ADVANCE MITIGATION PROGRAM

Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South Sub-basins Regional Advance Mitigation Needs Assessment

Version 1.0

Establishing Caltrans' Need for Advance Mitigation in the vicinity of Monterey Bay, forecast fiscal years 2017/2018 to 2026/2027

California Department of Transportation – District 5

May 2021

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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	*Advance Mitigation Program Final Formal Guidelines*
ASBS	areas of special biological significance
BEI	Bank Enabling Instrument
BLM	Bureau of Land Management
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CCA	Critical Coastal Area
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
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
CO_2	carbon dioxide
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
CWSC	California Water Science Center
DPS	distinct population segment
EA	expenditure authorization
EFH	essential fish habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESHA	environmentally sensitive habitat area
ESU	evolutionarily significant unit
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
HCP	habitat conservation plan
HU	hydrologic unit
HUC	hydrologic unit code
IRWMP	integrated regional water management plan
LCP	Local Coastal Program
MCA	mitigation credit agreement
MPO	metropolitan planning organization
NCCP	natural community conservation plan
NEPA	National Environmental Policy Act
NHD	National Hydrology Dataset
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
OPC	Ocean Protection Council
RAMNA	Regional Advance Mitigation Needs Assessment
RCIS	Regional Conservation Investment Strategy
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
SHC	Streets and Highways Code
SHOPP	State Highway Operation and Protection Program
SHOPP Ten-Year Book	*State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2017/18—2026/27*
SHS	State Highway System
State Water Board	State Water Resources Control Board
STIP	State Transportation Improvement Program
SWAP	State Wildlife Action Plan

USC	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
Water Boards	State Water Resources Control Board and Regional Water Quality Control Boards
WOTUS	waters of the U.S.

EXECUTIVE SUMMARY

California's State Highway System relies on long-range planning documents to guide its operation and maintenance. In this *Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South Sub-basins Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 5 evaluates its forecast of natural resource compensatory mitigation[1] needs for the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins for a 10-year planning horizon. 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. Credits are the usual currency of advance mitigation actions. When 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 ecological value greater than implementing multiple small project-by-project actions.

ES.1 Overview

In 2017, the California Streets and Highways Code ("SHC") § 800 et seq. was amended to create the Advance Mitigation Program ("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 "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 specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. The allowable expenditures consist of purchasing or establishing compensatory mitigation credits developed through an appropriate regulatory mechanism, which are then available for use by transportation projects to compensate for adverse impacts on natural resources.

[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.

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). The AMP Guidelines present a 10-step process, the first 5 of which are the advance mitigation planning phase (Figure ES-1) 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 transportation projects will reimburse the AMA for advance mitigation project investments, thereby making the funds available to undertake the next advance mitigation project.

Figure ES-1. Advance Mitigation Planning Phase

Source: Caltrans 2019a

Caltrans' 5-step advance mitigation planning phase 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 to 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. The RAMNA is intended to satisfy Step 3 and provides the results of a regional assessment of Caltrans advance mitigation needs in the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins.

A planning-level document, this RAMNA:

- is a desktop analysis of relevant available information;
- covers fiscal years 2018 to 2027, a specific planning period, concurrent with the time period addressed by the *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2017/18–2026/27* ("SHOPP Ten-Year Book") (Caltrans 2018a);

- applies to potential compensatory mitigation conditions that may be placed on future transportation projects by the seven natural resource regulatory agency signatories[2] to the *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program* (Caltrans et al. 2020);
- focuses on a geographic area of interest ("GAI"), an area with wildlife habitats and aquatic resources[3] that has a high probability of requiring transportation project mitigation between 2018 and 2027—the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins within Caltrans District 5;
- documents Caltrans' forecast of its potential wildlife and aquatic resource compensatory mitigation needs for GAI and planning period, as reported by the *Statewide Advance Mitigation Needs Assessment Report*, *State Highway Operation and Protection Program, Ten-Year Project Book, Second Quarter 2017/2018 Fiscal Year* (Caltrans 2019b);
- 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 mitigation supply;
- incorporates information and feedback received from outreach to 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; and
- analyzes Caltrans' options to meet its mitigation needs in the GAI through the AMP's authorized activities in accordance with SHC § 800.6(a).

A brief description of each section is provided below.

[2] Natural resource regulatory agency signatories are California Department of Fish and Wildlife ("CDFW"); California State Water Resources Control Board ("State Water Board"); U.S. Army Corps of Engineers ("Corps") Los Angeles District, Sacramento District, and San Francisco District; U.S. Environmental Protection Agency ("EPA"), U.S. Fish and Wildlife Service ("FWS"); National Marine Fisheries Service ("NMFS"); and California State Coastal Commission.

[3] For the purposes of this document, aquatic resources include all wetlands and non-wetland waters regulated by CDFW, the State Water Resources Control Board and the Regional Water Quality Control Boards ("Water Boards"), Corps, and EPA.

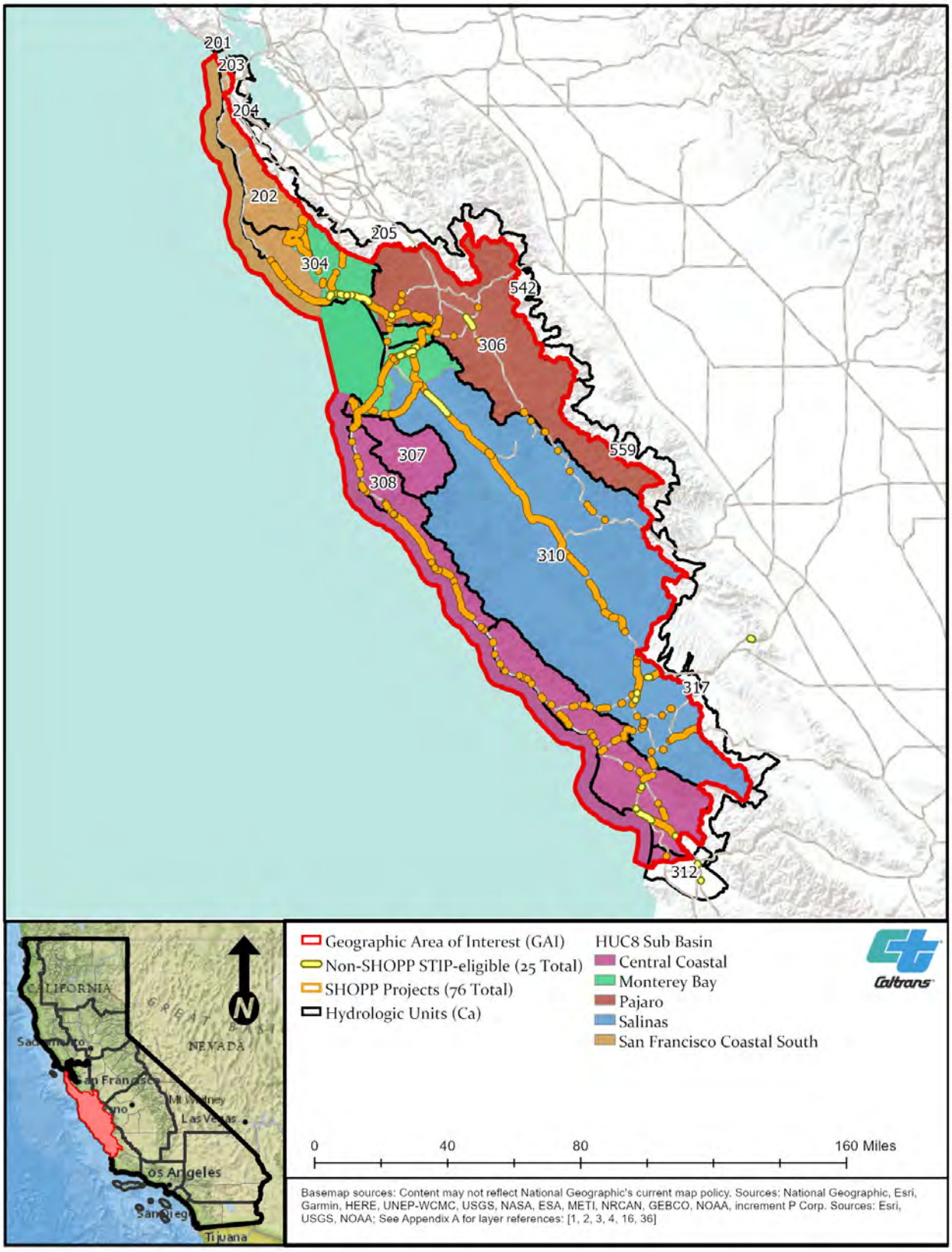
ES.2 Geographic Area of Interest and Resource Focus

GAIs are established at a watershed or ecoregion 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 5, in communication with other transportation agencies, selected the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South hydrologic unit codes ("HUC-8") sub-basins as the GAI (Figure ES-2) because SAMNA results indicate that investing AMP funds to implement landscape-scale mitigation in these 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.

Caltrans District 5 also identified compensatory mitigation for wildlife resources in the GAI as both a historical transportation project compensatory mitigation need, and an anticipated future transportation project compensatory mitigation need. Because the SAMNA forecasts impact on hundreds of species' habitats, to further focus the planning effort, Caltrans District 5 selected the following species of mitigation need: the California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), tricolored blackbird (*Agelaius tricolor*), the Central California Coast and South-Central California Coast Distinct Population Segment ("DPS") steelhead (*Oncorhynchus mykiss*), and tidewater goby (*Eucyclogobius newberryi*). Species of mitigation need were selected to focus the assessment. Other state and federal special-status species occur in the GAI, and Caltrans intends for conservation benefits and values to be realized for other special-status species through the implementation of advance mitigation centered on the species of mitigation need identified in the GAI, given their reliance on similar habitats.

Focusing this analysis improves the probability that advance mitigation projects undertaken by Caltrans will yield mitigation 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 benefit other environmental resources as well.

Figure ES-2. Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South Sub-basins within Caltrans District 5



ES.3 Environmental Setting

The GAI consists of approximately 4.2 million acres in the central portion of central coastal California. The Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South HUC-8 sub-basins define its boundaries, which are overlapped by portions of the Central California Coast and Central California Coast Ranges ecoregion sections. Geospatial data from the SAMNA Reporting Tool, CDFW's BIOS, and other readily available information are summarized and presented in this RAMNA. Climate change resiliency, wildlife connectivity, biodiversity, and conserved lands are among the information presented. Additional information on the environmental setting of the GAI is provided in Chapter 2.

ES.4 Relevant Plans, Policies, and Regulations

Compensatory mitigation is informed by regulatory requirements, regulatory pathways for credit establishment, and conservation. Laws, regulations, comprehensive plans, conservation plans, 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 174 relevant documents for the RAMNA: 28 laws and regulations, 26 statewide and regional resource planning documents, 28 plans and permits focused on species of mitigation need, 35 resource agency land management plans, 16 water resources plans and documents, 43 County and City general plans, 60 certified local coastal programs, and 12 nongovernmental organization conservation and management documents. A summary and links to these documents can be found in Chapter 3.

ES.5 Existing Mitigation Opportunities

SHC § 800.6(a) authorizes Caltrans to use AMA funds for purchasing compensatory mitigation that has been previously approved by the natural resource regulatory agencies through a conservation bank, mitigation bank, habitat conservation plan ("HCP"), natural community conservation plan ("NCCP"), in-lieu fee program, or mitigation credit agreement ("MCA") developed in accordance with a CDFW-approved regional conservation investment strategy ("RCIS"). In the GAI, Caltrans identified 1 HCP, 1 HCP/NCCP, 10 conservation or mitigation banks, 1 in-lieu fee programs, three RCISs (two pending), and no MCAs; they are approved or in progress. Credits established through the Caltrans SHOPP are also an existing credit option that, with agency approval, have the potential to satisfy transportation project mitigation conditions—the Caltrans SHOPP has two California tiger salamander bank establishment projects underway. Existing mitigation opportunities can also inform both regional understanding and advance mitigation project scoping because they may be expressions of natural resource

regulatory agency conservation goals and objectives[4] and may be suitable for concurrent transportation project mitigation. Chapter 4 provides a more in-depth discussion of existing mitigation opportunities in the GAI.

ES.6 Estimated Impacts

Caltrans undertakes SHOPP transportation projects to address maintenance, safety, operation, and rehabilitation of the state highway system, which do not add new capacity to the system.[5] Metropolitan planning organizations, regional transportation planning agencies, and other public agencies also undertake transportation projects, to address non-SHOPP STIP-funded transportation improvements. Since the SHOPP Ten-Year Book is an early planning document, Caltrans must rely on modeling future impacts through the SAMNA, as well as qualitative assessments of STIP-eligible needs, to define the range of advance mitigation needs, prior to developing a focused advance mitigation project scope to address anticipated needs.

For special-status terrestrial plant and wildlife species, potential impacts from a total of 89 SHOPP and 20 STIP eligible transportation projects in their planning and conceptual phases for the GAI are presented and discussed in the RAMNA. For fiscal years 2018 to 2027, the following impacts were identified:

- For special-status terrestrial plant and wildlife species, quantitative impacts from all 89 SHOPP transportation projects are forecast by the SAMNA to potentially affect 175 of the 202 special-status species evaluated, potentially affecting 1,404.27 acres of habitat in total (Table ES-1).
- For the terrestrial wildlife species of mitigation need, quantitative impacts from 81 SHOPP transportation projects are forecast by the SAMNA to potentially affect 482.9 acres of California red-legged frog habitat, 45 SHOPP transportation projects are forecast by the SAMNA to potentially affect 240.11 acres of California tiger salamander habitat, 42 SHOPP transportation projects are forecast by the SAMNA to potentially affect 259.7 acres of foothill yellow-legged frog habitat, and 47 SHOPP transportation projects are forecast by the SAMNA to potentially affect 1122.57 acres of tricolored blackbird habitat (Table ES-1).
- Since they are proposed to occur near planned SHOPP transportation projects, additional mitigation need may be expected from the 20 STIP-eligible transportation projects.

As pointed out above in Section ES.2, species of mitigation need were identified to focus this assessment towards mitigation likely to be needed by future transportation projects. Nevertheless, other state and federal special-status species occur in the GAI. Caltrans intends for conservation benefits and values to be realized for other special-status

[4] 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.

[5] https://catc.ca.gov/programs/state-highway-operation-and-protection-program

species through the implementation of advance mitigation projects centered on the species of mitigation need identified in the GAI, given their reliance on similar habitats.

Table ES-1 provides these data in tabular format for ease of reference. Please refer to Chapter 5 for additional information regarding wildlife-related impacts analyzed in this RAMNA.

Table ES-1. Summary of Estimated SHOPP Wildlife Resource Impacts

GAI Wildlife Resource	Number of Caltrans SHOPP Projects	Number of Special-status Species Habitats	Number of Special-status Species	Estimated Impact (acres)[b]
Special-status species, total count (all habitats, all species)	89	29	175	1,405.4
California red-legged frog	81	17	148	482.9
California tiger salamander[a]	45	10	133	240.1
Foothill yellow-legged frog	42	13	146	259.7
Tricolored blackbird[a]	47	10	129	1,122.6

[a] "Species of mitigation need" were identified for this RAMNA to help focus this effort. Species of mitigation need are species for which Caltrans anticipates a high probability of mitigation need.
[b] STIP-eligible needs were assessed qualitatively. Since they are proposed to occur near planned SHOPP transportation projects, additional mitigation need may be expected from the STIP-eligible transportation projects.

For aquatic resources, potential impacts from 75 SHOPP and 20 STIP-eligible transportation projects in their planning and conceptual phases for watersheds that overlap the GAI are presented and discussed in the RAMNA. For fiscal years 2018 to 2027, the following impacts were identified:

- For wetland resources, quantitative impacts from 60 of the 75 SHOPP transportation projects are forecast by the SAMNA to potentially affect 16.6 acres of wetlands (Table ES-2), including 4.2 acres in the coastal zone.
- For non-wetland water resources, quantitative impacts from 51 of the 75 SHOPP transportation projects are forecast by the SAMNA to potentially affect 31.8 acres of non-wetland waters (Table ES-2), including 14.8 acres in the coastal zone.
- For fish resources, quantitative impacts from 18 of the 75 SHOPP transportation projects are forecast by the SAMNA to potentially affect 5.8 acres of fish habitat (Table ES-3).
- For vernal pool habitat, quantitative impacts from 19 of the 75 SHOPP transportation projects are forecast by the SAMNA to potentially affect 22.02 acres of vernal pool fairy shrimp habitat, and one SHOPP transportation project is anticipated to affect 0.47 acre of longhorn fairy shrimp habitat.
- Since they are proposed to occur near planned SHOPP transportation projects, additional mitigation need may be expected from the 20 STIP-eligible transportation projects

It should be noted that “non-wetland waters” is a general term that can apply to waters of the United States (“WOTUS”), waters of the state, or both. These data are provided in Table ES-2 in tabular format for ease of reference. Please refer to Chapter 5 for additional information regarding aquatic resources impacts analyzed in this RAMNA.

Table ES-2. Summary of Estimated SHOPP Aquatic Resource Impacts

GAI Sub-basin (HUC-8)	Number of Transportation Projects, Wetlands (HUC-8)[a]	Total Estimated Wetland Impacts (acres)	Number of Transportation Projects, Non-wetland Waters (HUC-8)[a]	Total Estimated Water Impacts (acres)[b]
Central Coastal	16	2.5	14	5.7
Monterey Bay	22	6.1	18	15.0
Pajaro	5	0.5	6	1.5
Salinas	18	7.5	20	8.9
San Francisco Coastal South	1	<0.1	3	0.7
Aquatic resources, total counts	**60**	**16.6**	**51**	**31.8**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not impact wetlands.
[b] STIP-eligible needs were assessed qualitatively. Since they are proposed to occur near planned SHOPP transportation projects, additional mitigation need may be expected from the STIP-eligible transportation projects.

Table ES-3. Summary of Estimated SHOPP Impacts on Fish in the GAI (results in acres)

Sub-basin (HUC-8)	Number of Transportation Projects (HUC-8)	Coho Salmon Central California Coast ESU[a]	Green Sturgeon Southern DPS	Longfin smelt	Steelhead South Central California Coast DPS	Tidewater Goby	Estimated Fish Impact[b, c]
Central Coastal	11	0.0	0.0	0.0	1.5	0.3	1.4[d]
Monterey Bay	17	1.2	0.1	See text[e]	1.1	<0.1	1.2[d]
Pajaro	3	0.0	0.0	0.0	0.5	0.1	0.6[d]
Salinas	7	0.0	0.0	0.0	2.0	0.0	2.0[d]
San Francisco Coastal South	3	0.7	0.0	0.0	0.3	<0.1	0.7[d]
Total	**18[f]**	**1.9**	**0.1**	**0.0**	**5.3**	**0.4**	**5.8[d]**

[a] The SAMNA Report refers to this population as "South of Punta Gorda."
[b] STIP-eligible needs were assessed qualitatively. Since they are proposed to occur near planned SHOPP transportation projects, additional mitigation need may be expected from the STIP-eligible transportation projects.
[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 largest impact is provided.
[e] See text for longfin smelt impact estimate discussion.
[f] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect fish.

ES.7 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 (January of fiscal year 2020/21), Caltrans is 3 years into the SHOPP Ten-Year Book planning period. Hence, for the time period under consideration, 2017/2018 to 2026/2027, the District intends to prioritize purchasing or developing mitigation credits or values that are planned for the middle and end of the 10- year assessment period. Given the expected timing of mitigation need, at this time (January of fiscal year 2020/21) credits or values that can be purchased or established by 2023/24 (within the next 2 years) could address a subset of the impacts described above, approximately:

- 301.6 acres of California red-legged frog habitat, potentially contributing to the acceleration of 59[6] transportation projects.

[6] This number may be an overestimate and include projects that cross into both the California Central Coast and California Central Coast Range Ecoregions.

- 169.1 acres of California tiger salamander habitat, potentially contributing to the acceleration of 49[6] transportation projects.
- 140.5 acres of foothill yellow-legged frog habitat, potentially contributing to the acceleration of 49[6] transportation projects.
- 137.2 acres of tricolored blackbird habitat, potentially contributing to the acceleration of 50[6] transportation projects.
- 3.78 acres of special-status fish impacts potentially contributing to the acceleration of 20[7]transportation projects.
- 9.9 acres of wetlands, potentially contributing to the acceleration of 37[8] transportation projects.
- 16.5 acres of non-wetland waters, potentially contributing to the acceleration of 37[8] transportation projects.
- 9 acres of vernal pool habitat impacts potentially contributing to the acceleration of 13 transportation projects.

All or some of these needs could form the basis for Caltrans District 5 to develop an advance mitigation project scope.

ES.8 Wildlife Resources 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 the resource agencies and their comments and suggestions were incorporated into the document, as appropriate.

When establishing wildlife resources 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 wildlife resource-related credit establishment, and have 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 encompass protecting, preserving, and enhancing large-scale ecological processes, environmental gradients, biological diversity, and regional linkages. Informed by relevant plans, policies, and regulations, the goals and objectives presented herein summarize how state and federal natural resource regulatory agencies, and other land-managing 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 California red-legged frog, California tiger salamander, foothill yellow-legged frog, and tricolored blackbird in the GAI; however, advance mitigation for the benefit of the aforementioned species is anticipated to have broader benefits for multiple special-status

[7] This number may be an overestimate and include projects that cross into multiple sub-basins.

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 aforementioned species of mitigation need and the species that share their habitat
- Preserving, enhancing, and increasing connectivity between blocks of habitat
- Supporting resiliency of the landscape to climate change
- Decreasing mortality of species of mitigation need
- Providing multi-species benefits

Objectives and sub-objectives are provided under each of the above goals in Chapter 7 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.

ES.9 Aquatic Resources 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 the natural resource regulatory agencies and their comments and suggestions were incorporated.

When establishing aquatic resources 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 encompass restoring, maintaining, and enhancing large-scale ecological processes, environmental gradients, biological diversity, and regional linkages. Aquatic resources discussed in this document include wetland and non-wetland waters, vernal pools, Central California Coast and South-Central California Coast DPS steelhead, and tidewater goby.

Aquatic resources goals developed for this RAMNA prioritize:

- Providing for no net loss of aquatic resources area, functions, and values
- Restoring and maintaining the chemical, physical, and biological integrity of waters
- Restoring or enhancing and expanding habitat for steelhead
- Supporting resiliency of aquatic resources to climate change
- Providing multi-resource benefits

Sub-objectives are included for each goal 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.10 Authorized Activity Summary

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 District 5 will consider all feasible options when developing advance mitigation project scopes that could meet its mitigation needs. The feasibility of each authorized activity to meet the forecast mitigation need in time to accelerate transportation projects will depend on the availably of a regulatory and administrative pathway and other conditions. When establishing mitigation credits, Caltrans intends to scope advance mitigation projects that align with conservation goals and objectives, address multi-resource benefits, and address overlapping jurisdictions.

Caltrans District 5 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, Caltrans District 5 will begin advance mitigation project delivery, which includes further scoping, stakeholder engagement, project alternative analysis, coordination with natural resource regulatory agency partners, and, finally, implementation.

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 *Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South Sub-basins Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 5 presents its forecast of natural resource compensatory mitigation[1] needs for the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins for a 10-year planning horizon. 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 compensatory 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 Units[2] 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 the public. It will be posted on the Advance Mitigation Program ("AMP") website: http://www.dot.ca.gov/env/advancemitigation/.

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[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.

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 on natural resources (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)
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)

Advance Mitigation Project Type	Authorization
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation 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[e] 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 California Fish and Game Code ("FGC") § 1850–1861.
[e] 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 transportation projects will reimburse the AMA for advance mitigation project investments, thereby making the funds available to undertake the next advance mitigation project.

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 in order to inform advance mitigation project scopes that will be approved by the Caltrans Director. As elaborated below, at this time, Steps 1 and 2 of the AMP's 5-step advance mitigation planning phase are complete. The RAMNA satisfies Step 3 (Figure 1-1; Caltrans 2019a) and provides the results of a regional assessment of Caltrans' advance mitigation needs in the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins.[3]

Caltrans District 5 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 in the advance mitigation planning process when Caltrans justifies, proposes, and scopes an advance mitigation project based on its needs (Caltrans 2019a). Advance mitigation project scopes informed by this RAMNA will provide enough information, at the appropriate level of detail,

[3] 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(c)(8).

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 District 5 advance mitigation project for funding (Step 5; Caltrans 2019a). Thereafter, Caltrans District 5 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. Advance mitigation project delivery is undertaken after an advance mitigation project has been approved by the Caltrans Director and has been programmed[4] (Caltrans 2019a; see Figure 1-2). The phase consists of implementing the authorized activities under SHC § 800.6(a), which are existing advance mitigation mechanisms or procedures under development.

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.

[4] 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.

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

1.2 District 5 Transportation Infrastructure[5]

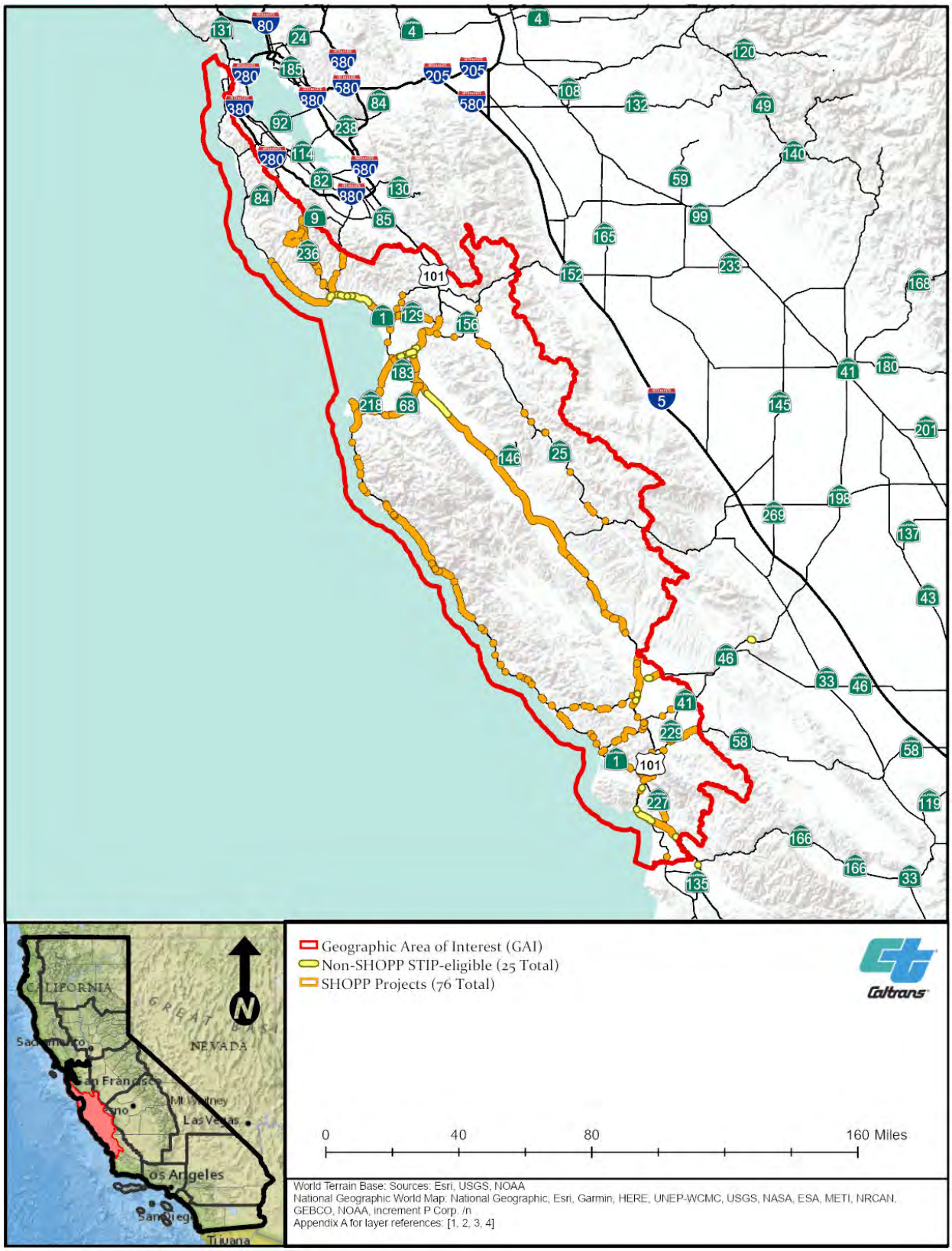
Headquartered in San Luis Obispo, Caltrans District 5 encompasses Santa Barbara, San Luis Obispo, Monterey, San Benito, and Santa Cruz Counties. District 5 has eight maintenance stations that take care of 30 state routes and 1,169 centerline miles to provide maximum benefits to the traveling public. The SHS roadways range from scenic two-lane highways to controlled-access freeways. State Route 1 and US Highway 101—two major north-to-south routes connecting northern and southern California—traverse District 5.

A portion of District 4 occurs within the geographic area of interest ("GAI"), including parts of Santa Clara, San Mateo, and San Francisco Counties. Similar to District 5, SHS roadways in District 4 range from scenic two-lane highways to controlled-access freeways. Both State Route 1 and US Highway 101 traverse District 4 (Figure 1-3).

Other transportation agencies that implement transportation improvements eligible for State Transportation Improvement Program ("STIP") funding (MPOs, RTPAs, and other public agencies) within District 5's boundaries are the Association of Monterey Bay Area Governments, San Luis Obispo Council of Governments, Santa Barbara County Association of Governments, and Santa Cruz County Regional Transportation Commission. In addition, the Metropolitan Transportation Commission, San Francisco County Transportation Authority, San Mateo Association of Governments, and Santa Clara Valley Transportation Authority are located in the portion of District 4 that is within the GAI.

[5] Adapted from: https://dot.ca.gov/caltrans-near-me/district-5/district-5-popular-links/d5-about

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

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 Oversight over Natural Resources in the GAI

Partner	Web Address
California Coastal Commission ("CCC")	https://coastal.ca.gov/
CDFW, Central Region	https://wildlife.ca.gov/regions/4
CDFW, Bay Delta Region	https://wildlife.ca.gov/regions/3
California Regional Water Quality Control Board ("RWQCB") Central Coast	http://www.waterboards.ca.gov/centralcoast/
RWQCB San Francisco Bay	http://www.waterboards.ca.gov/sanfranciscobay/
State Water Resources Control Board ("State Water Board")	https://www.waterboards.ca.gov/
U.S. Army Corps of Engineers ("Corps"), South Pacific Division, San Francisco District	http://www.spl.usace.army.mil/
Corps, Los Angeles District	http://www.spl.usace.army.mil/
Corps, Sacramento District	https://www.spk.usace.army.mil/Missions/Regulatory//
U.S. Environmental Protection Agency ("EPA"), Region 9	http://www.epa.gov/region9/
U.S. Fish and Wildlife Service ("FWS"), Sacramento Field Office	https://www.fws.gov/sacramento/

Partner	Web Address
FWS, Ventura Office	https://www.fws.gov/ventura/
National Marine Fisheries Service ("NMFS") West Coast, California Coastal Office	https://www.westcoast.fisheries.noaa.gov/

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:

- *Conservation Bank and Mitigation Bank Applications and Fees* (FGC § 1797 et seq.)
- *Advance Mitigation and Regional Conservation Investment Strategies,* mitigation credit agreements (FGC § 1856)
- *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)
- *Final Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015)
- *Memorandum of Understanding Concerning Mitigation and Conservation Banking and In-Lieu Fee Programs in California* (California Natural Resources Agency ["CNRA"] et al. 2011).

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,[6] 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.

[6] The goal of conservation banks is, typically, to offset adverse impacts on a species, while the goal of mitigation banking is to replace the exact function and values of specific wetland habitats that will be adversely affected.

1.4 SAMNA

Predicting likely future transportation project effects on natural resources takes place at the intersection of transportation planning and conservation planning. In 2018, 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 and Protection Program Ten-Year Project Book Fiscal Years 2017/18—2026/27* ("SHOPP Ten-Year Book") for fiscal years 2018 to 2027 (Caltrans 2018a, 2019b). The forecast was performed using the Caltrans Statewide Advance Mitigation Needs Assessment Reporting Tool ("SAMNA Reporting Tool"), a geographic information system ("GIS") overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2019b). Potential impacts for all 12 Caltrans Districts were estimated. Statewide, over 900 transportation projects and over 600 wildlife and aquatic resources were evaluated through the SAMNA Reporting Tool, yielding thousands of results (Caltrans 2019b). The District 5 results are provided on pages 141 to 177 of Caltrans 2019b.

For consistency and as appropriate, tables, figures, and information presented throughout this document, including 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 2019b. Results are presented in four different reports: terrestrial and aquatic species and subspecies, special-status fish, waters, and wetlands. 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 2019b). 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.

1.5 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 having (1) compensatory mitigation credit purchase transactions complete and/or (b) 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 benefit other environmental resources as well.

1.5.1. GAI

To identify an area to focus on, consistent with Step 2 of the advance mitigation planning process (Figure 1-1), in 2019, Caltrans District 5 subject matter specialists:

- Reviewed the entirety of District 5's SAMNA results and their associated future transportation project locations and activities anticipated for the State Highway Operation and Protection Program ("SHOPP") (Caltrans 2019b);
- Reviewed non-SHOPP STIP-eligible transportation improvement plans for the next 10 years; and

Identified the Central Coastal (hydrological unit code ["HUC"] 18060006), Monterey Bay (HUC 18060015), Pajaro (HUC 18060002), Salinas (HUC 18060005), and San Francisco Coastal South (HUC 18050006) sub-basins as locations where Caltrans and other public agencies that implement transportation improvements could benefit from advance mitigation planning—hereafter called the GAI (Figure ES-1; Figure 1-3).

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 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. Because the HUC-8s form an ecological boundary and not a political boundary, some of the GAI overlaps Caltrans District 4.

1.5.2. Species of Mitigation Need

Compensatory mitigation for species in the GAI was identified as both a historical transportation project compensatory mitigation need and an anticipated future transportation project compensatory mitigation need within District 5. 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. Hence, to further focus the planning effort, District 5 identified

California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), and tricolored blackbird (*Agelaius tricolor*) as terrestrial wildlife of "species of mitigation need." California red-legged frog is federally listed as threatened, California tiger salamander is federally and state listed as threatened, foothill yellow-legged frog is state listed as endangered and a federal candidate for endangered, and the tricolored blackbird is state listed as threatened. These species inform the discussion in Chapter 7 (*Wildlife Resources Conservation Goals and Objectives*).

Central California Coast and South-Central California Coast Distinct Population Segment ("DPS") steelhead (*Oncorhynchus mykiss*) and tidewater goby *(Eucyclogobius newberryi*) were selected as aquatic species of mitigation need. Both the Central California Coast and South-Central California Coast steelhead are federally listed as threatened and the tidewater goby is federally listed as endangered. These species inform 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 Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins, referred to as the GAI;
- Applies to fiscal years 2018 to 2027 (planning period), which is concurrent with the time period addressed by the SHOPP Ten-Year Book (Caltrans 2018a);
- Discusses potential compensatory mitigation conditions that may be placed on future transportation projects by the seven resource and regulatory agency signatories[7] to the *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program* (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 resource[8] compensatory mitigation needs for the GAI and planning period, as reported by the SAMNA (Caltrans 2019b);
- 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;

[7] Natural resource regulatory signatories are CDFW; State Water Board, Corps Los Angeles, Sacramento, and San Francisco Districts; EPA; FWS; NMFS; and CCC.

[8] For the purposes of this document, aquatic resources include all wetlands and waters regulated by CDFW, RWQCBs, Corps, and EPA.

- 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 three 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

The AMP guidelines state that Caltrans will contact MPOs, RTPAs, and other public agencies that implement transportation projects to request specific information about their potential STIP transportation projects, to help inform the potential demand for compensatory mitigation in that area (Section 7.2 of Caltrans 2019a). District 5 Transportation Planning conducted outreach and contacted the partners listed in Table 1-3.

Table 1-3. Regional Transportation Interaction and Outreach Summary

Date	Description
July 23, 2019	Council of San Benito County Governments confirmed its STIP-eligible transportation project list.
July 22, 2019 August 2, 2019 August 28, 2019	Santa Barbara County Association of Governments did not contradict Caltrans' understanding of the STIP-eligible transportation project list.
July 3, 2019	Santa Cruz County Regional Transportation Commission confirmed its STIP-eligible transportation project list.
August 9, 2019	San Luis Obispo Council of Governments confirmed its STIP-eligible transportation project list.
August 21, 2019	Transportation Agency for Monterey County confirmed its STIP-eligible transportation project list.

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 January 2021, 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 1-4 lists the commenters and the date of their communication. All comments received were considered, addressed, and incorporated into the document, as appropriate.

Table 1-4. Comments Received by Caltrans on the RAMNA

Commenter	Date of Comment Letter
CDFW[a]	March 12, 2021
CCC	March 9, 2021
Corps, San Francisco District	January 20, 2021
Corps, Los Angeles District	January 26, 2021
Corps, Sacramento District[b]	February 24, 2021
EPA	March 15, 2021
FWS, Ventura Office	March 12, 2021
NMFS	TBP
State Water Board and RWQCB San Francisco Bay	March 11, 2021
Association of Monterey Bay Area Governments	February 8, 2021

Commenter	Date of Comment Letter
The Nature Conservancy of California	February 10, 2021
Santa Cruz County Regional Transportation Commission	February 10, 2021

Note: TBP = to be provided
[a] SHC § 800 et seq. directs Caltrans to consult with CDFW on all activities pursuant to the AMP.
[b] Advised no resources under its jurisdiction in the GAI.

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 1-5. The discussion has informed this document.

Table 1-5. Interagency Meetings

Meeting Participants	Meeting Date
CCC; CDFW; EPA; FWS; State Water Board; Corps, Los Angeles District	February 24, 2021
CCC	March 12, 2021
CDFW	March 30, 2021
Corps, San Francisco District	March 10, 2021
EPA	March 30, 2021
FWS	April 6, 2021
NMFS	March 29, 2021
State Water Board	March 30, 2021
Santa Cruz County Regional Transportation Commission	April 26, 2021

1.8 Document Organization

This document is organized as shown in Table 1-6.

