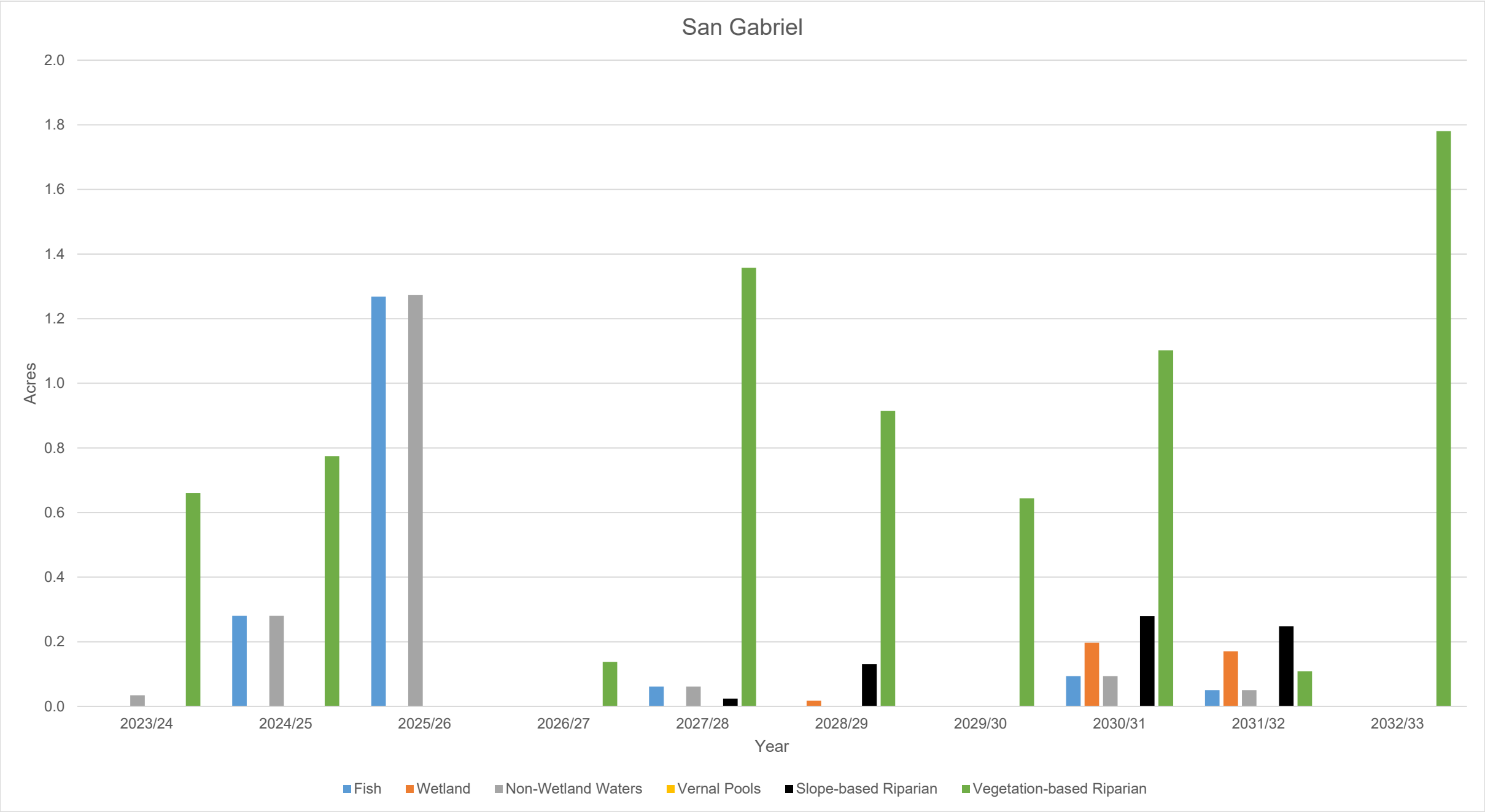


Table 6-7. Santa Ana Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Adver- tise- ment Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Non-Wetland Water: Number of Transportation Projects	Non-Wetland Water: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transportation Projects	Vernal Pool: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Slope-based Riparian: Estimated Potential Impacts (acres)	Vegetation- based Riparian: Estimated Potential Impacts (acres)
2023/24	2	0.1	0	0.0	2	0.1	0	0.0	3	0.1	2.0
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2025/26	2	0.4	1	<0.1	2	0.4	0	0.0	3	<0.1	4.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2027/28	1	0.1	0	0.0	2	0.2	0	0.0	3	0.2	1.8
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0	0.9
2029/30	1	0.1	0	0.0	1	0.1	0	0.0	2	0.0	1.3
2030/31	2	0.2	0	0.0	2	0.3	0	0.0	3	<0.1	7.3
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0.2
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	1	<0.1	0.2
Total^a	8	0.8	1	<0.1	9	1.0	0	0.0	18	0.3	17.8

^a Total may be different on account of rounding.

Figure 6-8. Santa Ana Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

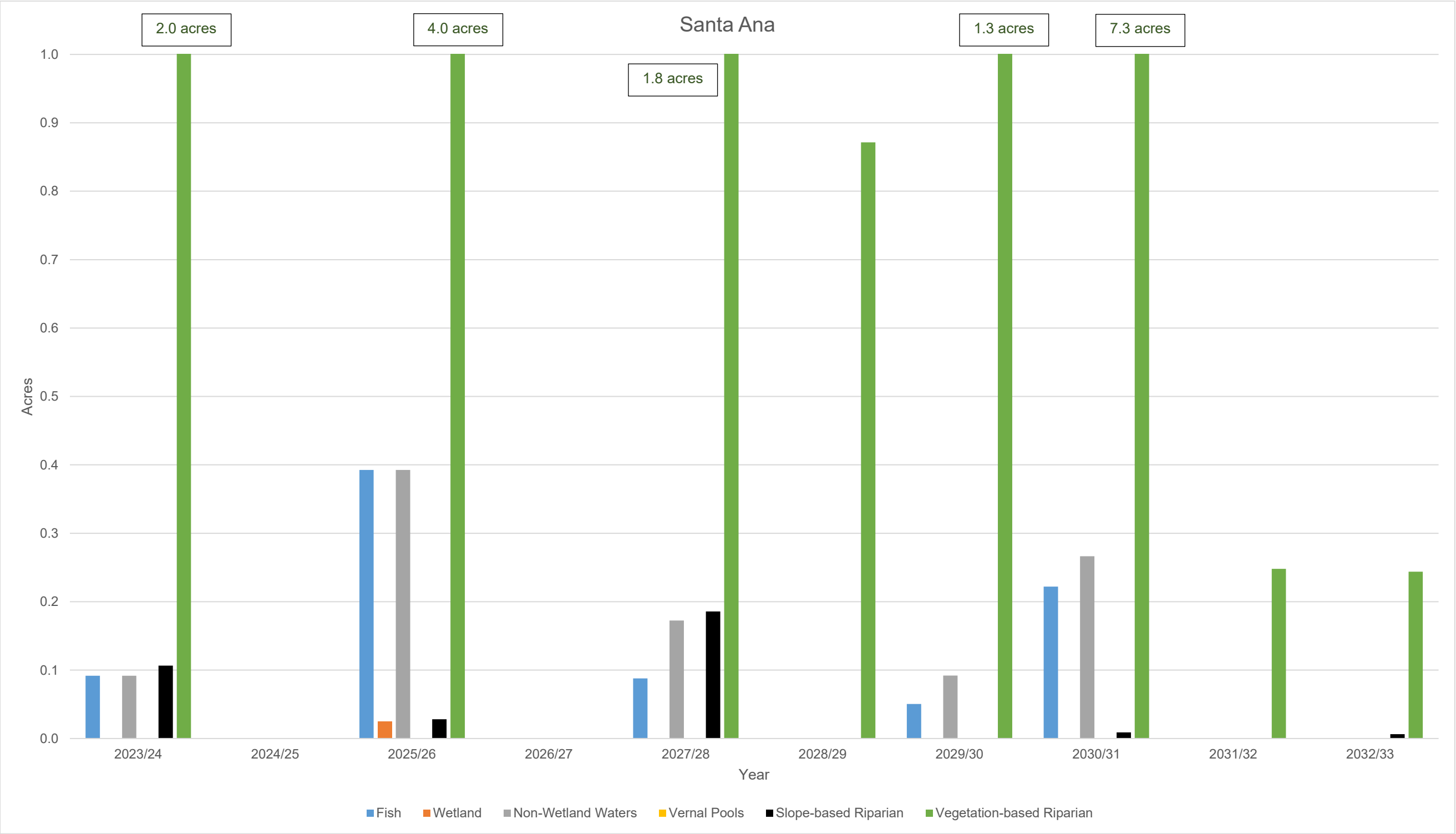


Table 6-8. Seal Beach Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Adver- tise- ment Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Non-Wetland Water: Number of Transportation Projects	Non-Wetland Water: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transportation Projects	Vernal Pool: Estimated Potential Impacts (acres)	Riparian: Number of Transportation Projects	Slope-based Riparian: Estimated Potential Impacts (acres)	Vegetation- based Riparian: Estimated Potential Impacts (acres)
2023/24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2025/26	0	0.0	0	0.0	1	0.4	0	0.0	1	0.0	6.8
2026/27	0	0.0	0	0.0	1	<0.1	0	0.0	1	0.0	<0.1
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	<0.1
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0
Total^a	0	0.0	0	0.0	2	0.4	0	0.0	3	0.0	6.9

^a Total may be different on account of rounding.

Figure 6-9. Seal Beach Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

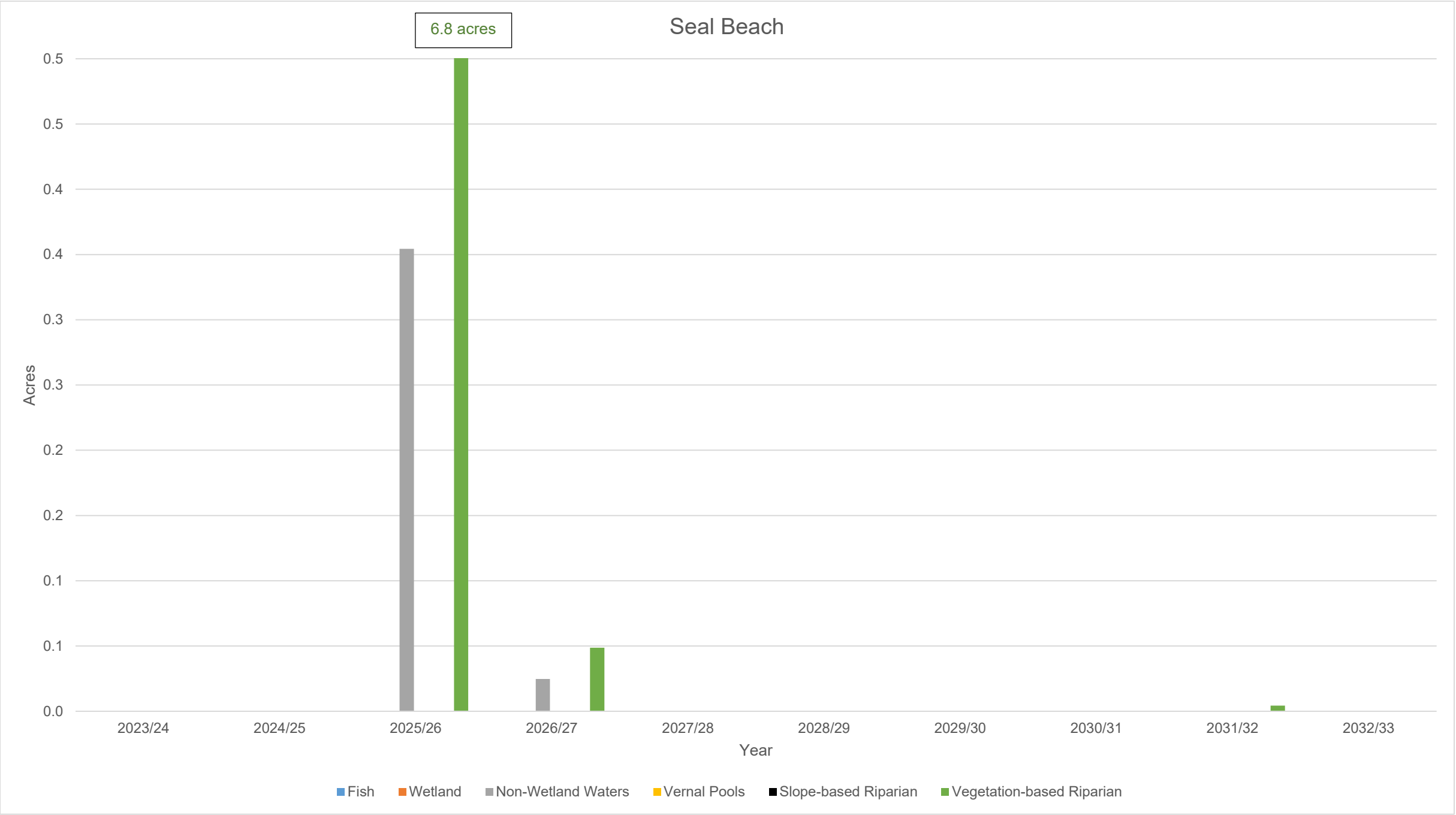
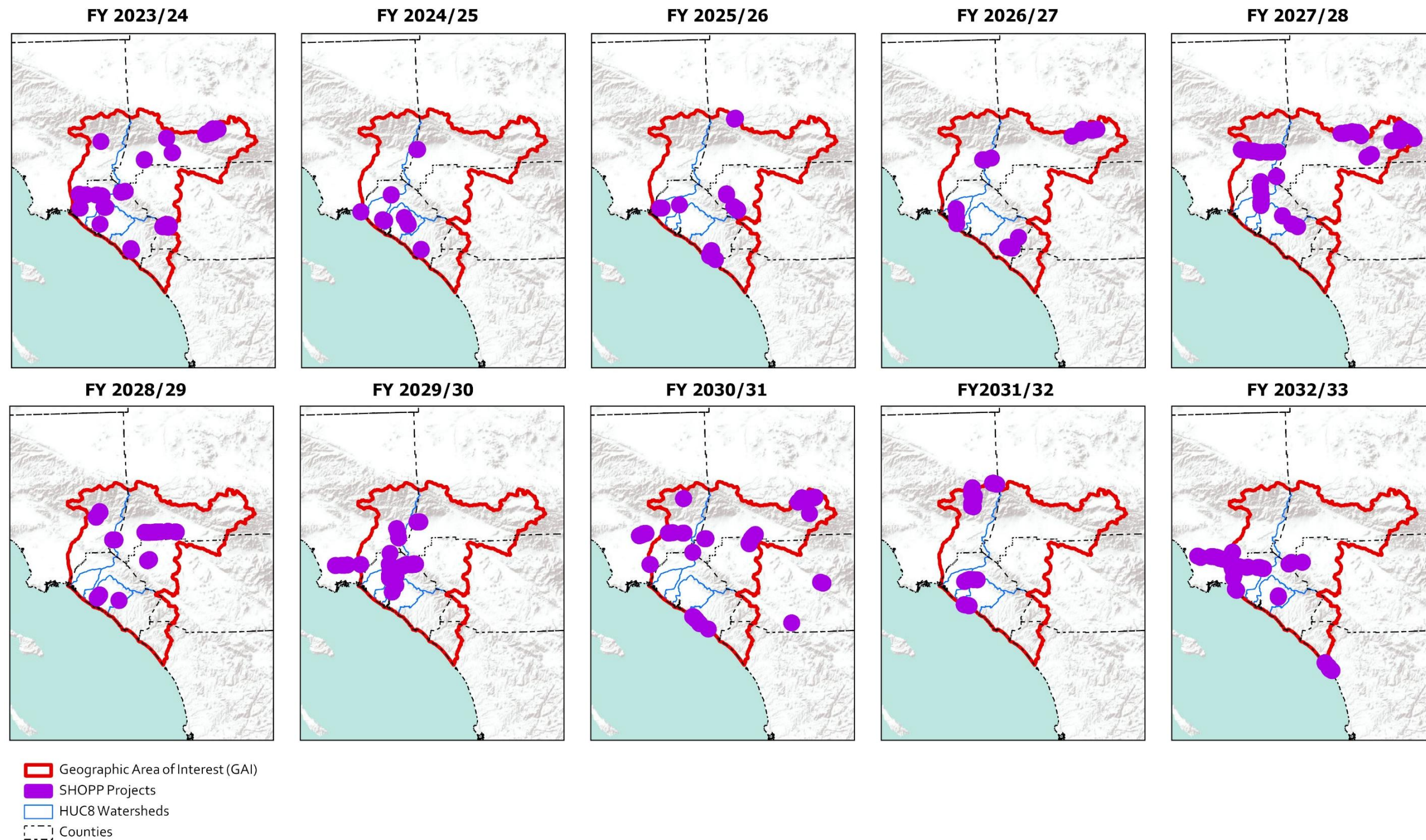


Figure 6-10. Location of SHOPP Estimated Impacts, by Transportation Project Delivery Year



Sources: Esri, USGS, NOAA, USGS

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6.3. Acceleration Priorities

Caltrans asset management investment strategies outline policies for project prioritization and resource allocation aimed at achieving optimal asset performance within the constraints of available funding and the goals of state and local agencies. These strategies are designed to address the District's needs and performance targets while maintaining financial balance.

Through transportation planning, Caltrans District 12 regularly prioritizes transportation projects to maintain the SHS under the SHOPP. This prioritization is updated every 2 years and is reflected in the SHS Management Plan.

The impact forecasts discussed here are based on the transportation project sequencing presented in the 2023/24 to 2032/33 (Quarter 2) SHOPP Ten-Year Book (Figure 6-10). However, since the publication of the Ten-Year Book, some project delivery schedules may have changed, and certain projects may have been discontinued or addressed by projects funded by local agencies.

To illustrate, the 2023 SHS Management Plan set targets and funding for Caltrans District 12 to improve 236 lane miles of fair (Class 1) pavement (Caltrans 2023b). At present, the District's priority is to develop projects that upgrade these 236 lane miles of roadways from fair to good condition.

Before proposing advance mitigation projects for funding through the AMA, Caltrans District 12 will consult the latest SHS Management Plan to ensure accurate timing and alignment with transportation project schedules and prioritization. This step ensures that any required credits are applied effectively to support project delivery.

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7. WILDLIFE RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for wildlife resources is to avoid and minimize all impacts on special-status species from Caltrans transportation projects in the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including enhanced, restored, or created habitat and an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' goals and objectives, thus contributing to an improved environmental outcome in the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives and how they could be applied to advance mitigation projects undertaken in the GAI to offset forecast impacts on wildlife resources from SHOPP and STIP-eligible transportation projects.

The goals and objectives assembled for this chapter are intended to guide Caltrans' advance mitigation project scoping decisions toward those choices that provide the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such projects undertaken by Caltrans should contribute to wildlife resource protection and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.¹ Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

Information presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

7.1. Approach

For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.

¹ Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

To determine the wildlife resource conservation goals and objectives applicable to the GAI, Caltrans:

- First, in Section 7.2, identifies the natural resource regulatory agencies with the authority to condition transportation projects with wildlife resource-related compensatory mitigation in the GAI.
- Then, in Section 7.3, summarizes the life history information for the three wildlife species of mitigation need chosen to focus the assessment, as identified in Section 1.5.
- Next, in Sections 7.4, 7.5, and 7.6, for the species of mitigation need, identifies:
 - Federal and state binding and non-binding regional conservation and land management plans,
 - Current and projected pressures and stressors for which there is a potential transportation nexus,
 - Opportunities to enhance the conservation benefits through advance mitigation projects, and
 - Opportunities to benefit other special-status and native wildlife species through advance mitigation.
- Last, analyzes the aforementioned information in relation to the transportation-related activities that could potentially affect the species of mitigation need and the potential range of compensatory mitigation that could satisfy a future transportation project condition associated with the activities.

The results of this analysis are a framework of conservation goals and objectives for use in advance mitigation project scoping (Section 7.7).

7.2. Natural Resource Regulatory Agencies with Wildlife Resources Oversight

Table 7-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered in the GAI with wildlife resource-related compensatory mitigation. The aquatic resources used by wildlife, such as streams, wetlands, and non-wetland waters, are regulated by other natural resource regulatory agencies. This RAMNA identifies goals and objectives for aquatic resources separately in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

Table 7-1. Natural Resource Regulatory Agencies with the Authority to Approve Wildlife Resource Compensatory Mitigation Credits (or Values)

Agency ^a	Summary
CCC	CCC protects the coast by planning for and regulating new development in the coastal zone pursuant to the policies of the California Coastal Act. Through the issuance of CDPs, CCC implements the policies of the California Coastal Act, including protecting sensitive resources (for example, wetlands, waters, ESHAs), water quality, public access to the coast, and more, and requires mitigation for unavoidable impacts on these resources. CCC also coordinates with local governments in developing and certifying LCPs, which allow local governments to assume the authority to issue CDPs within their jurisdiction. The agency also provides comprehensive guidance to local governments and project applicants regarding planning for and adapting to climate change and sea-level rise. The CCC, agency, or authorized local government with a certified LCP also determines how an ESHA is defined.
CDFW	CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Title 14, of the California Code of Regulations and Public Resources Code § 21000 et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values. CDFW issues permits and agreements to project proponents under its authorities, including incidental take permits and consistency determinations under CESA, Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. NCCP permits can authorize the take of fully protected species.
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(1)(b) of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate. In May 2023, FWS issued a Mitigation Policy that builds upon the guidance in the 1981 Mitigation Policy for recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife and a FESA Compensatory Mitigation Policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA. Conservation banking can assist federal and non-federal participants in the FESA's Section 7 and Section 10 process. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Section 7 and Section 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on site and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on site or off site.