Table 1-6. Document Organization

Chapter	Title	Content
Chapter 1	Introduction	This chapter introduces the RAMNA, placing it in 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 in the vicinity of the GAI.
Chapter 5	Modeled Estimated Impacts	This chapter summarizes the SAMNA forecast and regional estimates of compensatory mitigation need for the GAI.
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	Appendix A – GIS Sources Appendix B – Ecoregion Subsection Descriptions Appendix C – Land Cover Types Appendix D – Certified Local Coastal Programs Appendix E – Complete SAMNA Species Results Appendix F – Hydrologic Units Appendix G – List of 303(d) Impaired Waters Appendix H – Aquatic Resource Locations Appendix I – Impacts within District 4 Portion of GAI

2. ENVIRONMENTAL SETTING

The GAI consists of approximately 4.2 million acres in the central portion of coastal California. The Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South HUC-8 sub-basins define its boundaries, which are overlapped by portions of the Central California Coast and Central California Coast Ranges ecoregion sections. Ecoregion sections are defined as the largest ecological unit of the U.S. Department of Agriculture ("USDA"), Forest Service ("USFS") National Hierarchical Framework of Ecological Units, which are nested within larger provinces (Cleland et al. 1997). The Central California Coast Section is within the larger California Coastal Chaparral Forest and Shrub Province, and the Central California Coast Ranges Section is within the larger California Coastal Range Open Woodland-Shrub-Coniferous Forest-Meadow (McNab et al. 2007).

In this chapter, Caltrans describes the GAI in terms of land ownership, topography, coastal zone, climate, land cover, invasive species, special-status species, connectivity, and aquatic resources. Aquatic resources consist of fish, wetlands, and non-wetland water resources. 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 2017a). Sources used for this assessment are cited throughout the chapter, and links to GIS sources are provided in Appendix A.

On each figure, Caltrans has provided the general location of planned SHOPP and STIP-eligible transportation projects that, during the 10-year planning period addressed by this document, natural resource regulatory agencies may condition with compensatory mitigation. The GAI's road infrastructure is described in Chapter 1 and additional information about planned transportation projects is provided in Chapter 5.

2.1 Central California Coast and Central California Coast Ranges Ecoregion Subsections in the GAI

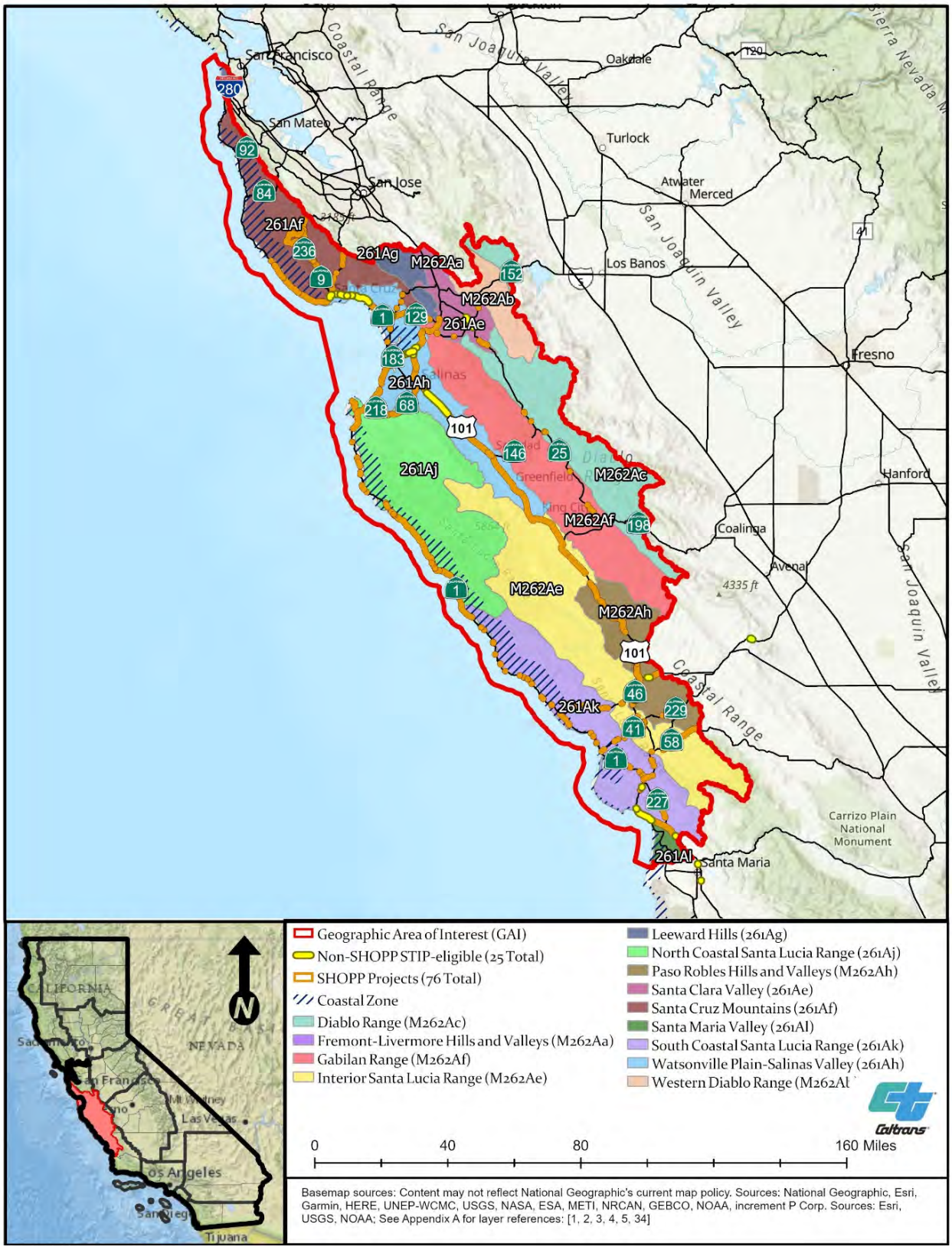
The GAI overlaps 13 ecoregion subsections within portions of the Central California Coast and Central California Coast Ranges ecoregion sections (Table 2-1, Figure 2-1). Ecoregion sections and subsections in the GAI were extracted from the SAMNA Reporting Tool (Caltrans 2019b). Brief ecoregion subsection descriptions are provided in Appendix B. Land cover is described by ecoregion subsection in Section 2.6 and is depicted on maps provided in Appendix C.

Table 2-1. Subsections of the Central California Coast and Central California Coast Ranges Ecoregion Sections in the GAI

Section	Subsection Name	Code[a]	Acreage[b]	Subsection as Percentage of GAI
Central California Coast	Leeward Hills	261Ag	75,474	1.8
Central California Coast	North Coastal Santa Lucia Range	261Aj	596,293	13.9
Central California Coast	Santa Clara Valley	261Ae	126,161	2.9
Central California Coast	Santa Cruz Mountains	261Af	379,504	8.8
Central California Coast	Santa Maria Valley	261Al	39,065	0.9
Central California Coast	South Coastal Santa Lucia Range	261Ak	501,494	11.7
Central California Coast	Watsonville Plain-Salinas Valley	261Ah	383,449	8.9
Central California Coast Ranges	Diablo Range	M262Ac	465,631	10.9
Central California Coast Ranges	Fremont-Livermore Hills and Valleys	M262Aa	4,615	0.1
Central California Coast Ranges	Gabilan Range	M262Af	564,199	13.2
Central California Coast Ranges	Interior Santa Lucia Range	M262Ae	750,850	17.5
Central California Coast Ranges	Paso Robles Hills and Valleys	M262Ah	277,054	6.5
Central California Coast Ranges	Western Diablo Range	M262Ab	125,024	2.9
	Total		**4,288,813**	**100.0%**

Source: Caltrans 2017a
[a] USFS ecological unit subsection codes
[b] Numbers were rounded to the nearest whole number.

Figure 2-1. Central California Coast and Central California Coast Ranges Ecoregion Subsections in the GAI



2.2 Land Ownership in the GAI

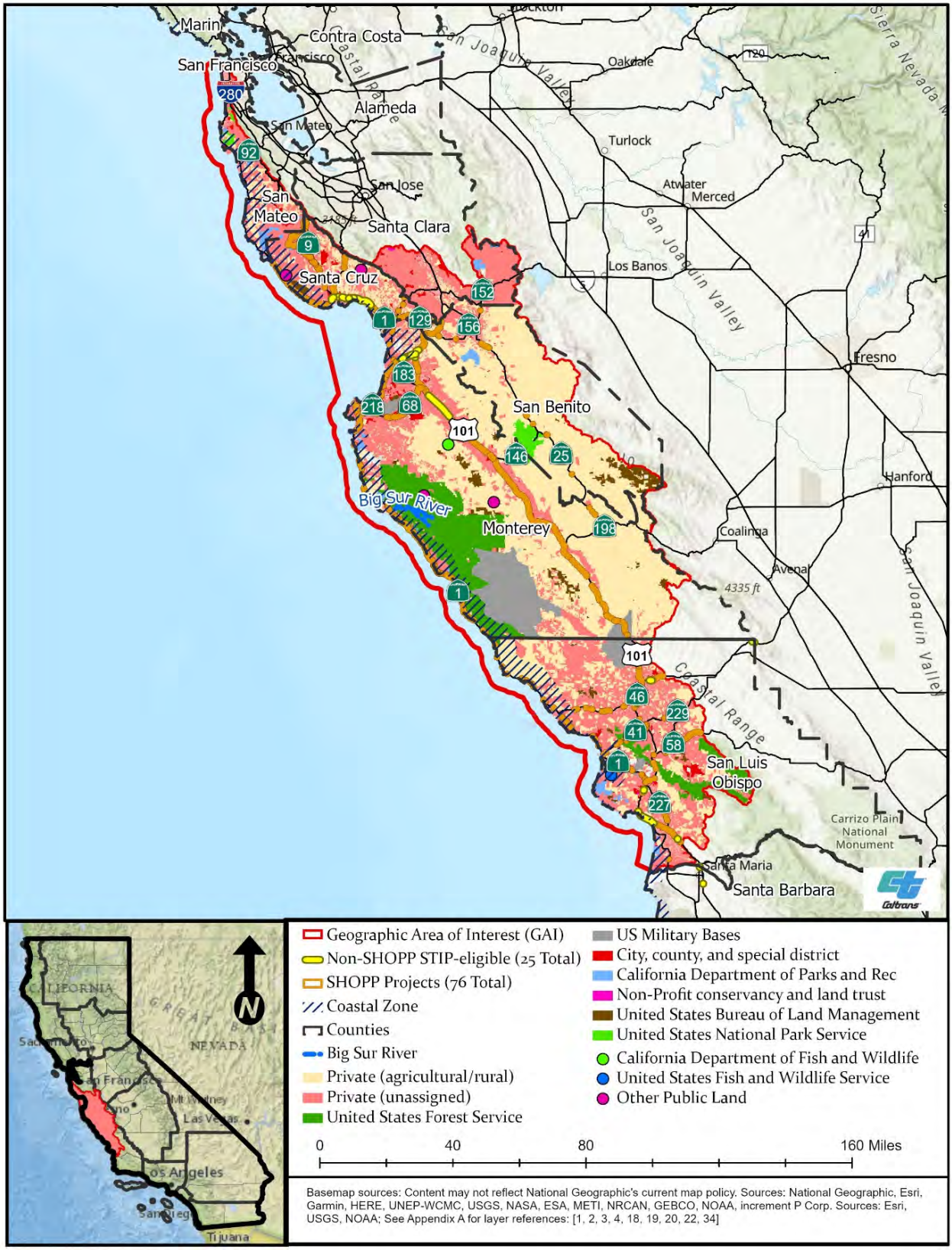
The GAI spans parts of San Luis Obispo, Monterey, San Benito, Santa Cruz, Santa Clara, San Mateo, and San Francisco Counties (Figure 2-2). A small portion overlaps a section of State Route 1 in Santa Barbara County; however, it does not include planned transportation project improvements anticipated for the planning period. Approximately 75.5 percent of land in the GAI is privately owned and managed, of which 42.4 percent is agricultural/rural land (Table 2-2, Figure 2-2). Approximately 15.7 percent is federally administered and managed by the U.S Department of Interior's Bureau of Land Management ("BLM"), FWS, and National Park Service ("NPS"); the U.S. Department of Defense's military bases; and the USDA USFS. National park land includes Pinnacles National Park and the Golden Gate National Recreation Area. USFS land includes part of the Los Padres National Forest. Approximately 3.6 percent of land in the GAI consists of state-owned and -managed lands, including lands managed by the California Department of Parks and Recreation, CDFW, California Department of Forestry and Fire Protection, California State Coastal Conservancy, California State Lands Commission, California State University, and University of California. Other lands in the GAI, which make up 5.3 percent of land in the GAI, are owned or managed by counties, cities, special districts, nonprofit conservancies and land trusts (Table 2-2, Figure 2-2).

Table 2-2. Land Ownership in the GAI

Land Owner or Land Use	Number of Parcels	Total Acreage per Agency/Owner[a]	Ownership as Percentage of GAI
Private (agricultural/rural)	62,644	1,966,767	42.4
Private (unassigned)	612,204	1,535,472	33.1
BLM	1,614	84,700	1.8
FWS	64	3,166	0.1
NPS	719	32,536	0.7
U.S. military bases	811	218,598	4.7
USFS	1,599	389,336	8.4
City, county, and special district	26,633	150,641	3.3
California Department of Parks and Recreation	5,788	129,375	2.8
CDFW	728	17,357	0.4
Other public lands[b]	407	18,147	0.4
Nonprofit conservancy and land trust	6,886	92,825	2.0
Total	**720,097**	**4,638,922**	**100%**

Sources: California Protected Lands Database; California Conservation Easement Database; Caltrans 2017a; U.S. Census Bureau; USDA; and California Department of Technology for land parcels
[a] Numbers were rounded to the nearest whole number.
[b] Includes, but is not limited to, California Department of Forestry and Fire Protection, California State Coastal Conservancy, California State Lands Commission, California State University, and University of California.

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 over 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 USGS' Protected Areas Database of the U.S.

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. As shown on Figure 2-3, no GAP status 1 lands are identified in the database for the GAI, and most of the planned transportation projects are in areas with a GAP status of 3 and 4, although some of the projects occur in areas where no rank has been assigned. Lands with conservation easements are also identified in the California Protected Areas Database; many of the planned transportation projects are proximate to conservation easements (Figure 2-3).

2.3 Topography

The five sub-basins that make up the GAI are bounded on the west by the Pacific Ocean and extend northward to San Francisco Bay and the Santa Clara Valley, upward and eastward into the Diablo Ranges, and southward to the Sierra Madre Mountains (Figure 2-4). The Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins are characterized by a rugged coastline and the Diablo, Gabilan, and Santa Lucia Ranges that run parallel to the coast and are separated by broad valleys of the San Benito and Salinas Rivers (Central Coast RWQCB 2019). Elevations in the GAI range from sea level to 5,800 feet above mean sea level in the Santa Lucia Mountains (Central Coast RWQCB 2019).

Figure 2-3. Protected Lands

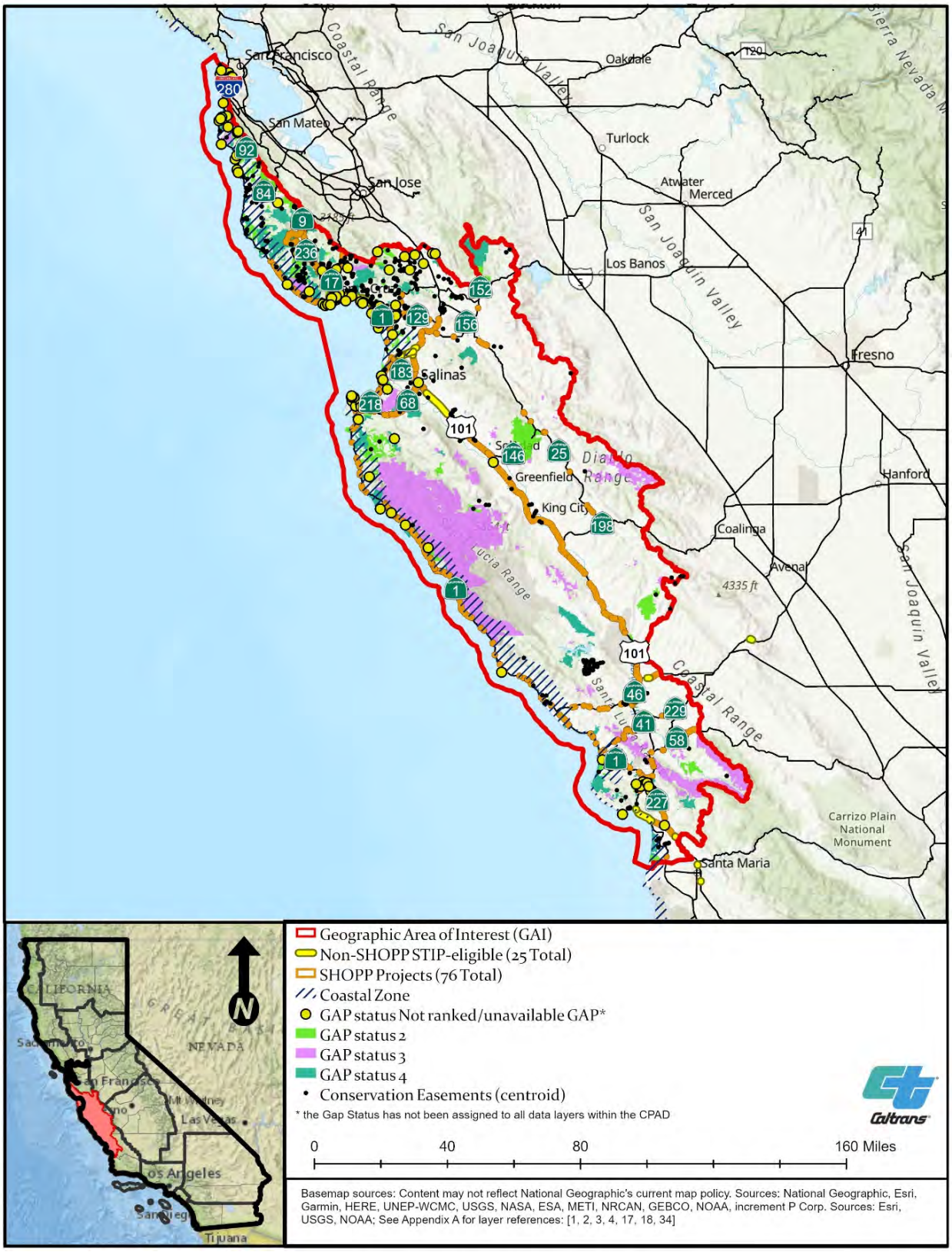


Figure 2-4. Topography

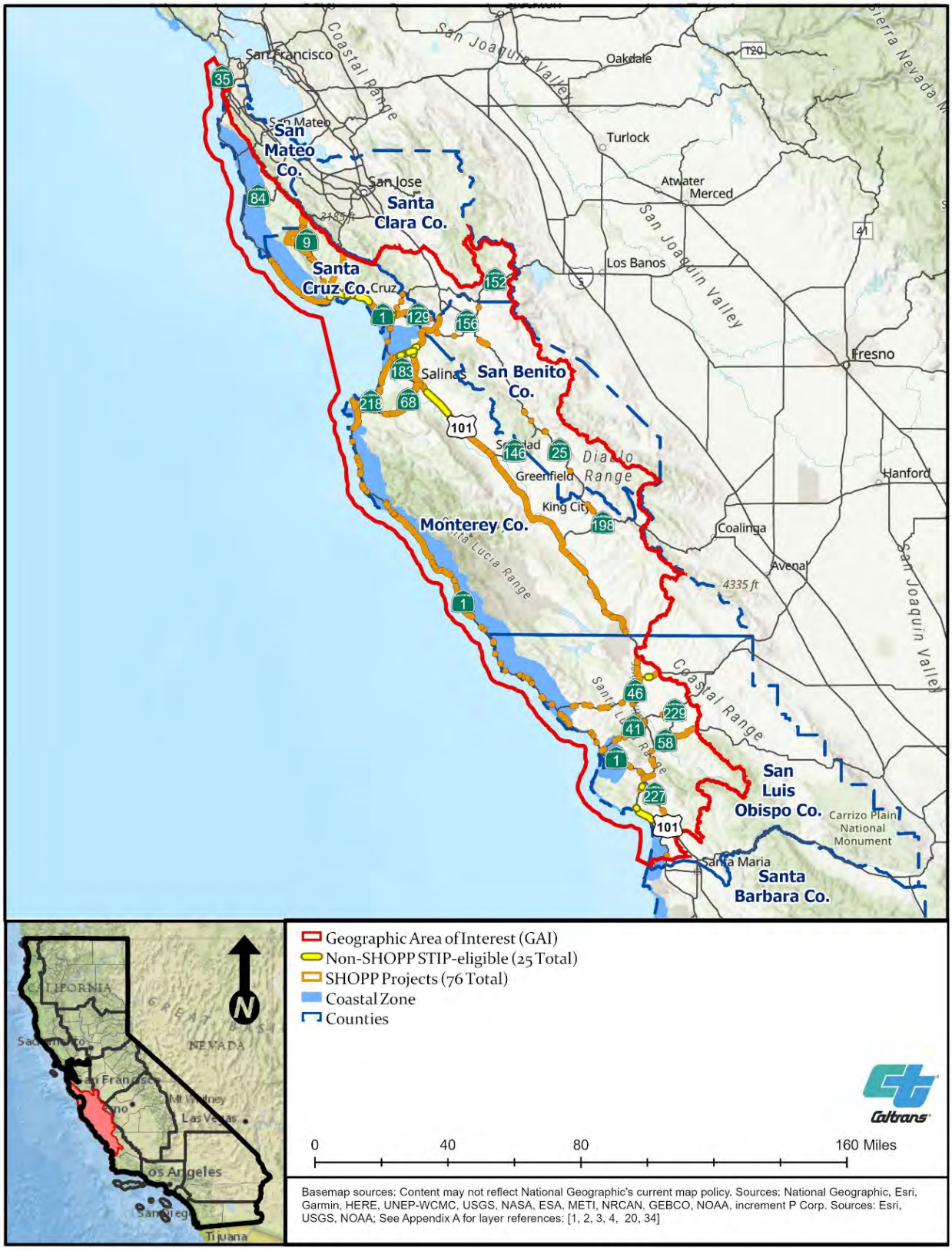
2.4 Coastal Zone

Public Resources Code Section 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 of 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. The coastal zone in the GAI does not include the coastal areas in San Francisco Bay (Figure 2-5). As indicated on Figure 2-5, the coastal zone does not overlap the entire GAI; even so, over 40 planned transportation projects are expected to occur in the coastal zone.

2.4.1 Local Coastal Programs

The 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 in the coastal zone primarily through the issuance of Coastal Development Permits. Local Coastal Programs ("LCPs") are planning tools used to guide development in the coastal zone through preparation of land use plans 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 Coastal Development Permit authority within its jurisdiction (with certain exceptions such as some coastal wetlands, where the CCC retains original jurisdiction). Mapped in Appendix D, there are 28 CCC-certified LCPs used by local governments to guide development in the coastal zone in coordination with the CCC. The City of Monterey Laguna Grande/Roberts Lake area LCP is the only LCP listed in Appendix D that has not been certified by the CCC. In addition, there are 11 uncertified areas: 10 Areas of Deferred Certification ("ADCs") and one other uncertified area. An uncertified area 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 uncertified area, 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.

Figure 2-5. Coastal Zone



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" (Section 30107.5). Under 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 the on-ground-resources and the surrounding ecological context.

Specific ESHA definitions and policies vary among the 28 CCC-certified LCPs in the GAI (Appendix D). LCPs may list specific species habitats as ESHAs or may designate geographic areas as ESHAs because of the presence of rare or valuable plants or animal species or habitat. Designation of ESHAs is not limited to habitat for federally or state listed species or designated critical habitat; State Water Board-designated ocean areas of special biological significance ("ASBSs"; see Section 2.18); coastal wetlands and lagoons; marine, wildlife, and education and research reserves; nearshore reefs; rookeries and marine mammal haul-out areas; tidepools; sea caves; islets and offshore rocks; kelp beds; indigenous dune plant habitats; riparian corridors; anadromous fish streams; and wilderness and primitive areas may also be considered ESHAs. Areas designated as ESHAs are also typically threatened by habitat fragmentation, disturbance, degradation, or other anthropogenic factors. Areas identified as ESHAs in the LCPs in the GAI include, but are not limited to, streams, sand dunes, wetlands, estuaries, riparian corridors, Monterey pine forest, and habitat for sea cliff buckwheat (*Eriogonum parvifolium*), Smith's blue butterfly (*Euphilotes enoptes smithi*), Santa Cruz tarplant (*Holocarpha macradenia*), monarch butterfly, steelhead, black legless lizard (*Aniella pulchra nigra*), California red-legged frog, and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) (City of Pacific Grove 2019; County of Monterey 1995; County of San Mateo 2012).

2.4.3. Critical Coastal Areas

California's Critical Coastal Areas ("CCA") program fosters collaboration among local stakeholders and government agencies to coordinate efforts to protect high resource-value coastal waters from polluted runoff. This non-regulatory 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, the State Water Boards, 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 area where an impaired waterway on the 2010 303(d) list is, or flows into, a Principal Bay or Estuary, as identified in CDFW (2001).
- Coastal watershed area where an impaired waterway on the 2010 303(d) list is adjacent to a state Marine Protected Area, as defined in 14 CCR § 632(a)(1)(A–C).

For more information about water quality and the 303(d) list, see Section 2.15 and Appendix G. ASBSs are discussed in Section 2.18.

Statewide, 119 CCAs have been identified, 25 of which occur in the GAI. These are listed below by sub-basin:

- San Francisco Coastal South Sub-basin
  - James V. Fitzgerald CCA
  - San Gregorio Creek CCA
  - Pescadero and Butano Creeks CCA
  - Año Nuevo CCA
  - Natural Bridges CCA
- Monterey Bay Sub-basin
  - San Lorenzo River CCA
  - Aptos Creek CCA
  - Soquel Lagoon CCA
  - Old Salinas River CCA
  - Elkhorn Slough CCA
  - Monterey Harbor CCA
  - Pacific Grove CCA
- Pajaro Sub-basin
  - Watsonville Slough CCA
  - Pajaro River CCA
- Salinas Sub-basin
  - Salinas River CCA

- Central Coastal Sub-basin
  - Carmel Bay CCA
  - Point Lobos CCA
  - Julia Pfeiffer Burns CCA
  - Salmon Creek Coast CCA
  - Piedras Blancas CCA
  - Cambria CCA
  - Morro Bay CCA
  - Chorro Creek CCA
  - Los Osos Creek CCA
  - San Luis Obispo Creek CCA

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.

2.5 Climate

The GAI is characterized by a variable climate that reflects the region's varied geography and topography, with an average temperature range from 50 to 64 degrees Fahrenheit (USFS 1994). The Santa Lucia Mountains trap cooler, marine air, lowering air temperatures and increasing humidity (Langridge 2018). Mean annual precipitation ranges from 10 to 70 inches, with precipitation generally decreasing from north to south (Langridge 2018; USFS 1994). Heavy precipitation events in the GAI are generally followed by flash floods, landslides, mudslides, and debris flows (Caltrans 2019c).

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

The CNRA and 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.

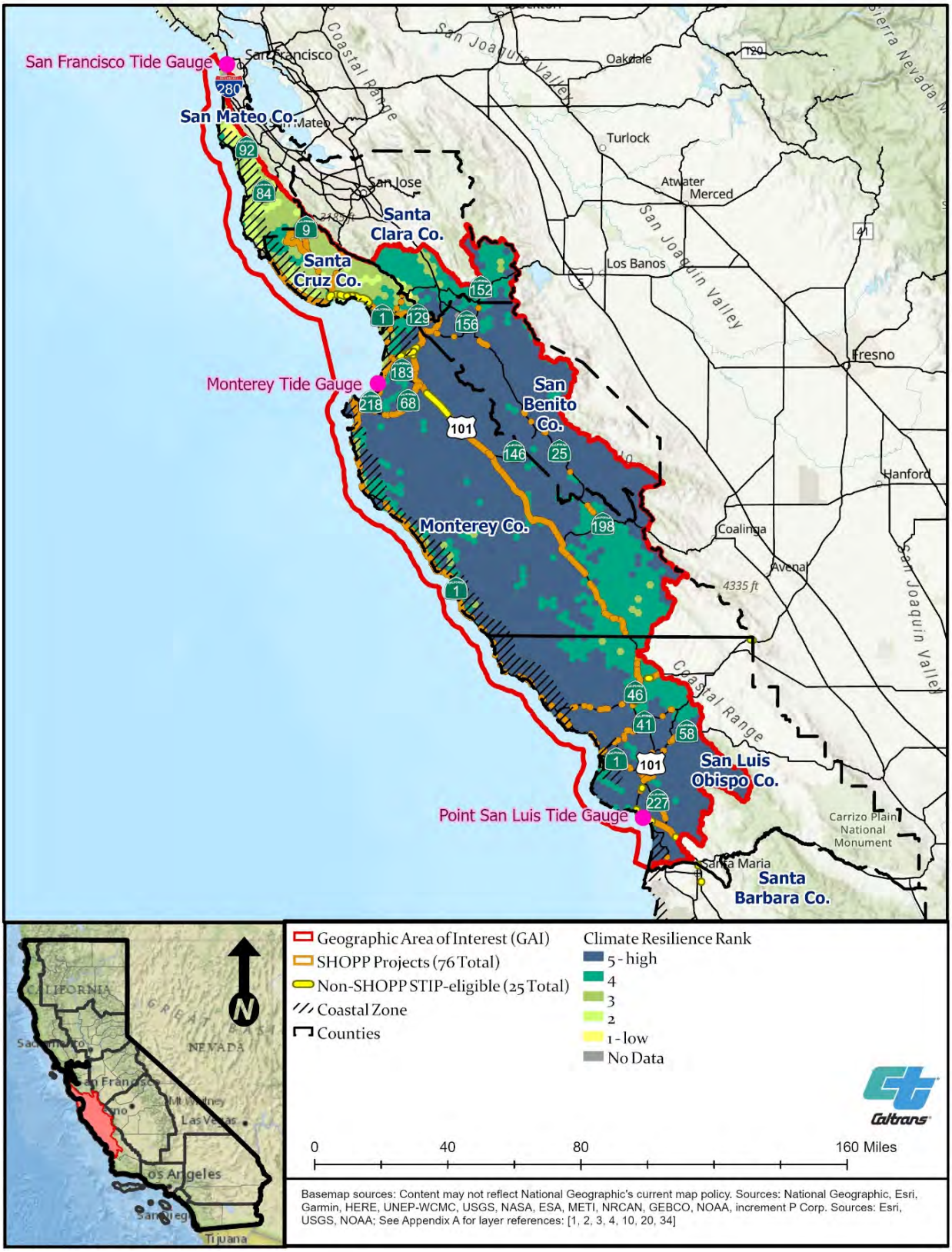
2. Prioritize protection of coastal habitats and public access.
3. Consider the unique characteristics, constraints, and values of existing water-dependent infrastructure, ports, and Public Trust uses.
4. Consider episodic increases in sea-level rise caused by storms and other weather-related events.
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 multi-agency planning and regulatory decisions.
6. Consider local conditions to inform decision making.
7. Include adaptive capacity in design and planning.
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 Monterey and Port San Luis tide gauges are located along the central California coast in the GAI (Figure 2-6). Sea-level rise projections for 2030 are based on the representative concentration pathway 8.5 (high emissions scenario) because that represents expected conditions over the next 10 years. The 2030 sea-level rise projections range from 0.5 to 0.8 foot for the Monterey tide gauge and from 0.5 to 0.7 foot for the Port San Luis tide gauge.

2.5.2 Climate Vulnerability Assessment

In 2019, Caltrans performed a statewide climate change vulnerability assessment for the SHS (Caltrans 2019c). The analysis provided in the *Caltrans Climate Change Vulnerability Assessments: District 5 Technical Report* (Caltrans 2019c) 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).

Figure 2-6. Terrestrial Climate Resilience Rankings



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 cause disruptions and damage to the SHS. Predicted climate change effects consist of projected 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 over the three time periods analyzed in the technical report (Caltrans 2019c). Climate change effects along the coast during the three future 30-year periods are expected to exacerbate flooding at high tides and may eventually lead to permanent inundation in low-lying areas and exacerbate coastal hazards, including storm surges that increase coastal erosion, increase shoreline retreat, increase landslide and mudslide frequency, and worsen the severity of wildfires. At higher elevations, extreme temperatures are expected to rise, which may result in tree mortality and changing snowmelt patterns (Caltrans 2019c).

Summertime fog plays an important role in the coastal zone in the GAI, providing plants with needed moisture and preventing streams from drying up during late summer, which protects salmonids (Langridge 2018). The potential effects of climate change on fog are unclear because its formation is complex, driven by ocean, air, and land processes. Atmospheric rivers are anticipated to increase and drive locally extreme rainfall events. Sea-level rise and associated flooding are expected to affect coastal communities, erode beaches, and affect estuarine communities. By the end of the century, sea levels along the central coast will likely rise by anywhere from 0.7 to 9.9 feet above current levels. The 100-year storm depth is projected to increase by anywhere from 0 to 15 percent in the GAI (Caltrans 2019c). It is unclear how the GAI's plants and wildlife will respond to changes in climate, but the region is already experiencing negative effects on both terrestrial and aquatic species, including species endemic to the region (Langridge 2018).

Local relative sea-level trends based on tide gauge measurements from 1977 to 2019 indicate that sea levels along the coast of the GAI have risen at a rate equivalent to 1.65 feet in 100 years (National Oceanic and Atmospheric Administration [NOAA] n.d.). Based on the NOAA model for estimated sea-level rise presented in the *Caltrans Climate Change Vulnerability Assessments: District 5 Technical Report*, Highway 1, US Highway 101, and State Route 46 West are the most vulnerable sections for the SHS in terms of exposure to inundation and flooding caused by storm surge events (Caltrans 2019c).

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 2018a). 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 two potential future climates—both a hotter and drier future and a warmer and wetter future; two future carbon dioxide ("CO_2") scenarios—one with no reductions in CO_2 emissions and one with a peak in 2040 followed by a significant decline in CO_2 emissions; and 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 2018a).

Resiliency is an important consideration when establishing compensatory mitigation. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018a) is presented on Figure 2-6. There is a clear pattern of low resilience in the northernmost part of the GAI, north of Monterey Bay, and areas with high resilience in the rest of the GAI east and south of Monterey Bay.

2.6 Land Cover Types

General land cover types and the subecoregions in which they occur are depicted on the maps provided in Appendix C. 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 2017b). Based on these data, herbaceous-dominated habitats account for the largest habitat type in the GAI, encompassing 33.8 percent of the GAI, with annual grassland the most common (Table 2-3, Appendix C). Tree-dominated habitats account for 29.6 percent of the GAI, with coastal oak woodland the most common. Shrub-dominated habitats account for 24.7 percent of the GAI, with mixed chaparral the most common. Aquatic habitats account for 1.2 percent of the GAI, with marine habitats the most common. Developed areas and non-vegetated habitat types (barren areas) combined account for 10.7 percent of the GAI, with urban areas the most common. Land cover is generally shown on Figure 2-7.

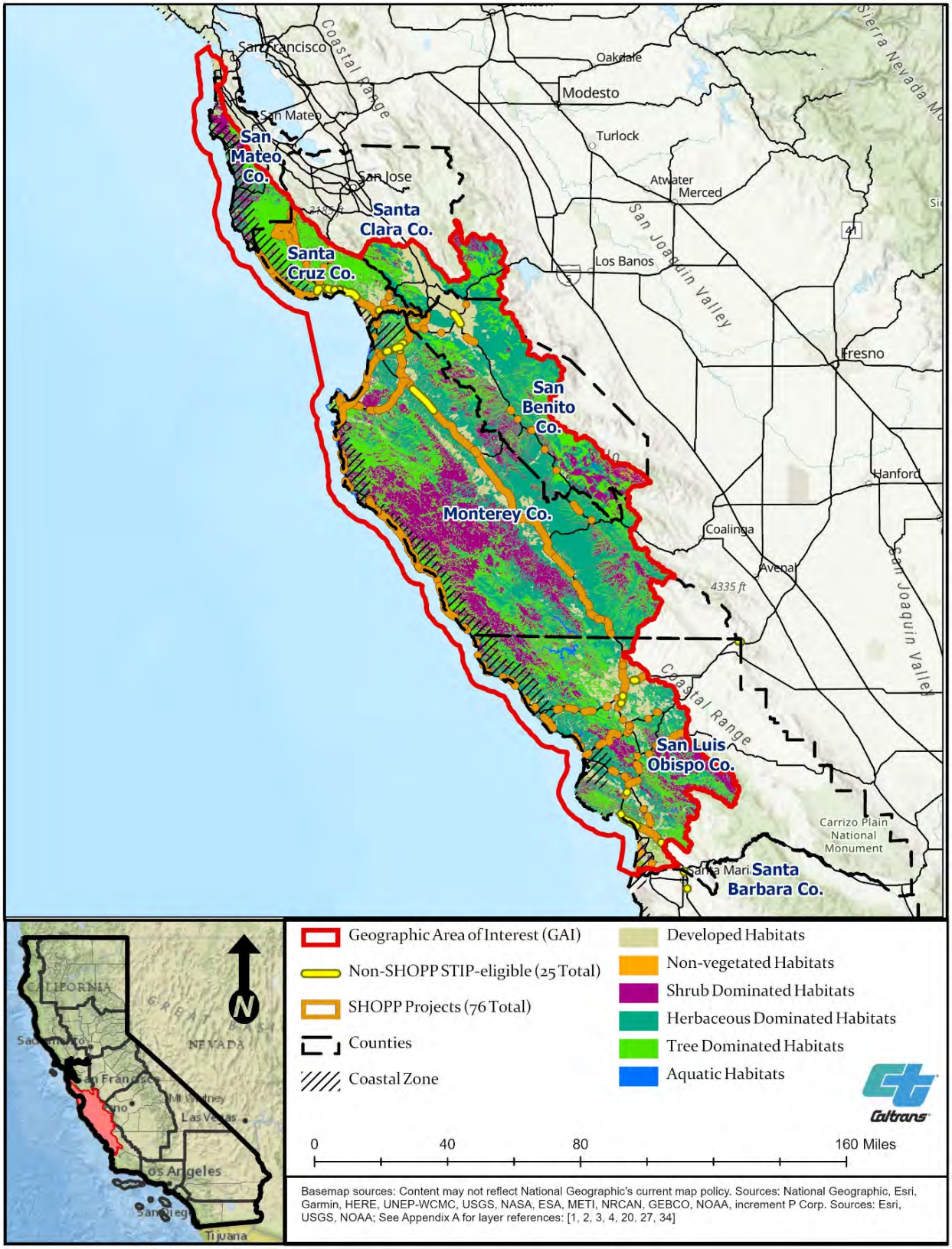
Table 2-3. Land Cover Types in the GAI

CWHR Habitat Type	Acres[a]	Cover as Percentage of GAI[b]
Tree-dominated Habitats	**1,180,528**	**29.62**
Blue Oak Woodland	314,624	7.89
Blue-Oak Foothill Pine	102,766	2.58
Blue Oak-Foothill Pine; Blue Oak Woodland	894	0.02
Closed-Cone Pine-Cypress	23,143	0.58
Coastal Oak Woodland	441,886	11.08
Desert Riparian	56	<0.01
Eucalyptus	4,611	0.12
Hardwood	47	<0.01
Jeffrey Pine	4	<0.01
Juniper	180	<0.01
Montane Hardwood	55,481	1.40
Montane Hardwood-Conifer	91,593	2.30
Montane Riparian	107	<0.01
Ponderosa Pine	2,131	0.05
Redwood	96,905	2.43
Sierran Mixed Conifer	4,234	0.11
Unknown Conifer Type	1,929	0.05
Valley Foothill Riparian	24,345	0.61
Valley Oak Woodland	15,592	0.39
Shrub-dominated Habitats	**985,211**	**24.70**
Alkali Desert Scrub	1,717	0.04
Chamise-Redshank Chaparral	269,086	6.75
Coastal Scrub	211,546	5.30
Desert Wash	205	<0.01
Mixed Chaparral	478,646	12.00
Montane Chaparral	39	<0.01
Unknown Shrub Type	23,972	0.60

CWHR Habitat Type	Acres[a]	Cover as Percentage of GAI[b]
Herbaceous-dominated Habitats	**1,347,308**	**33.78**
Annual Grassland	1,164,143	29.19
Annual Grassland; Perennial Grassland	439	0.01
Fresh Emergent Wetland	225	0.01
Pasture	177,153	4.44
Perennial Grassland	1,758	0.04
Saline Emergent Wetland	2,687	0.07
Wet Meadow	903	0.02
Aquatic Habitats	**48,327**	**1.21**
Estuarine	897	0.02
Lacustrine	15,165	0.38
Marine	25,469	0.64
Riverine	1,623	0.04
Water	5,173	0.13
Developed Habitats	**391,930**	**9.83**
Agriculture	20,377	0.51
Cropland	25,564	0.64
Deciduous Orchard	14,567	0.37
Dryland Grain Crops	37,326	0.94
Evergreen Orchard	1,902	0.05
Irrigated Grain Crops	10,241	0.26
Irrigated Row and Field Crops	80,173	2.01
Orchard-Vineyard	134	<0.01
Urban	140,960	3.53
Vineyard	60,686	1.52
Non-vegetated Habitats	**34,973**	**0.88**
Barren	34,973	0.88
Total	**3,988,277**	**100%**

Source: Caltrans 2017b
[a] Numbers were rounded to the nearest whole number.
[b] Numbers were rounded to the hundredths.