Agency ^a	Summary
NMFS	NMFS has jurisdiction over marine species listed as threatened or endangered under the FESA. Federal agencies must consult with NMFS to ensure that their actions do not jeopardize the continued existence of FESA listed species or result in the destruction or adverse modification of designated critical habitat. NMFS also manages and conserves wildlife and fisheries resources in the marine and estuarine environment under the Magnuson-Stevens Fishery Conservation and Management Act. Federal agencies must consult with NMFS on any action that might adversely affect EFH. NMFS will advise federal agencies to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH. Magnuson-Stevens Fishery Conservation and Management Act EFH consultation can be done in tandem with FESA consultation. NMFS protects marine mammals under the Marine Mammal Protection Act, with the exception of sea otters, walruses, manatees, and polar bears, which are managed by FWS. With some exceptions, the Marine Mammal Protection Act prohibits the take of marine mammals, including harassment, hunting, capturing, collecting, or killing, in U.S. waters and by U.S. citizens on the high seas.

^a In addition to the agencies listed above, the RWQCBs may exert jurisdiction over species to the extent that cold freshwater habitat; estuarine habitat; fish spawning; freshwater replenishment; groundwater recharge; migration of aquatic organisms; preservation of areas of biological significance; rare, threatened, or endangered species; spawning, reproduction, and/or early development; warm freshwater habitat; and wildlife habitat beneficial uses exist and would be affected by a project.

7.3. Species of Mitigation Need

An overview of wildlife resources is provided in Chapter 2, *Environmental Setting*. As described in Section 1.5, species of mitigation need were selected to focus the planning effort and to improve the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable during the planning period. To this end, the species of mitigation need identified for the GAI are arroyo toad, coastal California gnatcatcher, and least Bell's vireo. Each species is briefly described below.

7.3.1. Arroyo Toad

Arroyo toad is a federal endangered species and a California species of special concern. Arroyo toads require both aquatic breeding habitats and terrestrial uplands with sandy soils for foraging and overwintering (Lovich 2009). Typical aquatic habitat for the species consists of shallow, intermittent streams with little to no vegetation and sandy, gravelly soils. Arroyo toads reproduce, deposit eggs, and metamorphose from tadpoles in very shallow pools within these streams (Sweet 1992). The timing of breeding depends on temperature and precipitation and can range from late April to July (Holland and Sisk 2000). Arroyo toads will enter aestivation in upland burrows during hot and dry periods between August and December (Sweet 1992).

Arroyo toads range from Baja California, Mexico, north to Monterey County, California (FWS 2023). There are currently 19 known populations spread across 21 river basins, three of which occur in the GAI.

7.3.2. Coastal California Gnatcatcher

Coastal California gnatcatcher is a federally threatened bird species and a California species of special concern (Mock 2004). The species ranges from Baja California north through the coastal lowlands of San Diego and Orange Counties, and along the Peninsular Ranges into western Riverside County and extreme southwestern San Bernardino County, as well as locally in the Palos Verde Peninsula portion of the Los Angeles coast, and in very small numbers as far north as Ventura County (FWS 2022a).

Coastal California gnatcatchers prefer coastal sage scrub habitat dominated by coastal sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). They prefer more open sites over dense sage scrub and are more abundant in areas where the sage scrub interfaces with grassland habitat rather than transitioning to chaparral (Winchell and Doherty 2018). Coastal California gnatcatchers are nonmigratory, with individual birds not typically dispersing farther than 10 miles from where they hatch (Mock 2004).

7.3.3. Least Bell's Vireo

Least Bell's vireo is a federally and state endangered subspecies of bird. There are four recognized subspecies of Bell's vireo, two of which nest in California. The least subspecies is the only subspecies that nests in the GAI. It breeds in the Transverse and Peninsular Ranges, in the coastal foothills and valleys from Ventura County south through San Diego County, and as far east into the Mojave Desert as the Coachella Valley (Kus 2002). There are also isolated breeding populations in the southern Sierra Nevada mountains (Lower Kern River Valley) and rare occurrences of breeding in the central California Coast Range mountains as far north as Santa Clara County. Least Bell's vireo formerly ranged across much of California but was thought to be extirpated from the Central Valley by the late twentieth century. However, a few pairs have been recorded in the Central Valley in recent decades from Merced County north to Yolo County (FWS 2022b).

Least Bell's vireos nest exclusively in riparian habitats, favoring those with native willows and cottonwoods and dense streamside vegetation in which they forage by gleaning insects from foliage. They typically construct their cup-shaped nests less than 5 feet from the ground in the forks of shrub or tree branches. They are a neotropical migrant species, wintering in Baja California, arriving in California to nest in March, and mostly departing the state by the end of September (Kus 2002).

7.4. Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect existing populations and habitat and include acquiring, protecting, restoring, and/or enhancing habitat and linkages. Several conservation and land management plans listed in Table 3-1, relevant to the species of mitigation need, identify key habitats or designate specific lands or areas to protect for conservation of the species of mitigation need in the GAI. For example, several LCPs listed in Appendix C, *Local Coastal Programs*, include ESHAs with species attributes. These conservation and land management plans are presented in Table 7-2.

The conservation and land management plans include measures to address specific known, ongoing threats to individuals and populations, which are incorporated into and/or inform the advance mitigation conservation goals and objectives compiled below. Caltrans may also use this information during advance mitigation project scoping to help compensatory mitigation efforts in the GAI align with the goals and objectives of natural resource regulatory agencies that approve mitigation.

Table 7-2. Documents Identifying Areas for Species of Mitigation Need Conservation in the GAI

Document	Reference	Areas of Important Habitat
Special-status Species and Sensitive Habitat Documents	See below	See below
<i>Arroyo Toad (Anaxyrus californicus) 5-Year Review: Summary and Evaluation</i>	FWS 2023	Identifies 22 population units of the species, including the following units that are entirely or partially in the GAI: ▪ San Mateo Creek ▪ San Onofre Creek ▪ Santa Margarita River
<i>Arroyo Southwestern Toad (Bufo microscaphus californicus) Recovery Plan</i>	FWS 1999	Outlines recovery strategies and threats to be addressed specific to each of the population units in order to delist the species.
<i>Coastal California Gnatcatcher (Polioptila californica californica) 5-Year Review: Summary and Evaluation</i>	FWS 2024	Identifies 11 NCCP subregional planning areas, including 8 that overlap the GAI: ▪ San Bernardino Valley-wide Multi-species HCP ▪ Western Riverside County Multiple Species HCP ▪ Northern Orange County Subregion ▪ San Diego Multiple Habitat Conservation Program ▪ Coastal/Central Orange County NCCP ▪ Northern San Diego County Multiple Species Conservation Program ▪ Southern Orange County NCCP ▪ Camp Pendleton Resource Management Area
<i>Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (Polioptila californica californica); Final Rule</i>	FWS 2007b	FWS' designation of critical habitat for coastal California gnatcatcher. The following Critical Habitat Units are wholly or partially in the GAI: Unit 6, Unit 7, and Unit 10.
<i>Least Bell's Vireo (Vireo bellii pusillus) 5-Year Review Summary and Evaluation</i>	FWS 2006	Identifies 11 population units of the species, including the following units that are entirely or partially in the GAI: ▪ Santa Ana River ▪ Orange and Los Angeles Counties ▪ Camp Pendleton/Santa Margarita River

Document	Reference	Areas of Important Habitat
<i>Draft Recovery Plan for the Least Bell's Vireo (Vireo bellii pusillus)</i>	FWS 1998a	Outlines recovery strategies and threats to be addressed specific to each of the population units.
Conservation and Land Management Documents	See below	See below
<i>San Gabriel River Master Plan</i>	Los Angeles County Public Works 2006	Management plan for the San Gabriel River corridor. The plan includes goals to enhance habitat along the riparian corridor that can benefit bird species.
<i>One Water One Watershed Plan Update 2018</i>	Santa Ana Watershed Project Authority 2018	Integrated Regional Water Management Plan for the Santa Ana River watershed. Provides guidance on how to best manage the watershed including restoring riparian vegetation to protect special-status species.
<i>OCTA M2 NCCP/HCP</i>	ICF 2016	A natural community conservation plan/habitat conservation plan developed for the Orange County Transportation Authority (OCTA) to mitigate for potential impacts of projects to listed species, including coastal California gnatcatcher and least Bell's vireo.
<i>Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP)</i>	Riverside County 2024	Multijurisdictional HCP focusing on conservation of species and associated habitats in western Riverside County. All three terrestrial species of mitigation need are protected under this HCP.
<i>County of Orange Central & Coastal Subregion NCCP/HCP</i>	Orange County 1996	Plan to protect and manage habitat supporting plant and animal populations found within the Central and Coastal Subregion, specifically targeting gnatcatcher. Least Bell's vireo and arroyo toad are conditionally covered species under this plan.
<i>Cleveland National Forest Land Management Strategy</i>	USFS 2005a	Land management plan for the Cleveland National Forest.
<i>San Bernardino National Forest Strategy</i>	USFS 2005b	Management plan for San Bernardino National Forest. Includes strategies to eradicate invasive species, conserve wetlands, and restore habitat.

Document	Reference	Areas of Important Habitat
<i>Integrated Natural Resources Management Plan (INRMP) Marine Corps Installation West – Marine Corps Base Camp Pendleton</i>	U.S. Marine Corps 2018	Management plan for natural ecosystems on land managed by the Marine Corps at Camp Pendleton. All target species occur on base. Policies provide for invasive species removal, conserve wetlands, and restore habitat.
<i>California Essential Habitat Connectivity Project (CEHC)</i>	Spencer et al. 2010	Identifies Natural Landscape Blocks and Essential Connectivity Areas in the Southern California Coast and Southern California Mountains and Valleys Ecoregions, which overlap the GAI. There are 15 Essential Connectivity Areas in the Southern California Coast Ecoregion and another 18 in the Southern California Mountains and Valleys Ecoregion.
<i>Design Criteria for the Southern California National Forests</i>	USFS 2005c	Provides an overall strategy for land management in the Cleveland National Forest. Includes goals to control riparian weed species such as giant reed and tamarisk from forest lands and in particular to control tamarisk in Santa Ysabel Creek.
<i>California State Wildlife Action Plan (SWAP), 2025 Update</i>	CDFW 2025	The GAI lies within two adjacent ecoregions: the Southern California Coast Ecoregion and Southern California Mountains and Valleys Ecoregion. The SWAP identifies shadscale-saltbush scrub, freshwater marsh, California grassland and flowerfields, and American southwest riparian forest and woodland as conservation target habitats in these ecoregions.
<i>Doheny State Beach General Plan</i>	California State Parks 2004	General plan for Doheny State Beach. Gnatcatcher is common within the park. Policies encourage restoration with native plants and encourage removal of invasive plants along San Juan Creek.
<i>San Onofre State Beach General Plan</i>	California State Parks 1984	General plan for San Onofre State Beach. Least Bell's vireo has been observed in the plan area. Policies preserve native plant communities, require invasive plant removal and habitat restoration, and call for the establishment of a natural preserve.
County General Plans	See below	See below
<i>Los Angeles County 2035 General Plan</i>	Los Angeles County Planning 2024	General plan for Los Angeles County. Includes a conservation and natural resources element that aims to preserve sensitive habitat and wildlife corridors.
<i>County of San Diego General Plan</i>	San Diego County 2011	General plan for San Diego County. Includes a land use designation of conservation and open space.
<i>County of Riverside General Plan</i>	Riverside County 2003	General plan for Riverside County. Includes conservation and preservation elements section in the open space element

Document	Reference	Areas of Important Habitat
<i>San Bernardino County Countywide Plan</i>	San Bernardino County 2020	Policies from the general plan for San Bernardino County. The resources and conservation section includes policies to conserve habitat, wildlife corridors, and mitigate for impacts.
City General Plans	See below	See below
<i>Brea General Plan</i>	City of Brea 2003	General plan for Brea. Policies aim to protect migration corridors, preserve riparian habitats, protect native plants, and restore native wildlife habitats.
<i>Redlands General Plan 2035</i>	City of Redlands 2017	General plan for Redlands. Policies aim to protect known populations of gnatcatcher and least Bell's vireo by preserving habitat and protecting wildlife corridors.
<i>San Juan Capistrano General Plan</i>	City of San Juan Capistrano 2002	General plan for San Juan Capistrano. All target species are thought to occur within the plan area. Policies aim to preserve important biological resources as open space.
<i>Glen Helen Specific Plan</i>	Planning Center 2015	Specific plan for the community of Glen Helen. The community contains habitat for all three target species, and the plan contains measures to preserve riparian habitat and protect nesting birds.
<i>Plan RC</i>	City of Rancho Cucamonga 2021	General plan for Rancho Cucamonga. Policies protect riparian corridors, encourage preservation of sensitive habitat, encourage expansion and creation of biological preserves and wildlife corridors, and create buffers.
<i>City of Dana Point General Plan</i>	City of Dana Point 1991	General plan for Dana Point. Includes policies to protect sensitive habitat areas. Policies require mitigation for loss of riparian resources, encourage protection of riparian habitat and establishment of buffer zones, and acquisition of additional lands for conservation.
<i>Rancho Santa Margarita General Plan</i>	City of Rancho Santa Margarita 2020	General plan for Rancho Santa Margarita. Plan area has critical habitat for arroyo toad and coastal California gnatcatcher. Policies require preservation of creeks and wetlands, expansion of reserves, and restoration of riparian corridors.
<i>Yorba Linda General Plan</i>	City of Yorba Linda 2016	General plan for Yorba Linda. Policies promote preservation of stream courses and acquisition of additional suitable habitat.
<i>Diamond Bar General Plan 2040</i>	City of Diamond Bar 2019	General plan for Diamond Bar. California gnatcatcher and least Bell's vireo are known to occur. Includes policies to preserve riparian areas, prevent spread of invasive species, protect movement corridors, and support mitigation.
<i>Pomona Tomorrow</i>	City of Pomona 2014	General plan for Pomona. California gnatcatcher and least Bell's vireo are known to occur. Policies preserve critical habitat, require mitigation for impacts, and promote the creation of habitat buffers.

Document	Reference	Areas of Important Habitat
<i>City of San Clemente Centennial General Plan</i>	City of San Clemente 2014	General plan for San Clemente. Includes goals to restore all three target species and their habitats and protect wildlife corridors.
<i>City of Loma Linda General Plan</i>	City of Loma Linda 2009	General plan for Loma Linda. Protects natural areas from development and establishes buffer zones. California gnatcatcher critical habitat occurs within the plan area.
<i>Envision Whittier General Plan</i>	City of Whittier 2021	General plan for Whittier. Protects biodiverse habitats, controls invasive species, and restores native vegetation.
<i>City of Tustin General Plan</i>	City of Tustin 2018	General plan for Tustin. Includes goals to preserve riparian habitats, protect wildlife movement corridors, and reforest protected areas.
<i>City of Chino Hills General Plan</i>	City of Chino Hills 2015	General plan for Chino Hills. Includes goals to preserve biological resources, protect wildlife corridors, and retain natural contours.
<i>Calimesa General Plan</i>	City of Calimesa 2014	General plan for the City of Calimesa. Includes policies limiting development in ESHAs and protecting areas for future resilience.
<i>City of Claremont General Plan</i>	City of Claremont 2020	General plan for the City of Claremont. Includes policies to preserve wildlife corridors, remove invasive plants, and expand wilderness park areas.
<i>City of Lake Elsinore General Plan</i>	City of Lake Elsinore 2011	General plan for Lake Elsinore. California gnatcatcher and least Bell's vireo have the potential to occur. Policies protect high-value riparian habitat.
<i>Costa Mesa General Plan – Conservation Element</i>	City of Costa Mesa 2015	Conservation element for the City of Costa Mesa General Plan. Includes goals to preserve natural coastal habitat and prevent the spread of invasive plant species.
<i>Lake Forest Planning Documents</i>	City of Lake Forest 2020	General plan for the City of Lake Forest. Includes a recreation and resources element that protects sensitive communities and wildlife corridors.
<i>City of Highland General Plan</i>	City of Highland 2006	General plan for Highland. Critical habitat for gnatcatcher occurs within the city. Policies protect against impacts to sensitive areas, protect wildlife movement corridors, establish sensitive habitat buffers, and require native plant mitigation.
<i>Jurupa Valley General Plan</i>	City of Jurupa Valley 2017	General plan for the City of Jurupa Valley. Includes policies to protect wetlands, riparian corridors, wildlife corridors, and known populations of gnatcatcher and least bell's vireo.
<i>Glendora Community Plan 2025</i>	City of Glendora 2022	General plan for Glendora. City contains California gnatcatcher critical habitat. Policies aim to acquire more conservation lands, preserve wildlife corridors, and preserve native plants.
<i>Orange General Plan – Natural Resources Element</i>	City of Orange 2010	Natural resources element for the City of Orange general plan. Includes policies to protect riparian corridors and protect native plants.

Document	Reference	Areas of Important Habitat
<i>City of Laguna Niguel General Plan</i>	City of Laguna Niguel 1992	General plan for Laguna Niguel. Includes policies to conserve natural resources and specifically mentions California gnatcatcher.
<i>City of Laguna Woods General Plan</i>	City of Laguna Woods 2002	General plan for Laguna Woods. Includes policies to protect wildlife communities and wildlife movement corridors.
<i>City of Mission Viejo General Plan</i>	City of Mission Viejo 2021	General plan for Mission Viejo. Includes policies preserving riparian areas, wildlife movement corridors, and specifically addresses prime bird habitat.
<i>City of Newport Beach General Plan</i>	City of Newport Beach 2006	General plan for Newport Beach. Provides for buffers around sensitive habitat areas.
<i>City of Norco General Plan</i>	City of Norco 2014	General plan for Norco. Policies require native plant revegetation, removal of invasive Arundo in the Santa Ana River corridor, and mitigation for impacts to habitat.
<i>City of La Verne General Plan</i>	City of La Verne 2024	General plan for La Verne. Policies protect sensitive biological communities, wildlife corridors, and fund conservation efforts.
<i>Corona General Plan 2020–2040</i>	City of Corona 2020	General plan for Corona. Protects riparian corridors, provides for mitigation, encourages use of native plants. Critical habitat for all target species is within the city.
<i>City of La Habra General Plan 2035</i>	City of La Habra 2014	General plan for La Habra. Coastal California gnatcatcher is known to occur. Policies protect riverine corridors, provide for riparian restoration, and encourage native plant use.
<i>La Habra Heights General Plan</i>	City of La Habra Heights 2004	General plan for La Habra Heights. Policies protect the large part of the city set aside as a wildlife corridor and encourage preservation and acquisition of open space.
<i>City of Irvine General Plan</i>	City of Irvine 2015	General plan for Irvine. The conservation and open space element provides for the consolidation of open spaces into conservation areas, creation of wildlife corridors, and compliance with NCCP/HCP. California gnatcatcher is known to occur.
Other Conservation and Management Documents	See below	See below
<i>Conserving California's Coastal Habitats: A Legacy and a Future with Sea Level Rise</i>	Coastal Conservancy and The Nature Conservancy 2018	Statewide coastal conservation plan by the Coastal Conservancy and The Nature Conservancy. Contains plans to maintain and manage coastal lands to be resilient to sea-level rise. Plans include maintaining existing resilient conservation lands, conserving resilient landscapes, managing in place for resilience, conserving potential future habitat areas, and increasing adaptive capacity.

7.5. Pressures and Stressors

Pressures and stressors refer to environmental trends or physical, chemical, or biological factors or conditions that affect the species of mitigation need or its habitat. According to the SWAP (CDFW 2025), a pressure is defined as “an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant.” Additionally, stress is defined in the SWAP as “[a] degraded ecological condition of a target that resulted directly or indirectly from negative impacts of pressures (e.g., habitat fragmentation)” (CDFW 2025). The *Arroyo Southwestern Toad* (*Bufo microscaphus californicus*) *Recovery Plan* (FWS 1999), *Coastal California Gnatcatcher 5-Year Review: Summary and Evaluation* (FWS 2024), *Draft Recovery Plan for the Least Bell’s Vireo* (FWS 1998a), and *Least Bell’s Vireo* (*Vireo bellii pusillus*) *5-Year Review: Summary and Evaluation* (FWS 2006) refer to these pressures and stressors as threats.

The plans included in Table 7-2 identify multiple pressures and stressors contributing to the decline of the species of mitigation need within their ranges (FWS 1998a, 1999, 2006, 2024). These pressures and stressors were evaluated with regard to whether they are types of effects that could result from, or be worsened by, transportation projects funded through SHOPP and STIP and whether the species of mitigation need could benefit from in-kind compensatory mitigation purchased or established through an advance mitigation project.

7.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, and habitat invasion by nonnative species have led to the loss and degradation of existing habitat for the species of mitigation need. Additionally, roads and urbanization have resulted in habitat fragmentation and a decrease in connectivity between habitats that support species of mitigation need populations. Arroyo toads are particularly susceptible to mortality at road crossings, even more so during rain events (FWS 1999).

The loss and fragmentation of coastal scrub habitat in conjunction with urban and agricultural development were considered significant threats to coastal California gnatcatcher at the time of its listing (FWS 2007b). Since then, implementation of NCCPs/HCPs has done much to reduce this threat to the species by establishing core areas and linkage habitat within its range. Loss and modification of riparian habitat is considered the primary driver of declines in least Bell’s vireo populations. Urbanization, agricultural development, and human-caused modification of stream flow regimes have caused considerable loss and degradation of natural riparian habitats throughout its range (FWS 1998a). Periodic and unpredictable flooding that reworks stream channels is beneficial for arroyo toad populations, as it alters breeding pool locations and forms floodplain terraces that the species utilizes during its terrestrial life stages. Artificial light pollution from urban and roadway illumination can affect wildlife by causing spatial disorientation; disruption in circadian rhythms; and alteration to natural foraging, breeding,

and migration activity, which can negatively affect populations (Bliss-Ketchum et al. 2016). Roadway noise has been shown to disrupt amphibian communication by altering call rates, frequency, and duration. The stress caused by long-term exposure to high noise levels can interfere with amphibian mating success and may elevate stress hormone levels (Jiang et al. 2023).

7.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. The entry of invasive, nonnative species into an ecosystem may reduce biodiversity, degrade habitats, alter native genetic diversity, shift habitat type, and further threaten already endangered or threatened natural resources.

Invasive plant species can lead to more intense fires in riparian zones, which can be harmful for arroyo toads (FWS 1999). A number of invasive plant species, such as tocalote, artichoke thistle, red brome, Russian thistle, pampas grass, fennel, black mustard, fountain grass, freeway iceplant, and ripgut brome, may degrade habitat quality for coastal California gnatcatcher (CDFW 2025). Giant reed, a common invasive plant species in riparian areas, may form dense, monotypic clusters that are unsuitable for nesting least Bell's vireos (FWS 2006). Brown-headed cowbirds are known to parasitize nests of coastal California gnatcatchers and least Bell's vireos. Cowbirds thrive in human-altered habitats such as suburban and agricultural areas, and their populations and range have expanded into California from their original native range in the Great Plains region with increased human presence on the landscape (CDFW 2025; FWS 1998a).

7.5.3. Disease and Predation

Predation on arroyo toads has drastically increased on account of nonnative aquatic predators such as largemouth bass and bullfrogs that consume toad larvae (FWS 1999). Additionally, terrestrial predators such as opossums and crows consume large numbers of toads. Chytridiomycosis, an infectious amphibian disease, has been linked to worldwide declines in amphibian populations (FWS 1999). The disease was first identified in arroyo toads in 1991 in a captive colony (Nichols et al. 2001). Additional studies are needed to study the disease's prevalence in wild populations. Coastal California gnatcatchers are subject to a high rate of nest predation, especially from snakes and corvids (birds in the crow family). However, they often re-nest after predation events, which bolsters their fecundity (ability to produce offspring) and likely counteracts the effects of this high rate of predation on their populations (FWS 2024). Least Bell's vireos are also subject to substantial rates of nest predation from a wide variety of bird, mammal, and reptile species. However, nest predation in this species does not appear to be higher than what is observed with other similar passerine bird species and, in general, predation is not considered to be a major threat to coastal California gnatcatcher or least Bell's vireo populations (FWS 2006, 2024). Disease is also not considered to be a major threat to coastal California gnatcatcher or least Bell's vireo. West Nile virus is a mosquito-borne disease that causes high rates of mortality in certain bird species and not in others. There

have been periods when this disease has been quite prevalent in southern California, but to date there is no evidence suggesting that populations of either coastal California gnatcatcher or least Bell's vireo have been substantially affected by it or any other disease (FWS 2006, 2024).

7.5.4. Climate Change, Drought, Wildfire, and Sea-level Rise

Section 2.5 provides a brief overview of the GAI's climate and available planning-level predictions for climate change in the region. In the next 30 years, the climate is expected to change. Predicted climate change effects consist of projected extended periods of higher temperatures in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of drought, wildfires, and landslides (Caltrans 2019b).

The lower permeability of roads can exacerbate the risks associated with flooding and erosion. Figure 2-6 depicts the terrestrial climate change resilience rank from the ACE dataset (CDFW 2018). Higher resilience is clearly shown in the eastern part of the GAI in the Peninsular Ranges. The predicted climate resilience of the GAI ranges from areas with low resilience or no data, located in the western half of the GAI, to areas with moderate to high resilience, located in the eastern half of the GAI. Terrestrial connectivity in the GAI is depicted on Figure 2-12, which shows large remaining blocks of intact habitat and natural landscapes. These areas are expected to provide opportunities for the species of mitigation need to respond to climate change stress by preserving large blocks of habitat and linkage areas that will allow migration toward more suitable habitat as the climate changes and by providing protection for the ecological processes that support key habitat.

Increased drought severity directly affects arroyo toads by limiting the availability of suitable habitat, particularly breeding pools. Females may not be able to obtain adequate energy reserves to produce eggs during periods of drought because they rely on inundated pools for increased food supplies (FWS 1999). Climate change is expected to bring with it an increased risk of wildfires (Caltrans 2019b), which could be extremely detrimental to coastal California gnatcatcher, which occupies coastal scrub communities. Following fires, native coastal scrub vegetation is often outcompeted by nonnative annual grasses, which can dominate the system and permanently alter the habitat (FWS 2024), rendering it less appropriate for coastal California gnatcatchers. Drought can have mixed effects on different bird species, decreasing nesting success in many cases while improving it in other cases depending on specific microhabitat conditions. However, the increased duration and severity of drought driven by climate change that is predicted for California is expected to have a severely negative long-term impact on many bird populations.

7.5.5. Contaminants

Pollutants have been associated with roads and industrial activity. Petroleum products from roadside runoff, pesticides, herbicides, mineral fertilizers, industrial chemicals, and airborne pollutants are known to have negative effects on amphibians. Amphibians are

especially susceptible to contaminants in their environment because of their highly permeable skin. Agricultural runoff is particularly detrimental to arroyo toad populations. Contaminants may kill toads, affect larval development, or affect habitat and food supply (FWS 1999). Ammonium nitrate is very caustic and has been shown to cause mass injury and mortality to frogs and newts (Schneeweiss and Schneeweiss 1997). Since their introduction in the 1990s, neonicotinoids (systemic agricultural insecticides resembling nicotine) have become the most widely used insecticides in the world. More study is needed to determine the effects of neonicotinoid insecticides on coastal California gnatcatchers and least Bell's vireos specifically. However, recent studies have shown that the reproductive toxicity of neonicotinoids to birds is high and that, because of their systemic effect and persistence in the soil and groundwater, exposure to birds is a chronic risk long after introduction (American Bird Conservancy 2013).

7.6. Multi-species Benefits

While the species of mitigation need identified for this GAI are arroyo toad, coastal California gnatcatcher, and least Bell's vireo, several other special-status species share habitat with these species, which may be addressed under CDFW's Lake and Streambed Alteration Agreement program. These species include, but are not limited to:

- Two-striped gartersnake (*Thamnophis hammondi*)
- Tricolored blackbird (*Agelaius tricolor*)
- San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)

A complete list of co-benefiting species, based on forecast impacts from the SAMNA model, is included in Tables 5-4 to 5-6.

Advance mitigation planning provides Caltrans an opportunity to prioritize multi-species and multi-resource benefits through acquisition, protection, restoration, and/or enhancement of habitat that provides the most multi-species benefits in the GAI. Figure 7-1 illustrates the regional terrestrial biodiversity in the GAI, according to CDFW's ACE GIS dataset. According to these data, high to moderate terrestrial biodiversity is present along almost all of the SHS with SHOPP projects in the GAI. Habitats are mapped in Appendix D, *Land Cover Types*, and the other special-status species that may occur in these habitats are provided in Appendix E, *Complete SAMNA Species Results*.

The installation of culvert escape ramps and fence jump-outs to facilitate safe movement across and away from highways would also benefit numerous terrestrial wildlife species. Advance mitigation purchased or established to address anticipated impacts on species of mitigation need may also provide mitigation to compensate for impacts on these other species. Caltrans will consider the special-status species with the potential to co-occur in habitat with species of mitigation need in order to inform advance mitigation scoping and thereby improve the conservation benefits of mitigation in the GAI.

7.7. Advance Mitigation Conservation Goals and Objectives

The conservation goals and objectives compiled in Table 7-3 are intended to be relevant to anticipated future SHOPP and STIP transportation project mitigation needs, be consistent with the goals and objectives of natural resource regulatory agencies for the species of mitigation need, address pressures and stressors, and support species of mitigation need population recovery and success in the GAI. Each conservation goal is supported by one or more conservation objectives and is meant to further guide Caltrans District 12 toward scoping advance mitigation projects to achieve the desired result specified by the goal. Project-specific objectives will be developed for advance mitigation projects in the future during their project delivery phase in accordance with an instrument, MCA, or other project-specific agreement (Figure 1-2). Project-specific advance mitigation project objectives will be specific, measurable, achievable, relevant, and time-bound.

At the broad scale, these wildlife goals and objectives encompass large-scale ecological processes, environmental gradients, biological diversity, and regional wildlife linkages. These goals and objectives prioritize regional conservation that preserves intact habitat and provides habitat linkages and connectivity. Sub-objectives are included for each objective to guide Caltrans advance mitigation and project scoping toward those authorized actions that would create the greatest functional lift² or conservation benefit for the species of mitigation need in the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to the species of mitigation need.³ Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific. They are not presented in order of importance.

² For the purposes of this document, “functional lift” means the difference between an existing degraded condition and a restored or enhanced condition.

³ In accordance with both law and Caltrans’ policy, standard best management practices are followed on all Caltrans’ transportation projects. Hence, they are presumed, and they are not itemized as goals and objectives for the AMP.

Table 7-3. Advance Mitigation Conservation Goals and Objectives for the Species of Mitigation Need

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-1: Conserve and expand habitat for species of mitigation need in the GAI to support ecosystem functions that are essential to recovery of the species.	See below	See below	See below
Objective WILD-1.1: Acquire, protect, restore, and/or enhance habitat of sufficient quantity to offset estimated impacts on species of mitigation need in the GAI in advance of transportation project impacts.	Sub-Objective WILD-1.1.1: Identify habitat for species of mitigation need in the GAI and acquire, protect, restore, and/or enhance this habitat such that the greatest functional lift to the species of mitigation need is provided, including consolidating compensatory mitigation. Sub-Objective WILD-1.1.2: Prioritize key areas, such as designated critical habitat, movement corridors, and buffer zones. Sub-Objective WILD-1.1.3: Prioritize acquisition and/or protection of large blocks of suitable, occupied habitat for the species of mitigation need; lands adjacent to occupied habitat; and/or land that expands or buffers existing occupied protected habitats. Sub-Objective WILD-1.1.4: Prioritize land acquisition and/or protection that supports key populations. Sub-Objective WILD-1.1.5: Prioritize acquisition, protection, and/or enhancement of SWAP (CDFW 2025) conservation targets: shadscale-saltbush scrub, American southwest riparian forest and woodland, California grassland and flowerfields, and freshwater marsh, as shown on Figure 7-2, that coincide with the species of mitigation need range, as well as other locally or regionally important habitat types. Sub-Objective WILD-1.1.6: Align with LCP ESHA requirements to prioritize restoration and/or enhancement in ESHAs containing species of mitigation need such that a functional lift to the ESHA is provided, when feasible.	▪ arroyo toad ▪ coastal California gnatcatcher ▪ least Bell's vireo	▪ <i>Los Angeles County 2035 General Plan</i> (Los Angeles County Planning 2024) ▪ <i>County of Riverside General Plan</i> (Riverside County 2003) ▪ <i>San Bernardino County Countywide Plan</i> (San Bernardino County 2020) ▪ <i>Calimesa General Plan</i> (City of Calimesa 2014) ▪ <i>Loma Linda General Plan</i> (City of Loma Linda 2009) ▪ <i>City of Chino Hills General Plan</i> (City of Chino Hills 2015) ▪ <i>Jurupa Valley General Plan</i> (City of Jurupa Valley 2017) ▪ <i>City of San Clemente Centennial General Plan</i> (City of San Clemente 2014) ▪ <i>City of Dana Point General Plan</i> (City of Dana Point 1991) ▪ <i>City of Mission Viejo General Plan</i> (City of Mission Viejo 2021) ▪ <i>City of Norco General Plan</i> (City of Norco 2014) ▪ <i>Brea General Plan</i> (City of Brea 2003) ▪ <i>City of Claremont General Plan</i> (City of Claremont 2020) ▪ <i>City of La Habra General Plan 2035</i> (City of La Habra 2021) ▪ <i>La Habra Heights General Plan</i> (City of La Habra Heights 2004) ▪ <i>City of La Verne General Plan</i> (City of La Verne 2024) ▪ <i>City of Highland General Plan</i> (City of Highland 2006) ▪ <i>City of Newport Beach General Plan</i> (City of Newport Beach 2006) ▪ <i>Plan RC</i> (City of Rancho Cucamonga 2021) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>City of Tustin General Plan</i> (City of Tustin 2017) ▪ <i>Glendora Community Plan 2025</i> (City of Glendora 2022) ▪ <i>Diamond Bar General Plan 2040</i> (City of Diamon Bar 2019) ▪ <i>City of Lake Elsinore General Plan</i> (City of Lake Elsinore 2011) ▪ <i>Envision Whittier General Plan</i> (City of Whittier 2021) ▪ <i>Pomona Tomorrow</i> (City of Pomona 2014) ▪ <i>City of Laguna Niguel General Plan</i> (City of Laguna Niguel 1992) ▪ <i>City of Laguna Woods General Plan</i> (City of Laguna Woods 2002) ▪ <i>City of Irvine General Plan</i> (City of Irvine 2015) ▪ <i>Rancho Santa Margarita General Plan</i> (City of Rancho Santa Margarita 2020) ▪ <i>Redlands General Plan 2035</i> (City of Redlands 2015) ▪ <i>San Juan Capistrano General Plan</i> (City of San Juan Capistrano 2002) ▪ <i>Glen Helen Specific Plan</i> (Planning Center 2015) ▪ <i>Lake Forest 2040</i> (City of Lake Forest 2020) ▪ <i>Yorba Linda General Plan</i> (City of Yorba Linda 2016) ▪ <i>Costa Mesa General Plan – Conservation Element</i> (City of Costa Mesa 2015)

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Objective WILD-1.1 (continued)	Sub-Objectives WILD-1.1.1 to WILD-1.1.6 (continued)	▪ arroyo toad ▪ coastal California gnatcatcher ▪ least Bell's vireo	▪ <i>One Water One Watershed</i> (Santa Ana Watershed Project Authority 2018) ▪ <i>Orange General Plan – Natural Resources Element</i> (City of Orange 2010) ▪ <i>OCTA M2 NCCP/HCP</i> (ICF 2016) ▪ <i>Doheny State Beach General Plan</i> (California State Parks 2004) ▪ <i>San Onofre State Beach General Plan</i> (California State Parks 1984) ▪ <i>San Bernardino National Forest Strategy</i> (USFS 2005b) ▪ <i>Cleveland National Forest Strategy</i> (USFS 2005a) ▪ <i>WR-MSHCP</i> (Riverside County 2024) ▪ <i>INRMP Camp Pendleton Marine Corps Base</i> (U.S. Marine Corps 2018) ▪ <i>County of Orange Central & Coastal Subregion NCCP/HCP</i> (Orange County 1996) ▪ <i>San Gabriel River Master Plan</i> (Los Angeles County Public Works 2024) ▪ <i>SWAP</i> (CDFW 2025) and companion plans ▪ <i>CEHC</i> (Spencer et al. 2010) ▪ <i>Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2024) ▪ <i>Revised Designation of Critical Habitat for the Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>); <i>Final Rule</i> (FWS 2007b) ▪ <i>Arroyo Southwestern Toad</i> (<i>Bufo microscaphus californicus</i>) <i>Recovery Plan</i> (FWS 1999) ▪ <i>Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2006) ▪ <i>Draft Recovery Plan for the Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) (FWS 1998a) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>County of San Diego General Plan</i> (San Diego County 2011)

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-2: Preserve, enhance, and increase connectivity between blocks of wildlife habitat to allow for dispersal that will maintain resilience and variability of wildlife populations.	See below	See below	See below
Objective WILD- 2.1: Acquire, protect, restore, and/or enhance dispersal corridors in the GAI in advance of transportation project impacts.	Sub-Objective WILD-2.1.1: Identify dispersal corridors for the species of mitigation need in the GAI and acquire, protect, restore, and/or enhance corridors such that the greatest functional lift for the species of mitigation need is provided. Sub-Objective WILD-2.1.2: Prioritize habitat in key linkage areas, between habitat areas, and/or areas that provide a buffer to key or habitat areas.	▪ arroyo toad ▪ coastal California gnatcatcher ▪ least Bell’s vireo	▪ <i>Los Angeles County 2035 General Plan</i> (Los Angeles County Planning 2024) ▪ <i>San Bernardino County Countywide Plan</i> (San Bernardino County 2020) ▪ <i>City of Mission Viejo</i> (Mission Viejo 2021) ▪ <i>Redlands General Plan</i> (City of Redlands 2015) ▪ <i>City of Tustin General Plan</i> (City of Tustin 2017) ▪ <i>La Habra General Plan 2035</i> (City of La Habra 2021) ▪ <i>La Habra Heights General Plan</i> (City of La Habra Heights 2004) ▪ <i>City of Irvine General Plan</i> (City of Irvine 2015) ▪ <i>Diamond Bar General Plan 2040</i> (City of Diamond Bar 2019) ▪ <i>Jurupa Valley General Plan</i> (City of Jurupa Valley 2017) ▪ <i>City of Laguna Woods General Plan</i> (City of Laguna Woods 2002) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>Loma Linda General Plan</i> (City of Loma Linda 2009) ▪ <i>Envision Whittier General Plan</i> (City of Whittier 2021) ▪ <i>City of La Verne General Plan</i> (City of La Verne 2024) ▪ <i>Rancho Santa Margarita General Plan</i> (City of Rancho Santa Margarita 2020) ▪ <i>City of Highland General Plan</i> (City of Highland 2006) ▪ <i>Plan RC</i> (City of Rancho Cucamonga 2021) ▪ <i>Brea General Plan</i> (City of Brea 2003) ▪ <i>Glendora Community Plan 2025</i> (City of Glendora 2022) ▪ <i>City of San Clemente Centennial General Plan</i> (City of San Clemente 2014) ▪ <i>City of Norco General Plan</i> (City of Norco 2014) ▪ <i>City of Chino Hills General Plan</i> (City of Chino Hills 2015) ▪ <i>City of Claremont General Plan</i> (City of Claremont 2020) ▪ <i>Lake Forest 2040</i> (City of Lake Forest 2020) ▪ <i>One Water One Watershed</i> (Santa Ana Watershed Project Authority 2018) ▪ <i>OCTA M2 NCCP/HCP</i> (ICF 2016) ▪ <i>San Bernardino National Forest Strategy</i> (NFS 2005) ▪ <i>WR-MSHCP</i> (Riverside County 2024) ▪ <i>INRMP Camp Pendleton Marine Corps Base</i> (U.S. Marine Corps 2018) ▪ <i>San Gabriel River Master Plan</i> (Los Angeles County Public Works 2024) ▪ <i>County of Orange Central & Coastal Subregion NCCP/HCP</i> (Orange County 1996) ▪ <i>SWAP</i> (CDFW 2025) and companion plans ▪ <i>CEHC</i> (Spencer et al. 2010) ▪ <i>Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2024) ▪ <i>Revised Designation of Critical Habitat for the Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>); <i>Final Rule</i> (FWS 2007b) ▪ <i>Least Bell’s Vireo</i> (<i>Vireo bellii pusillus</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2006) ▪ <i>Draft Recovery Plan for the Least Bell’s Vireo</i> (<i>Vireo bellii pusillus</i>) (FWS 1998a) ▪ <i>Arroyo Southwestern Toad</i> (<i>Bufo microscaphus californicus</i>) <i>Recovery Plan</i> (FWS 1999) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>County of San Diego General Plan</i> (San Diego County 2011)