Figure 2-7. Major Land Cover



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 (FWS 2012; 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 2015; FWS 2005a).

Three entities 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 2020).

In the GAI, invasive plant species have been specifically identified as threats or stressors to terrestrial and aquatic biological resources. For example, in vernal pool ecosystems, swamp grass (*Crypsis schoenoides*) and perennial pepperweed (*Lepidium latifolium*) can outcompete native plants for nutrients, light, and water, causing the hydroperiod to shorten, creating an environment that is even more favorable for invasive plant species (FWS 2005a).

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. Invasive plant species that are identified as problematic for the Central California Coast and Central California Coast Ranges sections in the California State Wildlife Action Plan ("SWAP") include, but are not limited to, cordgrass (*Spartina* sp.), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), eucalyptus (*Eucalyptus* spp.), medusahead (*Elymus caput-medusae*), perennial pepperweed, fountain grass (*Pennisetum* sp.), Spanish broom (*Spartium junceum*), pennyroyal (*Mentha pulegium*), tree of heaven (*Ailanthus altissima*), yellow star-thistle (*Centaurea solstitialis*), edible fig (*Ficus carica*), giant reed (*Arundo donax*), Himalayan blackberry (*Rubus armeniacus*), pampas grass (*Cortaderia selloana*), Russian olive (*Eleagnus angustifolia*), and tamarisk or saltcedar (*Tamarix* spp.) (CDFW 2015). Additional invasive plant species that occur in the GAI include barb goatgrass (*Aegilops triuncialis*), European beachgrass (*Ammophila arenaria*), Sahara mustard (*Brassica tournefortii*), red brome (*Bromus madritensis* ssp. *rubens*), cheatgrass (*Bromus tectorum*), jubata grass (*Cortaderia jubata*), Cape-ivy (*Delairea odorata*), water hyacinth

(*Eichhornia crassipes*), English ivy (*Hedera helix*), and water primrose (*Ludwigia hexapetala* and *L. peploides*) (Cal-IPC 2020).

Nonnative animals that are/may be present in the GAI and that can negatively affect aquatic species or aquatic systems include zebra mussels (*Dreissena polymorpha*), barred tiger salamander (*Ambystoma mavortium*), American bullfrog (*Lithobates catesbeianus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), golden shiner (*Notemigonus crysoleucas*), bluegill sunfish (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), black crappie (*Pomoxis nigromaculatus*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), white bass (*Morone chrysops*), channel catfish (*Ictalurus punctatus*), striped bass (*Morone saxatilis*), channel catfish (*Ictalurus punctatus*), white catfish (*Ictalurus catus*), and western mosquitofish (*Gambusia affinis*). Nonnative animals that are/may be present in the GAI and that can negatively affect terrestrial wildlife through competition, predation, or parasitism, or that are destructive to terrestrial systems, include red fox (*Vulpes vulpes*), brown-headed cowbirds (*Molothrus ater*), and feral swine (*Sus scrofa*). Invasive animal species that are/may be associated with urban areas include domestic dogs (*Canis lupus familiaris*), domestic cats (*Felis catus*), raccoons (*Procyon lotor*), and crows (*Corvus brachyrhynchos*) (Monterey County Water Resources Agency 2019).

2.8 Special-status Species

Special-status species known to occur or with the potential to occur in the GAI 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 2019b), and other information (Caltrans 2019b). Special-status species include 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). The species-attributed list developed for the SAMNA Reporting Tool depends on a species having a defined geographic range or having occurrences documented in the California Natural Diversity Database (Caltrans 2019b); although it is the best information currently available, the SAMNA Reporting Tool's species list highlights the uncertainties in this foundational information.

Special-status fish species with the potential to occur in the GAI are discussed in Section 2.17.4. Based on a search of the SAMNA Reporting Tool's species-attributed vegetation layer, 132 non-fish special-status species are known to occur or have the potential to occur in the portion of the GAI that lies within the Central California Coast ecoregion and 85 non-fish special-status species are known to occur or have the potential to occur in the portion of the GAI that lies within the Central California Coast Ranges ecoregion. The numbers of these special-status species by habitat type are shown in Tables 2-4 and 2-5 for the Central California Coast and Central California Coast Ranges ecoregions, respectively. Because a species may use more than one habitat, the numbers are not additive.

The complete SAMNA results by habitat type are provided in Appendix E. As described in Appendix E, for subspecies that do not have documented home ranges, the SAMNA results are provided at the species level. Also, footnotes are included for those special-status subspecies that do not have potential to occur in the GAI. Note that although SAMNA results are suitable for advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agency requires site-specific studies.

Table 2-4. Number of Potentially Occurring Special-status Species, by Land Cover Type – Central California Coast Ecoregion Section in the GAI

Land Cover Type	Cover as Percentage of GAI	Plants	Invertebrates	Amphibians	Reptiles	Birds	Mammals
Tree-dominated Habitats	See below	See below	See below	See below	See below	See below	See below
Blue Oak Woodland	7.89	0	0	5	5	17	20
Blue-Oak Foothill Pine	2.58	0	0	4	5	18	19
Closed-Cone Pine-Cypress	0.58	10	0	2	6	10	12
Coastal Oak Woodland	11.08	0	0	7	6	19	20
Eucalyptus	0.12	0	0	5	8	21	19
Montane Hardwood	1.40	9	0	2	4	15	15
Montane Hardwood-Conifer	2.30	5	0	5	6	17	17
Redwood	2.43	0	0	2	4	16	14
Valley Foothill Riparian	0.61	0	0	6	8	22	17
Shrub-dominated Habitats	See below	See below	See below	See below	See below	See below	See below
Chamise-Redshank Chaparral	6.75	0	0	1	5	13	18
Coastal Scrub	5.30	32	4	4	6	15	20
Mixed Chaparral	12.00	25	1	3	6	16	19
Herbaceous-dominated Habitats	See below	See below	See below	See below	See below	See below	See below
Annual Grassland	29.19	26	2	5	7	20	22
Fresh Emergent Wetland	0.01	2	0	3	3	13	6
Pasture	4.44	0	0	0	3	4	19
Perennial Grassland	0.04	0	0	3	4	14	17
Saline Emergent Wetland	0.07	3	0	0	0	10	1

Land Cover Type	Cover as Percentage of GAI	Plants	Invertebrates	Amphibians	Reptiles	Birds	Mammals
Aquatic Habitats	See below	See below	See below	See below	See below	See below	See below
Lacustrine	0.38	0	0	3	2	10	5
Marine	0.64	0	0	0	0	13	7
Riverine	0.04	0	0	2	1	9	7
Developed Habitats	See below	See below	See below	See below	See below	See below	See below
Deciduous Orchard	0.37	0	0	1	2	7	12
Dryland Grain Crops	0.94	0	0	0	3	7	9
Irrigated Grain Crops	0.26	0	0	0	2	8	10
Irrigated Row and Field Crops	2.01	0	0	1	3	5	11
Urban	3.53	0	0	0	1	16	8
Vineyard	1.52	0	0	1	3	5	11
Non-vegetated Habitats	See below	See below	See below	See below	See below	See below	See below
Barren	0.88	0	1	0	0	15	17

Source: Caltrans 2019b

Table 2-5. Number of Potentially Occurring Special-status Species, by Land Cover Type – Central California Coast Ranges Ecoregion Section in the GAI

Land Cover Type	Cover as Percentage of GAI	Plants	Invertebrates	Amphibians	Reptiles	Birds	Mammals
Tree-dominated Habitats	See below	See below	See below	See below	See below	See below	See below
Blue Oak Woodland	7.89	0	0	5	8	15	24
Blue-Oak Foothill Pine	2.58	0	0	5	7	14	21
Coastal Oak Woodland	11.08	0	0	5	6	13	21
Eucalyptus	0.12	0	0	3	6	13	18
Montane Hardwood	1.40	3	0	2	3	13	16
Valley Foothill Riparian	0.61	0	0	5	6	17	16
Valley Oak Woodland	0.39	0	0	5	5	9	19
Shrub-dominated Habitats	See below	See below	See below	See below	See below	See below	See below
Alkali Desert Scrub	0.04	0	0	1	4	6	15
Chamise-Redshank Chaparral	6.75	0	0	2	6	10	17
Coastal Scrub	5.30	1	0	4	6	10	20
Mixed Chaparral	12.00	6	0	4	6	11	21
Herbaceous-dominated Habitats	See below	See below	See below	See below	See below	See below	See below
Annual Grassland	29.19	15	3	5	8	18	25
Pasture	4.44	0	0	0	3	2	18
Aquatic Habitats	See below	See below	See below	See below	See below	See below	See below
Lacustrine	0.38	0	0	4	2	11	5
Riverine	0.04	0	0	2	1	7	7

Land Cover Type	Cover as Percentage of GAI	Plants	Invertebrates	Amphibians	Reptiles	Birds	Mammals
Developed Habitats	See below	See below	See below	See below	See below	See below	See below
Dryland Grain Crops	0.94	0	0	1	3	9	11
Irrigated Grain Crops	0.26	0	0	0	2	5	10
Irrigated Row and Field Crops	2.01	0	0	1	3	3	11
Urban	3.53	0	0	0	1	13	8
Vineyard	1.52	0	0	1	3	6	13
Non-vegetated Habitats	See below	See below	See below	See below	See below	See below	See below
Barren	0.88	0	0	0	0	12	12

Source: Caltrans 2019b

2.9 Critical Habitat

FWS and NMFS regulate impacts on critical habitat under the ESA. The ESA (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 ESA 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 2017a).

The GAI includes federally designated final critical habitat for 24 species (FWS 2019; NMFS 2019):

- bay checkerspot butterfly (*Euphydryas editha bayensis*)
- black abalone (*Haliotis cracherodii*)
- California condor (*Gymnogyps californianus*)
- California tiger salamander
- California red-legged frog
- Central California Coast Evolutionarily Significant Unit ("ESU") coho salmon (*Oncorhynchus kisutch*),
- Central California Coast and South-Central California Coast DPS steelhead
- La Graciosa thistle (*Cirsium loncholepis*)
- Lompoc yerba santa (*Eriodictyon capitatum*)
- marbled murrelet (*Brachyramphus marmoratus*)
- Monterey spineflower (*Chorizanthe pungens*)
- Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)
- Morro shoulderband snail (*Helminthoglypta walkeriana*)
- purple amole (*Chlorogalum purpureum*)
- robust spineflower (*Chorizanthe robusta* var. *robusta*)
- Santa Cruz tarplant (*Holocarpha macradenia*)
- Scott's Valley polygonum (*Polygonum hickmanii*)
- Southern DPS green sturgeon (*Acipenser medirostris*)
- Steller sea lion (*Eumetopias jubatus*)
- tidewater goby
- vernal pool fairy shrimp (*Branchinecta lynchi*)
- western snowy plover (*Charadrius alexandrines nivosus nivosus*)

- Yadon's piperia (*Piperia yadonii*)
- Zayante band-winged grasshopper (*Trimerotropis infantilis*)

Critical habitat is an important consideration when establishing compensatory mitigation. Designated critical habitat for these species is indicated on Figures 2-8 and 2-9. Note that designated critical habitat represented by points on Figures 2-8 and 2-9 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 to 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 freshwater 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 coho salmon and groundfish, and EFH for Chinook salmon is just north of the GAI (Figure 2-10).

Figure 2-8. Designated Critical Habitat for Species of Mitigation Need

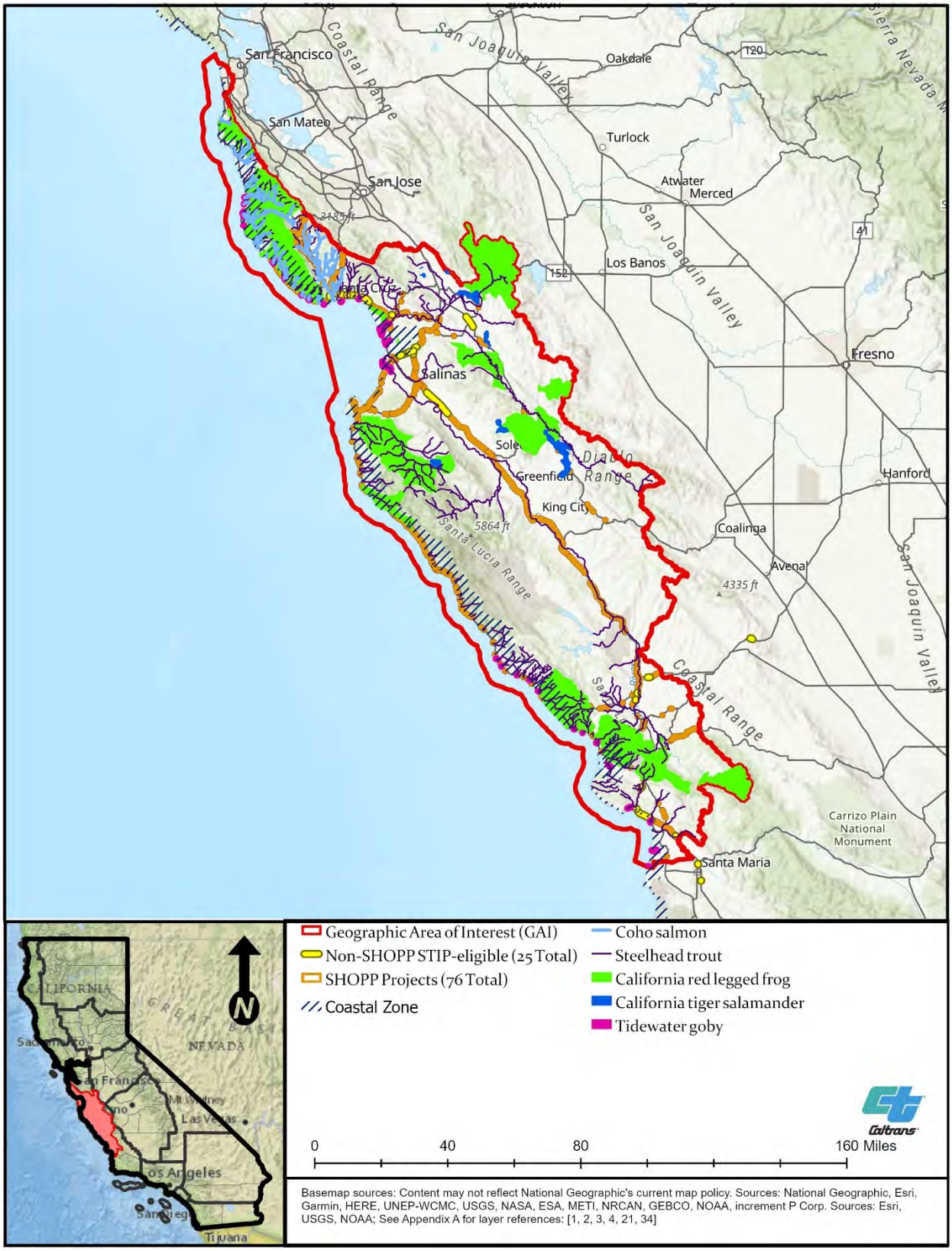


Figure 2-9. Designated Critical Habitat for Other Federally Listed Species

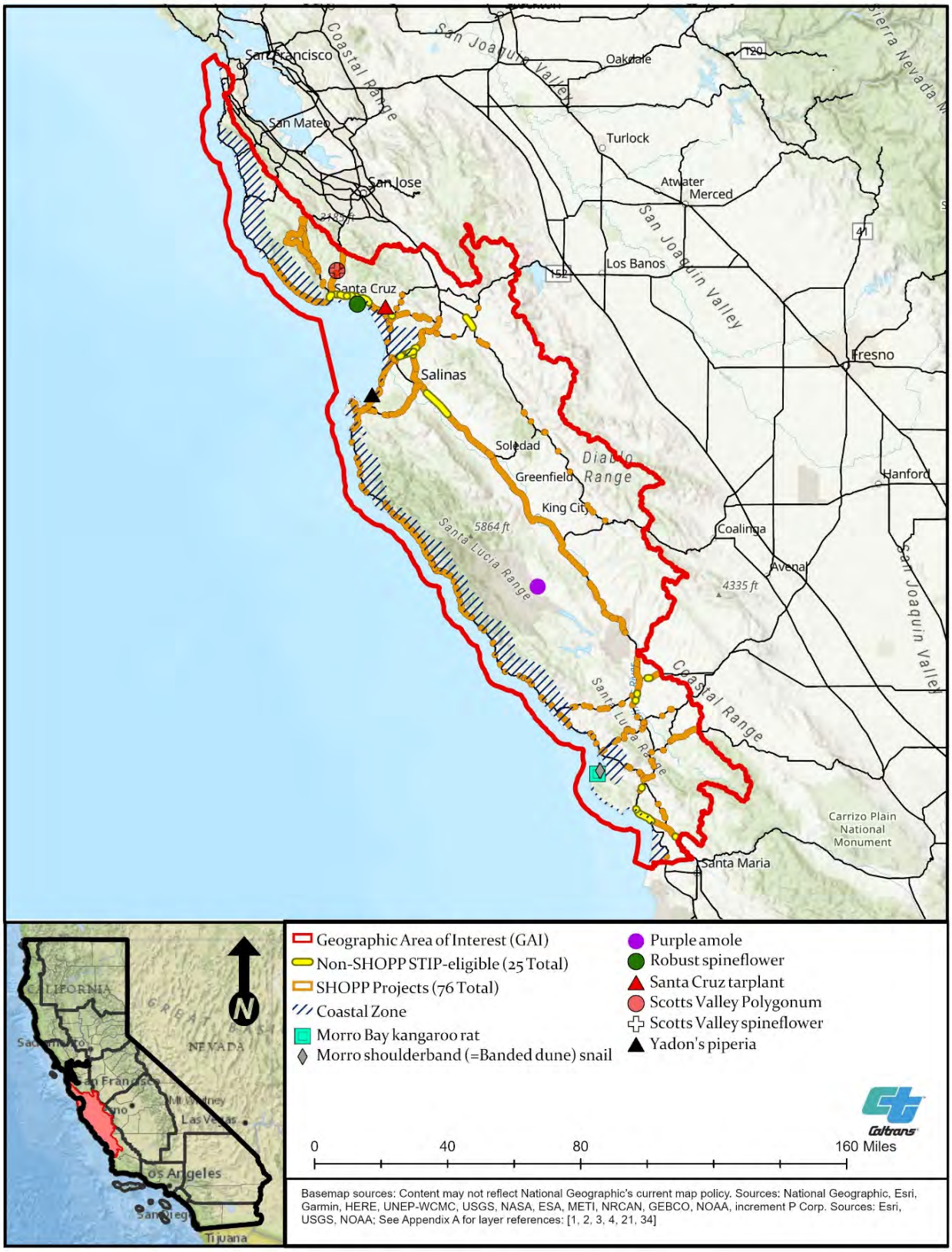
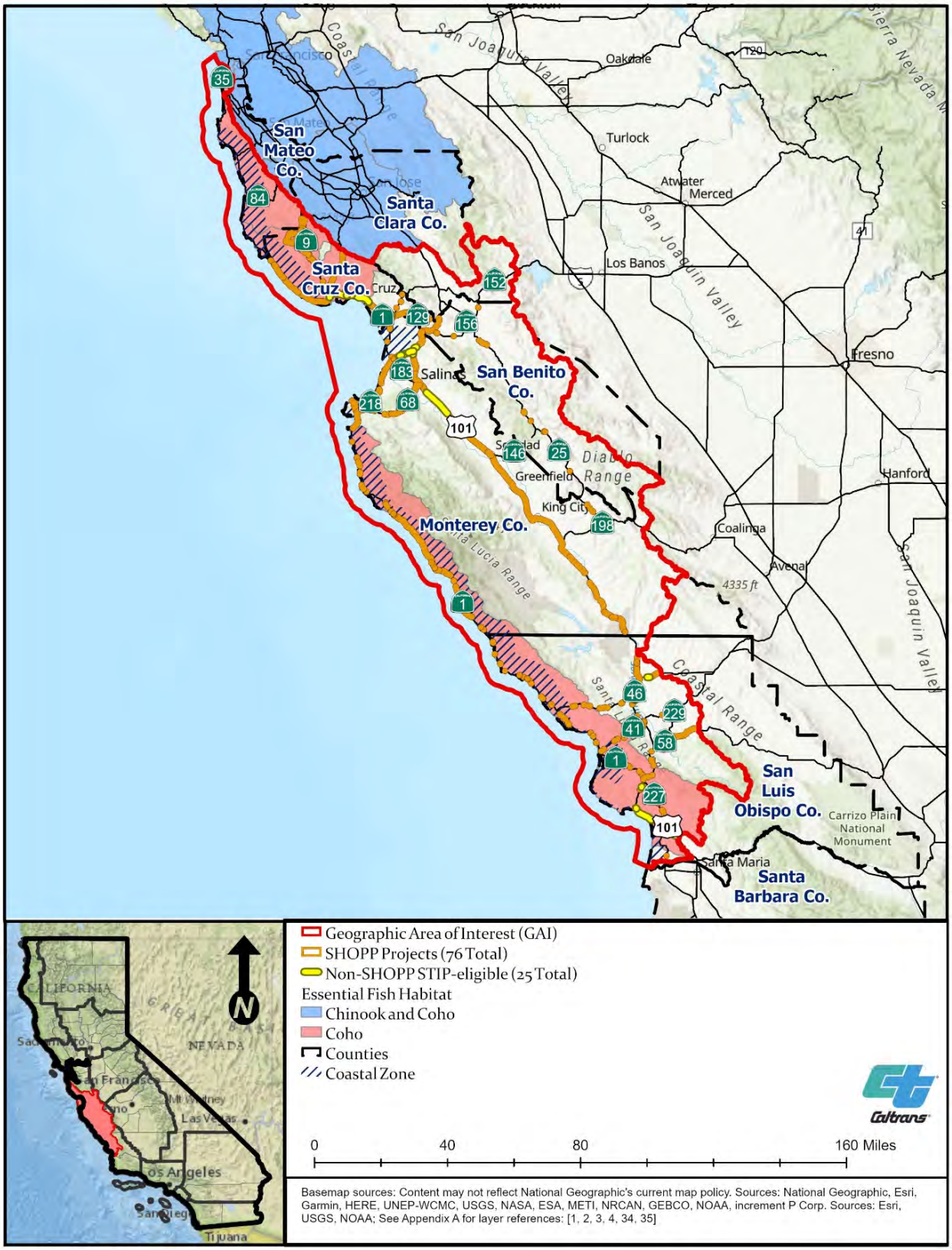


Figure 2-10. Essential Fish Habitat



2.11 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 2020).

2.11.1 Wildlife Movement

Caltrans identified four connectivity assessments applicable and relevant to the GAI: California Essential Habitat Connectivity ("CEHC") Project, ACE, CDFW's 2020 Wildlife Barriers Report, and Bay Area Critical Linkages Project. 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 2018c; Spencer et al. 2010). These connectivity areas were broadly defined, focusing on ecological integrity rather than species-specific habitat needs, and also 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 (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 2-11). It also incorporates species-specific, fine-scale linkage information developed at a regional scale, where available, and includes areas that were 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
- 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

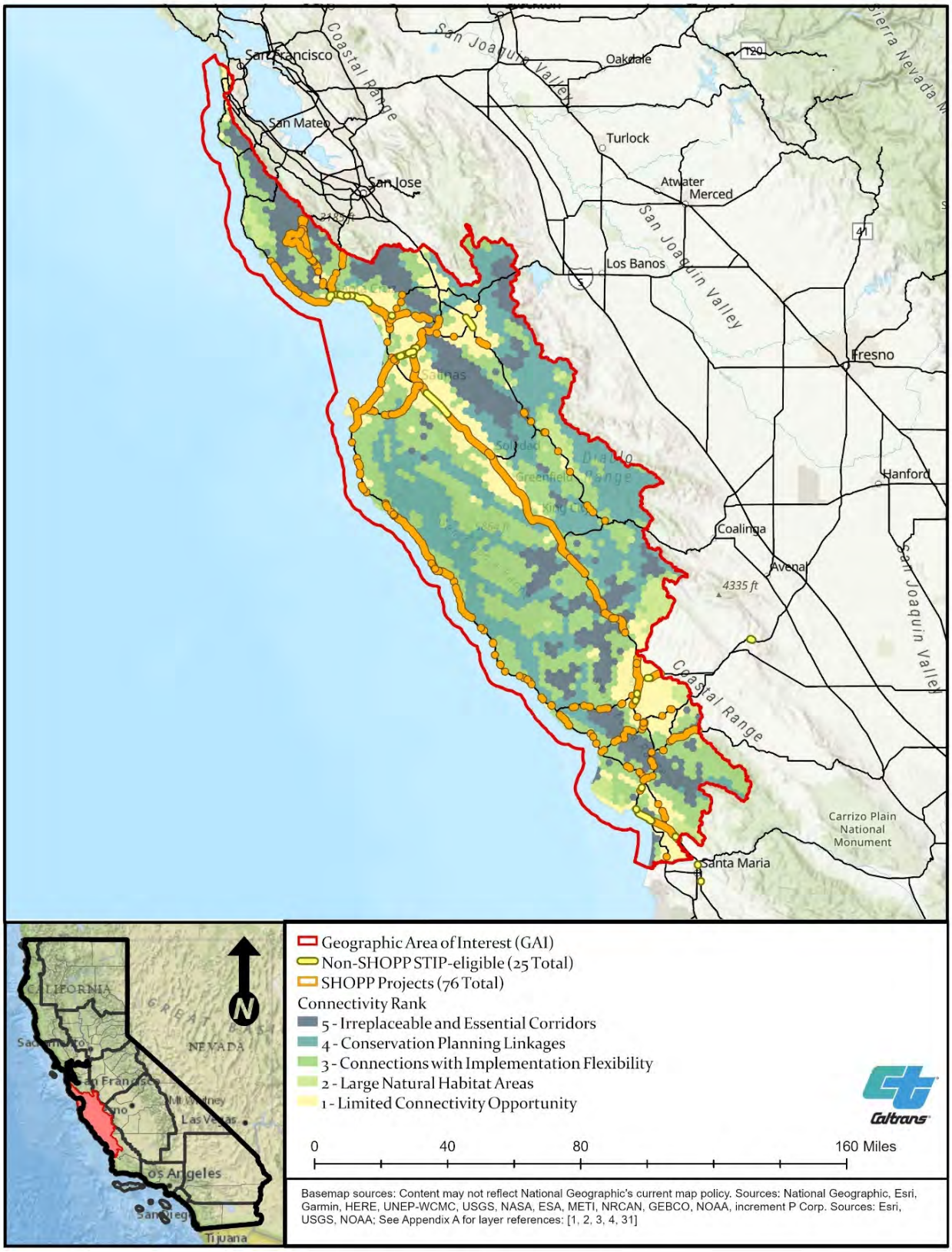
Connectivity is an important consideration when establishing compensatory mitigation. Most of the planned SHOPP and STIP-eligible transportation projects occur in areas with a connectivity rank of 1 or 3, with the fewest projects occurring in areas with a connectivity rank of 2 (Figure 2-11).

CDFW's 2020 Wildlife Barriers Report

CDFW's 2020 Wildlife Barriers report identified priority wildlife movement barriers created by linear infrastructure across the state to help focus financial resources to improve wildlife movement (CDFW 2020). 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.

Four priority wildlife movement barriers were identified in the GAI. These barriers and the target species for movement include: Highway 1 between Rio Del Mar Boulevard and Buena Vista Avenue (Santa Cruz long-toed salamander); Highway 17 at Los Gatos from the Lexington Reservoir to the Carbonera Creek undercrossing in Scotts Valley, which spans both Districts 4 and 5 (mountain lion, bobcat, coyote, mule deer, and small mammals); the Highway 101 Cuesta Grade between San Luis Obispo and Atascadero (mountain lion, mule deer, and black bear); and Highway 101 through Prunedale (mule deer and mountain lion) (CDFW 2020).

Figure 2-11. Terrestrial Connectivity



Bay Area Critical Linkages Project

Available from CDFW's Biogeographic Information and Observation System, the Bay Area Critical Linkages Project report is the result of collaboration among conservation biologists, ecologists, wildlife and transportation agencies, land managers and planners, conservation organizations, and other experts to identify priority landscape linkages deemed vital for connectivity between existing wildlands in the San Francisco Bay Area. These linkages were identified for their potential to maintain ecological and evolutionary processes throughout the region by considering habitat and movement needs of specific species (Figure 2-12) (Penrod et al. 2013). The area covered by the Bay Area Critical Linkages Project extends beyond the GAI to the east and north but does not include the southern extent of the GAI. The goal of this project is to provide functional connections to maintain movements of wide-ranging species, such as mountain lion (*Puma concolor*), a species listed as a candidate under CESA in April 2020 and specially protected under the California Wildlife Protection Act of 1990, and American badger (*Taxidea taxus*), a California species of special concern. Each linkage design identifies potential barriers, opportunities for habitat restoration and improvement of road crossings, and management needs for the linkage (Penrod et al. 2013).

The Bay Area Critical Linkages Project identifies many of the same landscape blocks as the CEHC Project; however, more key riparian connections are identified, and the linkages are more substantial, likely because they are species-specific (Figure 2-12).

California tiger salamander habitat connectivity, including patch and core habitats, is shown in Figure 2-13. This information was developed by CDFW for the California Bay Area Linkage Network.

Figure 2-12. Bay Area Critical Linkages

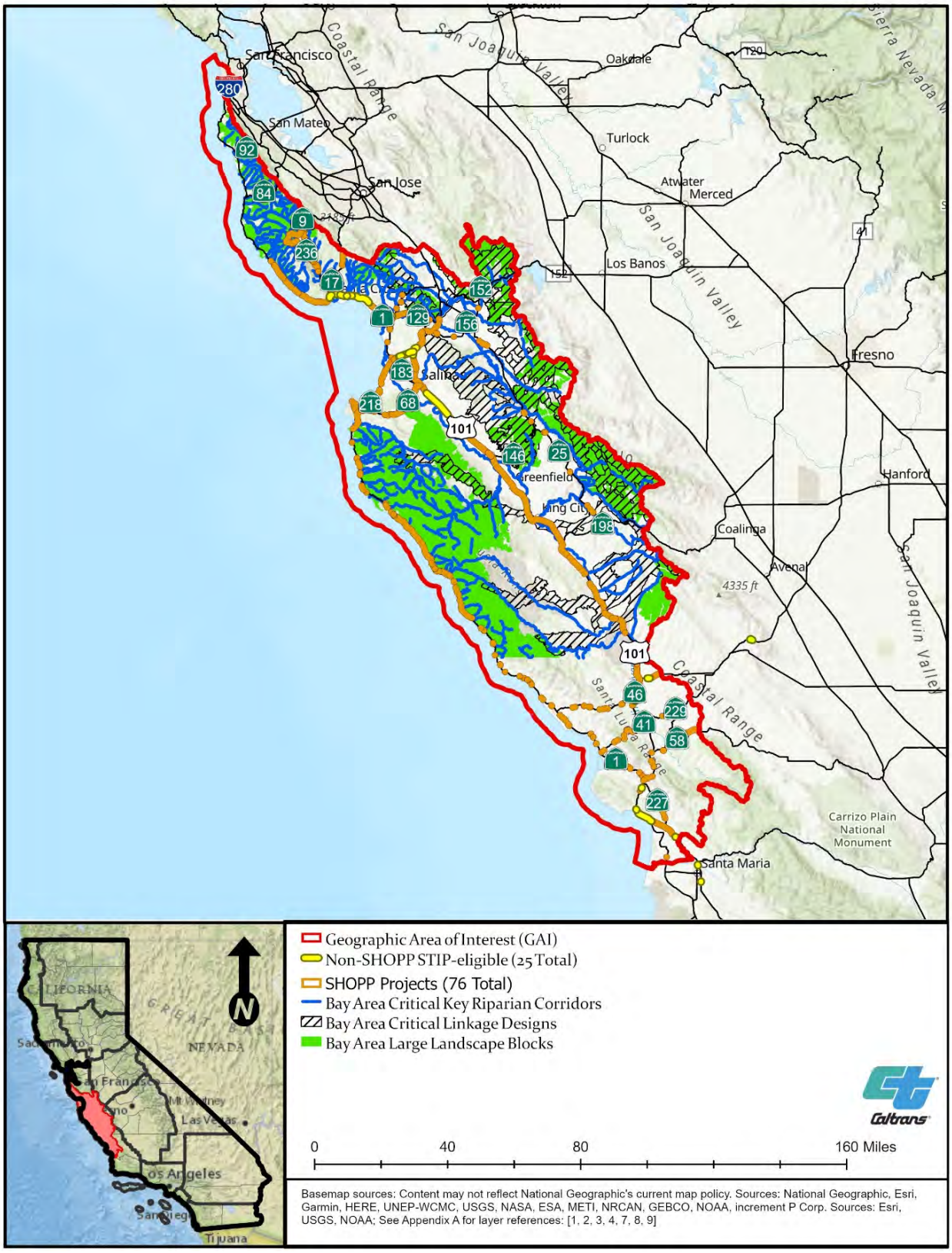
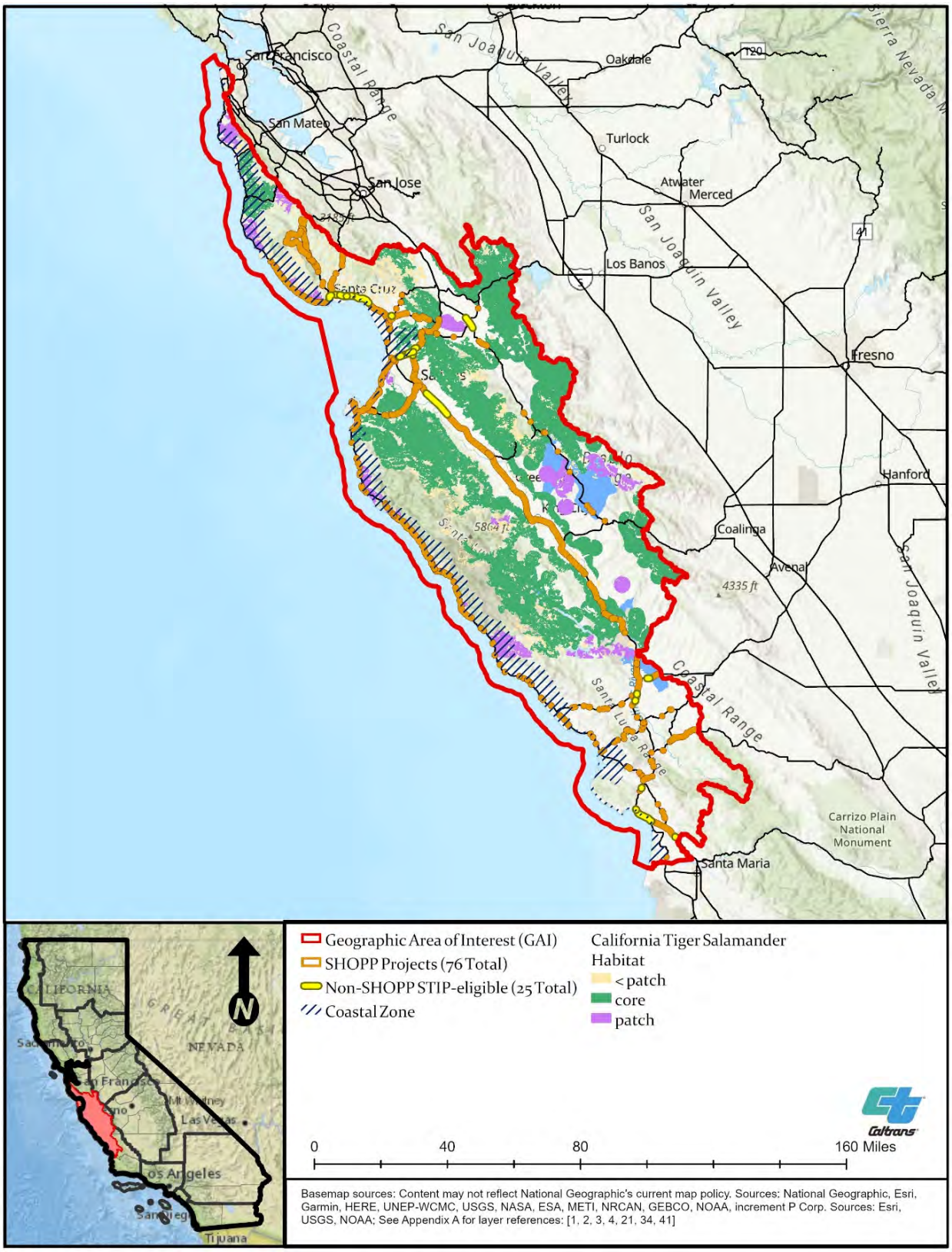


Figure 2-13. California Tiger Salamander Terrestrial Connectivity



2.11.2 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 repair of SHS facilities that prevent or impede the passage of salmon and steelhead. The majority of 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 is available from: https://dot.ca.gov/-/media/dot-media/programs/legislative-affairs/documents/fish-passage-report-final-ada-a11y.pdf.
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 the ESA list 10 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 CalTrout, estimates that without increased intervention, to include habitat remediation and restoration, the following species will become 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, and southern California DPS steelhead
- 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 steelhead

Figure 2-14 depicts the six California Fish Passage Advisory Committee ("FishPAC") locations throughout the state. The FishPAC is a partnership between Caltrans, CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, and other local fish passage advocates. The purpose of FishPACs is to cooperatively share science and data related to known fish barriers and to 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.

The 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 over 200 fish passage experts, advocates, and partners throughout the range of salmon and steelhead are working 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). In the 14 years since 2006, in collaboration with FishPAC, statewide, Caltrans has partially or fully remediated 51 barriers on the SHS and identified approximately 556 additional barriers to salmon and steelhead. Results of Caltrans' and FishPAC's efforts to locate, assess, prioritize, and remediate fish passage barriers on the SHS are documented in 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.[1] Information regarding verified SHS fish passage barriers is available through the appropriate FishPAC.

[1] More information about the Fish Passage Assessment Database can be found in CalFish 2018.

Figure 2-14. California Fish Passage Advisory Committee Locations

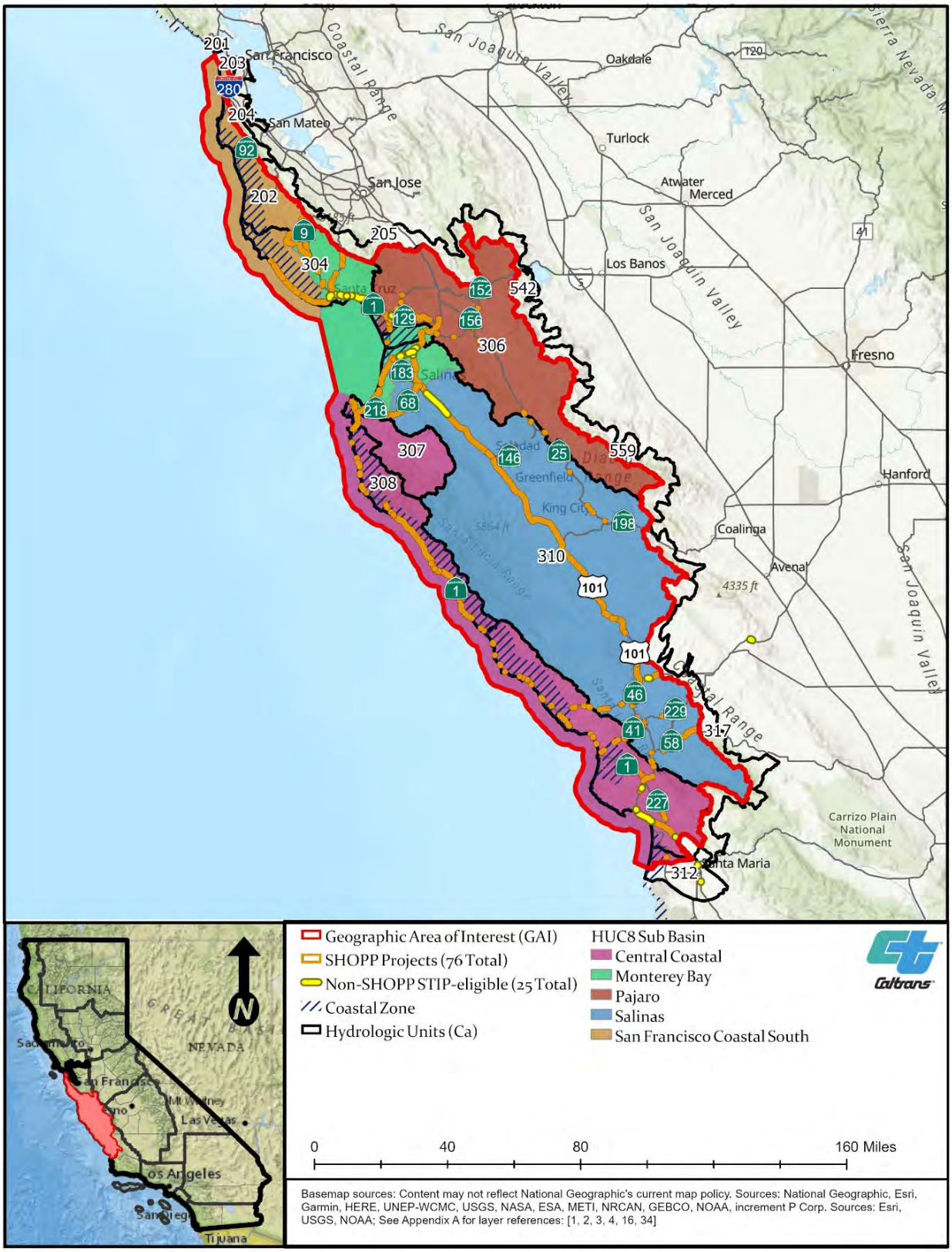
2.12 Sub-basins

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 of various scales, each with an assigned HUC that is georeferenced to USGS topographic maps (USGS 2014). Each HUC classification consists of two to eight digits. For example, eight-digit HUCs, or HUC-8s, map the sub-basin level and six-digit HUCs, or HUC-6s, map the watershed level.

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins (Caltrans 2017a; USGS 2014). However, the California Department of Water Resources and both the State Water Board and the RWQCBs (collectively "Water Boards") do not exclusively use HUC-8 codes (California Department of Water Resources 2016). The State Water Boards also use hydrologic units ("HUs") for state-level water-related purposes, such as identifying beneficial uses.

Appendix F provides a crosswalk between the HUC-8 and HU classification systems for each HUC-8 in the GAI. The GAI consists of the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South sub-basins, which loosely correspond to the Bay Bridges, Big Basin, Bolsa Nueva, Carmel River, Coast Range, Estero Bay, Estrella River, Middle West Side, Pajaro River, Salinas, San Mateo, Santa Clara, Santa Lucia, Santa Maria, and South Bay HUs (Appendix F). Figure 2-15 shows the overlap between sub-basins and state-level HUs in the GAI.

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



2.13 Hydrology

The sub-basins of the GAI drain an area of approximately 5,110,614 acres (7,985 square miles) (Table 2-6). The sub-basin in the San Francisco Bay RWQCB boundary is San Francisco Coastal South. Sub-basins in the Central Coast RWQCB boundary include Pajaro, Salinas, Central Coastal, and Monterey Bay (Figure 2-15). These sub-basins in the GAI include 114,863 rivers and streams that traverse 30,559 miles in the San Francisco Bay and Central Coast RWQCB boundaries (Table 2-6). Sub-basin acreages shown in Table 2-6 may include areas outside of the GAI.

Table 2-6. Sub-basins in the San Francisco Bay RWQCB and Central Coast RWQCB Boundary within the GAI

Sub-basin Name	Sub-basin Code (HUC-8)	Drainage Area (acres)[a]	Rivers and Streams (count)	Total Reach Length (miles)[a]
Central Coastal	18060006	1,231,592	28,744	6,637
Monterey Bay	18060015	484,627	4,644	1,484
Pajaro	18060002	832,403	23,651	5,735
Salinas	18060005	2,130,629	49,975	14,746
San Francisco Coastal South	18050006	431,363	7,849	1,957
	Total	**5,110,614**	**114,863**	**30,559**

Source: California Department of Water Resources
[a] Numbers were rounded to the nearest whole number.

The GAI is characterized by slow and moderately slow-moving rivers and streams, some of which are tidally influenced, as well as alluvial or weak bedrock channels (Central Coast RWQCB 2019). Major rivers in the GAI include the Big Sur, Carmel, Cuyama, Estrella, Nacimiento, Pajaro, Salinas, San Antonio, San Benito, and San Lorenzo Rivers (Central Coast RWQCB 2019; San Francisco Bay RWQCB 2017). Flows from these rivers originate from the Diablo, Gabilan, Santa Lucia, and Santa Ynez mountain ranges. Surface water from these rivers is carried to Monterey Bay by way of the Salinas River or other streams or directly to the Pacific Ocean by way of perennial streams (Central Coast RWQCB 2019; San Francisco Bay RWQCB 2017).

Water typically does not flow in the alluvial or bedrock channels throughout the summer. Reservoirs for irrigation, municipal water supply, and flood control are common in the GAI (USFS 1994). For example, a portion of the Salinas River is controlled by dam releases from Nacimiento Lake, which supplies water for agricultural uses downstream that is needed during the summer months. Descriptions of the sub-basins are provided below.

2.13.1 Central Coastal Sub-basin

The Central Coastal Sub-basin drains an area of approximately 1,231,592 acres (1,924 square miles) and includes 28,744 rivers and streams that traverse 6,637 miles (Table 2-6). This sub-basin includes the Carmel River, Salinas, Santa Lucia, and Santa Maria HUs (Appendix F).

Carmel River HU. The Carmel River HU is located south of Monterey Bay and between the Santa Lucia Mountains to the south and the Sierra del Salinas to the north and east. The Carmel River flows northwest from the headwaters at approximately 5,000 feet in the Santa Lucia Mountains for 36 miles in a northwesterly direction, merging with seven major stream tributaries before it flows through Carmel Valley to Carmel River Lagoon and ultimately into the Pacific Ocean at Carmel Bay 5 miles south of the city of Monterey (Monterey Peninsula Water Management District 2019). The river's largest tributary is Tularcitos Creek, and two major impoundments are located along the waterway: Los Padres Dam and San Clemente Dam (State Water Board 2009).

Salinas HU. The Salinas HU includes the Salinas River and its tributaries. The Salinas River originates in San Luis Obispo County and flows north approximately 174 miles, discharging into Monterey Bay, approximately 11 miles north of the city of Monterey. Main tributaries to the Salinas River include Arroyo Seco and the Nacimiento, San Antonio, and Estrella Rivers (Central Coast Water Quality Preservation 2017). The upper watershed of the Salinas HU originates in the La Panza Range located southeast of Santa Margarita Lake in San Luis Obispo County and flows toward the city of Bradley in Monterey County, including drainages of the Estrella, Nacimiento, and San Antonio Rivers. The lower watershed of the Salinas HU is entirely within Monterey County, extending from the city of Bradley to Monterey Bay, including the Arroyo Seco drainage (Central Coast Water Quality Preservation 2017).

Santa Lucia HU. The Santa Lucia HU is located along the Big Sur coastline west of the Santa Lucia Mountains. Surface water flows from the headwaters on the northwestern slopes of the Santa Lucia Mountains in the Los Padres National Forest through small coastal streams that discharge directly into the Pacific Ocean. The largest watersheds in this HU include the Big Sur River, Little Sur River, and Limekiln Creek (State Water Board 2003).

Santa Maria HU. The Santa Maria HU includes the watersheds of the Cuyama, Sisquoc, and Santa Maria Rivers.[2] Surface water flows from the headwaters of the Cuyama and Sisquoc Rivers in the Los Padres National Forest, which join approximately 7 miles southeast of Santa Maria to form the Santa Maria River. Twitchell Reservoir is located on the Cuyama River, 6 miles above the headwaters of the Santa Maria River. Nipomo Creek and Orcutt-Solomon Creek join with the Santa Maria River just west of Highway 101 and near the Santa Maria River Pacific Ocean outlet, respectively. Oso Flaco Lake is also

[2] Although the GAI includes a small portion of the Sisquoc and Santa Maria (HUC-10) watersheds in the Santa Maria HU, these two rivers are located outside the GAI. See Section 2.16.

located in the Santa Maria HU, north of the Santa Maria Estuary (Central Coast Water Quality Preservation 2017).

2.13.2 Monterey Bay Sub-basin

The Monterey Bay Sub-basin drains an area of approximately 484,627 acres (757 square miles) and includes 4,644 rivers and streams that traverse 1,484 miles (Table 2-6). This sub-basin includes the Big Basin, Bolsa Nueva, Carmel River, Pajaro River, Salinas, San Mateo, Santa Clara, and Santa Maria HUs (Appendix F). Descriptions of the Salinas and Santa Maria HUs are provided in Section 2.13.1.

Big Basin HU. The Big Basin HU is located near the Santa Cruz Mountains, with smaller coastal watersheds draining directly into the Pacific Ocean. The main watersheds in the Big Basin HU include Aptos Creek, Soquel Creek, and San Lorenzo River. The Aptos Creek watershed's main tributaries include Valencia Creek, Mangles Gulch, and Bridge Creek. The San Lorenzo River watershed is located in the central Santa Cruz Mountains. The San Lorenzo River is 25 miles long, draining to the Pacific Ocean at the northern end of Monterey Bay. Its main tributaries include Carbonera Creek, Zayante Creek, Bear Creek, Boulder Creek, Newell Creek, and Branciforte Creek (State Water Board 2009).

Bolsa Nueva HU. The Bolsa Nueva HU, located in the northwestern portion of Monterey County, includes 63 miles of streams (NOAA 2004). The Bolsa Nueva watershed drains into Elkhorn Slough and ultimately into the Pacific Ocean via Moss Landing Harbor and northern Monterey Bay.

Pajaro River HU. The Pajaro River HU includes the Pajaro River and its tributaries: San Benito River, Tequisquita Slough/Santa Ana Creek, Pacheco Creek, Llagas Creek, Uvas Creek, and Corralitos Creek. The river drains into Monterey Bay north of Moss Landing Harbor (State Water Board 2009).

San Mateo HU. The San Mateo HU encompasses approximately 257 square miles and is located on the coast immediately south of the Golden Gate Bridge. Main waterways in the hydrologic unit include San Gregorio Creek and Pescadero Creek (NOAA 2004). Headwaters begin near Sweeney Ridge and continue southeast until the Lower Crystal Springs Reservoir, ultimately draining into San Francisco Bay at Ryder Park, just south of Coyote Point (San Francisco Bay RWQCB 2008).

Santa Clara HU. The Santa Clara HU includes the southwestern portions of San Francisco. Main waterways include the southern portions of San Francisco Bay and associated tributaries, including Coyote Creek and Guadalupe River (NOAA 2004). The Santa Clara HU is bounded by the Diablo Mountains to the east and the Santa Cruz Mountains to the south and west.

2.13.3 Pajaro Sub-basin

The Pajaro Sub-basin drains an area of approximately 832,403 acres (1,301 square miles) and includes 23,651 rivers and streams that traverse 5,735 miles (Table 2-6). This sub-basin includes the Big Basin, Coast Range, Middle West Side, Pajaro River, Salinas, and Santa Clara HUs (Appendix F). Descriptions of the Pajaro River, Salinas, and Santa

Clara HUs are provided in Section 2.13.1. A description of the Big Basin HU is provided in Section 2.13.2.

Coast Range HU. The Coast Range HU includes a very small portion of southeastern San Benito County near Ciervo Hills. Main waterways in this sliver of the GAI are absent.

Middle West Side HU. The Middle West Side HU includes portions of eastern San Benito, Madera, and Merced Counties. The main waterway in the GAI includes Panoche Creek.

2.13.4 Salinas Sub-basin

The Salinas Sub-basin drains an area of approximately 2,130,629 acres (78 square miles) and includes 49,975 rivers and streams that traverse 14,746 miles (Table 2-6). This sub-basin includes the Carmel River, Coast Range, Estero Bay, Estrella River, Pajaro River, Salinas, Santa Lucia, and Santa Maria HUs (Appendix F). Descriptions of the Carmel River, Salinas, Santa Lucia, and Santa Maria HUs are provided in Section 2.13.1. A description of the Pajaro River HU is provided in Section 2.13.2.

Estero Bay HU. The Estero Bay HU consists of several small coastal streams, including Arroyo De La Cruz, San Simeon Creek, Santa Rosa Creek, Morro Creek, Chorro Creek, San Luis Obispo Creek, and Arroyo Grande Creek. San Luis Obispo Creek and San Simeon Creek are the two largest watersheds (State Water Board 2003).

Estrella River HU. The Estrella River HU includes the Estrella River watershed, a tributary to the Salinas River. The Estrella River and some of its tributaries carry perennial underground flows from the confluence of San Juan Creek and Cholame Creek in the foothills of the Coast Ranges to the Salinas River (SLO Watershed Project 2020).

2.13.5 San Francisco Coastal South Sub-basin

The San Francisco Coastal South Sub-basin drains an area of approximately 431,363 acres (674 square miles) and includes 7,849 rivers and streams that traverse 1,957 miles (Table 2-6). This sub-basin includes the Bay Bridges, San Mateo, Santa Clara, and South Bay HUs (Appendix F). Descriptions of the San Mateo and Santa Clara HUs are provided in Section 2.13.2. `

Bay Bridges HU. The Bay Bridges HU includes portions of northern San Francisco Bay and San Pablo Bay (NOAA 2004).

South Bay HU. The South Bay HU includes portions of the South San Francisco Bay and associated tributaries, including Alameda Creek (NOAA 2004).

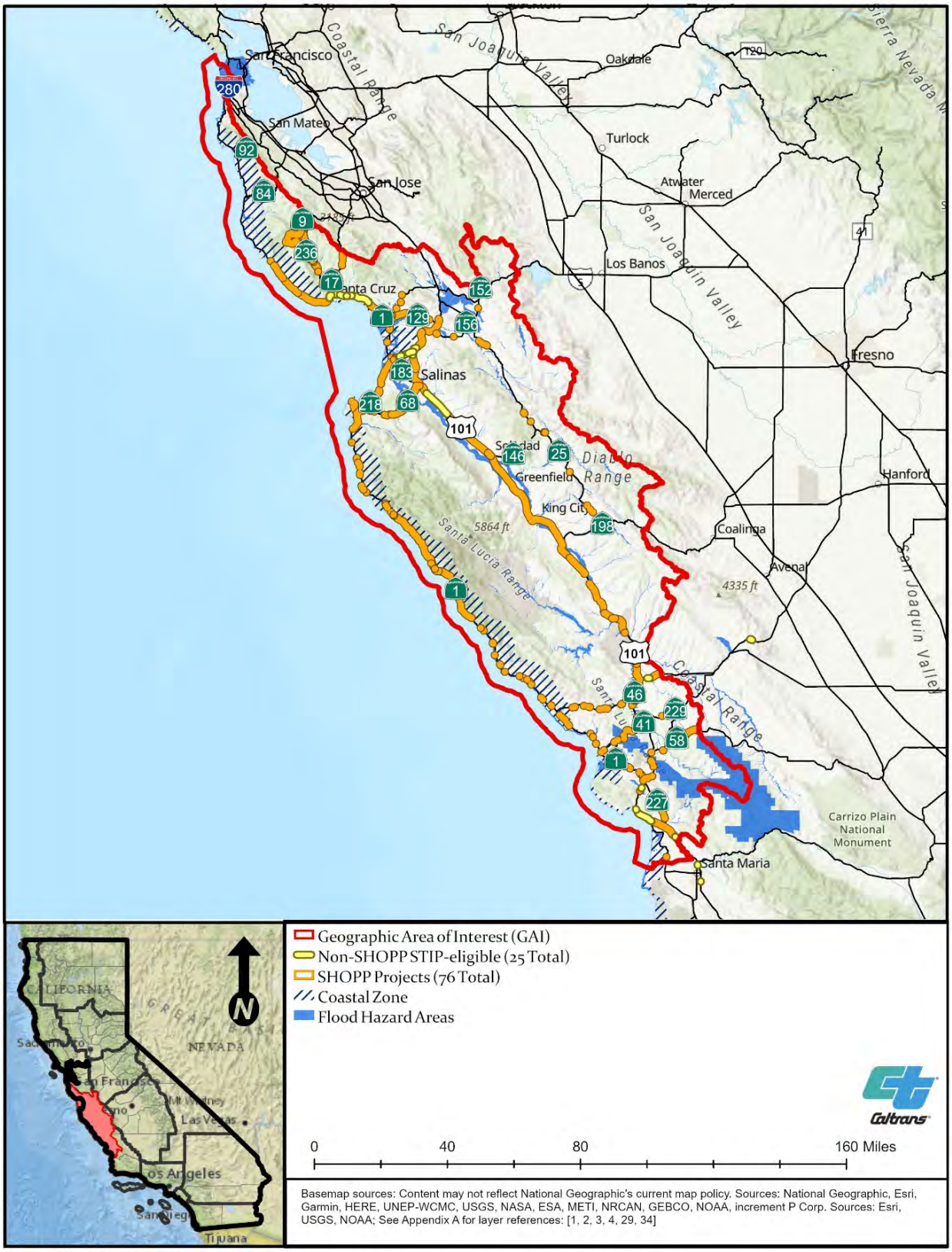
2.14 Flood Hazard Areas

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 2019). 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. Waterbodies associated with the majority of flood hazard risk in the GAI include Elkhorn Slough, Salinas River, Pajaro River, Carmel River, and Cuyama River. This information is important for scoping advance mitigation projects and transportation projects undertaken within the GAI, which will need to comply with Executive Order 11988.

Figure 2-16. Flood Hazard Areas



2.15 Water Quality

Water quality objectives for surface waters and groundwater in the GAI are provided in the *San Francisco Bay Basin Water Quality Control Plan* (San Francisco Bay RWQCB 2017) and the *Water Quality Control Plan for the Central Coastal Basin* (Central Coast 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.

Surface water and groundwater beneficial uses are also identified in the basin plans (Central Coast RWQCB 2019; San Francisco Bay RWQCB 2017). If it cannot be avoided, a waterbody'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). An example of a beneficial impact would be repairs or retrofit that improve permeability or flows. Hence, this RAMNA considers beneficial uses identified for waterbodies 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 2-7).

Table 2-7. Beneficial Uses in the GAI

Beneficial Use	San Francisco Bay Basin Plan	Central Coastal Basin Plan	Relevant to RAMNA?[a]
Agricultural supply	Applicable	Applicable	No
Aquaculture	Not applicable	Applicable	No
Cold freshwater habitat	Applicable	Applicable	Yes
Commercial and sport fishing	Applicable	Applicable	No
Estuarine habitat	Applicable	Applicable	Yes
Fish migration	Applicable	Applicable	Yes
Fish spawning, reproduction, and/or early development	Applicable	Applicable	Yes
Freshwater replenishment	Applicable	Applicable	Yes
Groundwater recharge	Applicable	Applicable	Yes
Hydropower generation	Not applicable	Applicable	No
Industrial process supply	Applicable	Applicable	No

Beneficial Use	San Francisco Bay Basin Plan	Central Coastal Basin Plan	Relevant to RAMNA?[a]
Industrial service supply	Applicable	Applicable	No
Inland saline water habitat	Not applicable	Applicable	Yes
Marine habitat	Applicable	Applicable	Yes
Municipal and domestic supply	Applicable	Applicable	No
Navigation	Applicable	Applicable	No
Non-contact water recreation	Applicable	Applicable	No
Preservation of biological habitats of special significance	Not applicable	Applicable	Yes
Preservation of rare, threatened, or endangered species	Applicable	Applicable	Yes
Replenishment of surface waters	Applicable	Not applicable	Yes
Shellfish harvesting	Applicable	Applicable	No
Warm freshwater habitat	Applicable	Applicable	Yes
Water contact recreation	Applicable	Applicable	No
Wildlife habitat	Applicable	Applicable	Yes

Sources: Central Coast RWQCB 2019; San Francisco Bay RWQCB 2017
[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 State Water Board 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 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 124 waterbodies in the GAI (State Water Board 2018). This RAMNA considers a waterbody's CWA Section 303(d) impairment designation as relevant to the RAMNA when it is indicative of a waterbody's loss of an aquatic resource-related beneficial use. The primary sources of these impairments are rural and agricultural land uses, sewage system and septic tank system discharges, and urban runoff. These waterbodies, their impairments, and whether total maximum daily loads have been established are provided in Appendix G. A RWQCB may need to consult with CDFW or other resource agencies to determine whether a beneficial use may be affected by a water quality-related decision.

2.16 Wild and Scenic Rivers

The purpose of the Wild and Scenic Rivers Act of 1968 (16 USC Chapter 28) is to protect and enhance the wild, scenic, and recreational values of designated rivers (National Wild and Scenic Rivers System 2019). 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.

The Big Sur River is the only designated wild and scenic river in the GAI (National Wild and Scenic Rivers System 2019; Omnibus Public Land Management Act of 2009). The location of the Big Sur River is provided on Figures 2-2, 2-4, and 2-17. On June 19, 1992, Congress designated the entire 19.5-mile reach of the Big Sur River from the confluence of the South and North Forks downstream to the boundary of the Ventana Wilderness as wild. Located in the Los Padres National Forest in the Santa Lucia Mountains, the Big Sur River flows year-round and drains to the Pacific Ocean (National Wild and Scenic Rivers System 2019).

Figure 2-17. Wild and Scenic Rivers in the GAI

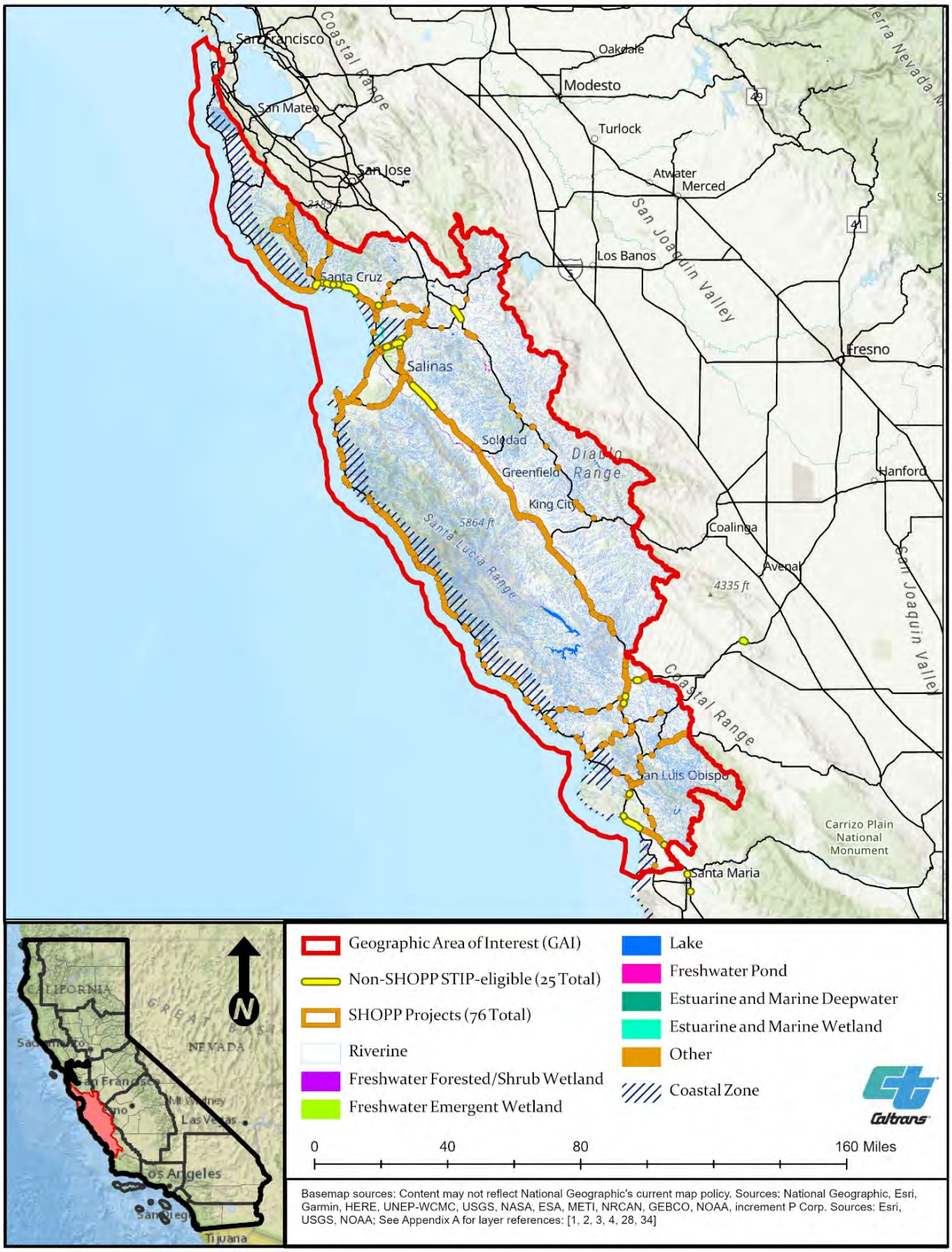
2.17 Aquatic Resources

A high-level view of major aquatic resources in the GAI is provided on Figure 2-18, and detailed maps of aquatic resources are provided in Appendix H. Generally speaking, aquatic resources in the GAI include wetlands, non-wetland waters, and riparian habitats that may be subject to CCC, Corps, EPA, RWQCB, and/or CDFW regulations, as well as special-status fish managed by CDFW, FWS, or NMFS. 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 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 waters of the U.S., pursuant to Section 10 of the Rivers and Harbors Act and 33 CFR § 329, respectively. RWQCB jurisdiction includes any activity that may cause a discharge of waste to waters of the state, including wetlands. 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 lake; use material from any river, stream, or lake; and deposit or dispose of material into any river, stream, or lake. Rivers, streams, and lakes include ephemeral, intermittent, and perennial watercourses. Effects on aquatic resources that extend to the outer limits of the riparian dripline, the outer limits of the floodplain of the aquatic resource, the top-of-bank on streams/rivers, or normal pool elevation on lakes may be regulated by CDFW.

2.17.1 Historical Context

Historically, natural wetlands were more extensive and interconnected in the GAI than they are today, with coastal wetlands consisting of estuaries, tidally influenced salt marshes and mudflats, and brackish and/or freshwater marshes. Over the past century, there has been a marked decrease in the amount of natural wetlands, including estuarine and marine deepwater habitat, estuarine and marine wetlands, freshwater emergent wetlands, freshwater forested/shrub wetlands, freshwater ponds, and lakes. The primary reasons for the decline are agricultural conversion, diversion for agricultural and other purposes, urban expansion, and roadway and rail construction, including levees and bridges (Heady et al. 2018; Woolfolk 2015).

Figure 2-18. Aquatic Resource Features and Major Stream Systems[a]



[a] For greater detail, see Appendix H.

2.17.2 Wetlands

Wetland resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the FWS National Wetlands Inventory maps (FWS 2017b), and data from the San Francisco Estuary Institute (2018) California Aquatic Resource Inventory (Table 2-8, Appendix H; Caltrans 2017c). 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, and provide no information on plant species associated with mapped areas. Although suitable for advance mitigation scoping, site-specific wetland studies would be required for advance mitigation projects to establish compensatory mitigation credits.

Aquatic resource types outlined here follow the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). 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 2-8 (Caltrans 2017c).

Vernal Pools

Vernal pools greater than 1 acre are mapped on Figure 2-19. While such pools are an important wetland resource in the Central California Coast and Central California Coast Ranges ecoregion sections, the SAMNA Reporting Tool's wetland layer does not include vernal pools. In this case, vernal pool habitats can be inferred by proxy using species information. For example, designated critical habitat for vernal pool fairy shrimp is shown on Figure 2-8. Further, the SAMNA Reporting Tool's species-attributed vegetation data layer described in Section 2.8 includes habitat for vernal pool fairy shrimp (Appendix E) that would be indicative of vernal pools. Vernal pools mapped using CDFW's vernal pools, South Coast Ranges GIS Biogeographic Information and Observation System layer dataset [ds0948] are shown on the left side of Figure 2-19, 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 2-19.

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 § 30121 [14 California Code of Regulations § 13577(b)]. Evidence of a CCC coastal wetland mapping effort in the GAI was not found. 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 the wetland types identified in Table 2-8 would be classified as coastal wetlands. An unknown additional number may also meet the definition of coastal wetland using the CCC's criteria; identification would have to take place in the field.

Figure 2-19. Vernal Pools in the GAI

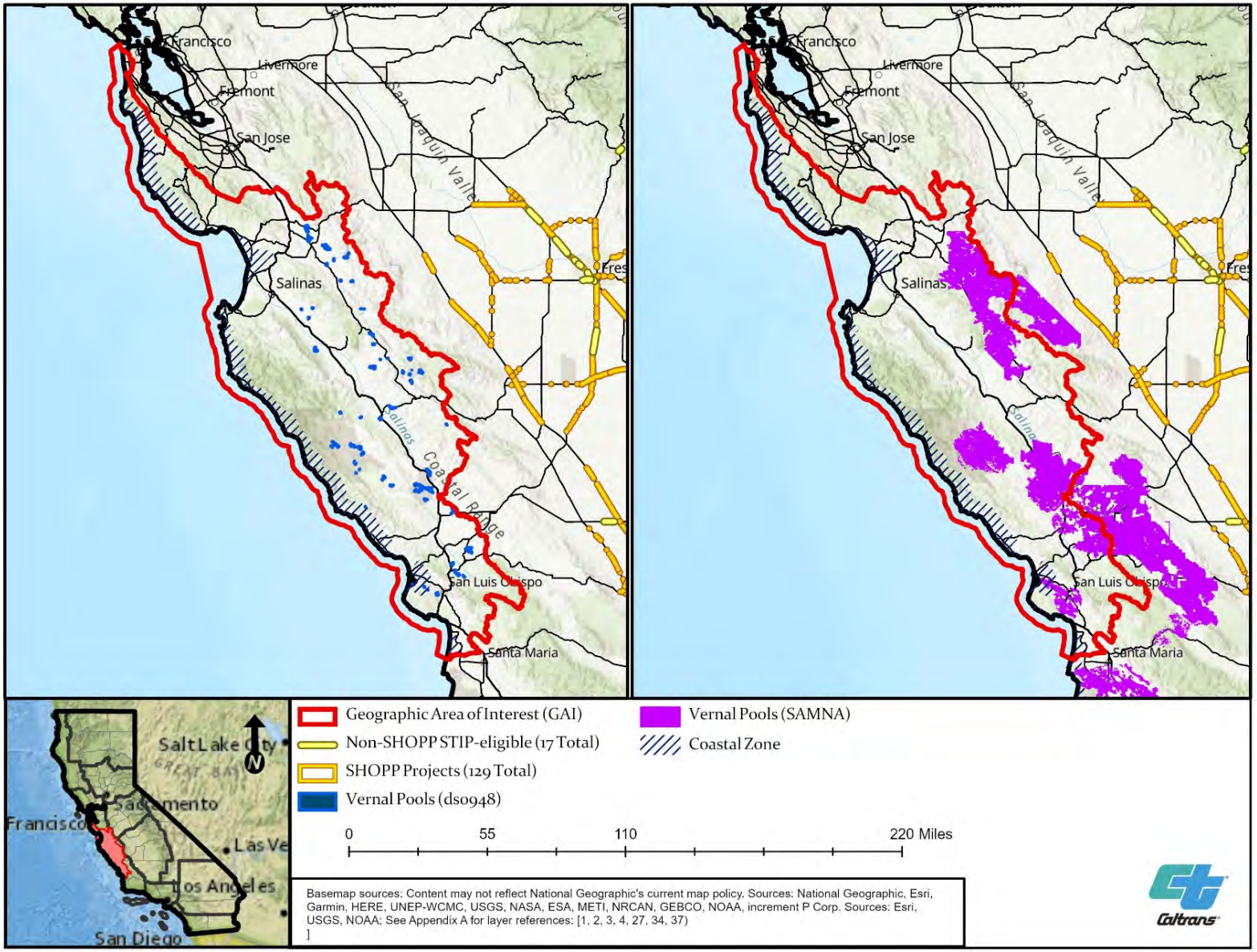


Table 2-8. Wetland Types in the GAI

Type	Central Coastal (acres) 18060006	Monterey Bay (acres) 18060015	Pajaro (acres) 18060002	Salinas (acres) 18060005	San Francisco Coastal South (acres) 18050006	Total (acres)
Depressional Natural Non-vegetated	Not present	Not present	Not present	Not present	0.7	**0.7**
Depressional Natural Vegetated	Not present	Not present	Not present	Not present	9.8	**9.8**
Depressional Perennial Natural Emergent	3.4	Not present	<0.01	Not present	Not present	**3.4**
Depressional Perennial Natural Non-vegetated	0.3	Not present	<0.01	Not present	Not present	**0.3**
Depressional Perennial Natural Vegetated	0.8	Not present	Not present	Not present	Not present	**0.8**
Depressional Perennial Non-vegetated	Not present	Not present	3.2	17.1	Not present	**20.3**
Depressional Perennial Unnatural Emergent	Not present	Not present	<0.01	Not present	Not present	**<0.01**
Depressional Perennial Unnatural Non-vegetated	13.2	0.1	6.7	<0.01	Not present	**20.0**
Depressional Perennial Unnatural Vegetated	0.5	Not present	<0.01	<0.01	Not present	**0.5**
Depressional Seasonal	Not present	Not present	0.4	5.2	Not present	**5.6**
Depressional Seasonal Natural Emergent	47.1	<0.01	7.0	<0.01	Not present	**54.1**
Depressional Seasonal Natural Forested	13.4	<0.01	5.9	<0.01	0.6	**19.9**
Depressional Seasonal Natural Shrub-Scrub	37.9	<0.01	3.8	<0.01	0.4	**42.0**
Depressional Seasonal Unnatural Emergent	183.3	Not present	<0.01	Not present	Not present	**183.3**
Depressional Seasonal Unnatural Forested	Not present	Not present	1.1	Not present	Not present	**1.1**

Type	Central Coastal (acres) 18060006	Monterey Bay (acres) 18060015	Pajaro (acres) 18060002	Salinas (acres) 18060005	San Francisco Coastal South (acres) 18050006	Total (acres)
Depressional Seasonal Unnatural Non-vegetated	0.01	<0.01	<0.01	<0.01	Not present	**0.01**
Depressional Seasonal Unnatural Shrub-Scrub	0.7	<0.01	<0.01	Not present	Not present	**0.7**
Depressional Unnatural Non-vegetated	Not present	Not present	Not present	Not present	60.4	**60.4**
Depressional Unnatural Vegetated	Not present	Not present	Not present	Not present	61.4	**61.4**
Estuarine and Marine Deepwater	308.0	883.6	59.6	91.5	102.7	**1,445.4**
Estuarine and Marine Wetland	1,938.6	3,509.1	127.4	259.9	1,033.3	**6,868.4**
Estuarine Saline Natural Intertidal Emergent	0.8	Not present	Not present	Not present	32.4	**33.2**
Estuarine Saline Natural Intertidal Non-vegetated	2.2	Not present	Not present	Not present	6.2	**8.4**
Estuarine Saline Natural Subtidal Non-vegetated	4.2	Not present	Not present	Not present	Not present	**4.2**
Freshwater Emergent Wetland	3,405.5	4,983.6	2,067.9	5,881.3	515.8	**16,854.0**
Freshwater Forested/ Shrub Wetland	8,113.0	1,892.8	3,047.5	12,931.7	1,273.4	**27,258.5**
Depressional Natural Non-vegetated	Not present	Not present	Not present	Not present	0.7	**0.7**
Total[a]	**14,073**	**11,269**	**5,331**	**19,187**	**3,097**	**52,957**

Source: Caltrans 2017c

[a] Rounded to the nearest whole number.