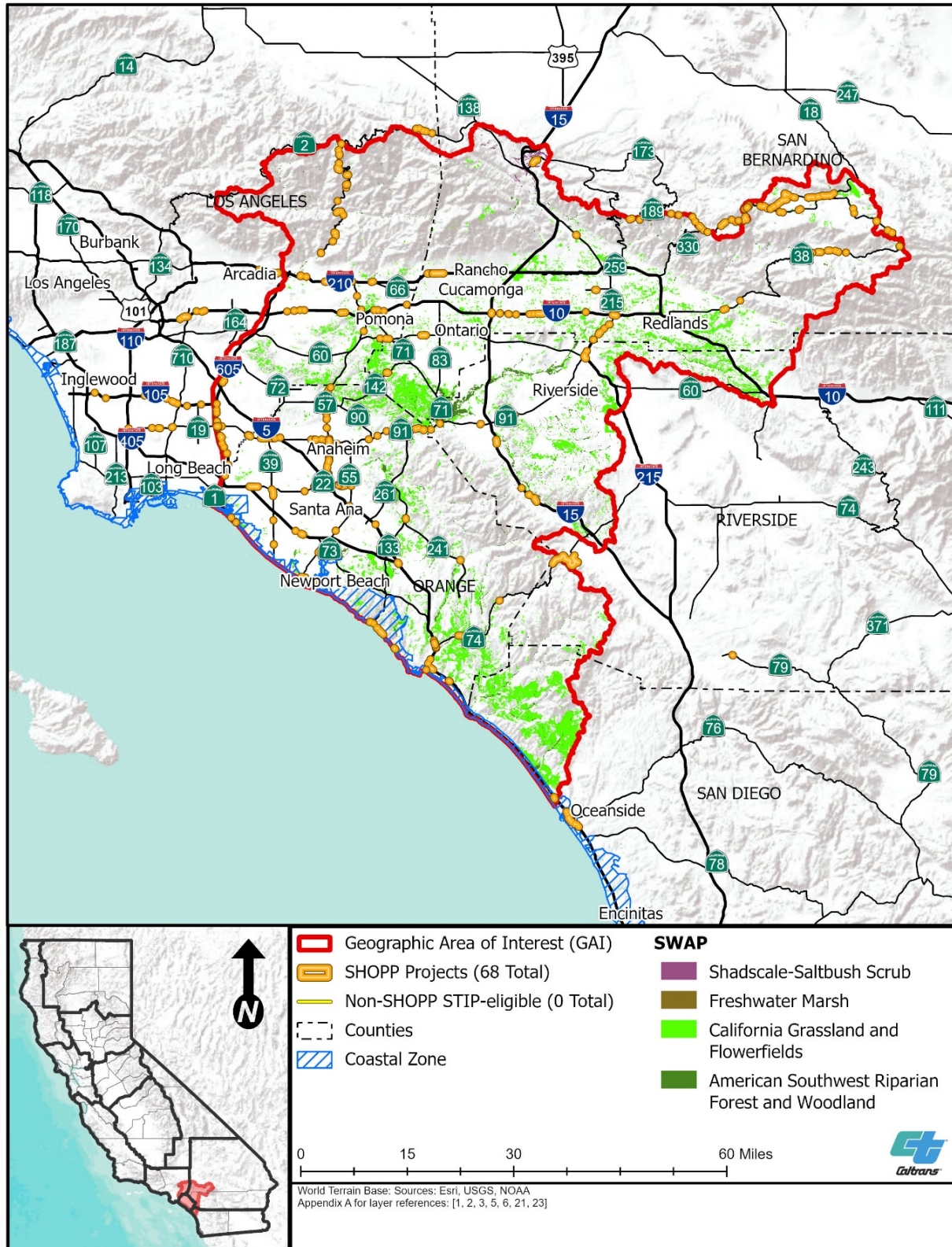
Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-3: Support resiliency of the landscape to climate change and sea-level rise.	See below	See below	See below
Objective WILD-3.1: Acquire, protect, restore, and/or enhance habitat that supports resilience to climate change and sea-level rise in the GAI in advance of transportation project impacts.	Sub-Objective WILD-3.1.1: Identify, acquire, protect, restore, and/or enhance habitat critical to climate resilience for the species of mitigation need in the GAI (Figure 2-6). Sub-Objective WILD-3.1.2: Prioritize management of invasive species in key areas, such as movement corridors and ESHAs, that may be exacerbated by climate change and sea-level rise and that would provide functional lift for the species of mitigation need and ESHAs.	▪ arroyo toad ▪ coastal California gnatcatcher ▪ least Bell's vireo	▪ <i>County of Riverside General Plan</i> (Riverside County 2003) ▪ <i>San Bernardino County Countywide Plan</i> (San Bernardino County 2020) ▪ <i>Calimesa General Plan</i> (City of Calimesa 2014) ▪ <i>Costa Mesa General Plan – Conservation Element</i> (City of Costa Mesa 2015) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>City of Mission Viejo General Plan</i> (Mission Viejo 2021) ▪ <i>One Water One Watershed</i> (Santa Ana Watershed Project Authority 2018) ▪ <i>OCTA M2 NCCP/HCP</i> (ICF 2016) ▪ <i>Diamond Bar General Plan 2040</i> (City of Diamond Bar 2019) ▪ <i>Cleveland National Forest Strategy</i> (USFS 2005a) ▪ <i>San Bernardino National Forest Strategy</i> (USFS 2005b) ▪ <i>WR-MSHCP</i> (Riverside County 2024) ▪ <i>Doheny State Beach General Plan</i> (California State Parks 2004) ▪ <i>INRMP Camp Pendleton Marine Corp Base</i> (U.S. Marine Corps 2018) ▪ <i>San Onofre State Beach General Plan</i> (California State Parks 1984) ▪ <i>County of Orange Central & Coastal Subregion NCCP/HCP</i> (Orange County 1996) ▪ <i>SWAP</i> (CDFW 2025) and companion plans ▪ <i>CEHC</i> (Spencer et al. 2010) ▪ <i>Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2024) ▪ <i>Revised Designation of Critical Habitat for the Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>); <i>Final Rule</i> (FWS 2007b) ▪ <i>Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2006) ▪ <i>Draft Recovery Plan for the Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) (FWS 1998a) ▪ <i>Arroyo Southwestern Toad</i> (<i>Bufo microscaphus californicus</i>) <i>Recovery Plan</i> (FWS 1999) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>County of San Diego General Plan</i> (San Diego County 2011) ▪ <i>Conserving California's Coastal Habitats – A Legacy and a Future with Sea Level Rise</i> (Coastal Conservancy and The Nature Conservancy 2018)

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-4: Decrease mortality and competition, and protect population health for species of mitigation need.	See below	See below	See below
Objective WILD-4.1: Reduce impacts of invasive species on populations of species of mitigation need in the GAI in advance of transportation project impacts.	Sub-Objective WILD-4.1.1: Reduce invasive species in key habitat locations and/or in areas that provide a buffer to high-value habitat for the species of mitigation need. Prioritize areas where invasive species reduction would provide the greatest functional lift to species of mitigation need and their habitat. Sub-Objective WILD-4.1.2: Prioritize restoration of native plant species in key areas, such as critical habitat, movement corridors, and buffer zones.	▪ arroyo toad ▪ coastal California gnatcatcher ▪ least Bell's vireo	▪ <i>City of Tustin General Plan</i> (City of Tustin 2017) ▪ <i>Costa Mesa General Plan – Conservation Element</i> (City of Costa Mesa 2015) ▪ <i>One Water One Watershed</i> (Santa Ana Watershed Project Authority 2018) ▪ <i>OCTA M2 NCCP/HCP</i> (ICF 2016) ▪ <i>WR-MSHCP</i> (Riverside County 2024) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>City of Claremont General Plan</i> (City of Claremont 2020) ▪ <i>City of Norco General Plan</i> (City of Norco 2014) ▪ <i>City of Dana Point General Plan</i> (City of Dana Point 1991) ▪ <i>La Habra General Plan 2035</i> (City of La Habra 2021) ▪ <i>Brea General Plan</i> (City of Brea 2003) ▪ <i>City of Lake Elsinore General Plan</i> (City of Lake Elsinore 2011) ▪ <i>INRMP Camp Pendleton Marine Corps Base</i> (U.S. Marine Corps 2018) ▪ <i>Rancho Santa Margarita General Plan</i> (City of Rancho Santa Margarita 2020) ▪ <i>San Gabriel River Master Plan</i> (Los Angeles County Public Works 2024) ▪ <i>County of Orange Central & Coastal Subregion NCCP/HCP</i> (Orange County 1996) ▪ <i>San Bernardino National Forest Strategy</i> (NFS 2005) ▪ <i>SWAP</i> (CDFW 2025) and companion plans ▪ <i>San Onofre State Beach General Plan</i> (California State Parks 1984) ▪ <i>Doheny State Beach General Plan</i> (California State Parks 2004) ▪ <i>CEHC</i> (Spencer et al. 2010) ▪ <i>Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2024) ▪ <i>Revised Designation of Critical Habitat for the Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>); <i>Final Rule</i> (FWS 2007b) ▪ <i>Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2006) ▪ <i>Draft Recovery Plan for the Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) (FWS 1998a) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>County of San Diego General Plan</i> (San Diego County 2011) ▪ <i>City of Imperial Beach General Plan</i> (City of Imperial Beach 2022)

Objective	Sub-Objective	Affected Species ^a	Alignment with Conservation and Management Plans ^b
Goal WILD-5: Prioritize multi-species and multi-resource benefits.	See below	See below	See below
Objective WILD-5.1: Acquire, protect, restore, and/or enhance habitat that provides multi-species benefits in the GAI in advance of transportation project impacts.	Sub-Objective WILD-5.1.1: Prioritize mitigation to provide benefits to special-status species that may co-occur with the species of mitigation need in key areas and that will provide functional lift to other special-status species in the GAI. Sub-Objective WILD-5.1.2: Identify SHS right-of-way areas where enhancement efforts may benefit species of mitigation need. Sub-Objective WILD-5.1.3: Align with LCP ESHA requirements to prioritize restoration and/or enhancement actions that provide a functional lift to the ESHA and their resource values, when feasible.	▪ arroyo toad ▪ coastal California gnatcatcher ▪ least Bell's vireo	▪ <i>Los Angeles County 2035 General Plan</i> (Los Angeles County Planning 2024) ▪ <i>San Bernardino County Countywide Plan</i> (San Bernardino County 2020) ▪ <i>City of Laguna Niguel General Plan</i> (City of Laguna Niguel 1992) ▪ <i>Glen Helen Specific Plan</i> (Planning Center 2015) ▪ <i>Diamond Bar General Plan 2040</i> (City of Diamond Bar 2019) ▪ <i>City of Dana Point General Plan</i> (City of Dana Point 1991) ▪ <i>City of Highland General Plan</i> (City of Highland 2006) ▪ <i>City of Norco General Plan</i> (City of Norco 2014) ▪ <i>Pomona Tomorrow</i> (City of Pomona 2014) ▪ <i>County of Riverside General Plan</i> (Riverside County 2003) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>County of Orange Central & Coastal Subregion NCCP/HCP</i> (Orange County 1996) ▪ <i>Costa Mesa General Plan – Conservation Element</i> (City of Costa Mesa 2015) ▪ <i>San Bernardino National Forest Strategy</i> (NFS 2005) ▪ <i>One Water One Watershed</i> (Santa Ana Watershed Project Authority 2018) ▪ <i>OCTA M2 NCCP/HCP</i> (ICF 2016) ▪ <i>WR-MSHCP</i> (Riverside County 2024) ▪ <i>SWAP</i> (CDFW 2025) and companion plans ▪ <i>CEHC</i> (Spencer et al. 2010) ▪ <i>Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2024) ▪ <i>Revised Designation of Critical Habitat for the Coastal California Gnatcatcher</i> (<i>Polioptila californica californica</i>); <i>Final Rule</i> (FWS 2007b) ▪ <i>Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) <i>5-Year Review: Summary and Evaluation</i> (FWS 2006) ▪ <i>Draft Recovery Plan for the Least Bell's Vireo</i> (<i>Vireo bellii pusillus</i>) (FWS 1998a) ▪ <i>Arroyo southwestern toad</i> (<i>Bufo microscaphus californicus</i>) <i>Recovery Plan</i> (FWS 1999) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>County of San Diego General Plan</i> (San Diego County 2011)

^a This column includes species of mitigation need that could benefit from these objectives.
^b More information on these plans is provided in Chapter 3, *Relevant Plans, Policies, and Regulations*, and Chapter 4, *Existing Mitigation Opportunities*.

Figure 7-2. State Wildlife Action Plan Conservation Target Habitats



7.8. Summary

Caltrans anticipates that future SHOPP and STIP-eligible transportation projects may be conditioned by CCC, CDFW, FWS, and NMFS to address the pressures and stressors that threaten species of mitigation need in the GAI. The pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species;
- Disease and predation;
- Climate change, drought, wildfire, and sea-level rise; and
- Contaminants.

Caltrans will seek to align advance mitigation project scopes with conservation goals and objectives that address the identified pressures and stressors, thereby aligning advance mitigation efforts with regional conservation efforts.

Regional conservation goals and objectives provide a framework for scoping compensatory mitigation credit establishment that would successfully offset future transportation project impacts on wildlife resources by creating functional lift or conservation benefit and by mitigating the pressures and stressors on wildlife resources in the GAI. To summarize Table 7-3:

- **Goals WILD-1 and WILD-2** seek to conserve existing habitat for species of mitigation need in the GAI and increase connectivity between blocks of habitat. The objectives to fulfill these goals are acquisition, protection, restoration, and/or enhancement of land. Caltrans intends to prioritize efforts that provide the greatest functional lift for the species of mitigation need and that provide a conservation benefit in terms of size, connectivity, quality, and contribution to the climate resilience of habitat in the GAI. By increasing connectivity for species of mitigation need, Caltrans anticipates that co-occurring species will realize these same benefits. These goals and objectives were selected to address habitat loss, fragmentation, and degradation and to address impacts from climate change, drought, and sea-level rise. Further, Caltrans anticipates that actions completed through restoration, enhancement, and/or preservation may also provide opportunities to address invasive species and predation.
- **Goal WILD-3** seeks to support landscape resiliency for species of mitigation need habitat in the GAI. The primary objectives are to reduce the effects of climate change and sea-level rise on these species by increasing the protection and functionality of land that is identified as crucial for climate resiliency, including corridors that provide the ability for these species to migrate from areas of low climate resilience into areas with higher resilience and addressing the climate change-related threat from invasive species. In addition to addressing climate change in general, these goals and objectives address habitat loss, fragmentation, and degradation as well as invasive species.

- **Goal WILD-4** seeks to decrease mortality of species of mitigation need from known immediate and ongoing threats to individuals or populations by protecting native vegetation and reducing conditions that favor predators and competitors. These objectives address issues related to habitat loss, fragmentation, and degradation as well as threats from invasive species and predation.
- **Goal WILD-5** seeks to guide advance mitigation scoping to prioritize multi-species and multi-resource benefits to maximize ecological benefits to the GAI. Advance mitigation provides the opportunity to maximize Caltrans' benefit to conservation in the GAI, including to species other than the species of mitigation need and other land management objectives. Goal WILD-5 was developed to include conservation for multiple species and to provide compensatory mitigation for impacts on species of mitigation need.

Each of the goals and objectives have sub-objectives intended to guide advance mitigation scoping toward natural resource regulatory agencies' regional conservation goals. These sub-objectives will prompt Caltrans to incorporate priority habitat or corridors into advance mitigation scopes and address important threats in the area through an advance mitigation project. This concept is an important way for Caltrans to seek use of advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects to provide a functional lift for the species of mitigation need and to maximize conservation benefits from mitigation in the GAI.

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8. AQUATIC RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for aquatic resources is to avoid and minimize all impacts on fish, wetlands, non-wetland waters, and riparian habitat from Caltrans transportation projects in the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including restoration, enhancement, and preservation, and to provide an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' conservation goals and objectives and to contribute to an improved environmental outcome in the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives that could be applied to advance mitigation projects undertaken in the GAI to offset forecast impacts from SHOPP transportation projects.

The goals and objectives developed in this chapter are intended to guide advance mitigation scoping decisions toward those choices that will provide for the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such advance mitigation projects undertaken by Caltrans should contribute to aquatic resource, vernal pool, and riparian habitat restoration and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.¹ Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

Information presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

8.1. Approach

For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.

¹ Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

To determine the aquatic resource conservation goals and objectives applicable to the GAI, Caltrans:

- First, in Section 8.2, identifies natural resource regulatory agencies with the authority to condition transportation projects with aquatic resource-related and riparian-related compensatory mitigation in the GAI.
- Then, in Section 8.3, summarizes information for the wetland, non-wetland waters, and fish species addressed by the assessment.
- Next, in Sections 8.4, 8.5, and 8.6, for aquatic resources identifies:
 - Federal and state policies and binding and non-binding regional conservation and land management plans,
 - Current and projected pressures and stressors, including climate change and sea-level rise, for which there is a transportation nexus,
 - Opportunities to enhance the conservation benefits through advance mitigation projects, and
 - Opportunities to provide co-benefits, where possible, to water quality, groundwater recharge, and species that require aquatic habitats.
- Last, analyzes the aforementioned information in relation to the transportation-related activities that could potentially affect aquatic resources and areas of potential riparian function and the potential range of compensatory mitigation that could satisfy a transportation project condition associated with the activities.

The result of this analysis is a framework of conservation goals and objectives for use in advance mitigation project scoping (Section 8.7).

8.2. Natural Resource Regulatory Agencies with Aquatic Resources Oversight

Table 8-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered in the GAI with aquatic resource-related compensatory mitigation. Terrestrial special-status wildlife species are known to use streams, wetlands, and other aquatic resources that are regulated by federal and state agencies specific to those habitat types. This RAMNA identifies goals and objectives for terrestrial species separately in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*.

Table 8-1. Natural Resource Regulatory Agencies with the Authority to Approve Aquatic Resource Compensatory Mitigation Credits (or Values)

Agency	Summary
CCC	CCC protects the coast by planning for and regulating new development in the coastal zone pursuant to the policies of the California Coastal Act. Through the issuance of CDPs, CCC implements the policies of the California Coastal Act, including protecting sensitive resources (for example, wetlands, waters, ESHAs), water quality, public access to the coast, and more, and requires mitigation for unavoidable impacts on these resources. CCC also coordinates with local governments in developing and certifying LCPs, which allow local governments to assume the authority to issue CDPs within their jurisdiction. The agency also provides comprehensive guidance to local governments and project applicants regarding planning for and adapting to climate change and sea-level rise. The CCC, agency, or authorized local government with a certified LCP also determines how an ESHA is defined.
CDFW	CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. California law (FGC § 1602) also requires an entity to notify CDFW prior to commencing any activity that may substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW issues agreements to project proponents under its authorities, including Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. Under the CESA, CDFW also has authority to issue incidental take permits for state-listed species and Consistency Determinations for state and federally listed species. Additionally, CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Division 1 of Title 14 of the California Code of Regulations, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values.
Corps	It is the mission of the Corps' Regulatory Program (33 CFR Part 230 and Parts 320–332) to protect the nation's aquatic resources and navigation capacity while allowing reasonable development through fair, flexible, and balanced permit decisions. The Corps is responsible for administering laws for the protection and preservation of aquatic resources pursuant to Section 10 of the Rivers and Harbors Act of 1899 and CWA Section 404. Pursuant to the Rivers and Harbors Act, all work or structures in, over, or under navigable WOTUS require Corps authorization. The Corps authorizes, under CWA Section 404, the discharge of dredged or fill material into WOTUS, including wetlands. When the Corps' civil works projects are proposed to be used or altered by another entity, CWA Section 408 permission (33 USC 408 or Section 14 of the Rivers and Harbors Act of 1899, as amended) must be obtained in addition to the CWA Section 404 authorization. According to the 2008 mitigation rule, in general it is the preference of the Corps to use the following order of priority for mitigation: mitigation bank, in-lieu fee program, permittee-responsible mitigation under the watershed approach, in-kind on-site permittee responsible mitigation, and out-of-kind/off-site permittee-responsible mitigation, but the preference may change based on what is environmentally preferable.

Agency	Summary
EPA	EPA has authority under the CWA (33 USC § 11251–1357) to restore and maintain the chemical, physical, and biological integrity of the nation's waters. EPA and the Corps jointly implement the CWA Section 404 program, which regulates discharge of dredge or fill material into WOTUS. Federal authorizations also need to be reviewed for compliance with CWA Section 401. EPA has been delegated the responsibility of implementing CWA Section 401 for projects on tribal land, unless EPA has delegated 401 authority to a recognized tribe.
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS does not, however, have jurisdiction over anadromous fish. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(2)(b) of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate. In May 2023, FWS issued a Mitigation Policy that builds upon the guidance in the 1981 Mitigation Policy for recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife and a FESA Compensatory Mitigation Policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA. Conservation banking can assist federal and non-federal participants in the FESA's Section 7 and Section 10 process. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Sections 7 and 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on site or off site.
NMFS	NMFS has jurisdiction over marine species listed as threatened or endangered under the FESA. Federal agencies must consult with NMFS to ensure that their actions do not jeopardize the continued existence of FESA-listed species or result in the destruction or adverse modification of designated critical habitat. NMFS also manages and conserves wildlife and fisheries resources in the marine and estuarine environment under the Magnuson-Stevens Fishery Conservation and Management Act. Federal agencies must consult with NMFS on any action that might adversely affect EFH. NMFS will advise federal agencies to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH. Magnuson-Stevens Fishery Conservation and Management Act EFH consultation can be done in tandem with FESA consultation. NMFS protects marine mammals under the Marine Mammal Protection Act, with the exception of sea otters, walruses, manatees, and polar bears, which are managed by FWS. With some exceptions, the Marine Mammal Protection Act prohibits the take of marine mammals, including harassment, hunting, capturing, collecting, or killing, in U.S. waters and by U.S. citizens on the high seas.

Agency	Summary
Water Boards	The Porter-Cologne Act governs water quality regulation in California and gives the Water Boards the authority to condition projects, through waste discharge requirements, to protect water quality and the beneficial uses of waters of the state, as identified in Basin Plans. Basin Plans, adopted by the RWQCBs, incorporate the beneficial use designation of surface waters of the state and must consider (among other uses) the use and value of water for protection and propagation of fish, shellfish, and wildlife. The Water Boards have been delegated the responsibility of implementing CWA Section 401, which regulates the discharge of pollutants, such as dredged and fill material, into WOTUS. The Water Boards may determine that compensatory mitigation is necessary to offset unavoidable impacts on aquatic resources. Compensatory mitigation can be achieved through purchase of credits as outlined in the <i>State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State</i> (SWRCB 2019b). Projects that occur in one region are regulated by that regional board, whereas projects that cross regions (or have statewide significance) are regulated by SWRCB.

8.3. Aquatic Resources and Species of Mitigation Need

An overview of aquatic resources and species of mitigation need was provided in Chapter 2, *Environmental Setting*, and is summarized below. The GAI overlaps, in part or in whole, with the HUC-8 boundaries listed in Table 8-2.

8.3.1. Wetlands and Non-wetland Waters

The San Gabriel River and Santa Ana River are the major river systems of the GAI (Section 2.14, Appendix H) (Los Angeles RWQCB 2020; San Diego RWQCB 2021; Santa Ana RWQCB 2019). Additionally, there are hundreds of named and unnamed tributaries, the majority of which flow into these rivers and/or the ocean. Flow into these systems primarily originates from rainfall with some input from snow in the San Gabriel Range.

Aquatic habitat types with the potential to occur in the GAI are mapped in Appendix H, *Aquatic Resource Locations*. Based on the SAMNA Reporting Tool's wetlands and waters layer, the GAI has a total of 66,280 acres of aquatic habitat, consisting of 32 wetland and non-wetland water habitats that are listed in Table 2-6 (Caltrans 2024f, 2024g). Sixteen (16) beneficial uses that support the preservation and enhancement of wildlife habitat and aquatic resources in the GAI also align with the AMP's objective to contribute to an improved environmental outcome through transportation project mitigation and are relevant to this RAMNA (Table 2-5).

8.3.2. Areas of Potential Riparian Function

Forecast transportation project impacts on areas of potential riparian function, as discussed in Chapter 5, *Modeled Estimated Impacts*, were obtained by using the Caltrans riparian landcover dataset (described in Section 1.4.1).

8.3.3. Steelhead

The Southern California DPS of steelhead overlaps the GAI (Section 2.18.2). This DPS is federally endangered. Designated critical habitat for this DPS occurs in the GAI within the San Juan Hydrologic Unit 4901. This designated critical habitat includes San Mateo,

San Juan, and Trabuco Creeks. The Southern California DPS includes all naturally spawned populations of steelhead in streams from the Santa Maria River, San Luis Obispo County, California, to the U.S.-Mexico border (62 *Federal Register* 43937, August 18, 1997; 67 *Federal Register* 21586, May 1, 2002). This DPS does not include any artificially propagated steelhead stocks that reside within the historical geographic range of the DPS.

Steelhead in this DPS exhibit both winter- and summer-run migration timing. Winter-run adults enter freshwater rivers as early as September and October, continuing into April and May, then move upstream to spawn. Summer-run steelhead typically enter freshwater between April and June or July and spend the summer holding in freshwater streams before spawning the following winter. Steelhead will then spawn in tributaries of main rivers, returning to the ocean after spawning. Spawning habitat consists of freshwater streams with cold, clear water and suitable spawning substrates (Moyle 2002).

8.4. Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect aquatic resources. Several conservation and land management plans listed in Table 3-1, relevant to the aquatic resources, identify key habitats, specific designated waters, or areas for aquatic resource enhancement and restoration. For example, some LCPs include ESHAs with aquatic resource attributes. Others identify key qualities, such as water quality, that are essential for aquatic resource enhancement and restoration. Still others name specific National Hydrology Dataset features, presented in Table 8-2, for aquatic resource enhancement and restoration. Additionally, the documents include strategies for aquatic resource protection and measures to address specific known, ongoing threats to aquatic resources. These conservation and land management plans are presented in Table 8-3.

Table 8-2. Named Aquatic Features in the GAI with Documented Aquatic Resources Goals and Objectives, by HUC-8

Aliso-San Onofre HUC-8 18070301	Newport Bay HUC-8 18070204	San Gabriel HUC-8 18070106	Santa Ana HUC-8 18070203	Seal Beach HUC-8 18070201
▪ Aliso Creek ▪ Cristianitos Creek ▪ El Toro Drainage ▪ Laguna Channel ▪ Salt Creek ▪ San Juan Creek ▪ San Mateo Creek ▪ Sulphur Creek	▪ Agua Chinon Wash ▪ Veeh Reservoir	▪ Carbon Canyon Creek ▪ San Gabriel River ▪ San Jose Creek Diversion Channel ▪ West Fork San Gabriel River	▪ Alder Creek ▪ Cable Creek Cajon Creek/Wash ▪ Chino Creek ▪ City Creek ▪ Cucamonga Creek ▪ Huntington Beach Wetlands ▪ Huntington Harbor ▪ Lytle Creek ▪ Mill Creek ▪ Morey Arroyo ▪ Oak Glen Creek ▪ Santa Ana River ▪ Santiago Creek ▪ Talbert Flood Control Channel ▪ Yucaipa Creek	▪ Anaheim Bay ▪ Bolsa Chica Channel ▪ Bolsa Chica Wetlands

Table 8-3. Documents Identifying Aquatic Resource Goals and Objectives in the GAI

Document	Reference	Information Identified
Policies, Procedures, Guidelines, and Water Quality Plans	See below	See below
<i>2008 Final Compensatory Mitigation Rule</i>	73 <i>Federal Register</i> 19593	Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on- and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS. Recognizes that consolidating mitigation may be environmentally preferable for linear projects (because advance or at least concurrent compensatory mitigation is environmentally preferable but not always possible to achieve) (Preamble and 33 Section 332.3).
<i>2020 Fish Passage Annual Legislative Report</i>	Caltrans 2021	In compliance with SHC § 156, this report identifies priority fish passage barriers on the SHS. Priorities are determined through FishPAC collaboration and are based on the following: ▪ Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed ▪ Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species ▪ Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts Subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, and other local fish passage advocates.
<i>2018 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report</i>	SWRCB 2021	Section 303(d) of the CWA requires that, every 2 years, each state submit to EPA a list of rivers, lakes, and reservoirs in the state for which pollution control or requirements have failed to provide for water quality. Based on a review of this list and its associated Total Maximum Daily Load Priority Schedule (Appendix G), 104 water bodies are listed as impaired in the GAI.
<i>California Coastal Act of 1976</i>	CCC 2022	California law that, in part, establishes and protects a coastal zone, sets forth a wetland definition to be regulated, creates broad management policies in the coastal zone, and establishes regulations for coastal zone protection.
<i>California Wetlands Conservation Policy</i>	Executive Order W-59-93	The “No Net Loss Policy” for wetlands aims to “[e]nsure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property.”

Document	Reference	Information Identified
<i>Definition and Delineation of Wetlands in the Coastal Zone</i>	CCC 2011	Identifies wetland delineation procedures and the use of a one-parameter approach for identifying a wetland.
<i>National Wetlands Mitigation Action Plan</i>	EPA and Corps 2002	An EPA and Corps comprehensive, interagency document to further achievement of the goal of no net loss of wetlands. The goals and objectives of the <i>National Wetlands Mitigation Action Plan</i> were incorporated into the 2008 Final Compensatory Mitigation Rule, which was updated in 2015 and includes the no net loss policy.
<i>Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division</i>	Corps 2015	Provides guidelines for compensatory mitigation site selection. A watershed approach should be used when selecting sites to establish compensatory mitigation.
<i>State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State</i>	SWRCB 2019b	Creates a State of California wetland definition, a framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state.
<i>Water Quality Control Plan for the Los Angeles Region Basin</i>	Los Angeles RWQCB 2020	Identifies water quality objectives and beneficial uses for the Los Angeles Region Basin.
<i>Water Quality Control Plan for the San Diego Basin</i>	San Diego RWQCB 2021	Identifies water quality objectives and beneficial uses for the San Diego Basin.
<i>Water Quality Control Plan for the Santa Ana River Basin</i>	Santa Ana RWQCB 2019	Identifies water quality objectives and beneficial uses for the Santa Ana River Basin.
Conservation and Land Management Documents	See below	See below
<i>Chino Hills State Park General Plan</i>	Chino Hills State Park 1999	Includes goal to remove giant reed from the portion of the Santa Ana River that flows through the park.

Document	Reference	Information Identified
<i>City of Highland General Plan</i>	City of Highland 2006	Includes a goal to improve hydrology, water quality, and habitat value of watersheds in the city.
<i>City of Huntington Beach General Plan Coastal Element</i>	City of Huntington Beach 2017	The LCP for Huntington Beach is included with the general plan. Includes a goal to conduct enhancement and/or restoration at the Bolsa Chica wetland complex and the Talbert Flood Control Channel as well as any other wetlands or riparian corridors in the LCP.
<i>City of Villa Park General Plan</i>	City of Villa Park 2010	Includes a goal to increase groundwater recharge in the city.
<i>Corona General Plan 2020–2040</i>	City of Corona 2020	Includes goals to remove tamarisk and giant reed in the city.
<i>Design Criteria for the Southern California National Forests</i>	USFS 2005c	Includes a general goal to control giant reed and tamarisk in the forest.
<i>Draft Recovery Plan for the Least Bell's Vireo (Vireo bellii pusillus)</i>	FWS 1998a	Identifies nest parasitism as a threat to least Bell's vireo and includes goal to remove brown-headed cowbirds. Identifies invasion of nonnative vegetation such as castor bean (<i>Ricinus communis</i>), cocklebur (<i>Xanthium strumarium</i>), tamarisk, and giant reed as a threat to nesting least Bell's vireos.
<i>Enhanced Watershed Management Program Plan</i>	Los Angeles RWQCB 2015	Includes goals to improve water quality in the San Gabriel River watershed.
<i>Final Integrated Natural Resources Management Plan Naval Weapons Station Seal Beach, California</i>	U.S. Navy 2014	Includes a general goal to restore the historic acreage and function of freshwater and saline wetland/riparian habitats along with upland transitional areas. This includes specific goals to eradicate hyssop loosestrife (<i>Lythrum hyssopifolium</i>), common brassbuttons (<i>Cotula coronopifolia</i>), curved sicklegrass (<i>Parapholis incurva</i>), and highway iceplant from the base. Another specific goal is included for coastal salt marsh restoration specifically for the benefit of salt marsh bird's beak (<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>), Belding's savannah sparrow (<i>Passerculus sandwichensis beldingi</i>), and light-footed clapper rail (<i>Rallus obsoletus levipes</i>).

Document	Reference	Information Identified
<i>Final Joint Integrated Natural Resources Management Plan for Marine Corps Base and Marine Corps Air Station Camp Pendleton, California</i>	U.S. Navy 2018	Includes the following aquatic resource goals for portions of the base and air station in the GAI: ▪ Enhance vernal pools along existing roads from a 1998 baseline for the benefit of San Diego button celery (<i>Eryngium aristulatum</i> var. <i>parishii</i>), spreading navarretia, San Diego fairy shrimp, and Riverside fairy shrimp. ▪ Control nonnative aquatic wildlife species in the San Onofre Creek-Frontal Gulf of Santa Catalina and San Mateo Creek HUC-10s, which are in the Aliso-San Onofre HUC-8. ▪ Eliminate giant reed, tamarisk, and perennial pepperweed from San Mateo Creek and reduce base-wide coverage of these species to less than 1 percent.
<i>Habitat Restoration and Enhancement Plan Nature Reserve of Orange County Central Coastal Subregion</i>	Nature Reserve of Orange County 2003	Includes prioritization of restoration in the Orange County Central Coastal Subregion NCCP/HCP area. Priorities include the removal of the following species from the following areas: ▪ Cape ivy in the entire area ▪ Artichoke thistle in the vicinity of riparian corridors ▪ Poison hemlock in the riparian areas of Crystal Cove State Park ▪ Harding grass (<i>Phalaris aquatica</i>) and Italian thistle (<i>Carduus pycnocephalus</i>) in the El Toro drainage, with replacement by oak riparian woodland and wet meadow habitat ▪ Giant reed from Aliso Creek ▪ Tamarix from the Agua Chinon Wash ▪ Giant reed, fennel, and Spanish broom in Santiago Creek
<i>I-5 North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program</i>	Caltrans and San Diego Association of Governments 2016	Includes a goal identifying maintenance and reduction of sedimentation into water bodies as a potential mitigation opportunity in the Resource Enhancement and Mitigation Program.
<i>Integrated Natural Resources Management Plan March Air Reserve Base, California</i>	U.S. Air Force 2021	Includes a goal to restore degraded vernal pools on the base.

Document	Reference	Information Identified
<i>Multiple Species Conservation Program (MSCP) Plan – County of San Diego Subarea</i>	San Diego County 1998	Includes a goal to increase conserved acreage to specified amounts in the following aquatic habitats and includes a general goal to enhance them: ▪ Freshwater marsh – 51 acres ▪ Oak riparian forest – 1,856 acres ▪ Riparian forest, woodland, and scrub – 475 acres ▪ Open water – 107 acres ▪ Disturbed wetland – 68 acres ▪ Flood channel – 197 acres
Special-status Species and Sensitive Habitat Documents	See below	See below
<i>Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon</i>	FWS 2005	The San Diego and Los Angeles Regions are covered by the plan, which contains the Harford Springs, San Jacinto-Hemet, and Santa Rose Plateau core areas. Listed species for recovery that use aquatic habitat in these core areas are covered in the <i>Recovery Plan for Vernal Pools of Southern California</i> (FWS 1998b). Additional species that use aquatic habitat that are expected to benefit from this plan in the GAI include western spadefoot toad (<i>Spea hammondi</i>) and little mousetail (<i>Myosurus minimus</i>).
<i>Recovery Plan for Vernal Pools of Southern California</i>	FWS 1998b	The general recovery objective of this plan is to downlist from endangered to threatened a number of species that require vernal pools and to conserve and enhance vernal pool ecosystems that occur in Southern California such that the long-term survival of each species is ensured. Species to be downlisted include San Diego fairy shrimp, Riverside fairy shrimp, San Diego button-celery, Otay mesa mint, San Diego mesa mint, and California Orcutt grass. An additional goal exists to ensure the long-term conservation of spreading navarretia, which was listed as threatened after publication of this plan. Specific goals for downlisting of these species in this plan that are relevant to the GAI include: ▪ Habitat enhancement and/or restoration in the Fairview Park, Lomas Ridge, Saddleback Meadow, Laguna Lakes, Chiquila Ridge, and San Mateo vernal pool complexes. ▪ Population trends of the above-mentioned species are stable or increasing for 10 consecutive years.
<i>MSCP Plan – North County of San Diego</i>	San Diego County 2009	This document is in draft form and currently includes a requirement for mitigation at 3:1 impacts for wetlands, including vernal pools, with 1 part creation and 2 parts enhancement or restoration. This document also includes a goal for the creation of a mitigation bank for the types of vernal pools specific to the census-designated place of Ramona.

Document	Reference	Information Identified
<i>Southern California Steelhead Recovery Plan</i>	NMFS 2012	The goal of this recovery plan is to prevent the extinction of Southern California steelhead in the wild and to ensure the long-term persistence of viable, self-sustaining, populations of steelhead distributed across the Southern California DPS. The plan identifies flood control maintenance, levees and channelization, urban development, and culverts and road crossing as very high threats to Southern California steelhead in the San Gabriel River and dams and surface water diversions as a very high treat to Southern California steelhead in the Santa Ana River. The plan outlines goals to restore aquatic habitat functions in the San Gabriel River Mainstem, West Fork San Gabriel River, Lytle Creek, and Mill Creek.
<i>South Coast Resource Management Plan Draft Resource Management Plan and Environmental Impact Statement</i>	BLM 2011	Identifies a goal to remove tamarix from riparian habitats of the management area, which is distributed in numerous relatively small parcels in the GAI.
<i>Steelhead Restoration and Management Plan for California</i>	CDFW 1996	There are no management objectives for steelhead in the GAI because they have not been observed within the area in recent history.
<i>Strategic Plan to Protect California's Coast and Ocean 2020–2025</i>	OPC 2019	Includes goals and objectives centered on safeguarding and enhancing coastal and marine ecosystems through wetland and seagrass habitat creation.
<i>California State Wildlife Action Plan (SWAP), 2025 Update</i>	CDFW 2025	Identifies American southwest riparian forest and woodland and freshwater marsh as conservation targets.
<i>Upper Santa Ana River Integrated Regional Water Management Plan</i>	Water Systems Consulting, Inc., and Woodard & Curran 2021	Includes goals to improve water quality and improve 1,200 acres of habitat in the watershed area.

Document	Reference	Information Identified
<i>Wetlands on the Edge. The Future of Southern California's Wetlands. Regional Strategy 2018</i>	California Coastal Conservancy 2018	This document is the product of a collective effort of the California Coastal Conservancy, EPA, NOAA, and FWS, with additional input from CDFW, CNRA, CCC, SWRCB, Los Angeles RWQCB, San Diego RWQCB, Santa Ana RWQCB, and the Corps. These natural resource regulatory agencies are identified as members of the Director's Group and/or Wetland Managers Group, which decide and implement the strategy. Includes the following goals, some of which are for the Southern California region as a whole, and some are specific to subregions, all of which are either wholly or partially in the GAI: ▪ For specific subregions, a goal is to restore specific acreages of tidal wetlands with the assumption that there will be 2 feet of sea-level rise, focusing on areas where future tidal wetlands will develop from the new shoreline: ○ San Diego – 1,526 acres ○ San Pedro – 2,036 acres ▪ Increase the area of tidal wetland-upland transition so that at least 40 percent of a tidal wetland has a transition zone and increase the transition up to 500 meters in size. ▪ Restore 49,421 acres of non-tidal wetlands across all subregions. ▪ Restore or maintain 189,036 acres of streams and associated non-tidal wetlands across all subregions. ▪ Restore or maintain 21,004 acres of non-tidal and non-riverine wetlands across all subregions.

Document	Reference	Information Identified
City General Plan Documents	See below	See below
Various City general plans	City of Chino 2010; City of Eastvale 2024; City of Huntington Beach 2017; City of Laguna Hills 2009; City of Laguna Niguel 1992; City of Orange 2010; City of Norco 2014; City of Pico Rivera 2014; City of Rancho Santa Margarita 2020; City of Redlands 2017; City of San Bernardino 2005; City of Walnut 2018; City of Westminster 2016; City of Yucaipa 2016	Fourteen (14) of the city general plans identified in Chapter 3 have goals pertaining to the enhancement and/or restoration of specific aquatic features. A list of the features identified in these plans is provided below: ▪ Aliso Creek ▪ Cable Creek ▪ Cajon Creek/Wash ▪ Chino Creek ▪ City Creek ▪ Cucamonga Creek ▪ Huntington Beach wetland complex ▪ Mill Creek ▪ Morey Arroyo ▪ Oak Glen Creek ▪ Salt Creek ▪ San Gabriel River ▪ Santa Ana River ▪ Santiago Creek ▪ Sulphur Creek ▪ Veeh Reservoir ▪ Yucaipa Creek

8.5. Pressures and Stressors

Pressures and stressors refer to environmental trends or physical, chemical, or biological factors or conditions that affect aquatic resources. According to the SWAP (CDFW 2025), a pressure is defined as “an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant.” Additionally, stress is defined in the SWAP as “[a] degraded ecological condition of a target that resulted directly² or indirectly from negative impacts of pressures (e.g., habitat fragmentation)” (CDFW 2025). The Corps defines human stressors as human-caused sources of disturbance in an ecosystem, such as roads, urban areas, and agricultural lands (Corps 2015).

The documents in Table 8-3 identify multiple pressures and stressors on aquatic resources in the GAI where hydrology, land use and management, and climate intersect. These pressures and stressors were evaluated in relation to the types of direct and indirect effects that could result from transportation projects funded through SHOPP and could benefit from in-kind mitigation purchased or established through an advance mitigation project. When designating an area as an ESHA, the CCC and LCPs also consider the pressures and stressors discussed below.

8.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, barriers, and habitat invasion by nonnative species have led to the loss and degradation of aquatic resources. Additionally, the expansion of roads and urbanization have resulted in habitat fragmentation and a decrease in connectivity between habitats that support different life stages and have contributed to nonpoint source pollution from chemicals and toxins. Roads have also affected local hydrological conditions by changing sheet flow and altering water movement in drainages (CDFW 2016, 2025). In the GAI, the majority of urbanization and development occurs in the northwestern and southwestern corners, particularly west of Interstate 15 (Figure 2-7).

Estuarine habitat loss through artificial migration barriers, removal of native riparian vegetation resulting in increased stream bank erosion, degradation of water quality, removal of instream wood, and sedimentation are all listed as factors for Southern California steelhead being listed under the FESA and are still affecting Southern California steelhead (NMFS 2023). Southern California steelhead depend on a mix of stream and coastal habitats, including woodland-dominated inland streams, coastal estuaries, and seasonal lagoons in the GAI (NMFS 2012). Human-induced threats from water development, flood control programs, forestry practices, agricultural activities, mining, and urbanization have altered the connections between the types of habitat, as well as the amount of sediment supply into streams and rivers. Projects that involve pile

² Direct effects occur at the time of construction, and indirect effects are reasonably certain to occur but later in time.

driving in or near water can also contribute to increased underwater sound pressure in marine and freshwater environments, which has led to injury and fish mortality in some cases (Hastings and Popper 2005).

Increased sedimentation has direct negative effects on Southern California steelhead by interfering with their physiological and biological processes and indirect effects through degradation of their habitat. Juvenile steelhead use estuaries to acclimate to saltwater while transitioning from freshwater streams to the ocean, and the loss of this buffer area to development and habitat degradation is a factor in the species' decline (NMFS 2012).

8.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. When invasive, nonnative species enter an ecosystem, they can disrupt the natural balance, resulting in a reduction of biodiversity, degradation of habitats, alteration of native genetic diversity, shifting of wetland type, and further threats to already endangered or threatened natural resources (CDFW 2016). If invasive plant species become dominant in vernal pool systems, such as Mediterranean barley (*Hordeum marinum*) and annual beard grass (*Polypogon monspeliensis*), many native aquatic species can become sparse or locally extirpated (CDFW 2025). Invasive plant species that affect riparian systems in the GAI include floating water primrose (*Ludwigia uruguayensis*), giant reed grass (*Arundo donax*), tree of heaven (*Ailanthus altissima*), and Mexican fan palm (Cal-IPC 2024b). Invasive animal species that can damage aquatic ecosystems in general include African clawed frog, bullfrog, bluegill, and fathead minnow. Recently, the goldspotted oak borer beetle and polyphagous shot hole boring beetle, which cause tree mortality and damage forested riparian ecosystems, have come into the San Diego region (CDFW 2025). Additionally, quagga mussels have been found in 12 locations in San Diego County, 8 locations in Orange County, 5 locations in Los Angeles County, 9 locations in Riverside County, and 3 locations in San Bernardino County (CDFW 2017). Ten occurrences of quagga mussels are inside the GAI and two occurrences outside the GAI in the Olivenhain Reservoir and Dixon Reservoir (CDFW 2017). Quagga mussels damage aquatic ecosystems by direct predation on native species, outcompeting native species for food, or by damaging riparian trees (CDFW 2017). Quagga mussels are known to cause significant ecosystem and economic damage by eating portions of the food web, overcrowding the bottom of lakes and reservoirs, and clogging water pipe screens and filters (California Science Advisory Panel 2007).

Invasive plant species such as giant reed grass, tamarisk (*Tamarix* spp.), and water primrose are a threat to Southern California steelhead populations because of their inhibiting effect on riparian vegetation and crowding of habitat that steelhead use (NMFS 2012). Invasive wildlife species such as red swamp crayfish (*Procambarus clarkii*), smallmouth bass (*Micropterus dolomieu*), and bullfrogs (*Lithobates catesbeianus*) are a threat to Southern California steelhead populations because they prey on their eggs and rearing juveniles (NMFS 2012, 2023).

8.5.3. Altered Hydrology, Geomorphology, and Water Quality

Water quality and hydrology can be directly altered by physical barriers such as culverts, dams (including cofferdams), dikes, trash racks, bridges, roads, canals, and other human-made infrastructure, which can have effects both upstream and downstream by truncating connectivity, altering sediment transport processes, altering natural flow regimes, and changing water surface elevations, adding to the downstream loss of habitat. Stable geomorphology and sediment transport are critical to maintaining healthy streams so that degradation and aggradation do not destroy habitats in the stream and riparian and wetland habitats downstream. The loss of wetlands can result in increased flooding and decreased water quality in downstream tributaries. Water diversions, in-channel construction, riparian vegetation reduction, agriculture, alteration of streambed and banks, components of timber management, and point and nonpoint source pollution have affected the aquatic ecosystem by altering historical flooding regimes, erosion, and deposition of sediments that maintain floodplains (CDFW 2025). Vernal pool and seasonal wetland hydrology also may be altered by changes to surface and subsurface flow attributable to road structures, depending on topography, precipitation, and soil types, as can the hydrology that supports freshwater wetland and riparian communities (FWS 2005).