2.17.3 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 2-9, Appendix H; Caltrans 2017c). Although suitable for advance mitigation project scoping, site-specific studies 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 2-9 (Caltrans 2017d).

2.17.4 Special-status Fish

Special-status fish species known to occur or 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 2017e, 2018b). Based on a search of the fish habitat layer, five special-status fish species are known to occur or have the potential to occur in the GAI:

- federally and state endangered Central California Coast coho salmon (south of Punta Gorda);
- federally endangered tidewater goby;
- federally threatened steelhead – South Central California Coast and Central California Coast DPS;
- federally threatened green sturgeon – Southern DPS; and
- state threatened longfin smelt (*Spirinchus thaleichthys*).

As described previously in Sections 2.9 and 2.10, the GAI includes FWS- and NMFS-designated final critical habitat for the federally listed species and NMFS-designated EFH for coho salmon and groundfish.

2.18 Areas of Special Biological Significance

The California Ocean Plan, originally adopted by the State Water Board 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 (State Water Board 2019a). It defines ASBS as "those areas designated by the State Water Board 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" (State Water Board 2019a). According to Resolution Nos. 74-28, 74-32, and 75-61, the State Water Board designated 34 ocean areas along the coast of California as ASBS (State Water Board 2019a). These areas typically support a variety of aquatic life and often host unique individual species (State Water Board 2017). Figure 2-20 shows ASBS located in proximity to the GAI. From north to south, the GAI's coastline is adjacent to the James V. Fitzgerald, Año Nuevo, Pacific Grove, Carmel Bay, Point Lobos, Julia Pfeiffer Burns, and Salmon Creek Coast ASBS (State Water Board 2017).

Table 2-9. Non-wetland Water Types in the GAI

Type	Central Coastal (acres) 18060006	Monterey Bay (acres) 18060015	Pajaro (acres) 18060002	Salinas (acres) 18060005	San Francisco Coastal South (acres) 18050006	Total (acres)
Freshwater Pond	716.5	573.0	1,383.6	3,725.2	419.8	**6,818.1**
Lacustrine Unnatural Non-vegetated	Not present	Not present	42.7	Not present	0.2	**42.9**
Lacustrine Unnatural Vegetated	Not present	Not present	Not present	Not present	0.1	**0.1**
Lagoon Unnatural Non-vegetated	Not present	Not present	Not present	Not present	1.5	**1.5**
Lagoon Unnatural Vegetated	Not present	Not present	Not present	Not present	1.4	**1.4**
Lake	1,718.3	313.7	2,269.8	11,642.8	465.3	**16,409.9**
Marine Natural Intertidal Non-vegetated	79.1	Not present	Not present	Not present	38.9	**118.0**
Riverine	8,396.5	1,625.0	7,303.7	29,701.6	1,590.3	**48,617.1**
Riverine Natural	Not present	Not present	Not present	Not present	0.3	**0.3**
Riverine Tidal Unnatural	Not present	Not present	Not present	Not present	0.3	**0.3**
Slope Natural	Not present	Not present	Not present	Not present	88.1	**88.1**
Slope Unnatural	Not present	Not present	Not present	Not present	26.7	**26.7**
Other	Not present	283.9	2,767.7	8,896.2	78.7	**12,026.5**
Total[a]	**10,910**	**2,796**	**13,768**	**53,966**	**2,712**	**26,421**

Source: Caltrans 2017d

[a] Rounded to the nearest whole number.

Figure 2-20. Areas of Special Biological Significance in Relation to the GAI

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 projects. The table 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. HCPs, NCCPs, and RCIS documents are discussed separately in Chapter 4 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. Additional relevant resources may be consulted by Caltrans as advance mitigation planning is conceptualized. For example, LCPs are updated frequently. 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 pointed out in Chapter 1, the GAI for this RAMNA was selected by Caltrans District 5 based on the SAMNA results and other information. District 5 specifically identified compensatory mitigation for the California red-legged frog, California tiger salamander, foothill yellow-legged frog, steelhead, tidewater goby, tricolored blackbird, and aquatic resources as historical and anticipated mitigation needs. Hence, 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 Chapters 7 and 8. 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 as well.

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
CESA	Updated periodically (by California legislature)	No	Authorizes CDFW to protect State of California listed threatened and endangered species.	https://www.wildlife.ca.gov/Conservation/CESA	9/10/2018 (last amended)
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)
California Water Boards 2010 Update to Strategic Plan 2008–2012	Final	No	Update to strategic plan from the State Water Board and RWQCB. 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
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. CDFW jurisdiction extends to top-of-bank of the outer extent of riparian habitat, if present.	https://www.wildlife.ca.gov/conservation/lsa	6/27/2017 (last amended)
State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State	Final	No	Implemented by the State Water Board. 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)
Water Quality Control Plan for the San Francisco Bay Region	Updated periodically	Yes	Implemented by San Francisco Bay RWQCB. Establishes general and site-specific water quality standards and objectives in the San Francisco Bay Basin.	https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html	5/4/2017 (last amended)
Water Quality Control Plan for the Central Coast Region	Updated periodically	Yes	Implemented by Central Coast RWQCB. Establishes general and site-specific water quality standards and objectives in the Central Coast Basin.	https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/	12/14/2017 (last completed review)
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 a 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 D.	https://www.coastal.ca.gov/coastact.pdf	10/9/2019 (last amended)
Definition and Delineation of Wetlands in the Coastal Zone	Final	No	Implemented by the CCC. Creates a wetland definition that is set as 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
Procedural Guidance for Evaluating Wetland Mitigation Projects in California's Coastal Zone	Final	No	Implemented by the CCC. Creates a set of procedures for defining wetland mitigation in the coastal zone and evaluations for the performance of restoration or enhancement projects.	https://coastal.ca.gov/weteval/wetitle.html	9/1/1995

Title	Status	Spatial Data	Reference Purpose	Link	Date
Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone	Final	No	Implemented by the CCC. Creates a set of procedures for evaluating projects that affect wetlands in the coastal zone, application procedures for permitting development in the coastal zone, and requirements for any mitigation plan in the coastal zone.	https://www.coastal.ca.gov/wetrev/wettitle.html	6/15/1994
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	11/7/2018 (last updated)
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
State of California Sea-Level Rise Guidance: 2018 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://www.opc.ca.gov/updating-californias-sea-level-rise-guidance/	3/14/2018
Barriers to Fish Passage SHC § 156	Final	No	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 new construction or continued maintenance upgrades of SHS facilities to prevent or impede the passage of salmon and steelhead, the majority of which are listed as either threatened or endangered in California, and requires Caltrans to do the following: • Provide an annual list of fish passage priorities for the SHS to the legislature. • Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds. • Submit assessments to the Fish PAD. • Construct all new transportation projects in a way that does not pose or create a barrier to fish passage. Caltrans collaborates with the FishPAC to identify passage priority locations for the SHS. The FishPAC is a partnership between CDFW, NMFS, USFWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.	https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=156.&lawCode=SHC	1/1/2006 (effective date)
Caltrans 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	10/1/2019 (most recent)
Federal Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
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	Final	No	EPA and the State Water Board's listing of regulated impaired water bodies.	https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml	4/11/2018 (last updated)
40 CFR § 131.12 California Antidegradation Policy	Final	No	Implemented by the State Water Board. 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)

Title	Status	Spatial Data	Reference Purpose	Link	Date
CWA	Updated periodically (by Congress)	No	Authorized by EPA and delegated to the Corps and the State Water Board, 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 the State Water Board. Regulates discharge of pollutants into WOTUS.	https://www.law.cornell.edu/uscode/text/33/1341	12/27/1977 (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)
ESA	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)
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
The Navigable Waters Protection Rule	Updated periodically	No	The current rule for protection of navigable waters, as set forth by EPA and the Corps, which includes a definition of WOTUS.	https://www.epa.gov/nwpr/final-rule-navigable-waters-protection-rule	4/21/2020 (last updated)
Section 10 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	Implemented by EPA and the Corps. Regulates the construction of infrastructure that could interfere with the navigable capacity of 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	Implemented by EPA and 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.poa.usace.army.mil/Portals/34/docs/regulatory/Section%2014.pdf#:~:text=Section%2014%20of%20the%20Rivers%20and%20Harbors%20Act,or%20other%20work%20built%20by%20the%20United%20States.	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
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://www.wildlife.ca.gov/SWAP/Final	9/1/2015
SWAP Transportation Companion Plan	Final	Yes	CDFW's companion document to SWAP for protection of species specific to transportation project planning.	https://wildlife.ca.gov/SWAP/Final/Companion-Plans	12/1/2016

Title	Status	Spatial Data	Reference Purpose	Link	Date
SWAP Water Management Companion Plan	Final	Yes	CDFW's companion document to SWAP to recommend water management practices throughout the state of California.	https://wildlife.ca.gov/SWAP/Final/Companion-Plans	12/1/2016
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://wildlife.ca.gov/SWAP/Final/Companion-Plans	12/1/2016
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
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
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 Wildlife Barriers: 2020 Priority Wildlife Movement Barrier 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.	http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=178511	3/1/2020
Large Mammal-Vehicle Collision Hot Spot Analyses, California, USA	Final	Yes	Western Transportation Institutes' 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
Caltrans Climate Change Vulnerability Assessment, District 5 Technical Report	Final	No	Caltrans assessment of climate change vulnerabilities for the district.	https://dot.ca.gov/programs/transportation-planning/2019-climate-change-vulnerability-assessments	10/1/2019
Big Sur Coast Highway Management Plan Corridor Management Plan	Final	No	Caltrans management plan for the section of Highway 1 from the Carmel River to San Carpoforo Creek.	Available in Caltrans archives	3/1/2004
Big Sur Highway 1 Sustainable Transportation Demand Management Plan	Final	Yes	Caltrans plan for addressing transportation needs along Highway 1 from Cambria, California, to Carmel-by-the-Sea, California.	https://www.sustainablehighway1.com/	2/1/2020
Central Coast Highway 1 Climate Resiliency Study	Final	Yes	Prepared for the Association of Monterey Bay Area Governments, the study presents the results of an analysis of adaptation strategies for Highway 1 and the railway to improve the resilience of transportation infrastructure in a manner that most benefits the surrounding ecosystems throughout Elkhorn Slough.	https://ambag.org/plans/central-coast-highway-1-climate-resiliency-study	7/1/2020
CCC Comments on the Central Coast Highway 1 Climate Resiliency Study	Final	No	CCC comments on the draft version of the Central Coast Highway 1 Climate Resiliency Study.	Available in Caltrans archives	6/11/2020
CCC Strategic Plan Update 2020–2025	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, 4.4.2), climate change planning (4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.3.1), LCP engagement (6.1.3, 6.2.1, 6.2.2), environmental justice (5.2.1, 5.2.3), and information/GIS collaboration (9.6.2, 9.6.4).	https://documents.coastal.ca.gov/assets/strategicplan/CCC_Strategic_Plan_Adopted_11.06.20.pdf	11/6/2020

Title	Status	Spatial Data	Reference Purpose	Link	Date
CCC Strategic Plan 2013–2018	Final	No	Conservation plan from the CCC. Includes objectives to strengthen implementation of Coastal Act ESHA and wetland policies, protect marine and ocean resources through interagency coordination, improve oil spill prevention and response, avoid and mitigate adverse impacts of development on water quality, and protect coastal agriculture.	https://www.coastal.ca.gov/strategicplan/CCC_Final_StrategicPlan_2013-2018.pdf	4/1/2013 (update in progress)
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.	http://www.cwam.ucdavis.edu/Manual_chapters.htm	5/1/2005
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
2018 Master Plan for Fisheries	Final	No	CDFW's plan to implement the Marine Life Management Act. Includes goals to manage priority species, achieve sustainability for commercial fish stocks, conserve ecosystems, integrate marine protected areas into fisheries management, and provide adaptive management for climate change. Provides a framework for specific management plan creation.	https://wildlife.ca.gov/Conservation/Marine/Master-Plan	6/1/2018
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
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.	http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20191113/Draft-Revised-Strategic-Plan-for-CA-Coast-and-Ocean_11.1.19_draft-FINAL.pdf	11/1/2019
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
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	2016
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/	7/1/2013
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
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, including the Monterey Bay National Marine Sanctuary in the GAI.	https://sanctuarysimon.org/	12/7/2020 (information updated regularly)
Our Coast Our Future: Coastal Storm Modeling System	Updated periodically	Yes	A USGS mapping program tracking projected sea-level rise for the California coast. Some pieces of the program are not yet completed.	https://data.pointblue.org/apps/ocof/cms/	2016 (last piece added)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Caltrans Adaptation Strategies Report: District 5	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 impacted by climate change in each Caltrans District.	https://dot.ca.gov/programs/transportation-planning/2020-adapation-priorities-reports	2/1/2021
Special-Status Taxa[a] Documents	See below	See below	See below	See below	See below
Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)	Final	Yes	FWS' recovery plan for California red-legged frog occurring in the GAI. The recovery criteria that must be achieved before delisting can occur are: • All suitable habitats in Core Areas (9 of 35 are in the GAI) are protected in perpetuity and the ecological integrity of these areas is not threatened. • Existing populations throughout the range are stable, and they are geographically distributed in a manner that allows for the continued existence of viable metapopulations despite subpopulation fluctuations. • There is successful reestablishment in portions of its historic range such that at least one reestablished population is stable/increasing in each core area where frogs are currently absent. • The amount of additional habitat needed for population connectivity, recolonization, and dispersal has been determined, protected, and managed for the California red-legged frog.	https://ecos.fws.gov/ecp/species/2891	5/28/2002
California Red-legged Frog 5-Year Review	Updated periodically	Not applicable	FWS has not completed a formal 5-year review of this species.	https://ecos.fws.gov/ecp/species/2891	Not applicable
Revised Designation of Critical Habitat for the California Red-Legged Frog; Final Rule	Final	Yes	FWS' designation of critical habitat for the California red-legged frog.	https://www.govinfo.gov/content/pkg/FR-2010-03-17/pdf/2010-4656.pdf#page=2	3/17/2010
California Red-legged Frog Biological Opinions	Updated periodically	No	FWS' list of the 230 most recent biological opinions that have been used for California red-legged frog, of which 58 were for projects in the GAI.	https://ecos.fws.gov/ecp/species/2891	9/15/2020 (latest document)
A Status Review of the Foothill Yellow-Legged Frog (*Rana boylii*) in California	Final	Yes	CDFW's most recent formal review of the species condition.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=174663&inline	9/20/2019
Considerations for Conserving the Foothill Yellow-legged Frog	Final	No	A CDFW document outlining methods for reducing impacts on foothill yellow-legged frog.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=157562&inline	5/14/2018
Incidental Take Permits for Foothill Yellow-legged Frog	Updated periodically	No	CDFW's list of incidental take permits issued for foothill yellow-legged frog. Since 2017, 9 permits have been issued, along with 1 revision and 2 amendments.	https://nrm.dfg.ca.gov/documents/docviewer.aspx	7/23/2020 (latest document)
Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)	Final	Yes	FWS' recovery plan for the population of California tiger salamander occurring in the GAI. The recovery criteria are: • Provide a sufficient number of habitat preserves, of sufficient quality, to meet the lifecycle needs of this species. These preserves also need to be free of contaminants and they must have a site-specific management plan. • Show that each preserve has a minimum effective population of 132 individuals for at least 26 years. • Reduce the threat of, and provide early detection of, known pathogens and control other aquatic species that predate on the salamanders. • Show that subpopulations within the DPS are not hybridizing with other salamander species for at least 26 years and that hybrid populations are not within 1.3 miles of these subpopulations. • Show that the issue of mortality from road crossings is being controlled or ameliorated to the point where road crossing is not a threat.	https://ecos.fws.gov/docs/recovery_plan/Signed%20Central%20CTS%20Recovery%20Plan.pdf	6/6/2017

Title	Status	Spatial Data	Reference Purpose	Link	Date
California Tiger Salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year Review: Summary and Evaluation	Updated periodically	Yes	FWS' most recent formal review of the species condition.	https://ecos.fws.gov/docs/five_year_review/doc4466.pdf	12/21/2014
Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule	Final	Yes	FWS' designation of critical habitat for the California tiger salamander central California DPS.	https://www.govinfo.gov/content/pkg/FR-2005-08-23/pdf/05-16234.pdf#page=2	8/23/2005
California Tiger Salamander Biological Opinions	Updated periodically	Yes	FWS' list of the 8 most recent biological opinions that have been issued for California tiger salamander. A total of 22 have been issued for this species, none of which were for projects in the GAI.	https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=D01T	3/4/2019
Incidental Take Permits for California Tiger Salamander	Updated periodically	No	CDFW's list of incidental take permits issued for California tiger salamander. Since 2012, 27 permits have been issued, along with 2 revisions and 47 amendments.	https://nrm.dfg.ca.gov/documents/docviewer.aspx	7/3/2019 (latest document)
Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead	Final	Yes	NMFS' recovery plan for the Central California Coast DPS of steelhead. Recovery criteria for this DPS of steelhead are complex and contained in Table 1 of the recovery plan. This table details populations in specific river systems with specific population sizes and densities that must be attained before delisting can occur.	https://www.fisheries.noaa.gov/resource/document/final-coastal-multispecies-recovery-plan-california-coastal-chinook-salmon	10/1/2016
Steelhead Central California Coast DPS 5-Year Review	Updated periodically	Yes	NMFS' most recent review of the condition of this species population segment.	https://www.fisheries.noaa.gov/resource/document/2016-5-year-review-summary-evaluation-central-california-coast-steelhead	4/13/2016
South Central California Steelhead Recovery Plan	Final	Yes	NMFS' recovery plan for the South-Central California DPS of steelhead. Recovery criteria for this DPS of steelhead are complex and contained in Table 6-1 of the recovery plan.	https://repository.library.noaa.gov/view/noaa/17275	12/1/2013
5-Year Review: Summary and Evaluation of South-Central California Coast Steelhead DPS	Updated periodically	Yes	NMFS' most recent review of the condition of this species population segment.	https://repository.library.noaa.gov/view/noaa/17800	1/1/2016
Critical Habitat Designation for Steelhead	Final	Yes	NMFS' designation of critical habitat for the steelhead.	https://www.fisheries.noaa.gov/resource/map/steelhead-trout-critical-habitat-map	8/13/2018
Steelhead Biological Opinions	Updated periodically	No	A total of 31 biological opinions have been issued for steelhead since 2010. Four of these have been issued for projects in the GAI.	https://repository.library.noaa.gov/	1/13/2020
Steelhead Restoration and Management Plan for California	Final	Yes	CDFW restoration and management plan for steelhead throughout the state. There are separate management objectives for three designated management areas: North Coast, Central Valley, and South Coast, of which the South Coast management area covers the GAI. This plan includes stream-specific recommendations pertaining to the Carmel River, Santa Ynez River, and San Luis Obispo County coastal streams.	https://www.google.com/url?client=internal-element-cse&cx=003744124407919529812:v2-t3qqht48&q=https://nrm.dfg.ca.gov/FileHandler.ashx%3FDocumentID%3D3490&sa=U&ved=2ahUKEwj1156Uz_fmAhXSHc0KHcG_CfY4ChAWMAB6BAgGEAE&usg=AOvVaw1GUboKPeGb7OoSOIkc7IH7	2/1/1996
Species in the Spotlight Priority Actions: 2016-2020 Central California Coast Coho Salmon	Final	No	NOAA document outlining priorities for improvement of the central California coast DPS of coho salmon. Includes goals and objectives for various aquatic features in the GAI.	https://repository.library.noaa.gov/view/noaa/17439/noaa_17439_DS1.pdf	1/1/2016

Title	Status	Spatial Data	Reference Purpose	Link	Date
Recovery Plan for the Tidewater Goby (*Eucyclogobius newberryi*)	Final	Yes	FWS' recovery plan for the tidewater goby. The tidewater goby has 6 recovery units and 26 sub-units, of which the GAI includes 3 recovery units and 12 sub-units. Recovery criteria are based first on having management plans that address the threats faced by tidewater goby and that a metapopulation viability analysis over a 10-year period shows each recovery unit is viable with each sub-unit having a 75 percent or greater chance of persisting for 100 years. Full delisting of the species can occur only when there is a 95 percent or greater chance of persistence for 100 years.	https://ecos.fws.gov/docs/recovery_plan/051207.pdf	12/7/2005
Tidewater Goby (*Eucyclogobius newberryi*) 5-Year Review: Summary and Evaluation	Updated periodically	No	FWS' most recent review of the condition of this species.	https://ecos.fws.gov/docs/five_year_review/doc1144.pdf	9/28/2007
Tidewater Goby Designation of Critical Habitat	Final	Yes	FWS' designation of critical habitat for tidewater goby.	https://www.govinfo.gov/content/pkg/FR-2013-02-06/pdf/2013-02057.pdf#page=1	2/6/2013
Tidewater Goby Biological Opinions	Updated periodically	No	A total of 12 biological opinions have been issued for tidewater goby since 2016. Four of these have been issued for projects in the GAI.	https://ecos.fws.gov/ecp/species/57	5/27/2020
Pacific Coast Salmon Fishery Management Plan	Updated periodically	Yes	NMFS' fisheries management plan for salmonids on the West Coast. Includes commercial fishing allowances for salmonids in the region and conservation target population sizes for various regions.	https://www.pcouncil.org/managed_fishery/salmon/	3/1/2016 (last amended)
Conservation Plan for the Tricolored Blackbird (*Agelaius tricolor*)	Final	No	A conservation plan for the tricolored blackbird by the tricolored blackbird working group, which consists of resource agencies, universities, nongovernmental organizations, and environmental consultants.	www.fws.gov/migratorybirds/pdf/management/focal-species/TricoloredBlackbird.pdf	9/1/2007
A Status Review of the Tricolored Blackbird (*Agelaius tricolor*) in California	Final	Yes	CDFW report to the California Department of Fish and Game Commission on the status of tricolored blackbird.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=154287&inline	2/1/2018
California Fish and Game Commission Status on Listing of Mountain Lion under California ESA	Update in progress	No	California Fish and Game Commission website documenting the status of the mountain lion as the species goes through the regulatory process of being listed under California ESA. Documents to this page are added periodically until a final listing decision is made, which include the petition for species listing and the notice of findings. Mountain lion is currently in the candidate phase with a status report tentatively due 11/3/2021.	https://fgc.ca.gov/CESA#ml	4/21/2020 (latest document)
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 regions are identified in this plan, along with 41 core areas.	https://www.fws.gov/sacramento/es/Recovery-Planning/Vernal-Pool/	12/15/2005
Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California – Volume 1	Final	Yes	FWS recovery plan for tidal marsh species in northern and central California, which includes 3 plants, 1 bird, and 1 mammal for a total of 5 species. Salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*) is listed as a non-focal species because, although it would benefit from the activities covered in this plan, it has its own recovery plan. In general, recovery criteria center on habitat protection and adaptive habitat management, which include 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. Five recovery units are identified, of which the Central Coast and Morro Bay units occur in the GAI. The Central Coast species target is California clapper rail (*Rallus longirostris obsoletus*) and the Morro Bay target is California seablite (*Suaeda californica*).	https://www.fws.gov/sfbaydelta/documents/tidal_marsh_recovery_plan_v1.pdf	8/27/2013

Title	Status	Spatial Data	Reference Purpose	Link	Date
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. Ninety-three state park entities occur in the GAI. Those 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
Año Nuevo State Park Final General Plan and Final Environmental Impact Report	Final	Yes	Requires 800 acres of preserved dune ecosystem with limited access and a 100-foot buffer around its western boundary and other existing development. Has a wildlife management goal to control/extirpate nonnative animal species such as bullfrogs.	https://www.parks.ca.gov/?page_id=21299	10/31/2008
Big Basin Redwoods State Park Final General Plan and Final Environmental Impact Report	Final	Yes	California State Parks' general plan for the Big Basin Redwoods State Park. Requires control/extirpation of bullfrogs. Includes goal to preserve and protect existing habitat for tidewater goby and California red-legged frog.	https://www.parks.ca.gov/?page_id=21299	5/17/2013
The Forest of Nisene Marks State Park Amended General Plan/Final Environmental Impact Report	Final	Yes	California State Parks' general plan for The Forest of Nisene Marks State Park.	https://www.parks.ca.gov/?page_id=21299	7/1/2005
Fort Ord Dunes State Park General Plan	Final	Yes	California State Parks' general plan for the Fort Ord Dunes State Park. Requires 700 acres of property to be designated for habitat preservation and restoration with limits on development.	https://www.parks.ca.gov/?page_id=21299	9/17/2004
Lighthouse Field State Beach General Plan	Final	Yes	California State Parks' general plan for the Lighthouse Field State Beach. Promotes the spread and establishment of riparian vegetation and disallows for periodic removal.	https://www.parks.ca.gov/?page_id=21299	5/11/1984
Marina State Beach General Plan	Final	Yes	California State Parks' general plan for the Marina State Beach. The majority of a 43-acre dune restoration site has been set aside for conservation.	https://www.parks.ca.gov/?page_id=21299	8/14/1987
Morro Bay State Park Preliminary General Plan	Final	Yes	California State Parks' general plan for the Morro Bay State Park. Contains policies for protection of three wetland areas with restrictions on public use and a restoration goal for the Chorro Creek Wetland. Identifies Chorro Creek and Los Osos Creek as supporting tidewater goby.	https://www.parks.ca.gov/?page_id=21299	6/1/1988
Oceano Dunes State Vehicular Recreational Area General Plan (originally Pismo State Beach and Pismo Dunes State Vehicular Recreational Area General Development Plan and Resource Management Plan)	Final	Yes	California State Parks' general plan for the Oceano Dunes State Vehicular Recreational Area. Has designated a 430-acre preserve with an intent to increase to 570 acres.	https://www.parks.ca.gov/?page_id=21299	2/28/1994 (last amended)
Pismo State Beach and Oceano Dunes SVRA Public Works Plan	In progress	No	California State Parks' update of the management plan for the two state parks. Status is currently in draft writing and no document is yet public.	https://www.oceanodunespwp.com/en	Spring 2020 (project timeline date)
Pigeon Point Light Station State Historic Park General Plan	Final	Yes	California State Parks' general plan for the Pigeon Point Light Station State Historic Park. Specifies 33 acres of conserved upland habitat and 12 acres of conserved riparian habitat, which include a 100-foot buffer of protection of all creeks and riparian vegetation communities. Identifies presence of tidewater goby in Yankee Jim Gulch. Identifies Riparian Management Zone as habitat enhancement area for tidewater goby. Includes Habitat Restoration Plan for California red-legged frog.	https://www.parks.ca.gov/?page_id=21299	6/8/2017

Title	Status	Spatial Data	Reference Purpose	Link	Date
San Mateo Coast Area Final General Plan	Final	Yes	California State Parks' management plan for the following state beaches: Thornton State Beach, Gray Whale Cove State Beach, Montara State Beach, Half Moon Bay State Beach, San Gregorio State Beach, Pomponio State Beach, Pescadero State Beach, Pescadero Marsh Natural Preserve, and Año Nuevo State Reserve. Requires 100 feet of buffer protection for any wetland or riparian area in and adjacent to San Gregorio Creek, Pomponio Creek, Pescadero Creek, Butano Creek, and all creeks in Año Nuevo State Reserve.	https://www.parks.ca.gov/?page_id=21299	6/8/1979
Seacliff State Beach General Plan	Final	Yes	California State Parks' general plan for the Seacliff State Beach. Requires restoration of riparian trees and habitat along Aptos Creek. Identifies Aptos Creek as supporting tidewater goby.	https://www.parks.ca.gov/?page_id=21299	5/1/1990
Twin Lakes State Beach General Plan	Final	Yes	California State Parks' general plan for the Twin Lakes State Beach. Requires a management plan to restore the Bonita Lagoon.	https://www.parks.ca.gov/?page_id=21299	3/1/1992
Wilder Ranch State Park General Plan	Final	Yes	California State Parks' general plan for the Wilder Ranch State Park. Requires a 50-foot buffer of protection on either side of perennial creeks, and an increase of riparian vegetation of 50 feet from the existing line of riparian vegetation along the portion of Wilder Creek below the Wilder Ranch complex.	https://www.parks.ca.gov/?page_id=21299	1/1/1986
FWS Land Management Plans	See below	See below	See below	See below	See below
Ellicott Slough National Wildlife Refuge Comprehensive Conservation Plan and Environmental Assessment	Final	Yes	FWS' management plan for Ellicott Slough National Wildlife Refuge. This plan includes the following goals pertinent to Chapters 7 and 8 of this RAMNA: identifies presence of California red-legged frog in the refuge and includes the goal of sustaining, restoring, and acquiring wetland and upland components for California red-legged frog. • Study the potential for restoration to benefit native amphibians, including California tiger salamander. • Identify suitable amphibian habitat and establish permanent protection buffers. • Coordinate with other entities for long-term management of the Pajaro Valley Watershed.	https://www.fws.gov/refuge/Ellicott_Slough/planning.html	9/29/2010
Guadalupe-Nipomo Dunes National Wildlife Refuge Final Comprehensive Conservation Plan	Final	Yes	FWS' management plan for Guadalupe-Nipomo Dune National Wildlife Refuge. This plan includes a goal to increase the population of marsh sandwort (*Arenaria paludicola*), two plants, and one amphibian in the refuge through wetland enhancement. Includes goal of recovery for California red-legged frog in the refuge. Identifies presence of California red-legged frog in six freshwater ponds and marshes in the refuge.	https://www.fws.gov/refuge/Guadalupe-Nipomo_Dunes/what_we_do/planning.html	8/1/2016
Salinas River National Wildlife Refuge Comprehensive Conservation Plan	Final	Yes	FWS' management plan for Salinas River National Wildlife Refuge. This plan includes the following goals pertinent to Chapters 7 and 8 of this RAMNA: • Restore riparian vegetation along at least 1,500 feet of the southern bank of the Salinas River. • Maintain and enhance the Salinas River Slough to include protection for steelhead	https://www.fws.gov/refuge/Salinas_River/planning.html	12/20/2002
U.S. Military Land Management Plans	See below	See below	See below	See below	See below
Camp Roberts Integrated Natural Resources Management Plan	Not publicly available	Unknown	U.S. Army National Guard land management plan for Camp Roberts.	Not publicly available	Not publicly available
Camp San Luis Obispo Land Management Plan	Not publicly available	Unknown	U.S. Army land management plan for Camp San Luis Obispo.	Not publicly available	12/16/1994
Final Integrated Natural Resources Management Plan/Environmental Assessment – U.S. Army Garrison Fort Hunter Liggett	Final	Yes	U.S. Army land management plan for Fort Hunter Liggett. This plan includes a goal to study and eliminate nonnative and hybrid salamanders to remove this threat to California tiger salamander.	https://home.army.mil/liggett/application/files/9515/3746/5356/20130529_FHL_INRMP_FINAL.pdf	10/1/2002
Presidio of Monterey Integrated Natural Resources Management Plan	Not publicly available	None	U.S. Army land management plan for Presidio of Monterey.	Not publicly available	2008

Title	Status	Spatial Data	Reference Purpose	Link	Date
U.S. Bureau of Indian Affairs Land Management Plans	See below	See below	See below	See below	See below
None	None	None	No reservation lands occur in the GAI.	None	None
NOAA Management Plans	See below	See below	See below	See below	See below
Monterey Bay National Marine Sanctuary Final Management Plan	Final	Yes	Management plan for the Monterey Bay Marine Sanctuary. Includes goals to improve water quality in streams that flow into Monterey Bay.	https://montereybay.noaa.gov/materials/reports.html	10/1/2008
USFS Land Management Plans	See below	See below	See below	See below	See below
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://www.fs.usda.gov/detail/lassen/landmanagement/?cid=stelprdb5411635	1/1/2013
Los Padres National Forest Land Management Plan	Final	Yes	Management plan to guide all resource management activities in the national forest. Identifies presence of California red-legged frog in Colson Place, Cuyama River, Mono Creek, Indian Creek, Middle Santa Ynez, Upper Santa Ynez, Branch Creek, Alamo Creek, Sisquoc River, Manzana Creek, and Mono Basin.	https://www.fs.usda.gov/detail/lpnf/landmanagement?cid=fsm9_034066	9/20/2005
BLM Land Management Plans	See below	See below	See below	See below	See below
Bakersfield Field Office Record of Decision and Approved Resource Management Plan	Final	Yes	BLM's management plan for BLM lands in the Bakersfield District.	https://eplanning.blm.gov/epl-front-office/projects/lup/70273/92254/111143/Bakersfield_ROD-ARMP.pdf	12/1/2014
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
Southern Diablo Mountain Range and Central Coast of California Resource Management Plan	Final	Yes	BLM's management plan for BLM lands in Central Coast District.	https://eplanning.blm.gov/epl-front-office/eplanning/legacyProjectSite.do?methodName=renderLegacyProjectSite&projectId=68795	9/1/2007
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 or near the GAI.	https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm	12/21/2017
Golden Gate National Recreation Area Muir Woods National Monument Final General Management Plan	Final	Yes	NPS management plan for Golden Gate National Recreation Area. Includes goal of improving habitat for California red-legged frog. Identifies presence of California red-legged frog in Redwood Creek watershed. Identifies presence of tidewater goby in Rodeo Lagoon.	https://parkplanning.nps.gov/projectHome.cfm?projectID=15075	4/1/2014
Pinnacles National Monument Draft General Management Plan and Environmental Assessment	Draft	Yes	NPS management plan for Pinnacles National Monument. Includes goal of reestablishing foothill yellow-legged frog at the National Monument. Identifies presence of California red-legged frog in Bear Gulch Cave, Bear Gulch Reservoir, and Bear Gulch Creek.	https://parkplanning.nps.gov/projectHome.cfm?projectID=17891	10/1/2012

Title	Status	Spatial Data	Reference Purpose	Link	Date
Local Government Land Management Plans	See below	See below	See below	See below	See below
City-wide Creeks and Wetlands Management Plan	Final	Yes	City of Santa Cruz management plan for aquatic features that includes a complex arrangement of setbacks for each feature in the city.	https://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/area-plans-planning-documents-projects/city-wide-creeks-and-wetlands-management-plan	5/9/2008
Lower San Lorenzo River & Lagoon Management Plan	Final	No	City of Santa Cruz plan for management of the lower portion of the San Lorenzo River. Includes management goals to benefit steelhead and coho salmon, as well as riparian habitat restoration.	https://ceqanet.opr.ca.gov/2002032038/3	1/14/2002
Riparian Corridor and Wetlands Protection for Santa Cruz County	Final	No	Establishes buffer distances from streams based on type, slope, and habitat.	https://www.codepublishing.com/CA/SantaCruzCounty/html/SantaCruzCounty16/SantaCruzCounty1630.html	3/26/2019
San Lorenzo Urban River Plan	Final	No	City of Santa Cruz plan for enhancement and restoration of the San Lorenzo River.	https://coastal-watershed.org/wp-content/uploads/2016/05/San-Lorenzo-Urban-River-Plan-2003.pdf	6/24/2003
Water Resources Plans and Documents	See below	See below	See below	See below	See below
Central Coast - TMDL Projects	Periodically updated	No	RWQCBs' list of projects on impaired water systems designed to improve water quality.	https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/303d_and_tmdl_projects.html	4/2/2021 (last updated)
Little Sur River Protected Waterway Management Plan	Final	Yes	Monterey County plan for the management of the Little Sur River watershed. The plan requires no permanent structures to be located within the 100-year floodplain and requires a 150-foot setback from creeks for riparian protection.	http://www.co.monterey.ca.us/home/showdocument?id=37927	4/9/1986
Big Sur River Watershed Management Plan	Final	Yes	Monterey County, CDFW, and Central Coast Salmon's watershed management plan for the Big Sur River. Includes goals for removing barriers for steelhead passage, removal of cape ivy (*Delairea odorata*) and veldt grasses (*Ehrharta* sp.), and culvert replacement. Identifies Big Sur River as supporting California red-legged frog and a goal to enhance habitat for the frog.	https://www.rcdmonterey.org/images/docs/publications/big-sur-watershed-management-plan.pdf	12/1/2014
Carmel River Watershed Assessment and Action Plan	Periodically updated	Yes	Action plan for the Carmel River watershed from the Resource Conservation District of Monterey County, Monterey Peninsula Water Management District, and the Carmel River Watershed Conservancy. Includes goals to improve habitat conditions for steelhead and reduce overdraft of the river, particularly in the summer. Includes goal of addressing limiting factors for California red-legged frog. Identifies presence of California red-legged frog in the watershed. Identifies presence of foothill yellow-legged frog in the watershed and from San Clemente Creek.	https://www.carmelriverwatershed.org/watershed-assessment.html	2016 (last updated)
San Antonio and Nacimiento Rivers Watershed Management Plan	Final	Yes	Monterey County Water Resources Agency plan for managing water resources in the watershed. Goals seek to address mercury contamination in Nacimiento Reservoir; mercury, nickel, sulfate, total dissolved solids, and sedimentation issues in Las Tablas Creek; and invasions by quagga and zebra mussels, giant reed, yellow star thistle, and saltcedar. Identifies presence of California red-legged frog in the watershed.	https://www.co.monterey.ca.us/Home/ShowDocument?id=19680	10/1/2008
Salinas River Watershed Management Action Plan	Final	No	RWQCB's plan for management of the Salinas River. Includes a plan to develop total maximum daily loads for the river.	https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wmi/	10/22/1999