These stressors affect steelhead by reducing survival rates for juvenile steelhead and reproductive rates for adult steelhead. Flow reductions through water use also increase the likelihood for juvenile steelhead stranding. One of the most widespread stresses for steelhead is increased water temperature, which regulates feeding, spawning, growth, and migration. Proper levels of dissolved oxygen, pH, and ammonia can all be shifted to levels dangerous for steelhead by agriculture runoff and sedimentation (NMFS 2012). In many river systems, the creation of dikes, levees, tide gates, and culverts has affected water quality and hydrology directly and/or indirectly. Removing or altering hydrologic connections can negatively affect the ability of steelhead to migrate to and from their natal streams. This, in turn, reduces overall reproductive success through a reduction in egg development, increased risk of mortality before spawning, and direct loss of spawning habitat (NMFS 2012).

Fish barrier removal priorities exist both on and off the SHS. However, on-system fish passage barriers take priority over off-system barriers until such time that no feasible on-system barriers exist. Caltrans and CDFW agree to a collaborative barrier prioritization process through the FishPACs. This prioritization is updated each year in the *2020 Fish Passage Annual Legislative Report* (Caltrans 2021). The priorities on the SHS are dynamic, changing as they are addressed and as funding becomes available.

For the SHS, priority barriers are determined in coordination with the six regional FishPACs and reported to the Legislature in October of each year, in accordance with SHC § 156.1-3 (Senate Bill 857, Kuehl, Chapter 589, Statutes of 2005). Priority fish passage barriers currently account for an estimated 330 miles of currently blocked habitat for threatened and endangered salmon and steelhead along the California coastline and inland Central Valley. Full-span solutions allow Caltrans to reduce the overall number of

known barriers on the SHS, provide access to the highest-quality habitat, and reduce rework and partial solutions, which require long-term monitoring and costly maintenance until the end of the facility's service life—when the full-span solution will be required. Priority locations are ranked by considering a species' listing status and diversity, quality and quantity of habitat for recovery, and related best professional knowledge. FishPAC's subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.

8.5.4. Climate Change, Drought, and Sea-level Rise

Section 2.5 provided a brief overview of the GAI's climate and available planning-level predictions for climate change and sea-level rise for the region. In the next 30 years, the climate is expected to change. Expected changes include extended periods of higher temperatures and more frequent heat waves in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter; sea-level rise; storm surges; cliff retreat attributable to coastal erosion; and an increased risk of wildfire and flooding. Increased storm surges, sea-level rise, and sea cliff retreat that is projected to occur in the region could damage estuaries and tidal wetlands (Caltrans 2019b). Additionally, plants in a Mediterranean climate may be particularly sensitive to shifts in precipitation on account of inhabiting an area that historically had consistent weather and precipitation patterns, including those that occur in riparian and wetland habitats (FWS 2013). Climate change is expected to affect freshwater wetland habitats by reducing those away from the coast that are surrounded by upland habitat, with sea-level rise expected to flood those near the coast (CDFW 2025).

Increased temperature is detrimental to the survival of most life stages of steelhead and would most likely affect summer-rearing juveniles. Severe weather patterns have been observed to cause increased sedimentation during flood events and pool disconnection during drought events, which are listed as a high threat to steelhead (NMFS 2012).

8.5.5. Wildfire Risk

Vegetation can be altered by large-scale wildfire effects by altering microclimatic regimes, increasing runoff and river discharge, and enhancing erosion and sediment inputs, transport, and deposition. Fires can also affect the physical characteristics of riparian and wetland ecosystems by transitioning vegetation from aquatic and riparian areas to uplands (Bixby et al. 2015).

Fire in riparian zones can reduce canopy cover and the amount of woody debris, resulting in increased water temperatures and changes to habitat complexity in the river or stream (CDFW 2025). Santa Ana winds, which are hot and dry winds originating in Great Basin mountain ranges, amplify most wildfires in the San Diego region. An increase in the number of the driest Santa Ana winds is projected; however, the total number of Santa Ana winds is expected to decrease (Hall et al. 2018).

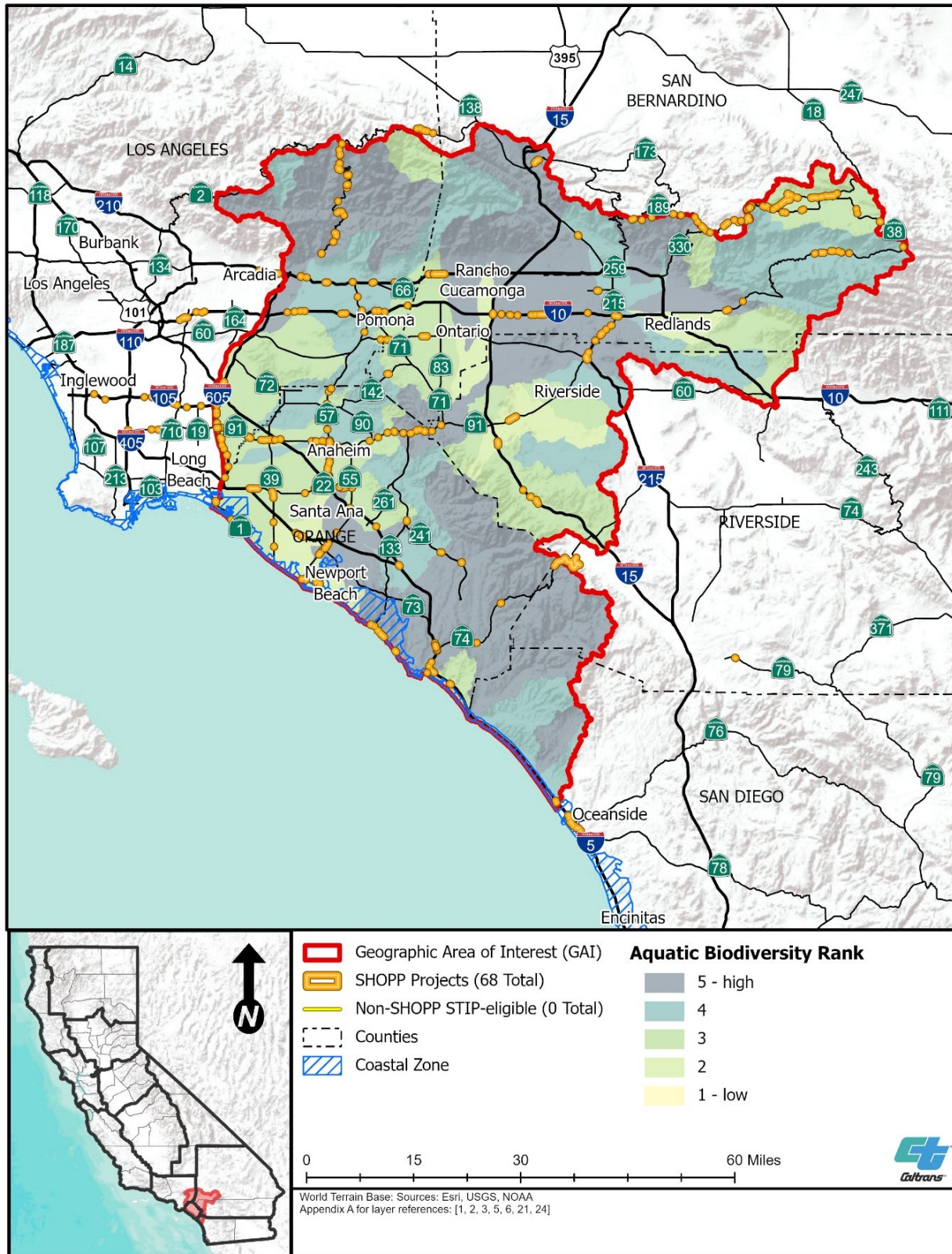
8.6. Multi-resource Benefits

Advance mitigation planning provides Caltrans an opportunity to integrate the enhancement and/or restoration of multiple aquatic resource-related values into its advance mitigation scoping to benefit California native aquatic biodiversity, aquatic and terrestrial connectivity, special-status species, wetlands, and non-wetland aquatic resources:

- Figure 8-1 illustrates the regional aquatic biodiversity in the GAI, as provided by CDFW's ACE GIS dataset. According to these data, high aquatic biodiversity dominates the GAI; however, some areas of medium to low aquatic biodiversity are located along the SHS with planned SHOPP projects, especially in the central portion of the GAI and along the northeastern, western, and southern edges. Large areas with high aquatic biodiversity occur in the northern and southeastern portions of the GAI.
- Enhancing and/or restoring the aquatic resources of the GAI is expected to contribute to biologically sustainable populations of special-status aquatic, wetland, and riparian plant and wildlife species. For example, enhancement and/or restoration of seasonal wetland habitat would likely benefit several plant species and aquatic and terrestrial wildlife species that depend on these types of habitats, such as San Diego button-celery (*Eryngium aristulatum* var. *parishii*), California Orcutt grass (*Orcuttia californica*), California red-legged frog (*Rana draytonii*), and western spadefoot (*Spea hammondi*).
- Enhancing and/or restoring the aquatic resources in the GAI is expected to support or contribute to beneficial uses of wetland and non-wetland waters of the GAI. For example, enhancement and/or restoration of wetlands adjacent to spawning habitat would likely improve spawning habitat water quality. Further, enhancement and/or restoration of wetlands adjacent to GAI waters could sequester contaminants on waters identified as 303(d)-impaired and/or with an established TMDL.

Caltrans will consider aquatic resources' biodiversity values, special-status species with the potential to co-occur in aquatic habitats, ESHAs, the beneficial uses of waters, and impaired waters during advance mitigation project scoping—thereby improving the conservation benefits of mitigation in the GAI.

Figure 8-1. Aquatic Biodiversity of the GAI



8.7. Advance Mitigation Conservation Goals and Objectives

The conservation goals and objectives compiled in Table 8-4 are intended to be relevant to anticipated future SHOPP transportation project compensatory mitigation needs, be consistent with the goals and objectives of natural resource regulatory agencies for aquatic resources, address pressures and stressors on aquatic resources, and support mitigation success in the GAI. Each conservation goal is supported by one or more conservation objective; objectives are more specific, measurable, achievable, relevant, and time-bound measures that align to a desired result specified by a goal. At the broad scale, these aquatic resources goals and objectives encompass ecological processes, address functions and values of aquatic systems, and prioritize regional conservation that preserves intact aquatic resources, restores aquatic function, and supports climate change planning.

Sub-objectives are included for each objective to guide Caltrans' advance mitigation scoping toward those actions that would create the greatest functional lift or conservation benefit, support long-term preservation, restore surface water flows, protect and restore hydrologic processes such as channel stability, and reduce climate change effects on aquatic resources in the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to aquatic resources. Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific.

The goals, objectives, and sub-objectives presented in Table 8-4 reflect Caltrans' intention to develop advance mitigation project scopes for in-kind mitigation and are intended to reflect the watershed approach, as practiced by natural resource regulatory agencies. The watershed approach is an analytical process through which the CCC, Corps, EPA, SWRCB, and RWQCBs make decisions that support the sustainability or improvement of aquatic resources, with the goal of maintaining and improving the quality and quantity of aquatic resources through strategic selection of compensatory mitigation sites. The Corps subscribes to a watershed approach for compensatory mitigation that uses the HUC-based classification system, a topographic watershed-based system, or littoral cell boundary, in the case of coastal and marine resources, depending on the size and location of a transportation or other project (Corps 2015). The Water Boards generally subscribe to an approach for compensatory mitigation decisions that follows the Corps' watershed approach; however, the HU classification system may be used on a case-by-case basis (SWRCB 2019b). Additional goals for coho salmon and steelhead are separate from those pursued by the Corps and Water Boards, including the elimination of fish passage barriers and aquatic invasive species such as overbite clam (NMFS 2012).

Table 8-4. Advance Mitigation Conservation Goals and Objectives for Aquatic Resources

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-1: No net loss of area, functions, values, and condition of wetland and non-wetland water resources.	See below	See below
Objective AR-1.1: Improve quality and function of wetland and non-wetland water resources.	Sub-Objective AR-1.1.1: Enhance and/or rehabilitate wetland and non-wetland water resources such that the greatest functional lift to the aquatic resource is provided, including by consolidating compensatory mitigation consistent with Executive Order W-59-93. Sub-Objective AR-1.1.2: Enhance and/or rehabilitate key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, CDFW recovery plans, LCPs, and other land management plans identified in Table 8-3. Sub-Objective AR-1.1.3: Enhance and/or rehabilitate riparian vegetation in the GAI, particularly in Santa Ana River, San Gabriel River, Santiago Creek, Aliso Creek, Mill Creek, and other named and unnamed tributaries into the streams of the Aliso-San Onofre, Newport Bay, San Gabriel, Santa Ana, and Seal Beach HUC-8s. Sub-Objective AR-1.1.4: Enhance and/or restore wetland and non-wetland water resource functions, such as connectivity, abundance of native plants, and water quality, that define habitat value for aquatic organisms and increase basin-wide value of resources.	▪ <i>2018 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)</i> (SWRCB 2021) ▪ <i>California Wetlands Conservation Policy</i> (Executive Order W-59-93) ▪ <i>National Wetlands Mitigation Action Plan</i> (EPA and Corps 2002) ▪ <i>City of Huntington Beach General Plan</i> (City of Huntington Beach 2017) ▪ <i>City of Laguna Hills General Plan</i> (City of Laguna Hills 2009) ▪ <i>City of Laguna Niguel General Plan</i> (City of Laguna Niguel 1992) ▪ <i>City of Laguna Woods General Plan</i> (City of Laguna Woods 2002) ▪ <i>City of Westminster General Plan</i> (City of Westminster 2016) ▪ <i>Definition and Delineation of Wetlands in the Coastal Zone</i> (CCC 2011) ▪ <i>Eastvale 2040 General Plan</i> (City of Eastvale 2024) ▪ <i>Enhanced Watershed Management Program Plan</i> (Los Angeles RWQCB 2015) ▪ <i>MSCP Plan – County of San Diego Subarea</i> (San Diego County 1998) ▪ <i>Orange General Plan</i> (City of Orange 2010) ▪ <i>Recovery Plan for Vernal Pools of Southern California</i> (FWS 1998b) ▪ <i>Southern California Steelhead Recovery Plan</i> (NMFS 2012) ▪ <i>Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division</i> (Corps 2015) ▪ <i>State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State</i> (SWRCB 2019b) ▪ <i>Strategic Plan to Protect California’s Coast and Ocean 2020–2025</i> (OPC 2019) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Upper Santa Ana River Integrated Regional Water Management Plan</i> (Water Systems Consulting, Inc., and Woodard & Curran 2021) ▪ <i>Wetlands on the Edge. The Future of Southern California’s Wetlands. Regional Strategy 2018</i> (California Coastal Conservancy 2018)
Objective AR-1.2: Avoid a net loss of aquatic resource acreage by establishing aquatic resources.	Sub-Objective AR-1.2.1: Establish and/or reestablish wetland and non-wetland waters, particularly in key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, CDFW recovery plans, LCPs, and other land management plans identified in Table 8-3. Sub-Objective AR-1.2.2: Establish and/or reestablish riparian vegetation in the Aliso-San Onofre, Newport Bay, San Gabriel, Santa Ana, and Seal Beach HUC-8s, particularly the Santa Ana River and San Gabriel River and other named and unnamed tributaries into the Pacific Ocean.	▪ Same references as those listed with Objective AR-1.1.

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-2: Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters.	See below	See below
Objective AR-2.1: Protect and enhance water quality.	Sub-Objective AR-2.1.1: In coordination with the RWQCB, restore and/or enhance wetland and non-wetland waters with RWQCB biology-related beneficial use designations, such as aquaculture; cold freshwater habitat; estuarine habitat; freshwater replenishment; groundwater recharge; marine habitat; migration of aquatic organisms; preservation of biological habitats of special significance; rare, threatened, or endangered species; spawning, reproduction, and/or early development; warm freshwater habitat; and wildlife habitat. Sub-Objective AR-2.1.2: In coordination with natural resource regulatory agencies, address aggradation, erosion, nutrients, contaminants, sedimentation, and temperatures in the Aliso-San Onofre, Newport Bay, San Gabriel, Santa Ana, and Seal Beach HUC-8s. Sub-Objective AR-2.1.3: In coordination with the RWQCB, implement restoration and enhancement actions that address water quality for aquatic resources, for example, at Huntington Harbor, Anaheim Bay, and Veeh Reservoir, and freshwater and coastal marshes. Sub-Objective AR-2.1.4: Restore and/or enhance areas upstream of places with high water quality protection and remediation values, such as ASBSs, ESHA-designated areas, and CCAs. Sub-Objective AR-2.1.5: Restore or create adjacent wetlands and non-wetland aquatic features to enhance water quality in tributaries. Sub-Objective AR-2.1.6: Rehabilitate and/or enhance small streams and sections of larger streams to remove nonnative plant species that degrade stream water quality, such as perennial pepperweed, Mexican fan palm, Canary Island date palm, castor bean, tree-of-heaven, and giant reed. Sub-Objective AR-2.1.7: Improve stream temperatures by increasing shaded riverine aquatic habitat in Sana Ana River, Aliso Creek, and Bolsa Chica Channel for fish and other aquatic life.	▪ <i>2018 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report)</i> (SWRCB 2021) ▪ <i>Carlsbad Watershed Management Area Water Quality Improvement Plan</i> (San Diego RWQCB 2018) ▪ <i>City of Huntington Beach General Plan</i> (City of Huntington Beach 2017) ▪ <i>City of Laguna Hills General Plan</i> (City of Laguna Hills 2009) ▪ <i>City of Laguna Woods General Plan</i> (City of Laguna Woods 2002) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>Draft Recovery Plan for the Least Bell's Vireo</i> (FWS 1998a) ▪ <i>Eastvale 2040 General Plan</i> (City of Eastvale 2024) ▪ <i>Enhanced Watershed Management Program Plan</i> (Los Angeles RWQCB 2015) ▪ <i>I-5 North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program</i> (Caltrans and San Diego Association of Governments 2016) ▪ <i>MSCP Plan – County of San Diego Subarea</i> (San Diego County 1998) ▪ <i>SWAP</i> (CDFW 2025) ▪ <i>Upper Santa Ana River Integrated Regional Water Management Plan</i> (Water Systems Consulting, Inc., and Woodard & Curran 2021) ▪ <i>Water Quality Control Plan for the Los Angeles Region Basin</i> (Los Angeles RWQCB 2020) ▪ <i>Water Quality Control Plan for the San Diego Basin</i> (San Diego RWQCB 2021) ▪ <i>Water Quality Control Plan for the Santa Ana River Basin</i> (Santa Ana RWQCB 2019)
Objective AR-2.2: Improve surface water hydrology.	Sub-Objective AR-2.2.1: Restore and/or enhance natural hydrologic regimes, natural sediment transport, and geomorphic processes. Sub-Objective AR-2.2.2: Reconnect severed aquatic systems and improve connectivity in aquatic and riparian systems, with particular focus on reconnecting higher watershed areas with lower watershed areas, such as reconnecting tributaries to the Santa Ana and San Gabriel Rivers. Sub-Objective AR-2.2.3: Reestablish hydrologic regimes or drainage patterns for better function of depressional wetlands, estuarine and marine wetlands, freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwater ponds, lakes, rivers, and coastal wetlands.	▪ Same references as those listed with Objective AR-2.1.

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Objective AR-2.3: Improve water storage and groundwater recharge.	Sub-Objective AR-2.3.1: Promote restoration of stream and riparian areas' natural functions to provide water storage and release. Sub-Objective AR-2.3.2: Reduce excessive nonnative vegetation along stream/riparian corridors to lower vegetative transpiration rates to sustainable levels and increase water storage in soils and streams. Sub-Objective AR-2.3.3: Create or restore wetlands adjacent to streams to enhance groundwater-surface water dynamics in tributaries.	Same references as those listed with Objective AR-2.1.
Goal AR-3: Restore or enhance and expand habitat for fish species of mitigation need.	See below	See below
Objective AR-3.1: Restore and/or enhance habitat.	Sub-Objective AR-3.1.1: Consult with FishPAC to select and implement habitat restoration and enhancement actions that support key populations and important habitat and contribute to the recovery of endangered steelhead. Enhancement or restoration may include placement of large pieces of wood in alcoves and pools and stream channel restoration. Sub-Objective AR-3.1.2: Consult with FishPAC to select and implement FishPAC and legislative priorities in the GAI to restore access to habitats that support key populations for recovery of endangered steelhead. The highest value for fish passage remediation and habitat restoration should be given to the current high-priority locations on the SHS (listed in each years' Fish Passage Annual Report to Legislature). FishPAC priority locations have the highest biological value for recovery and should have the greatest support for remediating, both internally and from natural resource regulatory agencies.	<i>2020 Fish Passage Annual Legislative Report</i> (Caltrans 2021) <i>Southern California Steelhead Recovery Plan</i> (NMFS 2012) <i>Steelhead Restoration and Management Plan for California</i> (CDFW 1996) <i>SWAP</i> (CDFW 2025)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-4: Support resiliency of aquatic resources to climate change and sea-level rise.	See below	See below
Objective AR-4.1: Reduce impacts from climate change and sea-level rise.	Sub-Objective AR-4.1.1: Enhance and/or restore aquatic resource function and value in areas of lower climate resilience, such as the central portion of the GAI, and at tidal flats, salt pannes, and freshwater wetlands to reduce climate change and sea-level rise effects on aquatic resources. Sub-Objective AR-4.1.2: Prioritize enhancement and/or restoration that will increase resilience to climate change and sea-level rise such as Laguna Channel, Talbert Flood Control Channel, and Bolsa Chica Channel. Sub-Objective AR-4.1.3: Prioritize riparian areas of the GAI and implement improvements that involve enhancement and/or restoration to improve freshwater quantity and quality, floodplain connectivity, and instream cover continuity. Sub-Objective AR-4.1.4: Enhance, rehabilitate, establish and/or reestablish aquatic habitats by using native species such as Fremont cottonwood (<i>Populus fremontii</i>), western sycamore (<i>Platanus racemosa</i>), willows (<i>Salix</i> spp.), cattails (<i>Typha</i> spp.), rushes (<i>Juncus</i> spp.), and bulrushes (<i>Schoenoplectus</i> spp.) to reduce the effects of climate change. Sub-Objective AR-4.1.5: Reduce adverse instream flooding effects by restoring affected headwater and tributary hydrological functions for the Santa Ana and San Gabriel Rivers. Sub-Objective AR-4.1.6: Prioritize habitat establishment and reestablishment in areas that can also reduce risk in flood-prone systems, particularly in areas along Santa Ana and San Gabriel Rivers.	▪ <i>City of Huntington Beach General Plan</i> (City of Huntington Beach 2017) ▪ <i>City of Laguna Hills General Plan</i> (City of Laguna Hills 2009) ▪ <i>I-5 North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program</i> (Caltrans and San Diego Association of Governments 2016) ▪ <i>Strategic Plan to Protect California’s Coast and Ocean 2020–2025</i> (OPC 2019) ▪ <i>SWAP</i> (CDFW 2025)
Objective AR-4.2: Improve aquatic habitat resiliency.	Sub-Objective AR-4.2.1: Promote native plant species that can stabilize banks, improve filtering of nutrient loads from water, and maintain the flood conveyance properties of streams and estuaries, such as rushes, bulrushes, cattail, and willows. Sub-Objective AR-4.2.2: Prioritize management of invasive species that occur in large contiguous areas in aquatic habitats, such as giant reed, saltcedar, red gum (<i>Eucalyptus camaldulensis</i>), tree of heaven, Mexican fan palm, and perennial pepperweed that may be exacerbated by climate change such that the greatest functional lift is provided. Sub-Objective AR-4.2.3: Enhance, rehabilitate, establish and/or reestablish small (that is, low order) tributaries/streams that discharge into larger rivers such as the San Jose Creek, Alder Creek, City Creek, Lytle Creek, and Yucaipa Creek. Sub-Objective AR-4.2.4: Improve the delivery, accretion, and reuse of sediments in aquatic habitats along the coast to increase the resilience of coastal wetlands and stream systems from the effects of climate change and sea-level rise.	▪ <i>Chino Hills State Park General Plan</i> (Chino Hills State Park 1999) ▪ <i>City of Laguna Woods General Plan</i> (City of Laguna Woods 2002) ▪ <i>City of Norco General Plan</i> (City of Norco 2014) ▪ <i>Corona General Plan 2020–2040</i> (City of Corona 2020) ▪ <i>Design Criteria for the Southern California National Forests</i> (USFS 2005) ▪ <i>Draft Recovery Plan for the Least Bell’s Vireo</i> (FWS 1998a) ▪ <i>Eastvale 2040 General Plan</i> (City of Eastvale 2024) ▪ <i>I-5 North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program</i> (Caltrans and San Diego Association of Governments 2016) ▪ <i>MSCP County of San Diego Subarea Plan</i> (San Diego County 1998) ▪ <i>SWAP</i> (CDFW 2025)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-5: Provide multi-resource benefits.	See below	See below
Objective AR-5.1: Maximize mitigation opportunities for multiple environmental benefits.	Sub-Objective AR-5.1.1: Enhance, rehabilitate, establish, and/or reestablish aquatic resource areas currently occupied by, or that provide habitat for, one or more special-status species, or areas that contribute to the protection of ecologically, geographically, and/or genetically distinct populations or sub-populations of obligate aquatic special-status species. Sub-Objective AR-5.1.2: Enhance, rehabilitate, establish, and/or reestablish habitats for other aquatic species such as California fairy shrimp (<i>Linderiella occidentalis</i>), Santa Ana sucker (<i>Catostomus santaanae</i>), and San Diego button-celery. Sub-Objective AR-5.1.3: Address additional RWQCB beneficial use designations, such as recreation (for example, bird watching) through enhancement, rehabilitation, establishment, and/or reestablishment actions. Sub-Objective AR-5.1.4: Align with LCP ESHA requirements to prioritize enhancement, rehabilitation, establishment, and/or reestablishment actions that provide a functional lift to the ESHA, when feasible.	▪ <i>I-5 North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program</i> (Caltrans and San Diego Association of Governments 2016) ▪ <i>MSCP Plan – County of San Diego Subarea</i> (San Diego County 1998) ▪ <i>Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon</i> (FWS 2005) ▪ <i>Recovery Plan for Vernal Pools of Southern California</i> (FWS 1998b) ▪ <i>MSCP Plan – North County of San Diego</i> (San Diego County 2009) ▪ <i>Southern California Steelhead Recovery Plan</i> (NMFS 2012) ▪ <i>SWAP</i> (CDFW 2025)

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Fish barrier removal priorities exist both on and off the SHS. However, on-system fish passage barriers take priority over off-system barriers until such time that no feasible on-system barriers exist. Caltrans and CDFW agree to a collaborative barrier prioritization process through the FishPACs. This prioritization is updated each year in the *Fish Passage Annual Legislative Report* (Caltrans 2021). The priorities on the SHS are dynamic, changing as they are addressed and as funding becomes available.

For the SHS, priority barriers are determined in coordination with the six regional FishPACs and reported to the Legislature in October of each year, in accordance with SHC § 156.1-3 (Senate Bill 857, Kuehl, Chapter 589, Statutes of 2005). Priority fish passage barriers currently account for an estimated 330 miles of blocked habitat for threatened and endangered salmon and steelhead along the California coastline and inland Central Valley. Full-span solutions allow Caltrans to reduce the overall number of known barriers on the SHS, provide access to the highest-quality habitat, and reduce rework and partial solutions, which require long-term monitoring and costly maintenance until the end of the facility's service life, when the full-span solution will be required. Priority locations are ranked by considering a species' listing status and diversity, quality and quantity of habitat for recovery, and related best professional knowledge. FishPAC's subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.

8.8. Summary

Caltrans anticipates that future SHOPP transportation projects may be conditioned by the Corps, SWRCB, RWQCBs, and/or CDFW to address the pressures and stressors that threaten aquatic resources in the GAI. These pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species;
- Altered hydrology, geomorphology, and water quality;
- Climate change, drought, and sea-level rise; and
- Wildfire risk.

Hence, Caltrans will seek to align advance mitigation scopes with conservation goals and objectives that address the identified pressures and stressors, thereby aligning advance mitigation efforts with regional conservation efforts. As noted in 33 CFR § 332.3, consolidating compensatory mitigation is generally ecologically preferable.

Regional conservation goals and objectives provide a framework for scoping mitigation credit establishment that would likely successfully offset future transportation project impacts on aquatic resources by creating functional lift or conservation benefit and by mitigating the pressures and stressors on aquatic resources in the GAI. To summarize Table 8-4:

- **Goal AR-1** seeks to achieve no net loss of area, functions, values, and the condition of wetland and non-wetland water resources in the GAI. The primary objectives associated with this goal are to improve existing wetland and non-

wetland water resources and create new ones. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality; habitat loss, fragmentation, and degradation; invasive species; and wildfire risk.

- **Goal AR-2** seeks to restore and maintain the chemical, physical, and biological integrity of waters. The primary objectives associated with this goal are to protect and enhance water quality, improve surface water hydrology, and improve water storage and groundwater recharge. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality.
- **Goal AR-3** seeks to restore or enhance and expand habitat for fish species of mitigation need. The primary objective associated with this goal is to restore and/or enhance habitat. The sub-objectives were selected to address habitat restoration and enhancement actions and to implement FishPAC and legislative priorities.
- **Goal AR-4** seeks to support climate resiliency for aquatic resources in the GAI. The primary objectives are to reduce impacts on aquatic resources from climate change and to improve aquatic habitat climate resiliency. The sub-objectives were selected to address the following pressures and stressors: climate change, drought, and sea-level rise; invasive species; and wildfire risk.
- **Goal AR-5** seeks to guide advance mitigation project scoping to prioritize multi-resource benefits, with the only objective being to coordinate mitigation efforts for multi-resource benefits. The sub-objectives of Goal AR-5 describe what additional benefits exist for other resources in the GAI, including benefits to upland terrestrial habitat. Goal AR-5 was developed to include conservation for multiple resources while seeking to address in-kind transportation projects' effects on aquatic resources.

Each of the goals and objectives have sub-objectives intended to further guide advance mitigation project scoping toward resource and regulatory agencies' regional conservation goals and objectives. These sub-objectives will prompt Caltrans to incorporate multiple benefits into advance mitigation project scopes and address important threats in the area through an advance mitigation project. This concept is an important way for Caltrans to seek use of advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects to provide a functional lift for aquatic resources and to maximize conservation benefits from mitigation in the GAI.

9. ASSESSMENT OF AUTHORIZED ACTIVITIES

Informed by this RAMNA and its reviewers' comments and feedback, Caltrans District 12 will nominate advance mitigation projects to the Caltrans Director and request funding approval (see Step 4 on Figure 1-1; Figure 6-1; Caltrans 2019a). Each advance mitigation project nominated to the Director will consist of a scope, schedule, and cost for an SHC § 800.6(a)-authorized activity. With respect to scope, in this chapter, Caltrans analyzes the information presented previously to identify advance mitigation project scope options that have a high probability of successfully meeting the AMP's transportation project and environmental objectives. Understanding the regulatory framework, environmental setting, available opportunities to purchase credits, impact forecasts, transportation project schedule needs, and natural resource regulatory agency goals and objectives will assist Caltrans District 12 with scoping of SHC § 800.6(a)-authorized activities to be considered further for potential funding by the AMA (see Step 4 of Figure 1-1 and Section 9.4).

Note that the analysis presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

9.1. Overview of Advance Mitigation Project Scope Development

Advance mitigation project scopes will provide enough information, at the appropriate level of detail, for the Caltrans Director to concur with funding. Appropriately, advance mitigation project scopes will address transportation project delivery acceleration and environmental objectives:

- To meet the AMP's objective of accelerating transportation project delivery, advance mitigation project scopes will be consistent with the AMP's founding legislation and the state's competitive bid requirements and will address transportation project schedule milestones and constraints.
- To meet the environmental objectives through transportation project mitigation, an advance mitigation project scope will be consistent with natural resource regulatory agency goals and objectives expressed in an approved regulatory instrument or interagency agreement and/or aligned with conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, or Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

Summaries of transportation-related advance mitigation project scope requirements and conservation-related advance mitigation project scope goals and objectives are provided in Tables 9-1 and 9-2, respectively.

Table 9-1. Summary of Transportation-related Advance Mitigation Project Scope Requirements

Advance mitigation project scopes must:

Be an authorized activity in accordance with SHC § 800.6(a).

Benefit multiple transportation projects' delivery schedules.

Deliver mitigation anticipated to be needed to fulfill the mitigation requirements of transportation improvements.^a

Be consistent with natural resource regulatory agency goals and objectives.

Yield mitigation in units and terms approved by natural resource regulatory agencies with the authority to condition transportation project permits with compensatory mitigation.

Employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements,^{b,c} and contracts with qualified third parties.^d

Address overlapping mitigation requirements.

Implement the state's competitive proposal and bidding processes, as required.^d

Strategically exercise the AMA.

Manage the financial, technical, and strategic risks associated with Caltrans' investments.

a California Constitution, Article XIX, § 2, subdivision (a)

b An advance mitigation project-specific interagency agreement is a general term to describe an agreement between natural resource regulatory agencies that attaches or binds advance mitigation requirements to a sponsor, qualified third party, or permittee; natural resource regulatory agencies agree that the action provides mitigation. Examples of advance mitigation project-specific interagency agreements include cooperative agreements, MCAs, or other interagency agreements. Advance mitigation project-specific interagency agreements are developed after a Caltrans advance mitigation project is funded.

c The authority for Caltrans to enter into interagency agreements with public entities such as CDFW is under SHC § 114 and SHC § 130.

d Procedures for Caltrans to enter in contracts with third parties are available at <https://ppmoe.dot.ca.gov/cc>

Table 9-2. Summary of Conservation-related Advance Mitigation Project Scope Goals and Objectives

Advance mitigation project scopes will strive to:

Benefit multiple wildlife species and aquatic resources.

Be consistent with existing regional conservation planning expressed in a natural resource regulatory agency strategic plan, conservation plan, HCP, NCCP, watershed plan, restoration plan, investment strategy, RCIS, BEI, in-lieu fee program instrument, land management plan, or other documented conservation effort.

Benefit regional biodiversity.

Contribute to landscape climate change resiliency.

Contribute to landscape connectivity.

Contribute to federal and/or California special-status species population recovery.

Mitigate effects of stressors on wildlife species and aquatic resources.

Restore and rehabilitate wildlife habitat and aquatic resources.

9.2. Benefiting Transportation Project Needs Summary

The proximity of planned SHOPP transportation projects to natural resources is shown on figures throughout this document and listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Estimated transportation project mitigation needs in the GAI for fiscal years 2023/24 to 2032/33 are presented in Chapter 5, *Modeled Estimated Impacts*, and the timing of the needs is analyzed in Chapter 6, *Benefiting Transportation Project Considerations*. For the time interval under consideration, fiscal years 2023/24 to 2032/33, Caltrans District 12 intends to prioritize purchasing or developing mitigation credits or values that address the Road Repair and Accountability Act of 2017 (also known as Senate Bill 1) priorities that are planned for the middle and end of the planning period. Given the expected timing of mitigation need, at this time (July of fiscal year 2026/27), mitigation that can be purchased or established by fiscal year 2028/29 (within the next 2 years) could potentially address approximately:

- 7.3 acres of arroyo toad habitat impact in the Mojave Desert Ecoregion Section, potentially contributing to the acceleration of 1 transportation project
- 0.2 acre of arroyo toad habitat and 1.2 acres of coastal California gnatcatcher habitat impacts in the Southern California Coast Ecoregion Section, potentially contributing to the acceleration of 1 and 3 transportation projects, respectively
- 0.2 acre of non-wetland waters, 0.4 acre of vernal pool habitat, and <0.1 to 0.7 acre of riparian area impacts in the Aliso-San Onofre sub-basin, potentially contributing to the acceleration of 1, 2, and 2 transportation projects, respectively
- Up to 0.2 acre of riparian area impacts in the Newport Bay sub-basin, potentially contributing to the acceleration of 1 transportation project

- 1.3 acres of fish habitat, 1.3 acres of non-wetland waters, and up to 0.1 acre of riparian area impacts in the San Gabriel sub-basin, potentially contributing to the acceleration of 1, 1, and 1 transportation projects, respectively
- 0.4 acre of fish habitat, <0.1 acre of wetland, 0.4 acre of non-wetland waters, and <0.1 to 4 acres of riparian area impacts in the Santa Ana sub-basin, potentially contributing to the acceleration of 2, 1, 2, and 3 transportation projects, respectively
- 0.4 acre of non-wetland waters and up to 6.8 acres of riparian area impacts in the Seal Beach sub-basin, potentially contributing to the acceleration of 2 and 2 transportation projects, respectively

All or some of these needs could form the basis for Caltrans District 12 to develop an advance mitigation project scope.

9.3. Authorized Activity Summary

Advance mitigation project scope options that have a high probability of successfully meeting the AMP's objectives are feasible. Below, a brief description of each of the 11 SHC § 800.6(a)-authorized advance mitigation project types is provided, followed by a discussion of its feasibility. Listed in Table 9-3, some advance mitigation project types are not currently feasible because they are not available in the GAI. Others are not currently feasible because a regulatory and administrative pathway is not available. Still others have potential but may not be feasible to implement on a schedule to contribute to accelerated transportation project delivery. Further, the activity authorized by SHC § 800.6(a)(4) is only feasible if § 800.6(a)(1)–(3) options are not feasible. Results of the feasibility analysis are summarized in the subsections below and in Table 9-4 (wildlife resources) and Table 9-5 (aquatic resources) later in this chapter.

Table 9-3. Advance Mitigation Project Types^a

Advance Mitigation Project Type	Authorization	Section
Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved NCCP ^b and/or an approved HCP.	SHC § 800.6(a)(2)	9.3.1
Caltrans purchases credits from an existing conservation bank.	SHC § 800.6(a)(1)	9.3.2
Caltrans purchases credits from an existing mitigation bank.	SHC § 800.6(a)(1)	9.3.3
Caltrans purchases credits from an existing in-lieu fee program.	SHC § 800.6(a)(1)	9.3.4
Caltrans purchases credits developed through an MCA, established under a CDFW-approved RCIS. ^c	SHC § 800.6(a)(3)(A)	9.3.5
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.6

Advance Mitigation Project Type	Authorization	Section
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.7
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.8
Caltrans funds the implementation of conservation actions and habitat enhancement actions ^{c,d} to generate mitigation credits pursuant to an MCA ^b established under a CDFW-approved RCIS. ^c The scope may include Caltrans first entering into or funding the preparation of an MCA. ^c The scope may also include Caltrans first entering into or funding the preparation of an RCIS. ^c	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)	9.3.9
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation ^e of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.	SHC § 800.6(a)(3)(B)	9.3.10
When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan ^f pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS. ^c	SHC § 800.6(a)(4) SHC § 800.9	9.3.11

^a Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.

^b When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP.

^c See <https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

^d Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with FGC § 1850–1861.

^e The Water Boards do not typically approve establishment of or accept preservation credits.

^f Programmatic mitigation plans are defined in 23 USC § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

9.3.1. HCP and/or NCCP Fees

HCPs and NCCPs are discussed in Section 4.2. HCPs and NCCPs are species-focused and are aligned with and plan for natural resource protection. HCPs, including multiple species HCPs, and NCCPs provide for incidental take under the FESA and CESA, respectively. FWS is the signatory agency to HCPs. CDFW is the signatory agency to NCCPs.

Caltrans identified three transportation-related HCP/NCCPs with plan areas that overlap the GAI and that include transportation-related projects (Table 4-1, Figure 4-1).

Feasibility. This authorized activity may be feasible. After the Caltrans Director’s approval for funding, delivering an advance mitigation project to purchase credits or fees

is expected to take 1 to 3 years,¹ at which point the credits or values would be available to transportation projects.

9.3.2. Conservation Bank Credit Purchase

Conservation banks are discussed in Section 4.3. Conservation banks are species-focused, and each bank's alignment with natural resource protection is documented through its BEI. A total of 15 conservation banks have service areas that at least partially overlap the GAI. Of these, CDFW is a signatory to 10 active and 2 pending conservation banks, one of which offers credits for at least one of the species of mitigation need (Table 4-2). FWS is a signatory to nine active and one pending conservation bank, three of which offer credits for at least one species of mitigation need. CDFW and/or FWS are cosignatories to five active and one pending of the conservation banks referenced above. Conservation bank service areas are shown on Figures 4-2 to 4-10, and the anticipated transportation project impact forecast on terrestrial species of mitigation need is presented by year on Figures 6-2 to 6-4. When placed side by side, it is possible to see that multiple transportation projects may need species of mitigation need credits and which bank's service areas might have them available by 2025/26, when the credits might contribute to transportation project acceleration.

Feasibility. This authorized activity may be feasible. Caltrans District 12 may be able to address some of its coastal California gnatcatcher and least Bell's vireo mitigation needs through pre-transfer credits purchased from conservation banks that have service areas overlapping the GAI. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. The Caltrans District will need to approach each bank to confirm the availability of credits and bulk credit purchase terms. Bulk credits purchased through an advance mitigation project might, with CDFW approval, be applied to meet future CDFW permit conditions on transportation projects. Since two of the species of mitigation need (least Bell's vireo and Southern California DPS of steelhead) are dually listed species, it is probable that compensatory mitigation will be incorporated into future consultations under Section 7 or permits under Section 10 of the FESA in coordination with FWS and/or NMFS. For existing banks, a BEI amendment would be required to formalize a process for bulk pre-transfer credit purchases, and additional time for amending the bank instrument should be considered. In 2021, the Interagency Project Delivery Team finalized new bank templates that incorporate pre-transfer purchase terms; additional Caltrans-specific terms would also need to be negotiated with bank sponsors. The decision to amend a BEI is at the discretion of the bank sponsor.

9.3.3. Mitigation Bank Credit Purchase

Mitigation banks are discussed in Section 4.3. Mitigation banks are wetlands- and non-wetland waters-focused, and each bank's alignment with natural resource protection is

¹ Caltrans contracting processes and agency interactions are incorporated into this time estimate.

documented through its BEI. Four active and one pending mitigation bank have service areas that at least partially overlap the GAI, all of which provide wetland, non-wetland water, or riparian credits. The Corps is a signatory, or is anticipated to be a signatory, on all of these mitigation banks (Table 4-2, Figures 4-2 to 4-10). CDFW and/or FWS are cosignatories to all four active mitigation banks, which could potentially provide credits for co-benefiting species. It is unknown whether the one pending mitigation bank will have CDFW or FWS as a co-signatory.

Feasibility. When bank instruments include pre-transfer credit purchases, this authorized activity may be feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. For existing banks, a BEI amendment would be required to formalize a process for bulk pre-transfer credit purchases, and additional time for amending the bank instrument should be addressed in the schedule; the additional time it would take to amend an instrument may make this pathway infeasible. In 2021, the Interagency Project Delivery Team finalized new bank templates that incorporate pre-transfer purchase terms satisfactory to the Project Delivery Team; however, terms may not be satisfactory for bankers, and Caltrans. Districts should explore with bank sponsors whether additional Caltrans-specific terms would also need to be negotiated with bank sponsors. The decision to amend a BEI is at the discretion of the bank sponsor.