Title	Status	Spatial Data	Reference Purpose	Link	Date
Pajaro River Watershed Integrated Regional Water Management Plan ("IRWMP") – Work Plan	Final (update in progress)	Yes	San Benito County Water District, Pajaro Valley Water Management Agency, and Santa Clara Valley Water District's IRWMP for the Pajaro watershed. Includes goals to minimize salt intrusion, increase protection to the 100-year floodplain, and continue restoration efforts on the College Lake Wetland and Stream area. Identifies presence of tidewater goby in Pajaro Lagoon and Elkhorn Slough. Identifies presence of California red-legged frog in east branch of Hansen Slough, 2 miles north-northwest of Moss Landing just east of Zmudowski Beach, Ellicott Pond Santa Cruz Long-Toed Salamander Reserve, Elkhorn Slough National Estuarine Sanctuary, Casserley Cr. at College Lake, San Miguel Road near Murphy Crossing, west branch Struve Slough, Harkins Slough west of Watsonville, and southwest of Watsonville between Watsonville Slough and Beach Road. Identifies presence of foothill yellow-legged frog upstream of study area at Brown's Creek.	https://www.pajaroriverwatershed.org/files/Pajaro_IRWMP_WorkPlan.pdf	5/1/2005 (update in progress)
Santa Cruz Integrated Regional Water Management Plan	Final	Yes	IRWMP of the Regional Management Group, made of various cities, sanitation districts, water districts, and Santa Cruz County for managing water resources in the County. Identifies Liddell Creek watershed and Pajaro Creek watershed as supporting California red-legged frog and tidewater goby. Identifies Yellow Bank Creek watershed and Majors watershed as supporting California red-legged frog.	http://www.santacruzirwmp.org/plan-update-2014	12/18/2019 (last amended)
Draft Santa Maria Integrated Plan	Draft	Yes	City of Santa Maria plan for managing water in the Santa Maria River watershed. Note: The city of Santa Maria is outside of the GAI, but portions of the watershed are inside the GAI.	https://www.cityofsantamaria.org/home/showdocument?id=15019	4/1/2016
San Gregorio Creek Watershed Management Plan	Final	Yes	Natural Heritage Institutes' plan for managing the San Gregorio Creek watershed, funded in part by the State Water Board. Includes goals related to restoration of the watershed, which include benefits to California red-legged frog and steelhead.	http://www.sanmateorcd.org/SanGregorioWMP_final.pdf	6/1/2010
Lower Pajaro River Watershed Enhancement Plan	Final	Yes	Santa Cruz Resource Conservation Districts' plan for enhancement of the Lower Pajaro River watershed.	https://rcdsantacruz.org/resources-for-resource-professionals	12/1/2002
Aptos Creek Watershed Assessment and Enhancement Plan	Final	Yes	Coastal Watershed Councils' plan for enhancement of fish habitat, riparian habitat, and water quality in the Aptos Creek Watershed.	https://rcdsantacruz.org/resources-for-resource-professionals	4/1/2003
Pinto Lake Watershed: Implementation Strategies for Restoring Water Quality in Pinto Lake	Final	No	Santa Cruz Resource Conservation Districts' plan for improving water quality at Pinto Lake	https://rcdsantacruz.org/resources-for-resource-professionals	3/1/2013
San Vicente Creek Watershed Plan for Salmonid Recovery	Final	Yes	Santa Cruz Resource Conservation Districts' plan to assist salmonid recovery in the San Vicente Creek watershed. Identifies California red-legged frog as occurring in the watershed.	https://rcdsantacruz.org/resources-for-resource-professionals	2/1/2014
San Lorenzo River Salmonid Enhancement Plan	Final	Yes	Santa Cruz Resource Conservation Districts' plan for salmonid habitat enhancement in the San Lorenzo River.	https://rcdsantacruz.org/resources-for-resource-professionals	3/1/2004
Soquel Creek Salmonid Assessment and Enhancement Plan	Final	Yes	Santa Cruz Resource Conservation Districts' plan for salmonid habitat enhancement in Soquel Creek. Identifies tidewater goby, California red-legged frog, and foothill yellow-legged frog as occurring in the watershed. Identifies presence of foothill yellow-legged frog in Hinckley Creek.	https://rcdsantacruz.org/resources-for-resource-professionals	3/1/2003
Soquel Creek Watershed Assessment and Enhancement Project Plan	Final	Yes	Santa Cruz Resource Conservation Districts' plan for riparian habitat enhancement in Soquel Creek. Identifies tidewater goby, California red-legged frog, and foothill yellow-legged frog as occurring in the watershed.	https://rcdsantacruz.org/resources-for-resource-professionals	11/1/2003
County General Plans	See below	See below	See below	See below	See below
San Benito County 2035 General Plan	Final	Yes	General plan for San Benito County. Does not include land use designations that specifically exclude development; however, it does identify most of the undeveloped lands as rangeland and rangeland management area, which allow for only passive agricultural use.	http://cosb.us/wp-content/uploads/Adopted-2035-GPU.pdf	7/21/2015

Title	Status	Spatial Data	Reference Purpose	Link	Date
San Francisco General Plan	Final	Yes	General plan for the City and County of San Francisco. Identifies existing and proposed open spaces.	http://generalplan.sfplanning.org/	4/27/2015
2010 Monterey County General Plan	Final	Yes	General plan for Monterey County. Includes land use designations of open space and resource conservation. Requires a minimum 100-foot setback from Carmel Valley Road and all wetlands for the preservation of open spaces.	http://co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/resources-documents/2010-general-plan	10/26/2010
San Luis Obispo County General Plan	Periodically updated	Yes	General plan for San Luis Obispo County. Requires a minimum 2:1 ratio for mitigation preservation and/or enhancement of habitats that support special-status species when avoidance, restoration, or replacement are not feasible. Calls for maintaining the acreage of native woodlands, including riparian woodlands, at 2008 levels (no statement is included regarding the 2008 levels). Includes the following land use types: open spaces, critical habitat units, and hardwood and vegetation resources.	https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Plans/Elements.aspx	3/24/2015 (last amended)
San Luis Obispo County Coastal Zone Land Use Ordinance	Periodically updated	No	Land use ordinance for the coastal zone portion of San Luis Obispo County. Requires a 100-foot buffer for wetlands, a 50-foot buffer for riparian areas in urban zones, and 100-feet of buffer for riparian areas in rural zones.	https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Ordinances/Coastal-Land-Use-Ordinance-(Title-23).pdf	3/12/2019 (last amended)
Santa Clara County General Plan and Final Environmental Impact Report	Periodically updated	Yes	General plan for Santa Clara County. Includes a variety of land use designations under an umbrella designation of resource conservation areas.	https://www.sccgov.org/sites/dpd/PlansOrdinances/GP/Pages/GP.aspx	11/19/2015 (last updated)
1994 General Plan and LCP for the County of Santa Cruz, California	Final	Yes	General plan for Santa Cruz County. Prohibits development within the 100-foot riparian corridor of all wetlands. Does not have a land use designation that excludes development.	http://www.sccoplanning.com/PlanningHome/SustainabilityPlanning/GeneralPlan.aspx	12/19/1994
San Mateo County General Plan	Final	Yes	General plan for San Mateo County. This plan has an open space land use designation but, as defined, it does not preclude development. No specific conservation designation exists with this plan.	https://planning.smcgov.org/general-plan	11/18/1986
City General Plans	See below	See below	See below	See below	See below
Daly City 2030 General Plan	Periodically updated	Yes	General plan for Daly City. Includes a land use designation of open space preserve.	http://www.dalycity.org/AssetFactory.aspx?did=6696	3/9/2015 (last updated)
City of Pacifica General Plan	Draft	Yes	General plan for Pacifica. Includes a land use designation of conservation.	https://www.cityofpacifica.org/depts/planning/general_plan_update/default.asp	3/1/2014
City of Half Moon Bay General Plan	In progress	Yes	General plan for Half Moon Bay. Requires protection buffers of 100 feet outside of delineated wetlands, which can be reduced to 50 feet if certain criteria are met. Does not currently include a zoning map but does identify environmentally sensitive habitat areas. Identifies potential suitable habitat for California red-legged frog and known breeding locations in the planning area.	https://www.planhmb.org/	Not applicable
City of Santa Cruz 2030 General Plan	Final	Yes	General plan for Santa Cruz. Includes land use designation of natural areas.	http://www.cityofsantacruz.com/home/showdocument?id=33418	6/1/2012
City-wide Creeks and Wetlands Management Plan	Final	Yes	Development and management plan for wetlands in Santa Cruz. Requires unique permitting requirements for wetland impacts. Identifies known occurrence of tidewater goby in Moore Creek. Identifies known occurrence of California red-legged frog in Antonelli Pond, Moore Creek, marsh at Natural Bridges, Younger Lagoon, and ponds near University of California – Santa Cruz arboretum.	http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/area-plans-planning-documents-projects/city-wide-creeks-and-wetlands-management-plan	5/9/2008
City of Capitola General Plan	Final	Yes	General plan for Capitola. Includes a designation for parks and open space.	https://www.cityofcapitola.org/page-17	6/26/2014

Title	Status	Spatial Data	Reference Purpose	Link	Date
City of Capitola Zoning Code	Draft	Yes	Zoning code for Capitola. Includes a designation for parks and open space.	https://www.cityofcapitola.org/documents_sub/communitydevelopment	8/1/2020
City of Scotts Valley 1994 General Plan	Final	Yes	General plan for Scotts Valley. Does not include a zoning map.	https://www.scottsvalley.org/DocumentCenter/View/931/Introduction-PDF	12/1/1999
City of Scotts Valley General Plan Update	In progress	Yes	General plan update for Scotts Valley.	http://www.scottsvalleygeneralplan.com/theupdate.html	Update in progress
City of Live Oak 2030 General Plan	Final	Yes	General plan for Live Oak. Does not include land use designations for conservation.	https://www.liveoakcity.org/index.php/departments/planning/2030-general-plan	2/1/2013
City of Watsonville 2005 General Plan	Update in litigation	Yes	General plan for Watsonville. Includes a land use designation of environmental management.	https://www.cityofwatsonville.org/160/2005-General-Plan	1990 (update in litigation)
City of Morgan Hill 2035 General Plan	Periodically updated	Yes	General plan for Morgan Hill. Includes a land use designation of open space, but it is not conservation exclusive.	https://www.morgan-hill.ca.gov/75/General-Plan	12/6/2017 (last updated)
City of Gilroy 2020 General Plan	In progress	Yes	General plan for Gilroy. Includes land use designations for open space and Heker Pass Special Use District, both of which are conservation oriented.	http://www.cityofgilroy.org/274/2020-General-Plan	6/2/2002 (update in progress)
City of Hollister General Plan	Final	Yes	General plan for Hollister. Requires 100-foot setback from wetlands and creeks for all new development and paved surfaces. Includes a land use designation of open space.	http://hollister.ca.gov/government/city-departments/development-services/general-plan/	12/1/2005
City of San Juan Bautista 2035 General Plan	Final	Yes	General plan for San Juan Bautista. Includes a land use designation of open space.	https://www.san-juan-bautista.ca.us/departments/planning/planning_documents.php#revize_document_center_rz927	11/1/2015
City of Salinas General Plan	Final	Yes	General plan for Salinas. Requires 100-foot setback from wetlands and creeks for all development. Includes a land use designation of open space.	https://www.cityofsalinas.org/sites/default/files/departments_files/community_development_files/general_plan_files/generalplan.pdf	9/1/2002
City of Monterey General Plan	Final	Yes	General plan for Monterey. Includes a land use designation of parks and open space that is not wholly restricted to conservation.	https://monterey.org/Services/Community-Development/Planning/Land-Use-and-Development-Regulations	3/1/2016
City of Marina General Plan	Final	Yes	General plan for Marina. Includes a land use designation of habitat reserve and other open space.	http://cityofmarina.org/164/General-Plan	12/31/2005
City of Seaside General Plan	Final	Yes	General plan for Seaside. Includes land use designations of parks and open space as well as habitat management for a habitat reserve.	https://www.ci.seaside.ca.us/269/Seaside-General-Plan	8/5/2004
City of Carmel-by-the-Sea General Plan/Coastal Land Use Plan	Final	Yes	General plan and coastal land use plan for Carmel-by-the-Sea. No land use designation for conservation exists in this plan.	https://ci.carmel.ca.us/post/general-plan	6/3/2003
City of Paso Robles General Plan	Periodically updated	Yes	General plan for Paso Robles. Includes a land use designation of parks and open space that does not preclude certain kinds of development.	https://www.prcity.com/317/General-Plan-Final	11/19/2014 (last amended)
City of Morro Bay General Plan	In progress	Yes	General plan for Morro Bay. Includes a land use designation of environmentally sensitive habitat.	https://www.morro-bay.ca.us/574/General-Plan-Local-Coastal-Plan	1988 (update in progress)

Title	Status	Spatial Data	Reference Purpose	Link	Date
City of San Luis Obispo General Plan	Final	Yes	General plan for San Luis Obispo. Requires an appropriate setback from development near streams and wetlands but does not specify a set distance. Includes a land use designation of open space.	https://www.slocity.org/government/department-directory/community-development/planning-zoning/general-plan	5/1/2016
City of Arroyo Grande General Plan	Periodically updated	Yes	General plan for Arroyo Grande. Requires evaluation of jurisdictional features 100 feet beyond the top of bank or outer dripline of riparian vegetation. Requests a setback of 25 to 50 feet from the top of streambanks to exclude development. Includes a land use designation of conservation/open space.	https://www.arroyogrande.org/142/Planning-Division	6/12/2007 (last amended)
City of Atascadero General Plan	Periodically updated	Yes	General plan for Atascadero. Requires interim buffers from riparian features until a creek setback ordinance can be approved. Interim buffers are 20 feet from the edge of the creek reservation for Atascadero Creek and Graves Creek, and 20 feet from the ordinary high water mark for all remaining blue line creeks. Any development within 100 feet of a riparian or wetland area requires conditional approval. Includes a land use designation of open space.	https://www.atascadero.org/index.php?option=com_content&view=article&id=648&Itemid=511	7/1/2016 (last updated)
City of Grover Beach General Plan	Periodically updated	Yes	General plan for Grover Beach. Includes a land use designation of open space/resource conservation.	http://www.grover.org/379/General-Plan	8/6/2012 (last amended)
City of Pismo Beach General Plan	Periodically updated	Yes	General plan for Pismo Beach. Requires 100 feet of buffer for EHSAs that include wetlands and riparian areas. Disallows development in Pismo Marsh. Includes land use designations of open space and watershed and resource management; however, neither of these are defined in a way that precludes any form of development. Identifies presence of tidewater goby in Pismo Creek/Price Canyon. Identifies presence of California red-legged frog in Price Canyon.	http://www.pismobeach.org/109/General-Plan	4/1/2014 (last updated)
City of Del Rey Oaks General Plan	Final	Yes	General plan for Del Rey Oaks. No conservation land use designation exists in this plan.	https://www.delreyoaks.org/citymanager/page/general-plan	1/1/1997
Gonzales 2010 General Plan	Periodically updated	Yes	General plan for Gonzales. Includes a land use designation of parks and open space.	https://gonzalesca.gov/government/information-center/general-plan	6/1/2018 (last revised)
Greenfield General Plan	Periodically updated	Yes	General plan for Greenfield. Includes a land use designation of parks and open space	http://www.ci.greenfield.ca.us/180/General-Plan	5/31/2005 (last updated)
King City General Plan	Periodically updated	Yes	General plan for King City. Bans development that would encroach on the main channels of the Salinas River and San Lorenzo Creek. Includes a land use plan of open space.	http://www.kingcity.com/city-departments/community-development-department/general-plan-housing-element/	6/17/2010 (last updated)
Pacific Grove General Plan	Final	Yes	General plan for Pacific Grove. Includes land use designations for other open space that is separate from developed parks.	https://www.cityofpacificgrove.org/living/community-development/planning/general-plan	11/1/1998
Sand City Zoning Map	Final	Yes	Zoning map for Sand City designating an area as habitat preserve. A full general plan does not appear to be publicly available.	http://www.sandcity.org/planning-and-building/	10/1/2017
Soledad General Plan	Final	Yes	General plan for Soledad. Includes a land use designation of open space/grazing land.	https://cityofsoledad.com/business/general-plan/	9/21/2005

Title	Status	Spatial Data	Reference Purpose	Link	Date
Other Conservation and Management Documents	See below	See below	See below	See below	See below
The Conservation Lands Network 2.0 A Regional Conservation Strategy for the San Francisco Bay Area	Final	Yes	Conservation plan by the Bay Area Open Space Council. Catalogs all streams in the plan area, which includes the northern portion of the GAI, into three categories and assigns goals to each. Steelhead, tricolor blackbird, California red-legged frog, foothill yellow-legged frog, and California tiger salamander are specific conservation targets.	https://www.bayarealands.org/maps-data/	11/1/2019
A Conservation Blueprint: An Assessment and Recommendations from the Land Trust of Santa Cruz County	Final	Yes	Conservation plan by the Land Trust of Santa Cruz County for Santa Cruz County. Includes general goals for resource conservation and identifies six areas in the county as important for multi-benefit conservation. These are identified as: • Larkin Valley • North Coast Watersheds • Pajaro Hills • Upper Corralitos • Upper San Lorenzo • Watsonville Slough/Lower Pajaro River	https://www.landtrustsantacruz.org/what-we-do/conservation-blueprint/	5/1/2011
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, prevent 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
Bay Area Greenprint and Mitigation Wizard	Updated periodically	Yes	The Bay Area Greenprint overlaps the northern portion of the GAI. It is a tool that reveals the multiple benefits of natural and agricultural lands, empowering users to inform land use decisions with better data. The Bay Area Greenprint identifies, maps, and measures the values that natural resources contribute to the ecosystem, the economy, and the local and regional community. Included in the Bay Area Greenprint is a mitigation wizard, which is a tool to find the predicted impacts on species that might require mitigation, and then suggests where protection or restoration projects should be located.	https://www.bayareagreenprint.org/	9/8/2020 (date of latest document inclusion)
Coastal Conservancy Strategic Plan 2018–2022	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/	11/30/2017
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. Identifies observations of California red-legged frog in the study area.	https://www.conservationgateway.org/ConservationPractices/Marine/crr/library/Documents/TNC_SCC_CoastalAssessment_Io%20sngl.pdf	2018
Critical Linkages: Bay Area & Beyond	Updated periodically	Yes	Regional effort by Science & Collaboration for Connected Wildlands to identify 14 landscape connections for wildlife migration in the San Francisco Bay and Central Coast regions.	http://www.scwildlands.org/	2013
Elkhorn Slough National Estuarine Research Reserve Final Management Plan 2007–2011	Final	No	Created by the Elkhorn Slough Foundation and Elkhorn Slough National Estuarine Research Reserve, with input from CDFW and NOAA. Management plan for the Elkhorn Slough with primary goals to conduct restoration of estuarine and freshwater habitats, reduce pollution levels, and other activities outside the scope of this RAMNA.	https://www.elkhornslough.org/esnerr/	9/26/2006
Elkhorn Slough Watershed Conservation Plan	Final	No	Created by The Nature Conservancy, the Elkhorn Slough Foundation, and the California State Coastal Conservancy. The plan identifies conservation priorities for the slough including water quality improvements, erosion control, balancing freshwater and saltwater systems, and protection of privately held marshes and adjacent aquatic habitats.	http://www.library.elkhornslough.org/esf/eswcp/ConservationPlan.pdf	7/2/1999

Title	Status	Spatial Data	Reference Purpose	Link	Date
Elkhorn Slough Technical Report Series 2020: Salt Marsh Conservation, Restoration and Enhancement Opportunities In and Around Elkhorn Slough in the Face of Sea Level Rise	Final	Yes	Created by the Elkhorn Slough Foundation and Elkhorn Slough National Estuarine Research Reserve, with input from CDFW and NOAA. Identifies enhancement and restoration opportunities at Elkhorn Slough.	http://www.elkhornslough.org/research-program/technical-report-series/	6/1/2020
Elkhorn Slough Tidal Wetland Strategic Plan	Final	Yes	Created by the Elkhorn Slough Tidal Wetland Project Team, with input from CDFW, Corps, EPA, FWS, CCC, and NOAA. Identifies goals to preserve salt marsh habitat, enhance and/or restore estuarine habitat, and enhance and/or restore the natural hydrology of Elkhorn Slough.	https://www.elkhornslough.org/tidal-wetland-program/twp-documents/	3/1/2007
Morro Bay National Estuary Program Comprehensive Conservation and Management Plan	Final	No	Morro Bay National Estuary Programs' management plan for the Morro Bay Estuary. Includes restoration priorities of habitat for steelhead and for the different types of aquatic habitat found in the program area.	https://www.mbnep.org/comprehensive-conservation-management-plan/	2/1/2013
Pajaro Compass	Updated periodically	Yes	Pajaro Compass is a voluntary framework to advance the pace and scale of voluntary conservation throughout the Pajaro River watershed. It identifies important features on the landscape, including agriculture, biodiversity and habitat connectivity, water resources, recreation, and other community values. Two tools are available. The Pajaro Compass Webmap allows users to view data layers that represent features on the landscope. The Compass Network helps stakeholders understand common priorities and facilitate collaboration and cooperation among organizations and individuals.	https://pajarocompass.org/	1/1/2016
Pescadero-Butano Watershed Assessment	Final	Yes	Monterey Bay National Marine Sanctuary Foundations' assessment of the condition of the Pescadero Creek HUC-10 (1805000601).	http://www.sanmateorcd.org/pesc-butanoassess.pdf	3/4/2004
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
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
California EcoAtlas	Updated periodically (nearly daily)	Yes	Statewide database tracking the extent and condition of wetlands in California, managed by the San Francisco Estuary Institute.	https://www.ecoatlas.org/	10/9/2020

[a] Consistent with the Caltrans SAMNA and Chapter 4, 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; state species of special concern; or California Rare Plant Rank 1 and 2 species.

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. Caltrans begins the chapter by describing the advance mitigation credits already held by District 5.

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 Districts. The projects were programmed against the $40 million reserve created in the 2016 SHOPP for advance mitigation project delivery. Thirteen pilot advance mitigation projects were programmed in the SHOPP and their delivery is underway. Two such projects in District 5 and one in District 4 may inform Caltrans District 5's advance mitigation planning:

- EA 05-1G260: Laurel Curve Wildlife Habitat Connectivity Project
- EA 05-1H970: Bulk Credit Purchases
- EA 04-4J120: Bulk Credit Purchases

The first pilot advance mitigation project consisted of a wildlife connectivity proof-of-concept advance mitigation project within Caltrans District 5. The project established 92 CEQA wildlife connectivity credits for $3.115 million dollars. At this time, 46 credits are available and Caltrans, as the CEQA lead agency, has not yet applied any of the 46 available credits to offset significant impacts on wildlife. Another 46 credits will become available when the project's plans, specifications, and estimates phase is complete.[1]

The second pilot advance mitigation project consisted of purchasing bulk California tiger salamander habitat credits from two existing conservation banks with service areas within Caltrans District 5. On May 29, 2018, Caltrans District 5 purchased 58 California tiger salamander upland habitat credits from La Purisima Conservation Bank. La Purisima Conservation Bank's California tiger salamander service area is in Santa Barbara County and is outside the GAI. On August 13, 2018, District 5 purchased 45 California tiger salamander credits from Sparling Ranch Conservation Bank. A portion of the Sparling Ranch Conservation Bank service area for California tiger salamander upland credits overlaps the GAI. It includes all of San Benito County and portions of San Luis Obispo and Monterey Counties in District 5, as well as portions of Districts 4, 6, and 10.

With natural resource regulatory agency approval, SHOPP transportation projects have begun to use these bulk credits to satisfy transportation project permit conditions;

[1] See *How Caltrans Builds Projects* for an overview of Caltrans transportation planning and project delivery processes when improving or maintaining the SHS (Caltrans 2011).

however, not all have been applied to a transportation project yet, and some are still available.

The third pilot advance mitigation project consisted of purchasing bulk credits from multiple conservation and mitigation banks with service areas within Caltrans District 4. Of the credits purchased, the 10.9 NMFS-approved steelhead/coho credits from the East Austin Creek Conservation Bank have a service area that overlaps the GAI (see Figure 4-3 later in this chapter). Table 4-1 lists the banks.

Table 4-1. SHOPP Advance Mitigation Credits

Bank Where Credits Were Purchased	Credit Purchase Year	Signatories[a]	Service Area	Credit Type and Quantity
La Purisima Conservation Bank	2018	**CDFW**, **FWS**	Santa Barbara County[b]	58 upland California tiger salamander credits
Sparling Ranch Conservation Bank	2018	**CDFW**, **FWS**	All of San Benito County and portions of San Luis Obispo, Monterey, Alameda, Santa Clara, Stanislaus, Merced, Fresno, Kings and Kern Counties	45 upland California tiger salamander credits
East Austin Creek Conservation Bank	2010	**NMFS**	Portions of Santa Cruz, San Mateo, San Francisco, Alameda, Contra Costa, Solano, Marin, Sonoma, Mendocino, and Humboldt Counties	10.9 steelhead/ coho credits

[a] Signatories in **bold** are signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).
[b] Both the bank and its service area are outside of the GAI.

4.2 HCPs and NCCPs

HCPs[2] and NCCPs[3] define covered activities that consist of specific projects and actions that may have adverse effects on covered species and natural communities. The adverse effects associated with the covered activities are estimated, and incidental take permits are issued by FWS and/or CDFW. Once the 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 streamlines permit processes by eliminating the need to obtain project-specific incidental take permits from FWS and/or CDFW and provides early documentation of compliance with the CESA and ESA.

[2] Pursuant to Section 10 of the federal ESA or consultations under Section 7 of the federal ESA
[3] Pursuant to Section 2835 of the California FGC

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 and/or pending 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:

- Los Osos Community Wide HCP
- Santa Clara Valley Habitat Plan HCP/NCCP

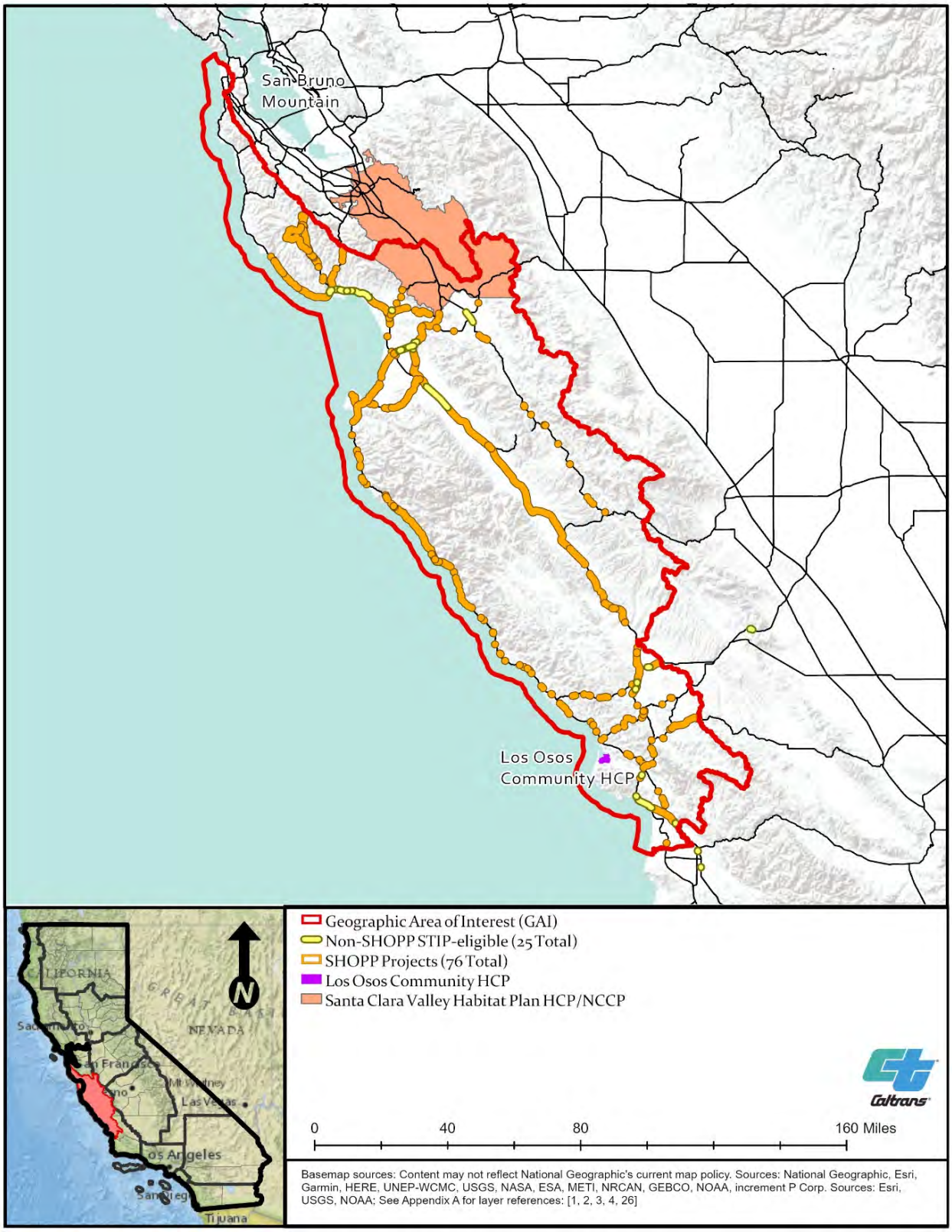
Figure 4-1 depicts the locations of the above-listed HCPs and NCCPs. Table 4-2 summarizes the signatories, status or date of the plan, plan area, participating transportation agency, covered species, and covered natural communities. Multiple project-specific HCPs in the GAI were not included in Table 4-2 because they were determined to not be a viable mitigation option for Caltrans. For example, they applied to a non-Caltrans single user, or covered activities were not road infrastructure-related and could not be adapted to road infrastructure. In addition, when Caltrans and/or RTPAs are not signatories or participating special entities in any of the HCPs or NCCPs listed in Table 4-2, their participation and coverage under any HCP or NCCP is at the discretion of the implementing entity/plan manager.

Table 4-2. Overview of HCPs and NCCPs in the GAI[a, b]

Name	Signatories[c]	Date	Plan Area (acres)	Participating Transportation Agencies	Covered Species	Covered Natural Communities
Los Osos Community Wide HCP	**FWS**	2019	3,644	San Luis Obispo County Department of Public Works and Transportation	Morro shoulderband snail (*Helminthoglypta walkeriana*), Morro manzanita (*Arctostaphylos morroensis*), Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*), Indian Knob mountainbalm (*Eriodictyon altissimum*)	Not applicable
Santa Clara Valley Habitat Plan HCP/NCCP	**FWS, CDFW**	2012	519,506	Santa Clara Valley Transportation Authority	California red-legged frog, California tiger salamander, foothill yellow-legged frog, tricolored blackbird plus 5 other wildlife species and 9 plant species.	7

[a] Up-to-date information on HCPs and NCCPs can be found at the following websites:
https://ecos.fws.gov/ecp0/conservationPlan/region/summary?region=8&type=HCP
https://wildlife.ca.gov/conservation/planning/nccp
b This table lists HCPs and NCCPs that may be applied to Caltrans' mitigation needs.
[c] Signatories in **bold** are signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).

Figure 4-1. HCPs and NCCPs



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 the following active or pending conservation and/or mitigation banks with service areas that overlap all or part of the GAI:

- East Austin Creek Conservation Bank
- North Bay Highlands Conservation Bank
- Ohlone West Conservation Bank
- Oursan Ridge Conservation Bank
- Pajaro River Mitigation Bank
- Palo Prieto Conservation Bank
- Ridge Top Ranch Wildlife Conservation Bank
- Sparling Ranch Conservation Bank
- Zayante Sand Hills Conservation Bank

Information on the agency approvals, the types of credits available, and brief descriptions of each bank are provided in Table 4-3. The Palo Prieto and Zayante Sand Hills conservation banks do not currently provide credits for the species of mitigation need identified in this RAMNA; however, credits for other listed species or habitats are available, as listed in Table 4-3. For banks with service areas that are publicly available , the location and extent are depicted on Figures 4-2 and 4-3. Banks in the GAI that do not have a service area that is publicly available are noted in Table 4-3 and are not depicted on Figures 4-2 or 4-3.

Table 4-3. Overview of Conservation and Mitigation Banks in the GAI[a]

Name	Year Approved	Current Status	Signatories[b]	Area (acres)	Location	Credit Types
East Austin Creek Conservation Bank	2010	Active – credits available	**NMFS**	440.00	See Figure 4-3	Coho salmon and steelhead
North Bay Highlands Conservation Bank	2014	Active – credits available	**FWS**	449.80	See Figure 4-2	California red-legged frog
Ohlone West Conservation Bank	2005	Active – California tiger salamander credits available	**FWS, CDFW**	640.00	See Figure 4-2	Central California DPS California tiger salamander
Oursan Ridge Conservation Bank	2017	Active – credits available	**FWS, CDFW**	430.00	See Figure 4-2	Alameda whipsnake and California red-legged frog
Pajaro River Mitigation Bank	2007	Active – credits available	**Corps, EPA**	273.00	See Figure 4-3	Wetlands and non-wetland WOTUS
Palo Prieto Conservation Bank	2006	Active – credits available	**FWS, CDFW**	5,000.00	See Figure 4-2	San Joaquin kit fox (*Vulpes macrotis*)
Ridge Top Ranch Wildlife Conservation Bank	2014	Active credits available	**FWS**	745.00	See Figure 4-2	California red-legged frog and Callippe silverspot butterfly
Sparling Ranch Conservation Bank[c]	2017	Active – credits available	**FWS, CDFW**	2,002.00	See Figure 4-3	California red-legged frog and California tiger salamander
Zayante Sand Hills Conservation Bank	2006	Active – credits available	**FWS,** Santa Cruz County	23.78	See Figure 4-3	Zayante Sandhills habitat

[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::::::
https://www.fws.gov/sacramento/es/Conservation-Banking/Banks/In-Area/
[b] Signatories in **bold** are signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).
[c] Caltrans completed a bulk credit purchase from Sparling Ranch Conservation Bank in 2018 (Table 4-1).

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

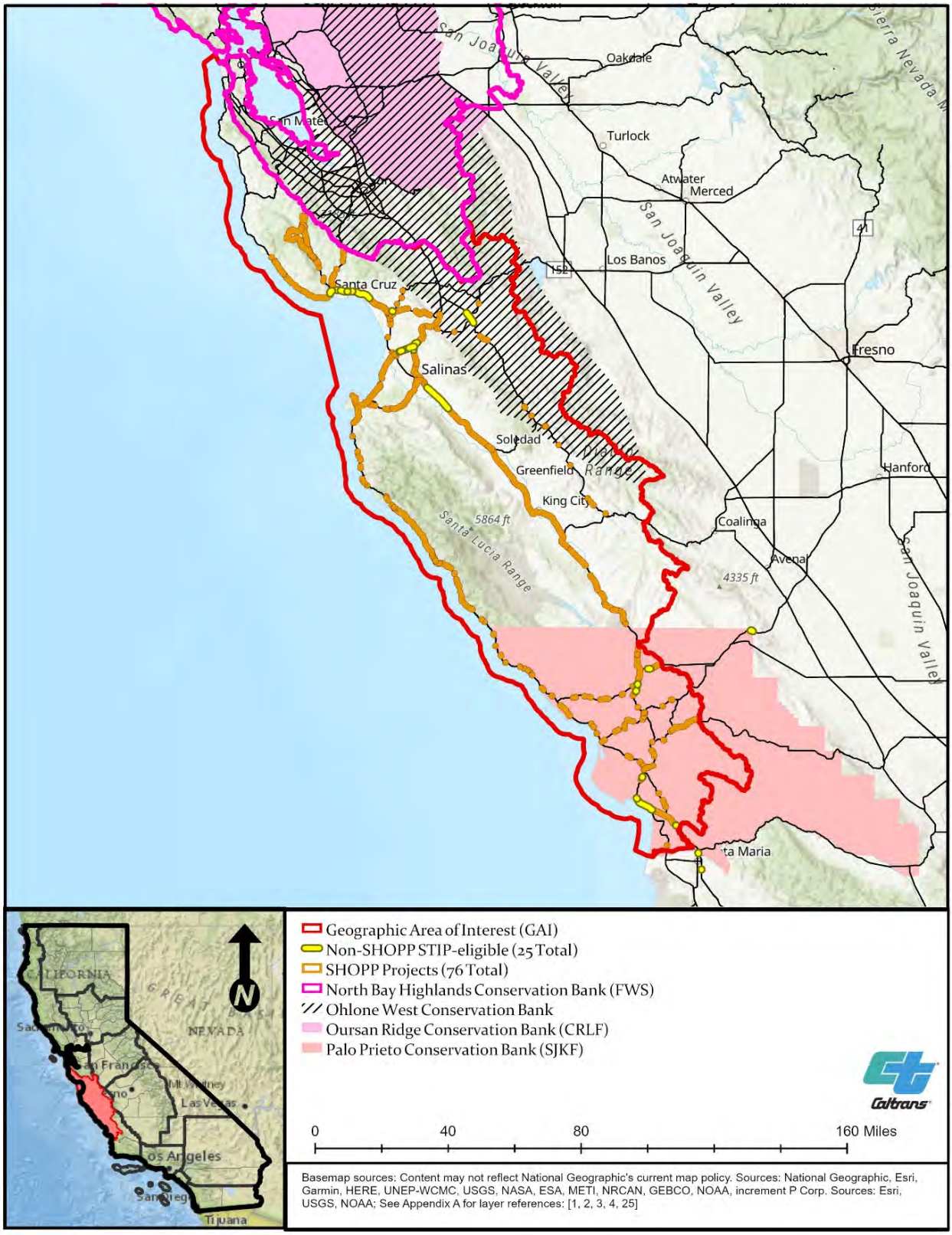
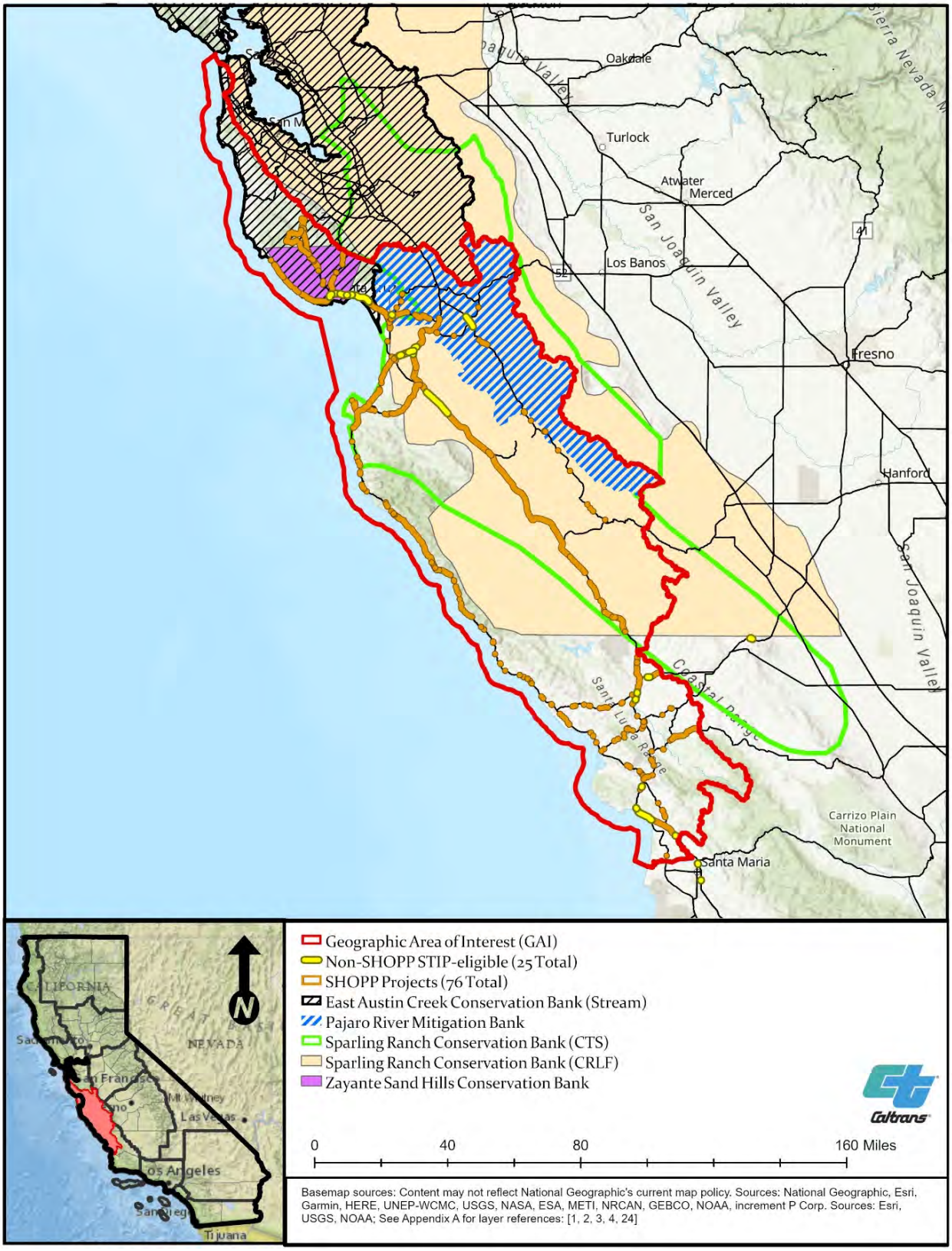


Figure 4-3. Conservation and Mitigation Bank Service Areas – Part 2



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 or agencies 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.

One FWS in-lieu fee program has been established in the GAI: the Resource Conservation District of Santa Cruz County In-lieu Fee Program (Table 4-4). Although this in-lieu fee program is currently only for species credits, the Corps is a signatory because the species covered in this in-lieu fee program are federally listed. Any 404 permits issued by the Corps must comply with the ESA through either a Section 7 or Section 10 consultation process ending with a Biological Opinion. Therefore, projects seeking a 404 permit with impacts on federally listed species covered by the in-lieu fee program would also require approval by the Corps in order to use the in-lieu fee program for compensatory mitigation, as required by a Biological Opinion.

Table 4-4. Overview of In-lieu Fee Programs in the GAI[a]

Name	Year Approved	Signatories[b]	Location	Credit Types
Resource Conservation District of Santa Cruz County In-lieu Fee Program	2018	FWS, Corps	Santa Cruz County	• California red-legged frog – aquatic breeding • California red-legged frog – aquatic non-breeding/upland • California red-legged frog – dispersal • Santa Cruz long-toed salamander – aquatic breeding • Santa Cruz long-toed salamander – aquatic non-breeding/upland • Santa Cruz long-toed salamander – dispersal • Tidewater goby – lagoon habitat • Tidewater goby – stream habitat

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, with respect to the SHS, create credits that may be used as compensatory mitigation to offset impacts identified under CESA and the Lake and Streambed Alteration Program. It is important to note that MCAs are not permits like 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.

Some conservation or enhancement actions, because of their size, type, or location, would not be suitable for establishing mitigation credits through CDFW's mitigation and conservation banking program. Implementing actions on public land—such as installing wildlife crossings or removing fish passage barriers—are examples of potential enhancement actions that may establish CDFW-approved credits under an MCA and not a BEI (CDFW 2019g).

4.5.1. RCISs

Caltrans identified the following approved or pending RCISs with service areas that overlap part of the GAI (Figure 4-4):

- Santa Clara County RCIS (CDFW-approved)
- Monterey County RCIS (in progress)
- Santa Cruz County RCIS (in progress)

Each is described briefly below.

Santa Clara County RCIS (CDFW-approved)

The Santa Clara County RCIS was approved by CDFW in November 2019 (ICF International 2019a). Santa Clara Valley Open Space Authority is the proponent. The RCIS area encompasses 834,559 acres and includes all of Santa Clara County. The Santa Clara County RCIS analyzes 18 focal species, consisting of 10 wildlife species and 8 plant species whose conservation needs may be addressed through the RCIS (ICF International 2019a). The following RCIS focal species are also species of mitigation need in this RAMNA: California red-legged frog, California tiger salamander, foothill yellow-legged frog, tricolored blackbird, and the Central California Coast DPS and South-Central California Coast DPS steelhead. The Santa Clara County RCIS includes goals and objectives[4] for wildlife and habitat conservation, actions, and priorities that can guide investments in ecological resource conservation and compensatory mitigation for impacts on focal species and other conservation elements. In addition, the RCIS includes measures to address the effects of climate change and sea-level rise. Examples of potential RCIS conservation and habitat enhancement actions include but are not limited

[4] Within the Santa Clara RCIS, the goals are defined as broad desired outcomes for the focal species and other conservation elements that also address the stressors identified in the RCIS. The objectives for this RCIS are defined as concise, measurable statements of the target outcome for each focal species and other conservation elements (ICF International 2019b).

to: land acquisition and protection, habitat creation and restoration, restoration of creeks and rivers, restoration of habitat on public land, invasive species management, and increased habitat connectivity, including the installation of wildlife crossings and fish passage barrier removal. The RCIS identifies the Santa Clara Valley Transportation Authority as the major transportation agency in the RCIS area (ICF International 2019a).

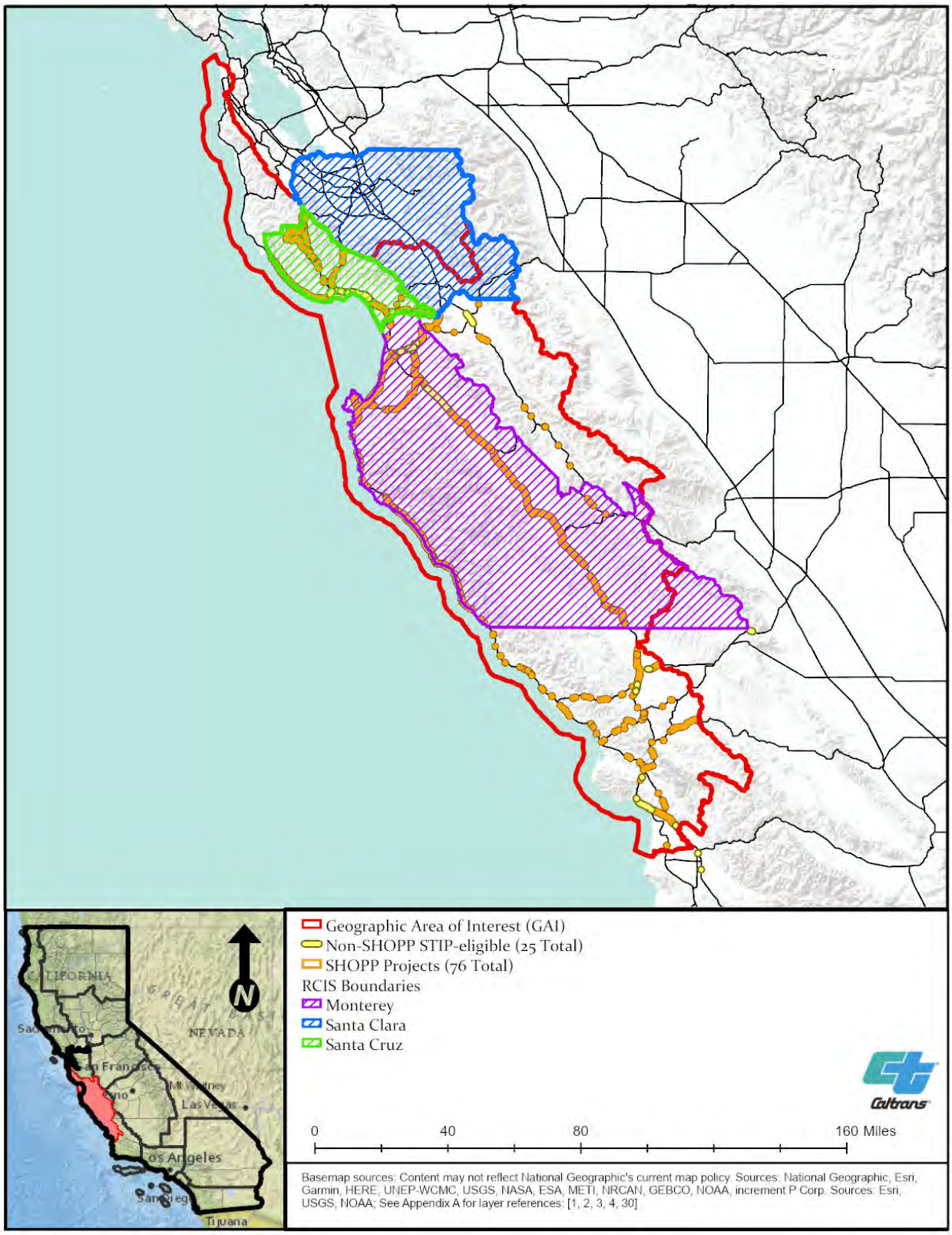
Monterey County RCIS (In Progress)

The Monterey County RCIS is currently in progress (AECOM 2020). The Transportation Agency for Monterey County is the proponent. The RCIS area encompasses 2,413,440 acres and includes all of Monterey County. The Monterey County RCIS includes 20 focal wildlife species, including California red-legged frog, California tiger salamander, foothill yellow-legged frog, tricolored blackbird, South-Central California Coast DPS steelhead, and tidewater goby; 8 focal plant species; and 3 sensitive terrestrial communities whose conservation needs may be addressed through the RCIS (AECOM 2020). The types of conservation strategies that are eligible to be included in the RCIS are intended to both directly and indirectly contribute to the climate resiliency of Monterey County. Transportation infrastructure-related strategies may include wildlife crossings, wetlands restoration, and habitat acquisition and conservation. Caltrans District 5 is a member of the RCIS Steering Committee. The RCIS is out for public review and comments were due January 12, 2021.

Santa Cruz County RCIS (In Progress)

The Santa Cruz County RCIS is currently in progress. The Santa Cruz County Regional Transportation Commission and the Resource Conservation District of Santa Cruz County are the proponents. The RCIS area encompasses 388,480 acres and includes all of Santa Cruz County. A draft of the RCIS *Environmental Setting and Conservation Elements* was released in November 2020, which identified focal species. Seven focal wildlife species were identified, including coho salmon (Resource Conservation District of Santa Cruz County 2020). A final draft of the RCIS is expected to be released to CDFW in February 2022 (Santa Cruz County Regional Transportation Commission 2020).

Figure 4-4. RCIS Areas in the GAI



4.5.2. Mitigation Credit Agreements

As discussed previously, MCAs are developed when and where an RCIS is approved by CDFW and, with respect to the SHS, 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 the California FGC § 1856. At this time, practical instructions and guidance for establishing MCAs are currently being developed by CDFW[5] and no MCAs or MCA credits are available in the RCIS area. Nevertheless, Caltrans is monitoring MCA guideline development because the Santa Clara RCIS is approved by CDFW, and there is an opportunity for Caltrans to enter into MCAs with CDFW in the Santa Clara RCIS area. The Monterey RCIS and Santa Cruz RCIS are in development. Once an agreement has been approved by CDFW, they may create mitigation credits through the MCA that could be applied to Caltrans transportation projects.

Wildlife Crossing and Aquatic Corridor Enhancements

One potential benefit of the RCIS and MCA process is that it may provide a mechanism to generate compensatory mitigation credits by improving the permeability of the SHS through wildlife crossings and aquatic corridor enhancements. Through an MCA developed under an RCIS, CDFW would be authorized to recognize CESA and Lake and Streambed Alteration credits established through wildlife crossing and aquatic corridor construction made separate from and distinct from a specific transportation project. Connectivity information for the GAI is summarized in Section 2.11.

4.6 Other Credit Purchase Opportunities

The Caltrans AMP anticipates that natural resource regulatory agencies may approve compensatory mitigation credits established under new programs or mechanisms not discussed above. Caltrans works with the appropriate natural resource regulatory agency to determine whether credits established under any new program or mechanism are appropriate for purchase through the AMP.

[5] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation

5. MODELED ESTIMATED IMPACTS

Caltrans undertakes transportation projects and advance mitigation projects[1] to address its needs. Caltrans advance mitigation needs are directly related to its compensatory mitigation needs. In this chapter, Caltrans documents the potential compensatory mitigation needs in the GAI for fiscal years 2017/2018 to 2026/2027 within District 5. Since a very small portion of the GAI overlaps Caltrans District 4, District 4's potential compensatory mitigation needs in the GAI for the time interval are provided as Appendix I. Needs were based on estimated potential compensatory mitigation requirements of Caltrans' anticipated SHOPP projects and regional and local STIP-eligible projects. 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, as well as 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;
- Provides its estimate of potential aquatic resource impacts for the next 10 years from the transportation projects; and
- Provides its estimate of potential impacts on wildlife resources for the next 10 years coincident with habitat for the species of mitigation need.

As described in Section 1.5, to focus the assessment, Caltrans District 5 identified species of mitigation need, for which results are provided below. Species of mitigation need are species for which a high probability of compensatory mitigation need is anticipated. As discussed further in Chapter 9, during advance mitigation project scoping, consideration will also be given to additional special-status species that the SAMNA identified as co-occurring with the species of mitigation need, because they could potentially be affected by the same habitat impacts that affect the species of mitigation need.

5.1 Approach

Transportation projects eligible to use advance mitigation credits funded by the AMA may only be SHOPP or STIP transportation projects (SHC § 800.7; Caltrans 2019a). Hence, the compensatory mitigation needs for wildlife and aquatic resources in the GAI are based on Caltrans' anticipated SHOPP transportation project impacts and Caltrans, regional, and local STIP-eligible transportation project impacts. At this time:

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

[1] Advance mitigation projects types are provided Table 1-1.

- STIP-eligible needs are assessed qualitatively, through Caltrans District, MPO, RTPA, and other transportation agency coordination.

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

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. 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 2018b).

To identify the list of SHOPP projects planned for the GAI, Caltrans consulted the SHOPP Ten-Year Book for fiscal years 2017/2018 to 2026/2027 (Caltrans 2019b). 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 75 SHOPP transportation projects in the GAI that are currently in the planning and conceptual phases (Table 5-1). The general locations of all 75 planned transportation projects are shown on most of the maps in this document. Another 14 SHOPP transportation projects were identified as potentially contributing to terrestrial species impacts in the GAI (Table 5-2); the additional 14 SHOPP transportation projects are located in either the Central California Coast ecoregion section and/or Central California Coast Ranges ecoregion section,[2] but outside of the GAI.

Each transportation project's potential impact was defined using a buffer from the edge of pavement. Different buffer widths were used depending on the transportation project's activity. Table 5-3 provides the range of buffers relevant to the transportation projects listed in the SHOPP Ten-Year Book for this GAI, which are extracted from Table 1 of Caltrans 2019b. Many transportation projects include multiple activities. In those cases, the largest buffer was assigned to the transportation project for the potential impact analysis (Tables 5-1 and 5-2).

[2] To be consistent with the SWAP and other information sources collected for this RAMNA, the name used here is "Central California Coast Ranges." However, "Central Valley Coast Range" is the name given in the attributes of the USDA EcoRegion data layer incorporated into the SAMNA and the name presented in the SAMNA report.

Table 5-1. SHOPP Transportation Projects Potentially Affecting Special-status Species and Aquatic Resources in the GAI

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Central Coastal	2017/18	9190	5	San Luis Obispo	101	16.4	Not applicable	Central California Coast	Bridge rail
Central Coastal	2017/18	13150	5	Monterey	1	2.5	67.3	Central California Coast	Replace/install culverts
Central Coastal	2019/20	11313	5	Monterey	1	20.4	Not applicable	Central California Coast	Replace/install culverts
Central Coastal	2019/20	20889	5	San Luis Obispo	1	32.6	Not applicable	Central California Coast	Bridge replacement/new construction
Central Coastal	2019/20	20890	5	San Luis Obispo	1	34.5	Not applicable	Central California Coast	Bridge replacement/new construction
Central Coastal	2022/23	17668	5	Monterey	1	63	Not applicable	Central California Coast	Bridge rail
Central Coastal	2023/24	15998	5	San Luis Obispo	1	18.19	72.02	Central California Coast	Replace/install culverts
Central Coastal	2023/24	15999	5	San Luis Obispo	1	58	74.3	Central California Coast	Replace/install culverts
Central Coastal	2023/24	19076	5	Monterey	1	26.9	38.3	Central California Coast	Bridge rail
Central Coastal	2023/24	19154	5	San Luis Obispo	1	71.5	72	Central California Coast	Shoulders – new and widening
Central Coastal	2023/24	19164	5	San Luis Obispo	101	7.8	16.5	Central California Coast	Bridge rail
Central Coastal	2023/24	20744	5	Monterey	1	23.2	43.8	Central California Coast	Replace/install culverts

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Central Coastal	2023/24	20745	5	Monterey	1	22.3	31.9	Central California Coast	Replace/install culverts
Central Coastal	2024/25	13546	5	Monterey	1	20.9	21.3	Central California Coast	Bridge replacement/new construction
Central Coastal	2024/25	13695	5	Monterey	1	18.5	18.7	Central California Coast	Widen shoulders
Central Coastal	2024/25	20003	5	San Luis Obispo	227	0.91	10.24	Central California Coast	Drainage Improvement
Central Coastal	2025/26	19944	5	San Luis Obispo	1	15.7	73.6	Central California Coast	Replace/install culverts
Central Coastal	2025/26	19992	5	Monterey	1	17.1	26.9	Central California Coast	Replace/install culverts
Central Coastal, Monterey Bay	2022/23	19085	5	Monterey	1	70.8	R83.5[a]	Central California Coast	Replace/install culverts
Central Coastal, Monterey Bay, Salinas	2023/24	19084	5	Monterey	68	0.2	15.7	Central California Coast	Replace/install culverts
Central Coastal, Salinas	2024/25	19988	5	San Luis Obispo	41	0.3	49	Central California Coast, Central Valley Coast Range	Replace/install culverts
Central Coastal, Salinas	2024/25	19990	5	San Luis Obispo	101	0.5	59	Central California Coast	Replace/install culverts
Central Coastal, Salinas	2026/27	20019	5	San Luis Obispo	46	R0.15	R21.97	Central California Coast	Replace/install culverts
Monterey Bay	2018/19	13802	5	Santa Cruz	1	Not applicable	Not applicable	Central California Coast	Bridge rail

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Monterey Bay	2019/20	9195	5	Monterey	156	R1.1	R2.1	Central California Coast	Bridge
Monterey Bay	2019/20	17059	5	Santa Cruz	1	16.7	17	Central California Coast	Improved highway geometry
Monterey Bay	2021/22	9289	5	Monterey	101	R91.5	101.3	Central California Coast	Replace/install culverts
Monterey Bay	2021/22	15757	5	Monterey	101	87.4	87.8	Central California Coast	Improved highway geometry
Monterey Bay	2021/22	15835	5	Santa Cruz	9	13.6	15.5	Central California Coast	Bridge replacement/new construction
Monterey Bay	2021/22	17521	5	Monterey	183	R8.4	R9.8	Central California Coast	Replace/install culverts
Monterey Bay	2021/22	19495	5	Santa Cruz	9	10.8	10.8	Central California Coast	Retaining wall
Monterey Bay	2021/22	19496	5	Santa Cruz	9	19.9	19.9	Central California Coast	Retaining wall
Monterey Bay	2023/24	19156	5	Santa Cruz	17	9.1	12.5	Central California Coast	Replace/install culverts
Monterey Bay	2023/24	19158	5	Santa Cruz	1	R0.0	7.7	Central California Coast	Replace/install culverts
Monterey Bay	2024/25	19935	5	Santa Cruz	9	18.897	24.493	Central California Coast	Replace/install culverts
Monterey Bay	2025/26	19938	5	Monterey	1	R90.08	R102.0	Central California Coast	Replace/install culverts
Monterey Bay	2025/26	19939	5	Santa Cruz	9	0.046	11.52	Central California Coast	Replace/install culverts

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Monterey Bay	2025/26	19943	5	Santa Cruz	17	0.2	11.3	Central California Coast	Replace/install culverts
Monterey Bay	2026/27	20013	5	Monterey	156	R0.167	T5.427	Central California Coast	Replace/install culverts
Monterey Bay	2026/27	20024	5	Monterey	1	R85.1	R90.98	Central California Coast	Replace/install culverts
Monterey Bay, Pajaro	2018/19	13382	5	Santa Cruz	1	R0.0	R8.1	Central California Coast	Safety roadside rest area site improvements
Monterey Bay, Pajaro	2022/23	19160	5	San Benito	101	0	7.55	Central California Coast	Replace/install culverts
Monterey Bay, Pajaro, San Francisco Coastal South	2022/23	19159	5	Santa Cruz	1	8.2	26	Central California Coast, Central California Coast Ranges	Replace/install culverts
Monterey Bay, Salinas	2018/19	13575	5	Monterey	101	73.8	87.3	Central California Coast	Bridge rail
Monterey Bay, Salinas	2023/24	19094	5	Monterey	101	R28.23	100.3	Central California Coast	Replace/install culverts
Monterey Bay, Salinas	2026/27	20025	5	Monterey	68	R10.8	22.02	Central California Coast	Replace/install culverts
Monterey Bay, Salinas	2026/27	20035	5	Monterey	101	0	101.32	Central California Coast, Central California Coast Ranges	Replace/install culverts
Monterey Bay, San Francisco Coastal South	2021/22	13752	5	Santa Cruz	9	8.5	25.5	Central California Coast	Drainage improvement

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Monterey Bay, San Francisco Coastal South	2025/26	20002	5	Santa Cruz	236	0	17.72	Central California Coast	Replace/install culverts
Pajaro	2019/20	16847	5	Santa Cruz	129	1.4	Not applicable	Central California Coast	Improved highway geometry
Pajaro	2024/25	20001	5	Santa Cruz	152	0	8.29	Central California Coast	Replace/install culverts
Pajaro	2025/26	19948	5	San Benito	25	46.57	52.19	Central California Coast	Replace/install culverts
Pajaro	2026/27	20029	5	Santa Cruz	129	0.56	9.998	Central California Coast	Replace/install culverts
Pajaro	2026/27	20038	5	San Benito	156	0	18.43	Central California Coast	Replace/install culverts
Pajaro, Salinas	2019/20	17726	5	San Benito	25	18.8	19.1	Central California Coast Ranges	Widen shoulders
Pajaro, Salinas	2024/25	20000	5	San Benito	25	21.47	46.57	Central California Coast Ranges	Replace/install culverts
Salinas	2017/18	15629	5	Monterey	101	R41.4	R41.8	Central California Coast	Bridge rail
Salinas	2018/19	13591	5	San Luis Obispo	41	14.2	15.9	Central California Coast Ranges	Replace/install culverts
Salinas	2019/20	9189	5	Monterey	101	62.1	63.2	Central California Coast	Bridge replacement/new construction

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Salinas	2019/20	9261	5	Monterey	101	R6.7	Not applicable	Central California Coast Ranges	Rock slope protection
Salinas	2019/20	17963	5	San Luis Obispo	46	R17.2	R17.6	Central California Coast Ranges	Roundabout
Salinas	2019/20	20891	5	San Luis Obispo	58	3.1	Not applicable	Central California Coast Ranges	Bridge replacement/new construction
Salinas	2020/21	20710	5	San Luis Obispo	101	61.88	61.88	Central California Coast Ranges	Improved highway geometry
Salinas	2022/23	19080	5	Monterey	101	R9.7	R14.0	Central California Coast Ranges	Replace/install culverts
Salinas	2023/24	19093	5	Monterey	101	R41.7	49.8	Central California Coast, Central California Coast Ranges	Replace/install culverts
Salinas	2023/24	19162	5	San Luis Obispo	58	1.8	6.89	Central California Coast Ranges	Replace/install culverts
Salinas	2024/25	19940	5	Monterey	101	R1.9	R9.7	Central California Coast Ranges	Replace/install culverts
Salinas	2024/25	19955	5	San Luis Obispo	101	50.7	63.2	Central California Coast Ranges	Replace/install culverts

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Salinas	2024/25	19956	5	San Luis Obispo	46	32.2	37.2	Central California Coast Ranges	Replace/install culverts
Salinas	2024/25	19957	5	Monterey	101	R22.0	R28.0	Central California Coast Ranges	Replace/install culverts
Salinas	2025/26	19954	5	San Luis Obispo	58	6.89	R35.0	Central California Coast Ranges	Replace/install culverts
Salinas	2026/27	20017	5	San Benito	25	0	21.47	Central California Coast Ranges	Replace/install culverts
Salinas	2026/27	20034	5	Monterey	25	0	11.75	Central California Coast Ranges	Replace/install culverts
San Francisco Coastal South	2021/22	9294	5	Santa Cruz	1	31.9	35.7	Central California Coast	Replace/install culverts
San Francisco Coastal South	2025/26	19942	5	Santa Cruz	1	26.8	37.45	Central California Coast	Replace/install culverts

Source: Caltrans 2018a
Note: Not applicable = not applicable or not available
[a] R = right

Table 5-2. Additional SHOPP Transportation Projects Located Outside the GAI Potentially Affecting Special-status Species of the GAI – by Ecoregion Section

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Outside GAI	2023/24	19147	5	Santa Barbara	101	65.0	84.1	Central California Coast	Replace/install culverts
Outside GAI	2024/25	19945	5	San Luis Obispo	101	0.08	7.8	Central California Coast	Replace/install culverts
Outside GAI	2024/25	19949	5	Santa Barbara	166	0.0	8.93	Central California Coast	Replace/install culverts
Outside GAI	2024/25	19996	5	Santa Barbara	135	11.7	17.9	Central California Coast	Replace/install culverts
Outside GAI	2026/27	20030	5	San Luis Obispo	166	8.9	21.0	Central California Coast	Bridge rail
Outside GAI	2026/27	20033	5	Santa Barbara	101	84.1	90.99	Central California Coast	Replace/install culverts
Outside GAI	2019/20	13815	5	Santa Barbara	1	R36.4[a]	49.2	Central California Coast Ranges	Drainage improvements
Outside GAI	2020/21	15921	5	Santa Barbara	135	11.7	17.8	Central California Coast Ranges	Rock slope protection
Outside GAI	2022/23	9228	5	San Luis Obispo	1	0	0.3	Central California Coast Ranges	Shoulders – new and widening
Outside GAI	2023/24	16474	5	Santa Barbara	1	R35.0	49.2	Central California Coast Ranges	Improved highway geometry
Outside GAI	2025/26	19998	5	Santa Barbara	166	57.8	74.72	Central California Coast Ranges	Replace/install culverts
Outside GAI	2026/27	20022	5	San Luis Obispo	41	43.9	50.434	Central California Coast Ranges	Replace/install culverts

Sub-basin (HUC-8)	Advertised Year	SHOPP Project ID	Caltrans District	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Outside GAI	2026/27	20032	5	San Luis Obispo	58	R35.0	D2.70	Central California Coast Ranges	Replace/install culverts
Outside GAI	2026/27	20041	5	San Luis Obispo	46	37.2	60.85	Central California Coast Ranges	Replace/install culverts

[a] R = right

Table 5-3. Assumed Buffer Widths, by SHOPP Transportation Project Activity

Activity	Buffer Distance (feet)
Bridge rail	20
Bridge replacement/new construction	40
Drainage improvements	20
Headwall/Endwall	20
Improved highway geometry	40
Replace/install culverts	20
Rock slope protection	30
Safety roadside rest area site improvements[a]	10
Safety roadside rest area utilities	10
Shoulders – new and widening	15
Widen shoulders	15

Source: Caltrans 2019b, Table 1
[a] Building, utilities, and/or parking

SAMNA Model Results. 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, 2019b). The SAMNA model, its foundation, and assumptions are described in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2019b).

The SAMNA's impact estimates from District 5's planned transportation projects anticipated between fiscal years 2017/2018 and 2026/2027 are provided in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2019b). All results are provided in acres. Specific to this assessment, SAMNA results estimating impacts on aquatic resources can be found in Section 5.2. The SAMNA results estimating impacts on special-status wildlife species are summarized in Section 5.3 and provided for all habitats and species in Appendix E.

5.1.2. Non-SHOPP STIP-eligible Needs Assessment

At this time, STIP-eligible needs are assessed qualitatively, through coordination between the 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 there is a backlog of transportation projects that potentially need these funds.

To address the dynamic nature of the non-SHOPP STIP-eligible list, it was necessary to identify transportation projects that will be (1) reasonably certain to occur in the same 10-year time frame as the SHOPP projects used in the SAMNA and (2) highly likely to receive STIP funding. To that end, the AMP consulted the Caltrans Division of Transportation Planning's Multimodal Operations, Non-SHOPP, Transportation Equity Report database, using the criteria that a transportation project would have to be in a fiscally constrained[3] regional transportation plan, with a Ready to List[4] year identified as occurring in the 10-year planning horizon. The list would be further refined through consultation with the Districts and their regional and local transportation partners (see Table 1-2 of this document for the consultation summary). Table 5-4 summarizes activities associated with each of the 20 identified STIP-eligible transportation projects planned within the GAI for fiscal years 2017/2018 to 2026/2027.

Non-SHOPP STIP-eligible Potential Impacts. Once the non-SHOPP STIP-eligible projects and their activities were identified, their potential impacts were assessed qualitatively. Qualitative analysis consisted of assessing the identified non-SHOPP STIP-eligible projects in the context of the landscape in which they occur and their proximity to SHOPP projects. The potential aquatic and wildlife resources predicted to be affected were identified from the same datasets used for the SAMNA analysis, but transportation project footprints were not generated, nor were areas of potential impact calculated. The potential need for additional compensatory mitigation for resources identified in the GAI is documented in Sections 5.2 and 5.3.

[3] Transportation project funding is reasonably assured.

[4] Transportation project schedule is reasonably assured. 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.

Table 5-4. STIP-eligible Transportation Projects Planned within the GAI

Sub-basin (HUC-8)	Ready to List	Project ID	EA[a] Number	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Central Coastal	12/16/2021	HQSP-18-02438	05-1H640	San Luis Obispo	101	26.7	26.9	Central California Coast	Construct new overpass/interchange
Central Coastal	12/16/2021	HQSP-18-02469	Not applicable	San Luis Obispo	101	8.9	9	Central California Coast	Construct interchange operational improvements
Central Coastal	6/30/2023	HQSP-18-02235	05-1G680A	San Luis Obispo	101	16.2	R20.3[b]	Central California Coast	Construct managed lane and auxiliary lanes
Central Coastal	12/29/2023	HQSP-18-02236	05-1G480	San Luis Obispo	101	R21	R21.2	Central California Coast	Modify ramp intersections and construct park-and-ride lot
Monterey Bay	3/28/2019	HQSP-18-02379	05-0P460	Santa Cruz	1	17.4	17.5	Central California Coast	Widen bridge
Monterey Bay	5/1/2019	NA06	05-31600	Monterey	156	1.6	2.1	Central California Coast	Construct new interchange
Monterey Bay	5/1/2019	NA07	Not applicable	Santa Cruz	1	13.3	13.4	Central California Coast	Add additional dedicated right-turn lane
Monterey Bay	8/1/2020	HQSP-18-02209	05-0C730	Santa Cruz	1	R7.6	15.9	Central California Coast	Construct lanes and bike/pedestrian crossings
Monterey Bay	8/1/2020	HQSP-18-02212	Not applicable	Santa Cruz	1	12	13.2	Central California Coast	Construct auxiliary lanes and reconstruct Capitola Avenue overcrossing
Monterey Bay	11/1/2020	HQSP-18-02183	05-0C732	Santa Cruz	1	13.6	14.9	Central California Coast	Construct lanes and bike/pedestrian crossings
Monterey Bay	12/16/2021	NA01	05-31600	Monterey	156	1.4	3.9	Central California Coast	Convert to four-lane expressway
Monterey Bay	12/16/2021	NA02	Not applicable	Monterey	101	94.6	96.8	Central California Coast	Reconstruct interchange

Sub-basin (HUC-8)	Ready to List	Project ID	EA[a] Number	County	Route	Begin Mile	End Mile	Ecoregion Section	Activity
Monterey Bay	12/16/2021	NA03	Not applicable	Monterey	156	3.9	T5.2	Central California Coast	Reconstruct interchange
Monterey Bay	12/16/2021	NA04	05-46580	Santa Cruz	1 and 9	17.2	18.2	Central California Coast	Intersection modifications
Pajaro	5/1/2019	NA05	05-0T150	Santa Cruz	152	T2.4	T2.6	Central California Coast	Installation of roundabout
Pajaro	12/29/2023	HQSP-18-02357	05-48540	San Benito	25	52.2	55.2	Central California Coast	Convert to four-lane expressway
Salinas	8/1/2020	HQSP-18-02232	Not applicable	San Luis Obispo	101	52.3	52.5	Central California Coast Ranges	Reconstruct interchange
Salinas	8/1/2020	HQSP-18-02233	Not applicable	San Luis Obispo	101	54	54.2	Central California Coast Ranges	US Highway 101/State Route 46E Interchange Northbound off-ramp
Salinas	12/20/2022	HQSP-18-02425	Not applicable	San Luis Obispo	46	31.7	32.3	Central California Coast Ranges	New interchange
Salinas	12/29/2023	HQSP-18-02271	05-OH330	Monterey	101	77.1	84.4	Central California Coast	Construct new interchange and frontage roads, remove non-standard ramps

[a] EA = expenditure authorization

[b] R = right

5.2 Estimated Aquatic Resources Impacts

The quantitative results provided in this document are pursuant to the SAMNA model. Specific aquatic resource impacts will be assessed as part of each transportation project's environmental studies. Below, estimated aquatic resource impacts are presented for the five HUC-8 sub-basins that make up the GAI and that may potentially experience impacts on aquatic resources. Aquatic resources impacts are categorized as potential impacts on special-status fish, wetlands, and non-wetland waters. Vernal pools, coastal wetlands and coastal non-wetland waters are also discussed. Refer to Appendix H for a series of maps depicting the location and extent of wetlands and non-wetland waters in the GAI.

5.2.1. Estimated Impacts on Special-status Fish Species

Using the methods described in Section 5.1.1, impacts on fish habitat were estimated for the 75 transportation projects listed in Table 5-1. Of the 75 SHOPP transportation projects evaluated, 18 would result in impacts on approximately 5.8 acres of special-status fish habitat (Table 5-5; Caltrans 2019b). For example, 1.5 acres are impacts on steelhead and 0.3 acre are impacts on tidewater goby forecast for the Central Coastal HUC-8. The STIP-eligible projects listed in Table 5-4 are planned for locations near planned SHOPP transportation projects. They too may potentially affect the aforementioned special-status fish species; additional mitigation need may be expected from STIP-eligible transportation projects that fall within the HUC-8 sub-basins.

Although the SAMNA estimated impacts on lake/pond habitat, lake/pond is not included in Table 5-5. This is because the SAMNA result is spurious; it shows lake/pond as affected habitat for longfin smelt, which is anadromous and does not typically occur in isolated lakes or ponds. Longfin smelt is discussed further below.

Longfin Smelt. Despite CDFW's life history information indicating that San Francisco Bay, not Monterey Bay, is the southernmost extreme of its distribution, the SAMNA forecast impacts to longfin smelt (Caltrans 2019b). This is because the SAMNA picked up a single California Natural Diversity Database occurrence from 1993 at Moss Landing, and since the database occurrence was outside of its critical habitat, it assumed all similar waters (lake/pond habitat) where the database occurrence was recorded could provide suitable habitat.

In conversations with CDFW, Caltrans District 5 learned that there may be rare cases of longfin smelt showing up in the Moss Landing area, and the ecologists at Elkhorn Slough are aware of one additional record (to the California Natural Diversity Database) from 2000. The species was apparently picked up in a trawl near Kirby Park, which is considerably inland and not offshore as the database entry indicated.

Table 5-5. Summary of Estimated SHOPP Impacts on Fish in the GAI (results in acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Coho Salmon – Central California Coast ESU[a] (FE, SE)	Green Sturgeon – Southern DPS (FT)	Longfin Smelt (ST)	Steelhead – South Central California Coast DPS (FT)	Tidewater Goby (FE)	Estimated Fish Impact[b]
Central Coastal	18060006	11	0	0	0	1.5	0.3	1.5[c]
Monterey Bay	18060015	17	1.2	<0.1	See text[d]	1.1	<0.1	1.2[c]
Pajaro	18060002	3	0	0	0	0.5	0.1	0.6[c]
Salinas	18060005	7	0	0	0	2.0	0	2.0[c]
San Francisco Coastal South	18050006	3	0.7	0	0	0.3	<0.1	0.7[c]
	Total	**18[e]**	**1.9**	**<0.1**	**0**	**5.3**	**0.4**	**5.8[c]**

Notes: FT = federal endangered, FT = federal threatened, SE = state endangered, ST = state threatened
[a] The SAMNA Report refers to this population as "South of Punta Gorda."
[b] Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.
[c] For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the largest impact is provided.
[d] See text for longfin smelt impact estimate discussion.
[e] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect fish.