9.3.4. In-lieu Fee Credit Purchase

In-lieu fee programs are discussed in Section 4.4.² In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing project-specific mitigation or purchasing credits from a conservation or mitigation bank. Additionally, it offers permittees an in-lieu fee option to satisfy their compensatory mitigation obligations as determined by the applicable regulatory agencies for impacts on aquatic resources authorized under the CWA, Rivers and Harbors Act, FESA, Porter-Cologne Water Quality Control Act, and other applicable laws. Once enough money is received by an in-lieu fee program, it implements wetland, stream, or threatened or endangered species habitat restoration, creation, enhancement, or preservation activities within a watershed or other defined area.³ The in-lieu fee program's alignment with natural resource protection is documented through its enabling instrument and will be incorporated into future biological opinions on transportation projects.

There are three active in-lieu fee programs with service areas that overlap the GAI (Figure 4-11). None of the enabling instruments for these ILF programs includes pre-transfer credit purchases.

² Up-to-date information on approved in-lieu fee programs, including available credits, can be found at <https://ribits.ops.usace.army.mil/ords/f?p=107:47:13453394859366::NO>

³ https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pdf/banking_faq.pdf

Feasibility. This authorized activity is feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. Bulk credits purchased from an in-lieu fee program through an advance mitigation project might, with natural resource agency approval, be incorporated into future conditions on transportation projects.

9.3.5. MCA Credit Purchase

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. CDFW has released RCIS program guidelines, including guidance for the creation of MCAs.⁴ There is one approved RCIS with a service area that overlaps the GAI. However, no MCAs have been developed in the GAI.

Feasibility. At this time (July of fiscal year 2026/27), this authorized activity is not feasible because no MCA credits are available for purchase in the GAI.

9.3.6. Conservation Bank Establishment

Instructions and guidance for establishing conservation banks are available from CDFW⁵ and FWS.⁶ Conservation banks are species-focused, and each bank's alignment with natural resource protection will be documented through its BEI. CDFW, FWS, and NMFS are potential signatories, and circumstances may occur in which the Corps and/or SWRCB would participate.

To support future transportation project conditions, a conservation bank funded through the AMA would establish CESA and FESA credits. At a minimum, conservation bank establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix D, *Land Cover Types*
- Appendix E, *Complete SAMNA Species Results*

An understanding of CDFW and FWS goals and objectives for wildlife resources in the GAI will improve the chances that credits established through an advance mitigation project will meet the compensatory mitigation needs of Caltrans' future transportation projects. In Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3, *Relevant Plans, Policies, and Regulations*, to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans'

⁴ <https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

⁵ <https://wildlife.ca.gov/Conservation/Planning/Banking/Templates>

⁶ <https://www.fws.gov/sites/default/files/documents/conservation-banking-guidance-2003-05-02.pdf>

understanding that a conservation bank that addresses the following goals would be consistent with CDFW and FWS goals:

- Conserve and expand habitat for species of mitigation need in the GAI to support ecosystem functions that are essential to recovery of the species (WILD-1).
- Preserve, enhance, and increase connectivity between blocks of wildlife habitat to allow for dispersal that will maintain resilience and variability of wildlife populations (WILD-2).
- Support resiliency of the landscape to climate change and sea-level rise (WILD-3).
- Decrease mortality and competition and protect population health for species of mitigation need (WILD-4).
- Prioritize multi-species and multi-resource benefits (WILD-5).

Further, for each objective, Table 7-3 presents sub-objectives, which are intended to help guide Caltrans' advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

Feasibility. This authorized activity may be feasible. As pointed out previously, instructions and guidance for establishing conservation banks are available from CDFW and FWS. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish a conservation bank is expected to take 2 to 6 years before the initial credit release; the credits or values would be available to transportation projects according to the credit release schedule in the Interagency Review Team-approved BEI (CNRA et al. 2011). Caltrans may contract or subcontract bank establishment and/or implementation tasks, including site selection.

9.3.7. Mitigation Bank Establishment

Instructions and guidance for establishing mitigation banks are available from the Corps⁷ and CDFW.⁸ At a minimum, mitigation bank establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix F, *Hydrologic Units*
- Appendix H, *Aquatic Resource Locations*

To support future transportation project permits, Caltrans would prioritize wetlands and waters credit establishment under the Corps' jurisdiction (wetlands and WOTUS) and RWQCB jurisdiction (waters of the state), as well as riparian credit establishment under CDFW's Lake and Streambed Alteration Program.

⁷ https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/mitig_info/

⁸ <https://wildlife.ca.gov/Conservation/Planning/Banking/Templates>

Mitigation banks are wetland- and waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. The Corps, RWQCB, FWS, CDFW, and NMFS are potential signatories. In some circumstances, CDFW's participation in a bank could be documented through an MCA.

An understanding of Corps, RWQCB, FWS, CDFW, and NMFS goals and objectives for aquatic resources in the GAI will improve the chances that credits established through an advance mitigation project will meet the compensatory mitigation needs of Caltrans' future transportation projects. In Chapter 8, *Aquatic Resources Conservation Goals and Objectives*, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3, *Relevant Plans, Policies, and Regulations*, to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans' understanding that a mitigation bank that addresses the following goals would be consistent with natural resource regulatory agency goals:

- Ensure no net loss of area, functions, values, and condition of wetland and non-wetland water resources (AR-1).
- Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters (AR-2).
- Restore or enhance and expand habitat for fish species of mitigation need (AR-3).
- Support resiliency of aquatic resources to climate change and sea-level rise (AR-4).
- Provide multi-resource benefits (AR-5).

Further, for each objective, Table 8-4 presents sub-objectives, which are intended to help guide Caltrans advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

Feasibility. This authorized activity may be feasible. As discussed above, instructions and guidance for establishing mitigation banks are available from the Corps and CDFW and, hence, establishing credits is feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish a mitigation bank is expected to take at least 2 to 6 years before the initial credit release, at which point the credits or values would be available to transportation projects. Caltrans may contract or subcontract bank establishment and/or implementation tasks, including site selection.

9.3.8. In-lieu Fee Program Establishment

In-lieu fee programs are wetlands, waters, and/or wildlife oriented and their alignment with natural resource protection will be documented through its enabling instrument. Instructions and guidance for establishing in-lieu fee programs are available from the federal agencies.⁹ With respect to wildlife, like the Corps, FWS also follows federal guidance for establishing an in-lieu fee program; however, a supportive regulatory and

⁹ <https://www.spl.usace.army.mil/Missions/Regulatory/Mitigation/>

administrative pathway for CDFW to develop an in-lieu fee program has not been developed.

To support future transportation project conditions, in-lieu fee program establishment projects would rely on the same information as mitigation bank establishment (Section 9.3.7). At a minimum, in-lieu fee establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix F, *Hydrologic Units*
- Appendix H, *Aquatic Resource Locations*

To support future transportation project permits, Caltrans would seek CWA credit establishment under the Corps' jurisdiction (WOTUS) and RWQCB jurisdiction (waters of the state). The Corps, EPA, SWRCB, and/or RWQCB are potential signatories to the in-lieu fee program-enabling instrument. Caltrans may also seek to establish credits that could be applied as compensatory mitigation to offset impacts as part of future FESA biological assessments/opinions in coordination with FWS and NMFS.

Feasibility. This authorized activity may be feasible. As stated above, instructions and guidance for establishing an in-lieu fee program for CWA credits are available from the federal agencies. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish an in-lieu fee program is expected to take 2 to 6 years. Credits or values would be available to transportation projects according to the Interagency Review Team-approved in-lieu fee program-enabling instrument. Caltrans may contract or subcontract implementation tasks.

9.3.9. MCA Credit or Value Establishment

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. In accordance with the *Regional Conservation Investment Strategies Program Guidelines* (CDFW 2023), MCAs are species- and species habitat-focused and can include credits under CESA and/or for riparian habitat to meet mitigation needs under a Lake and Streambed Alteration Agreement. An MCA's alignment with natural resource protection will be documented through the foundational RCIS and the MCA itself. RCIS development is also an SHC § 800.6(a)-authorized advance mitigation project deliverable.

At this time, Caltrans cannot be an MCA sponsor.¹⁰ Therefore, Caltrans envisions that credits or values created through an MCA and funded through the AMA could be established under two scenarios:

- Caltrans funds the performance of conservation actions and habitat enhancement actions as needed to generate mitigation credits pursuant to an MCA, in which a third party is the MCA sponsor. The MCA sponsor, CDFW, and landowner would be signatories to the MCA. This scenario assumes an existing RCIS anticipates the requirements and needs for MCA credits to apply to transportation projects.
- Caltrans funds the preparation of an RCIS that anticipates transportation project requirements and needs for MCA credits prior to funding the preparation of an MCA by a third-party who is the MCA sponsor, as in the scenario above.¹¹

To support future transportation project permits, an MCA or, if needed, an RCIS in concert with an MCA, funded through the AMA, would establish CESA and/or Lake and Streambed Alteration Program credits,¹² and CDFW would be the signatory. Caltrans may also request other natural resource regulatory agencies to be signatories to the MCA or may request project-specific interagency agreements with other natural resource regulatory agencies whose jurisdiction overlaps with CDFW's.¹³ However, participation in an MCA may be more feasible for state agencies than federal agencies. Under federal definitions, MCAs may be treated as permittee-responsible mitigation. Federal agencies prioritize credits purchased or established through banking and in-lieu fee programs over permittee-responsible mitigation.

Feasibility. At this time (July of fiscal year 2026/27), RCIS program guidelines, which include guidance for the creation of MCAs, are available (CDFW 2023).¹⁴ Once an MCA has been approved by CDFW, mitigation credits created through the agreement would be available to be applied to Caltrans transportation projects.

However, at this time, timelines and specifics related to the MCAs are uncertain, and scoping and delivering an advance mitigation project within the AMP's timeline needs is unlikely. Caltrans will stay involved to understand the MCA credit or establishment process. However, given the nature of the AMP's revolving account, which sustains itself through transportation project reimbursements, Caltrans has determined that it cannot

¹⁰ CDFW's legislation requires that MCA securities take the form of a letter of credit or cash according to California FGC § 1856 subdivision (g)(17), which includes and references all of § 1798.5 subdivision (a)(2). Caltrans cannot provide a letter of credit or cash in accordance with the prohibition against pledging the credit of the state, based on Article XVI of the California Constitution, § 6, and Government Code § 16305.3. This conflict to establish security funds will need to be resolved before Caltrans can perform the role of MCA sponsor.

¹¹ In accordance with SHC § 800.6(a)(3)(A), advance mitigation project scopes funded through the AMA may also include Caltrans first entering into or funding the preparation of an RCIS.

¹² Caltrans is the Lead Agency under CEQA; CDFW's permitting authority does not include conditioning transportation projects under CEQA (Section 7).

¹³ Parallel evaluations are undertaken when, for the same environmental enhancement/action, two or more agencies must employ different mechanisms to approve the credits.

¹⁴ <https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation>

commit AMA funds until the creation process can predictably deliver credits on a schedule.

Wildlife Crossing and Aquatic Corridor Enhancements

As described in Section 4.6, CDFW is authorized through FGC § 1957(a) to approve compensatory mitigation credits for wildlife connectivity actions under both the Conservation and Mitigation Banking Program and the RCIS Program. Consequently, through these mechanisms, CDFW and other natural resource regulatory agencies may be able to recognize credits established through wildlife crossing and aquatic corridor enhancement made separate and distinct from specific transportation projects. A BEI and MCA for connectivity would be consistent with Caltrans' understanding of natural resource regulatory agency goals and objectives to preserve, enhance, and increase connectivity between blocks of species of mitigation need habitat (WILD-2 and AR-3), support resiliency of the landscape and aquatic resources to climate change and sea-level rise (WILD-3 and AR-4), and provide multi-resource benefits (WILD-5 and AR-5).

The AMP is authorized to fund the creation of credits through conservation banks [SHC § 800.6(a)] and MCAs created pursuant to a CDFW-approved RCIS [SHC § 800.6(b)]. FGC § 1957(a) provides a means by which the AMP could potentially fund credit establishment or creation through fish and wildlife connectivity projects. Caltrans will reassess wildlife crossing and aquatic corridor enhancements related to feasibility with respect to the AMA expenditures and mitigation needs covered in this RAMNA once CDFW's guidelines for calculating wildlife crossing and aquatic corridor credits are finalized.

9.3.10. Mitigation That Meets an RCIS Conservation Objective

SHC § 800.6(a)(3)(B) authorizes the following expenditure from the AMA:

Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation¹⁵ of lands, waterways, aquatic resources, or fisheries that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.

Feasibility. At this time (July of fiscal year 2026/27), this authorized activity is not feasible. A supportive regulatory and administrative pathway for a natural resource regulatory agency to recognize credits or values outside of existing advance mitigation mechanisms, such as the procedures to establish banks, does not exist. Without an existing regulatory pathway, the time to establish credits or values for this advance mitigation project type is uncertain. Consequently, at this time, scoping and delivering an advance mitigation project within the AMP's timeline needs through this authorized activity is unlikely. Given

¹⁵ SWRCB and RWQCBs do not typically approve establishment of or accept preservation credits.

the nature of the AMP's revolving account, the AMP has determined that Caltrans cannot commit AMA funds to a pilot effort.

9.3.11. Mitigation in Accordance with a Programmatic Mitigation Plan

Caltrans may undertake this project type if all other advance mitigation project types discussed above are not feasible [SHC § 800.6(a)(4)]. In brief, SHC § 800.6(a)(4) and SHC § 800.9 authorize the following expenditure from the AMA:

Caltrans performs mitigation in accordance with a programmatic mitigation plan pursuant to SHC §800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for a RCIS.

This authorized activity would likely require an advance mitigation project-specific agreement, such as a cooperative agreement, and the time needed to establish credits or values for this advance mitigation project type is uncertain. In general, unless otherwise prescribed in regulation, an advance mitigation project-specific interagency agreement should include the agency's jurisdiction, resource type, resource value, protection level, service area, time frame, performance and compliance requirements, mitigation accounting procedures, funding, monitoring, and the advance mitigation project's closeout terms and conditions.

Feasibility. At this time (July of fiscal year 2026/27), a number of the authorized activities listed in Table 9-3 appear to be feasible (see Tables 9-4 and 9-5). This suggests that addressing a Caltrans SAMNA-estimated need will not require another approach in accordance with SHC § 800.6(a)(4). At this time, management of the AMA does not need to consider limiting any advance mitigation project type to 25 percent of the fund.

9.3.12. Discussion

Caltrans modeled its compensatory mitigation needs in the GAI for fiscal years 2023/24 through 2032/33 (Chapter 5, *Modeled Estimated Impacts*) and evaluated its needs in light of when transportation projects might need the mitigation (Chapter 6, *Benefiting Transportation Project Considerations*, and Section 9.2). Summarized in Tables 9-4 and 9-5, Caltrans identified a number of options for how to meet its mitigation needs. The authorized activities consist of options to purchase existing mitigation credits (Sections 9.3.1 to 9.3.5) or establish additional mitigation (Section 9.3.6 through 9.3.11).

Table 9-4. Wildlife Resources Credit Options and Feasibility, July 2026

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete ^a
Pay NCCP or NCCP/HCP fees ^b	Yes	Yes, with FWS and CDFW	Maybe, CDFW and FWS	1 to 3 years
Purchase conservation bank credits	Yes, may require instrument amendment	Yes, 3 active FWS-approved banks and 1 active or pending CDFW-approved bank with service areas that overlap the GAI and offer credits for species of mitigation need (coastal California gnatcatcher and/or least Bells' vireo). Credits available for other wildlife resources as well.	Yes, with FWS and CDFW	1 to 3 years
Purchase in-lieu fee program credits	No	No, although there are three in-lieu fee programs in the GAI, none of them is approved by FWS or offer species-specific credits.	Not available	Not available
Purchase MCA credits	No, not at this time	Although one RCIS has a service area that overlaps the GAI, there are no MCA programs available yet, although there may be in the future.	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired. Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available
Establish conservation bank	Yes	Yes, with CDFW, FWS, and NMFS	Yes, with CDFW, FWS, and NMFS	2 to 6 years
Establish in-lieu fee program	Yes	Yes, with FWS and NMFS	Yes; with FWS and NMFS Potential to align with Corps in-lieu fee program	2 to 6 years

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete ^a
Establish MCA credits or values ^c	No, not at this time	Although one RCIS has a service area that overlaps the GAI, there are no MCA programs available yet, although there may be in the future.	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired. Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available
Establish RCIS and MCA ^c	Yes, RCIS and MCA creation guidelines available	Yes, RCIS and MCA creation guidelines available	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired. Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available
Establish mitigation that meets an RCIS objective	Yes	Yes, one RCIS has a service area that overlaps the GAI.	Maybe	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available

^a Caltrans contracting processes and agency interactions are incorporated into this time estimate.

^b Payment of NCCP/HCP fees may have some overlap with in-lieu fee program credits, if associated, and meet multiple mitigation needs.

^c Either Caltrans or a third party would be the signatory with CDFW.

Table 9-5. Aquatic Resources Credit Options and Feasibility, July 2026

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete ^a
Purchase mitigation bank credits	Yes, may require instrument amendment	Yes, four established and one pending Corps-approved banks with available credits present in the GAI	Yes, Corps, RWQCB, EPA, CDFW, FWS, and/or NMFS	1 to 3 years
Purchase in-lieu fee credits	Yes	Yes, three in-lieu fee programs in the GAI	Yes, Corps, RWQCB, EPA, and NMFS	1 to 3 years
Purchase MCA credits	No, not at this time	Although one RCIS has a service area that overlaps the GAI, there are no MCA programs available yet, though there may be in the future.	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired. Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available
Establish mitigation bank	Yes	Yes, with Corps, EPA, FWS, NMFS, CDFW, and RWQCB	Yes, with Corps, CDFW, EPA, FWS, NMFS, and RWQCB	2 to 6 years
Establish in-lieu fee program	Yes	Yes, for Corps, EPA, FWS, NMFS, and RWQCB	Maybe, for Corps, EPA, FWS, NMFS, and RWQCB	2 to 6 years
Establish MCA credits or values ^b	No, not at this time	Although one RCIS has a service area that overlaps the GAI, there are no MCA programs available yet, although there may be in the future.	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired. Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete ^a
Establish RCIS and MCA ^b	Yes, RCIS and MCA creation guidelines available	Yes, RCIS and MCA creation guidelines available	Maybe, for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired. Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available
Establish mitigation that meets an RCIS objective	Yes	Yes, one RCIS has a service area that overlaps the GAI	Maybe	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available

^a Caltrans contracting processes and agency interactions are incorporated into this time estimate.

^b Either Caltrans or a third party would be the signatory with CDFW.

Based on its evaluation, Caltrans found that, at this time (July of fiscal year 2026/27), a few authorized activities appear to be feasible and, under several scenarios, advance mitigation project scopes could cover multiple resources and address overlapping natural resource regulatory agency jurisdictions. For example, least Bells' vireo and riparian floodplain could be addressed within the same credit purchase or through establishing a single credit establishment project.

9.4. Next Steps

Caltrans is required to avoid and minimize any impacts on the environment where practicable, but some impacts are unavoidable. When this is the case, as determined by a natural resource regulatory agency, Caltrans may use compensatory mitigation to offset these unavoidable impacts on the environment. Compensatory mitigation involves the restoration, establishment, enhancement, and/or preservation of the environment, including wetlands, non-wetland waters, and threatened or endangered species and/or their habitats, including riparian habitat.

Caltrans District 12 will consider all feasible options when developing advance mitigation project scopes. The feasibility of each authorized activity to meet the mitigation need depends on the availability of a regulatory and administrative pathway as well as other conditions summarized in Tables 9-4 and 9-5. Not included in the tables is an explicit comparison of other desired qualities, outcomes, or other factors of performing any particular authorized activity, which Caltrans District 12 will also consider based on its localized knowledge of delivering mitigation in its region. For example, Caltrans may prioritize advance mitigation projects that reduce risk in implementation and long-term management by eliciting others to be bank or in-lieu fee sponsors.

As described in the introduction to this chapter and in Section 9.1, to inform the advance mitigation project scope, Caltrans District 12 will use information within the RAMNA. Each scope will consider mitigation needs; the timing of mitigation needs; conservation data and plans; input from natural resource regulatory agencies, interested parties, and tribes; feasibility; timing; and other financial, strategic, and technical risks associated with transportation project delivery and conservation actions. Advance mitigation project scopes will also employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements, and contracts with qualified third parties.

Caltrans District 12 will submit a nominated advance mitigation project's scope, schedule, and budget to the Caltrans Director for approval. When the Director concurs and funding is approved, Caltrans District 12 will commit to delivering the advance mitigation project within the scope, schedule, and budget communicated with nomination materials. At that point, Caltrans District 12 will initiate project delivery (see Steps 6 through 10 on Figure 1-2; Caltrans 2019a). Advance mitigation project delivery includes engaging stakeholders, analyzing project alternatives, coordinating with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third

parties and/or credit sponsors, and developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement(s). Additionally:

- Stakeholder engagement will be conducted in accordance with each advance mitigation project's communication plan and be consistent with the applicable and appropriate requirements of existing applicable state and federal standards and instruments.
- When required by the advance mitigation project type, site selection may be performed by or under contract to Caltrans through a competitive bid process and may include existing mitigation providers, for example, banks, NCCPs, MCAs, and the identification of new acquisitions. When a competitive bid process is used, sites are subject to what bid respondents put forward in their proposals. Site selection should be consistent with appropriate conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.
- When appropriate for the advance mitigation project type, it may be necessary to identify the steps required to meet the goal of satisfying overlapping jurisdictional mitigation requirements.
- Instruments and advance mitigation project-specific interagency agreements will specify the terms of use of the credits, including the service areas. Service areas will be defined based on feedback from the natural resource regulatory agencies. It is intended for the ecological units used for this RAMNA to lead to ecologically based advance mitigation project scopes and service areas; Caltrans uses HUC-8 sub-basins to be consistent with the 2008 Mitigation Rule and ecoregions to be consistent with the SWAP.

As with all credits and values established through advance mitigation processes, the credits' suitability for application to a specific transportation project is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

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