5.2.2. Estimated Impacts on Wetlands

Using the methods described in Section 5.1.1, impacts on wetlands were estimated for the 75 transportation projects listed in Table 5-1. Results are summarized in Table 5-6. Table 5-6 summarizes the estimated impacts in relation to the number of planned SHOPP transportation projects in the GAI. Of the 75 SHOPP transportation projects evaluated, 60 would result in impacts on 26 acres of wetland habitat in the GAI (Caltrans 2019b). For example, there are a total of 6.1 acres of impacts on wetlands in the Monterey Bay Sub-basin, of which 1.3 acres are impacts on freshwater emergent wetland and 4.8 acres are impacts on freshwater forested/shrub wetland. The planned STIP-eligible transportation projects listed in Table 5-4 may potentially affect the same wetland resources as the planned SHOPP transportation projects; additional compensatory mitigation need may be expected from STIP-eligible transportation projects that fall within the HUC-8 sub-basins.

Note the SAMNA's wetland layers provide output that appears similar to its terrestrial output, in that the results are provided in terms of wetland habitat. Wetland forecasts based on the SAMNA's wetland layer, however, are considered more certain than wetland habitat forecasts based on the SAMNA's terrestrial habitat layers; hence, the wetland estimates below are based solely on the SAMNA's wetland data layer (Caltrans 2019b).

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 one vernal pool species, vernal pool fairy shrimp, is shown on Figure 2-9, and available vernal pool location information is shown in Figure 2-19. Usually Caltrans avoids vernal pools; however, a number of planned SHOPP and STIP-eligible transportation projects are proximate to the areas displayed. Hence, using the methods described in Section 5.1.1, impacts on vernal pool crustacean habitat for the 89 transportation projects listed in Tables 5-1 and 5-2 are estimated to be:

- 22.0 acres of vernal pool fairy shrimp habitat impact, from 19 SHOPP transportation projects; and
- 0.5 acres of longhorn fairy shrimp habitat impact from one SHOPP transportation project; the estimated longhorn fairy shrimp habitat impact co-occurs with vernal pool fairy shrimp habitat.

It is worth pointing out that vernal pools mapped with the SAMNA Reporting Tool are based on California Natural Diversity Database occurrence of vernal pool invertebrate species and a 4-mile buffer (Figure 2-19, right-hand side; Caltrans 2019b). Hence, the 22.0 acres of annual grasslands total acreage were crosswalked to vernal pools by virtue of being within 4 miles of a listed vernal pool invertebrate database occurrence.

Estimated Impacts on Coastal Wetlands

As pointed out in Section 2.17.2, Caltrans did not find any coastal wetland spatial data for the GAI. Further, unlike vernal pool obligate species and vernal pools, no suitable 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 (Table 5-7). Hence, within the coastal zone, estimated impacts on coastal wetlands include 4.2 acres of impacts on six wetland types from a total of 15 projects. As an example, 7 projects within the coastal zone are estimated to include impacts on 0.1 acre of depressional seasonal natural forested habitat, <0.1 acre of impact on depressional seasonal natural shrub-scrub habitat, 0.2 acre of impact on estuarine and marine deepwater habitat, 0.2 acre of impact on estuarine and marine wetland habitat, 0.9 acre of impact on freshwater emergent wetland, and 1.1 acres of impact on freshwater forested/shrub wetland in the Central Coastal Sub-basin.

As pointed out in Section 2.17.2, CCC would likely identify as present more coastal wetlands than included in the SAMNA's wetland layer, which is based on the National Wetland Inventory. Consequently, it is possible that forecasts presented in Table 5-7 are underestimated.

5.2.3. Estimated Impacts on Non-wetland Waters

Using the methods described in Section 5.1.1, impacts on non-wetland waters were estimated for the 75 transportation projects listed in Table 5-1. Of the 75 SHOPP transportation projects evaluated, 51 would result in impacts on 31 acres of waters in the GAI (Caltrans 2019b). Table 5-8 summarizes the estimated impacts in relation to the number of planned SHOPP transportation projects in the GAI. For example, 18 transportation projects are forecast to have a total of 14.99 acres of impact in the Monterey Bay Sub-basin. The planned STIP-eligible projects listed in Table 5-4 may potentially affect the same non-wetland water resources as the planned SHOPP transportation projects; additional mitigation need may be expected from STIP-eligible transportation projects that fall within the HUC-8 sub-basins.

Estimated Impacts on Coastal Non-wetland Waters

Estimated impacts on non-wetland waters from planned SHOPP transportation projects in the GAI, which are located in the coastal zone and under the jurisdiction of the CCC, are shown in Table 5-9. A total of 14.8 acres of impact on five types of coastal non-wetland waters is anticipated from 23 projects. For example, 16 projects in the coastal zone are anticipated to have impacts on 5.6 acres of stream/river habitat and <0.1 acre of impacts on wash habitat in the Central Coastal Sub-basin, whereas 6 projects in the coastal zone are anticipated to have 0.3 acre of impact on lake/pond habitat and 7.2 acres of impact on stream/river habitat in the Monterey Bay Sub-basin.

Table 5-6. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (results in acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Depressional Seasonal Natural Forested	Depressional Seasonal Natural Shrub-Scrub	Estuarine and Marine Deepwater	Estuarine and Marine Wetland	Freshwater Emergent Wetland	Freshwater Forested/ Shrub Wetland	Estimated Wetland Impact
Central Coastal	18060006	16	0.1	<0.1	0.1	0.2	0.9	1.1	**2.5**
Monterey Bay	18060015	22	0.0	0.0	0.0	0.0	1.3	4.8	**6.1**
Pajaro	18060002	5	0.0	0.0	0.0	0.0	0.3	0.2	**0.5**
Salinas	18060005	18	0.0	0.0	0.0	0.0	2.8	4.6	**7.5**
San Francisco Coastal South	18050006	1	0.0	0.0	0.0	0.0	<0.1	0.0	**<0.1**
	Total	**60[a]**	**0.1**	**<0.1**	**0.1**	**0.2**	**5.3**	**10.7**	**16.6**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect wetlands.

Table 5-7. Summary of Estimated SHOPP Impacts on Wetlands in the GAI's Coastal Zone (results in acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Depressional Seasonal Natural Forested	Depressional Seasonal Natural Shrub-Scrub	Estuarine and Marine Deepwater	Estuarine and Marine Wetland	Freshwater Emergent Wetland	Freshwater Forested/ Shrub Wetland	Estimated Wetland Impact
Central Coastal	18060006	7	0.1	<0.1	0.2	0.2	0.9	1.1	**2.5**
Monterey Bay	18060015	7	0.0	0.0	0.0	0.0	0.3	0.8	**1.1**
Pajaro	18060002	2	0.0	0.0	0.0	0.0	0.3	<0.1	**0.3**
Salinas	18060005	5	0.0	0.0	0.0	0.0	0.1	0.2	**0.3**
San Francisco Coastal South	18050006	1	0.0	0.0	0.0	0.0	<0.1	0.0	**<0.1**
	Total	**15[a]**	**0.1**	**<0.1**	**0.2**	**0.2**	**1.6**	**2.1**	**4.2**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect wetlands.

Table 5-8. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (results in acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Canal/Ditch	Lake/Pond	Stream/River	Wash	Estimated Non-wetland Water Impact
Central Coastal	18060006	14	0.0	0.0	5.6	<0.1	**5.7**
Monterey Bay	18060015	18	0.2	0.3	14.5	1.1	**15.0**
Pajaro	18060002	6	0.1	0.0	1.4	0.5	**1.5**
Salinas	18060005	20	0.2	<0.1	8.7	0.0	**8.9**
San Francisco Coastal South	18050006	3	0.0	0.0	0.7	0.0	**0.7**
	Total	**51[a]**	**0.5**	**0.3**	**31.0**	**1.6**	**31.8**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect non-wetland waters.

Table 5-9. Summary of Estimated SHOPP Impacts on Non-wetland Waters in GAI's Coastal Zone (results in acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Canal/Ditch	Lake/Pond	Stream/River	Wash	Sea/Ocean	Estimated Non-wetland Water Impact
Central Coastal	18060006	16	0.0	0.0	5.6	<0.1	0.0	**5.6**
Monterey Bay	18060015	6	0.0	0.3	7.2	0.0	0.0	**7.5**
Pajaro	18060002	2	0.1	0.0	0.3	0.0	0.0	**0.5**
Salinas	18060005	5	<0.1	0.0	0.5	0.0	0.0	**0.5**
San Francisco Coastal South	18050006	3	0.0	0.0	0.7	0.0	<0.1	**0.7**
	Total	**23[a]**	**0.1**	**0.3**	**14.3**	**<0.1**	**<0.1**	**14.8**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect non-wetland waters.

5.3 Central California Coast Ecoregion Section: Estimated Wildlife Impacts

The quantitative results given in this document are pursuant to the SAMNA model. Specific wildlife resource impacts will be assessed as part of each transportation project's environmental studies. The complete results of the SAMNA, inclusive of the 89 transportation projects listed in Tables 5-1 and 5-2 that may affect special-status plant and wildlife species, are provided in Appendix E. The transportation projects planned in the GAI are listed in Table 5-1, and the transportation projects outside the GAI, but planned in one of the ecoregion sections, are listed in Table 5-2.

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. Based on a search of the species-attributed vegetation layer, 143 special-status terrestrial species are known to occur or have the potential to occur in the portion of the GAI that lies within the Central California Coast Ecoregion Section (Section 2.8, Appendix E; Caltrans 2019b). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 65 SHOPP transportation projects could potentially affect 22 habitat types, which could support up to 121 special-status species (Table 5-10). The planned STIP-eligible projects listed in Table 5-4 may potentially affect the same wildlife resources as the planned SHOPP transportation projects; additional compensatory mitigation need may be expected from STIP-eligible transportation projects that fall within the Central California Coast Ecoregion Section.

Table 5-10. Summary of Estimated SHOPP Impacts on Special-status Species Habitat: Central California Coast Ecoregion Section

Number of Caltrans SHOPP Projects	Number of Habitats	Special-status Species[a]	Estimated Total Habitat Impact (acres)
65[b]	27	121	1,225.8

[a] 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.
[b] Transportation projects are listed in Tables 5-1 and 5-2.

Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated. The species of mitigation need, identified in Section 1.5, were included in the analysis, and each is discussed briefly in the subsections below: California red-legged frog (Section 5.3.1), California tiger salamander (Section 5.3.2), foothill yellow-legged frog (Section 5.3.3), and tricolored blackbird (Section 5.3.4). Although the estimated special-status wildlife impacts provided are focused on the compensatory mitigation needs identified by Caltrans District 5, consideration was also given to the other species that the SAMNA model indicates may use the same habitat as the species of mitigation need (Section 5.3.5).

5.3.1. California Red-legged Frog

Using the methods described in Section 5.1.1, impacts on the California red-legged frog and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 398.6 acres of California red-legged frog habitat may be affected by 63 Caltrans SHOPP projects planned for the Central California Coast Ecoregion Section (Caltrans 2019b). Results are summarized in Table 5-11. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.3.2. California Tiger Salamander

Using the methods described in Section 5.1.1, impacts on the California tiger salamander and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 160 acres of California tiger salamander habitat may be affected by 45 Caltrans SHOPP projects planned for the Central California Coast Ecoregion Section (Caltrans 2019b). Results are summarized in Table 5-11. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.3.3. Foothill Yellow-legged Frog

Using the methods described in Section 5.1.1, impacts on the foothill yellow-legged frog and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 236.2 acres of foothill yellow-legged frog habitat may be affected by 42 Caltrans SHOPP projects planned for the Central California Coast Ecoregion Section (Caltrans 2019b). Results are summarized in Table 5-11. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.3.4. Tricolored Blackbird

Using the methods described in Section 5.1.1, impacts on the tricolored blackbird and its habitat were estimated for the transportation projects that may affect wildlife (Tables 5-1 and 5-2). The SAMNA estimated that 958.8 acres of tricolored blackbird habitat may be affected by 65 Caltrans SHOPP projects planned for the Central California Coast Ecoregion Section (Caltrans 2019b). Results are summarized in Table 5-11. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.3.5. Other Special-status Species

The special-status terrestrial 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 2019b). The above-listed species of mitigation need co-occur with other protected plant, invertebrate, amphibian, reptile, bird, and mammal species in the Central California Coast Ecoregion Section in 22 habitats. Using the methods described in Section 5.1.1, the SAMNA forecasts impacts on an additional 117 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the GAI (Table 5-12).

Table 5-11. Estimated SHOPP Impacts on Species of Mitigation Need: Central California Coast Ecoregion Section

Subsection Name	California Red-legged Frog: Number of Caltrans SHOPP Projects	California Red-legged Frog: Estimated Habitat Impact (acres)	California Tiger Salamander: Number of Caltrans SHOPP Projects	California Tiger Salamander: Estimated Habitat Impact (acres)	Foothill Yellow-legged Frog: Number of Caltrans SHOPP Projects	Foothill Yellow-legged Frog: Estimated Habitat Impact (acres)	Tricolored Blackbird: Number of Caltrans SHOPP Projects	Tricolored Blackbird: Estimated Habitat Impact (acres)
North Coastal Santa Lucia Range	12	121.8	11	13.4	10	108.6	11	35.8
Santa Clara Valley	2	0.7	2	0.7	2	0.7	3	3
Santa Cruz Mountains	15	88.9	5	3.5	15	89. 5	12	43.5
Santa Maria Valley	9	13.8	3	7.1	3	1.3	13	145.5
South Coastal Santa Lucia Range	13	11.5	11	4.6	13	11.5	15	34.2
Watsonville Plain-Salinas Valley	22	162.1	20	130.9	6	24.6	25	696.9
Total	**63**	**398.6**	**45[a]**	**160.0**	**42[a]**	**236.2**	**65[a]**	**958.8**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects and some habitats cross more than one subsection.

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Table 5-12. Estimated SHOPP Impacts on Special-status Species in Species of Mitigation Need Habitat: Central California Coast Ecoregion Section (all results in acres)

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise - Redshank Chaparral	Closed-Cone Pine-Cypress	Coastal Oak Woodland	Coastal Scrub	Deciduous Orchard	Dryland Grain Crops	Eucalyptus	Fresh Emergent Wetland	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Perennial Grassland	Redwood	Riverine	Urban	Valley Foothill Riparian
Not applicable	Not applicable	**Total**	**115.9**	**2.4**	**0.2**	**0.7**	**18.4**	**35.4**	**128.3**	**<0.1**	**<0.1**	**8.7**	**3.8**	**5.0**	**0.2**	**<0.1**	**3.5**	**0.4**	**25.5**	**0.5**	**42.4**	**0.1**	**821.8**	**12.5**
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California red-legged frog	*Rana draytonii*	FT, SSC	115.9	2.4	0.2	0	18.4	35.4	128.3	0	0	8.7	3.8	0	0	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	0	12.5
California tiger salamander	*Ambystoma californiense*	FE, FT, ST	104.5	1.2	0.2	0	0	29.3	0	0	0	8.7	3.8	0	0	<0.1	0	0	0	0.3	0	0	0	12.1
Foothill yellow-legged frog	*Rana boylii*	FS, SSC	17.8	2.4	0.2	0.1	10.5	18.1	108.8	0	0	2.5	0	0	0	0	3.9	0.4	24.3	0	42.4	0	0	4.1
Tricolored blackbird	*Agelaius tricolor*	FS, ST, SSC	115.1	0	0	0	0	0	0	<0.1	<0.1	6.8	0.2	5.0	0.2	0	0	0	0	0.5	0	0	818.8	12.1
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	6.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohlone tiger beetle	*Cicindela ohlone*	FE	2.0	0	0	0	0	0	9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Smith's blue butterfly	*Euphilotes enoptes smithi*	FE	0	0	0	0	0	0	95.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mount Hermon (barbate) June beetle	*Polyphylla barbata*	FE	0	0	0	0	0	0	4.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zayante band-winged grasshopper	*Trimerotropis infantilis*	FE	0	0	0	0	0	0	5.0	0	0	0	0	0	0	0	<0.1	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	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*	FE, SE, SFP	0	0	0	0	0	14.3	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0	0	6.1
Western spadefoot	*Spea hammondii*	FS, SSC	101.7	1.3	0	0	0	14.4	17.7	<0.1	0	5.9	0	5.0	0	<0.1	0	0	0	0.5	0	0.1	0	0
California newt	*Taricha torosa*	SSC	13.4	1.3	0.2	0	0	14.2	109.8	0	0	2.7	3.8	0	0	0	3.9	0	24.5	0	0	0	0	2.1
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California legless lizard	*Anniella pulchra*	FS, SSC	0	2.4	0.2	0.1	0	29.8	113.2	0	0	8.6	0	0	0	0	3.9	0	0	0.5	0	0	0	12.1
Coachwhip	*Masticophis flagellum*	SSC[c]	18.5	0	0	0	0	0	4.9	0	0	2.6	0	0	0	0	0	0	0	0	0	0	0	1.9

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise - Redshank Chaparral	Closed-Cone Pine-Cypress	Coastal Oak Woodland	Coastal Scrub	Deciduous Orchard	Dryland Grain Crops	Eucalyptus	Fresh Emergent Wetland	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Perennial Grassland	Redwood	Riverine	Urban	Valley Foothill Riparian
California mountain kingsnake[f]	*Lampropeltis zonata*	FS[c]	10.3	0	0	0	15.2	9.9	0	0	0	2.5	0	0	0	0	3.9	0.4	24.8	0	40.9	0	0	2.1
Blainville's horned lizard	*Phrynosoma blainvillii*	FS, SSC	113.6	2.4	0.2	0.7	17.7	34.3	115.4	0	<0.1	8.7	0	5.0	0	0	3.9	0	24.3	0.5	0	0	0	12.3
Two-striped gartersnake	*Thamnophis hammondii*	FS, SSC	109.2	2.4	0.2	0.1	17.7	29.8	113.2	0	0	8.6	3.8	0	0	<0.1	3.9	0.4	2.5	0	0	0.1	0	12.1
Common gartersnake	*Thamnophis sirtalis*	SSC	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	3.8	5.0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0	0	12.5
Desert night lizard	*Xantusia vigilis*	FS, SSC	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Tricolored blackbird	*Agelaius tricolor*	FS, ST, SSC	115.1	0	0	0	0	0	0	<0.1	<0.1	6.8	0.2	5.0	0.2	0	0	0	0	0.5	0	0	818.8	12. 1
Grasshopper sparrow	*Ammodramus savannarum*	SSC	57.1	0	0	0	0	0	0	0	0	6.0	0	0	0	0	0	0	0	0	0	0	0	0
Golden eagle	*Aquila chrysaetos*	FS, SFP, SFS[c]	115.9	2.4	0.2	0.7	0	35.4	128.3	0	0	8.7	3.8	0	0	0	3.9	0.4	25.5	0.5	42.4	0	821.8	12.5
Short-eared owl	*Asio flammeus*	SSC	23.0	1.5	0.2	0.1	0	18.7	113.8	0	0	2.8	3.8	2.9	0.2	0	3.9	0	3.0	0.2	5.0	0	335.9	4.0
Long-eared owl	*Asio otus*	SSC	115.9	2.4	0.2	0.7	0	35.4	0	0	0	8.7	0	0	0	0	3.9	0.4	25.5	0.5	0	0	0	12.5
Burrowing owl	*Athene cunicularia*	FS, SSC	112.2	2.4	0.2	0.1	0	28.6	94.4	0	0	7.8	0	0	0	0	3.9	0	0	0.5	0	0	803.1	12.2
Redhead	*Aythya americana*	SSC	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0
Barrow's goldeneye	*Bucephala islandica*	SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0.1	0	0
Vaux's swift	*Chaetura vauxi*	SSC	0	0	0	0	5.0	13.9	0	0	0	2.2	3.6	0	0	0	3.9	0.4	24.3	0	42.4	0	169.0	2.9
Snowy plover	*Charadrius alexandrinus rivosus*	FT, SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0	0	0
Northern harrier	*Circus hudsonius*	SSC	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	3.8	0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5
Olive-sided flycatcher	*Contopus cooperi*	SSC	0	0	0	0.6	0	0	0	0	0	4.4	0	0	0	0	3.9	0.4	25.4	0	42.4	0	0	0
Black swift	*Cypseloides niger*	SSC	6.8	0.5	0.1	0	5.2	3.8	0	0	0	2.0	0	0	0	0	3.9	0.4	11.8	0	25.8	0	107.9	1.6
White-tailed kite	*Elanus leucurus*	FS, SFP	115.9	2.4	0.2	0.7	0	35.4	128.3	<0.1	<0.1	8.7	3.8	5.0	0.2	0	3.9	0	0	0.5	42.4	0	821.8	12.5
Peregrine falcon	*Falco peregrinus*	SFP SFS	115.9	2.4	0.2	0.7	18.4	35.4	128.3	0	0	8.7	3.8	0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5

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Bald eagle	*Haliaeetus leucocephalus*	FS, SE, SFP, SFS	115.9	2.4	0.2	0.7	0	35.4	128.3	0	0	8.7	3.8	0	0	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	0	12.5
Yellow-breasted chat	*Icteria virens*	SSC	0	0	0	0	0	0	8.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.6
Loggerhead shrike	*Lanius ludovicianus*	SSC	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	0	0	0	0	3.9	0.4	25.5	0.5	0	0	821.8	12.5
Osprey	*Pandion haliaetus*	FS, SFS	115.9	2.4	0.2	0	18.4	35.4	0	0	0	8.7	3.8	0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	0	12.5
Bryant's savannah sparrow	*Passerculus sandwichensis alaudinus*	SSC	115.3	2.4	0.2	0.7	0	35.4	128.3	<0.1	<0.1	8.7	0	0	0	0	3.9	0	0	0.5	0	0	0	12.5
American white pelican	*Pelecanus erythrorhynchos*	SSC	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0.1	0	0
Brown pelican	*Pelecanus occidentalis*	FS, SFP	1.0	0	0	0	0	0	16.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oregon vesper sparrow	*Pooecetes gramineus affinis*	SSC	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Purple martin	*Progne subis*	SSC	14.2	1.7	0.2	0	15.2	12.2	0	0	0	2.5	3.8	0	0	0	0	0.4	24.8	0	40.9	0	269.2	2.1
California Ridgway's rail[c]	*Rallus obsoletus obsoletus*[c]	FE, SE, SFP	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0	0	0
Bank swallow	*Riparia riparia*	FS, ST	26.3	0	0	0	0	0	6.6	0	0	0	0	0	0	0	0	0	0	0	0	0.1	216.3	2.3
Yellow warbler	*Setophaga petechia*	SSC	0	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	0	8.7	0	0	0	0	3.9	0.4	25.5	0	42.4	0	821.8	12.5
California spotted owl	*Strix occidentalis occidentalis*	FS, SSC	0	0	<0.1	0	0	1.5	0	0	0	0	0	0	0	0	0	0.4	1.0	0	2.8	0	0	0.4
Bewick's wren	*Thryomanes bewickii*	SSC	0	2.4	0.2	0.7	0	35.4	128.3	<0.1	0	8.7	0	0	0	0	3.9	0.4	25.5	0	42.4	0	821.8	12.5
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Pallid bat	*Antrozous pallidus*	FS, SSC	115.9	2.4	0.2	0.7	0	35.4	128.3	<0.1	<0.1	8.7	0	5.0	0.2	0	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5
Ringtail	*Bassariscus astutus*	SFP	115.9	2.4	0.2	0.7	18.4	35.4	128.3	0	<0.1	8.7	0	5.0	0.2	0	3.9	0.4	25.5	0.5	42.4	0	0	12.5
California pocket mouse	*Chaetodipus californicus*	SSC	113.8	2.4	0.2	0.7	0	35.3	119.3	0	0	8.7	0	0	0	0	3.9	0.4	0	0	0	0	0	0
Townsend's big-eared bat	*Corynorhinus townsendii*	FS, SSC	115.9	2.4	0.2	0.7	0	35.4	128.3	<0.1	0	8.7	0	5.0	0.2	0	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5

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Big-eared kangaroo rat	*Dipodomys venustus elephantinus*	SSC	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Western mastiff bat	*Eumops perotis*	FS, SSC	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	3.8	5.0	0.2	0	3.9	0.4	25.5	0.5	0	0	821.8	12.5
Western red bat	*Lasiurus blossevillii*	SSC	115.9	2.4	0.2	0.7	0	35.4	128.3	0	0	8.7	3.8	0	0	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5
Small-footed myotis	*Myotis ciliolabrum*	FS	103.9	2.4	0.2	0.1	0	21.1	108.0	<0.1	<0.1	8.5	3.8	5.0	0.2	<0.1	3.9	0.4	2.2	0.5	0	0.1	664.3	9.2
Long-eared myotis	*Myotis evotis*	FS	0	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	3.8	5.0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	0	12.5
Fringed myotis	*Myotis thysanodes*	FS	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	0	5.0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5
Yuma myotis	*Myotis yumanensis*	FS	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	3.8	5.0	0.2	<0.1	3.9	0.4	25.5	0.5	42.4	0.1	821.8	12.5
Dusky-footed woodrat	*Neotoma fuscipes*	SSC	0	<0.1	0	0.6	0.6	14.3	20.7	0	0	0.3	0	0	0	0	<0.1	0	23.3	0	39.7	0	0	2.8
Big-eared woodrat	*Neotoma macrotis*	SSC	0	2.4	0.2	0.1	17.8	21.1	108.3	0	0	8.5	0	0	0	0	3.9	0.4	2.2	0.5	0	0	0	9.7
Southern grasshopper mouse	*Onychomys torridus ramona*	SSC	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Joaquin pocket mouse	*Perognathus inornatus*	FS	48.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0	0
Mountain lion	*Puma concolor*	SC	45.1	2.4	0.2	0.7	18.1	35.2	119.9	<0.1	0	4.5	0	0	0	0	3.9	0.4	25.5	0.2	42.4	0	0	10.7
Ornate shrew	*Sorex ornatus*	SSC	115.9	2.4	0.2	0	0	35.4	128.3	0	0	8.7	3.8	0	0	0	3.9	0	25.5	0.5	0	0	0	12.5
Brush rabbit	*Sylvilagus bachmani*	FE, SE	115.9	2.4	0.2	0.7	0	35.4	128.3	<0.1	<0.1	8.7	0	5.0	0.2	0	3.9	0.4	25.5	0.5	42.4	0	821.8	12.5
American badger	*Taxidea taxus*	SSC	115.9	2.4	0.2	0.7	18.4	35.4	128.3	<0.1	<0.1	8.7	0	5.0	0.2	0	3.9	0.4	25.5	0.5	42.4	0	0	12.5
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	27.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8
Plants	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
San Mateo thorn-mint	*Acanthomintha duttonii*	FE, SE	67.2	0	0	0	0	0	0	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Hearsts' manzanita	*Arctostaphylos hookeri* ssp. *hearstiorum*	SE	56.7	0	0	0	0	0	100.2	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Morro manzanita	*Arctostaphylos morroensis*	FT	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	3.6	<0.1	0	0	0	0	0	0

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Coastal dunes milk-vetch	*Astragalus tener* var. *titi*	FE, SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dwarf goldenstar	*Bloomeria humilis*	FS, SR	110.3	0	0	0	0	0	122.1	0	0	0	0	0	0	0	3.9	0	0	0	0	0	0	0
Hearsts' ceanothus	*Ceanothus hearstiorum*	FS, SR	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Maritime ceanothus	*Ceanothus maritimus*	SR	56.7	0	0	0	0	0	100.2	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Salt marsh bird's-beak	*Chloropyron maritimum* ssp. *maritimum*	FE, SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ben Lomond spineflower	*Chorizanthe pungens* var. *hartwegiana*	FE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.8	0	0	0	0	0
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	FT	67.2	0	0	0	0	0	108.0	0	0	0	0	0	0	0	3.6	<0.1	0	0	0	0	0	0
Scotts Valley spineflower	*Chorizanthe robusta* var. *hartwegii*	FE	11.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Robust spineflower	*Chorizanthe robusta* var. *robusta*	FE, FS	0	0	0	0	0	0	108.0	0	0	0	0	0	0	0	3.6	<0.1	0	0	0	0	0	0
Crystal Springs fountain thistle	*Cirsium fontinale* var. *fontinale*	FE, SE	11.8	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0	0
San Luis Obispo fountain thistle	*Cirsium fontinale* var. *obispoense*	FE, SE	20.2	0	0	0	0	0	53.7	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0
Surf thistle	*Cirsium rhothophilum*	FS, ST	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
La Graciosa thistle	*Cirsium scariosum* var. *loncholepis*	FE, ST	56.7	0	0	0	0	0	100.2	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Pismo clarkia	*Clarkia speciosa* ssp. *immaculata*	FE, SR	56.7	0	0	0	18.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seaside bird's-beak	*Cordylanthus rigidus* ssp. *littoralis*	FS, SE	0	0	0	0	18.4	0	100.2	0	0	0	0	0	0	0	3.6	<0.1	0	0	0	0	0	0
Beach spectaclepod	*Dithyrea maritima*	FS, ST	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara Valley dudleya	*Dudleya abramsii* ssp. *setchellii*	FE	11.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise - Redshank Chaparral	Closed-Cone Pine-Cypress	Coastal Oak Woodland	Coastal Scrub	Deciduous Orchard	Dryland Grain Crops	Eucalyptus	Fresh Emergent Wetland	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Perennial Grassland	Redwood	Riverine	Urban	Valley Foothill Riparian
Kern mallow	*Eremalche parryi* ssp. *kernensis*	FE	36.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indian Knob mountainbalm	*Eriodictyon altissimum*	FE, SE	0	0	0	0	0	0	53.7	0	0	0	0	0	0	0	1.3	0.4	0	0	0	0	0	0
Butterworth's buckwheat	*Eriogonum butterworthianum*	FS, SR	20.2	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0
San Mateo woolly sunflower	*Eriophyllum latilobum*	FE, SE	0	0	0	0	0	0	8.9	0	0	0	0	0	0	0	0	0	22.8	0	0	0	0	0
Menzies' wallflower	*Erysimum menziesii*	FE, SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Cruz wallflower	*Erysimum teretifolium*	FE, SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	22.8	0	0	0	0	0
Roderick's fritillary	*Fritillaria roderickii*	SE	115.9	0	0	0	0	0	128.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monterey gilia	*Gilia tenuiflora* ssp. *arenaria*	FE, ST	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	3.6	<0.1	0	0	0	0	0	0
Santa Cruz cypress	*Hesperocyparis abramsiana* var. *abramsiana*	FT, SE	0	0	0	0	<0.1	0	0	0	0	0	0	0	0	0	<0.1	0	22.8	0	0	0	0	0
Butano Ridge cypress	*Hesperocyparis abramsiana* var. *butanoensis*	FT, SE	0	0	0	0	<0.1	0	0	0	0	0	0	0	0	0	<0.1	0	22.8	0	0	0	0	0
Gowen cypress	*Hesperocyparis goveniana*	FT	0	0	0	0	18.4	0	0	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Marin western flax	*Hesperolinon congestum*	FT, ST[1]	67.2	0	0	0	0	0	0	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Santa Cruz tarplant	*Holocarpha macradenia*	FT, SE	56.7	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Costa goldfields	*Lasthenia conjugens*	FE	67.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0
Beach layia	*Layia carnosa*	FE, SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coast yellow leptosiphon	*Leptosiphon croceus*	SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco lessingia	*Lessingia germanorum*	FE, SE	0	0	0	0	0	0	108.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Point Reyes meadow-foam	*Limnanthes douglasii* ssp. *sulphurea*	SE	56.7	0	0	0	0	0	100.2	0	0	0	3.8	0	0	0	0	0	0	0	0	0	0	0
Nipomo Mesa lupine	*Lupinus nipomensis*	FE, SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise - Redshank Chaparral	Closed-Cone Pine-Cypress	Coastal Oak Woodland	Coastal Scrub	Deciduous Orchard	Dryland Grain Crops	Eucalyptus	Fresh Emergent Wetland	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Montane Hardwood-Conifer	Perennial Grassland	Redwood	Riverine	Urban	Valley Foothill Riparian
Tidestrom's lupine	*Lupinus tidestromii*	FE, SE	0	0	0	0	0	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dudley's lousewort	*Pedicularis dudleyi*	FS, SR	85.3	0	0	0	0	0	0	0	0	0	0	0	0	0	3.9	0.4	0	0	0	0	0	0
White-rayed pentachaeta	*Pentachaeta bellidiflora*	FE, SE	67.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.1	0	0	0	0	0	0
Yadon's rein orchid	*Piperia yadonii*	FE	0	0	0	0	18.4	0	100.2	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
San Francisco popcornflower	*Plagiobothrys diffusus*	SE	67.2	0	0	0	0	0	108.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Lucia mint	*Pogogyne clareana*	SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0.4	0	0	0	0	0	0
Scotts Valley polygonum	*Polygonum hickmanii*	FE, SE	11.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hickman's cinquefoil	*Potentilla hickmanii*	FE, SE	0	0	0	0	18.4	0	100.2	0	0	0	3.8	0	0	0	0	0	0	0	0	0	0	0
Adobe sanicle	*Sanicula maritima*	FS, SR[1]	67.2	0	0	0	0	0	108.0	0	0	0	0	0	0	0	3.6	0	0	0	0	0	0	0
Cuesta Pass checkerbloom	*Sidalcea hickmanii* ssp. *anomala*	FS, SR	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0
Metcalf Canyon jewelflower	*Streptanthus albidus* ssp. *albidus*	FE, FS	11.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Two-fork clover	*Trifolium amoenum*	FE	67.2	0	0	0	0	0	108.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Grove clover	*Trifolium polyodon*	FS, SR	56.7	0	0	0	18.4	0	100.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monterey clover	*Trifolium trichocalyx*	FE, SE	0	0	0	0	18.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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5.4 Central California Coast Ranges: Estimated Wildlife Impacts

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

The complete results of the SAMNA, inclusive of the 89 transportation projects listed in Tables 5-1 and 5-2 that may affect special-status plant and wildlife species, are provided in Appendix E. The transportation projects within the GAI are listed in Table 5-1, and the transportation projects outside the GAI, but within one of the ecoregion sections, are listed in Table 5-2. 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. Based on a search of the species-attributed vegetation layer, 86 special-status terrestrial species are known to occur or have the potential to occur in the portion of the GAI that lies within the Central California Coast Ranges Ecoregion Section (Section 2.8, Appendix E; Caltrans 2019b). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 28 SHOPP transportation projects could potentially affect 21 habitat types, which could support up to 85 special-status species (Table 5-13). The STIP-eligible projects listed in Table 5-4 are planned near planned SHOPP transportation projects and may potentially affect the same wildlife resources; additional mitigation need may be expected from STIP-eligible transportation projects that fall within the Central California Coast Ranges.

Table 5-13. Summary of Estimated SHOPP Impacts on Special-status Species Habitat: Central California Coast Ranges

Number of Caltrans SHOPP Projects	Number of Habitats	Special-Status Species[a]	Estimated Habitat Impact (acres)
28[b]	21	85	187.6

[a] 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.
[b] The 28 transportation projects are listed in Tables 5-1 and 5-2.

Species of mitigation need are species for whom a high probability of mitigation need is anticipated. The wildlife species of mitigation need, identified in Section 1.5, were included in the analysis, and each is discussed briefly in the subsections below: California red-legged frog (Section 5.4.1), California tiger salamander (Section 5.4.2), foothill yellow-legged frog (Section 5.4.3), and tricolored blackbird (Section 5.4.4). Although the estimated special-status wildlife impacts provided are focused on the mitigation needs identified by the District, consideration was also given to the other species that the SAMNA model indicates may also use the same habitat as the species of mitigation need (Section 5.4.5).

5.4.1. California Red-legged Frog

Using the methods described in Section 5.1.1, impacts on the California red-legged frog and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 84.3 acres of California red-legged frog habitat may be affected by 25 Caltrans SHOPP projects (Caltrans 2019b). Results are summarized in Table 5-14. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.4.2. California Tiger Salamander

Using these same methods, impacts on the California tiger salamander and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 80 acres of California tiger salamander habitat may be affected by 24 Caltrans SHOPP projects (Caltrans 2019b). Results are summarized in Table 5-14. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.4.3. Foothill Yellow-legged Frog

Similarly, impacts on the foothill yellow-legged frog and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 23.5 acres of foothill yellow-legged frog habitat may be affected by 19 Caltrans SHOPP projects (Caltrans 2019b). Results are summarized in Table 5-14. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.4.4. Tricolored Blackbird

Impacts on the tricolored blackbird and its habitat were estimated for the transportation projects that may affect wildlife (listed in Tables 5-1 and 5-2). The SAMNA estimated that 163.8 acres of tricolored blackbird habitat may be affected by 26 Caltrans SHOPP projects (Caltrans 2019b). Results are summarized in Table 5-14. Additional impacts are expected from STIP-eligible transportation projects listed in Table 5-4.

5.4.5. Other Special-status Species

The special-status terrestrial 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 2019b). The above-listed species of mitigation need co-occur with other protected plant, invertebrates, amphibian, reptile, bird, and mammal species in 17 Central California Coast Ranges habitats. Using the methods described in Section 5.1.1, the SAMNA forecasts impacts on an additional 81 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the GAI (Table 5-15).

Table 5-14. Estimated SHOPP Impacts on Species of Mitigation Need: Central California Coast Ranges Ecoregion Section

Subsection Name	California Red-legged Frog: Number of Caltrans SHOPP Projects	California Red-legged Frog: Estimated Habitat Impact (acres)	California Tiger Salamander: Number of Caltrans SHOPP Projects	California Tiger Salamander: Estimated Habitat Impact (acres)	Foothill Yellow-legged Frog: Number of Caltrans SHOPP Projects	Foothill Yellow-legged Frog: Estimated Habitat Impact (acres)	Tricolored Blackbird: Number of Caltrans SHOPP Projects	Tricolored Blackbird: Estimated Habitat Impact (acres)
Caliente Range-Cuyama Valley	1	0.7	0	0	1	<0.1	1	0.8
Carrizo Plain	1	0.1	1	0.1	0	0	1	0.1
Diablo Range	3	2.4	3	2.4	3	2.4	2	1.7
Eastern Hills	1	0.4	1	0.3	0	0	1	0.3
Gabilan Range	4	4.2	4	4.2	4	3.7	3	4.2
Interior Santa Lucia Range	9	54.7	9	52.6	7	5.7	10	109.9
Paso Robles Hills and Valleys	9	21.7	9	20.4	6	11.7	10	49.9
Temblor Range	1	0.2	1	0.1	0	0	1	0.1
Total	**25[a]**	**84.3**	**24[a]**	**80.0**	**19[a]**	**23.5**	**26[a]**	**163.8**

[a] Totals do not reflect numbers presented in rows above. Some SHOPP transportation projects and some habitats cross more than one subsection.

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Table 5-15. Estimated SHOPP Impacts on Special-status Species in Species of Mitigation Need Habitat: Central California Coast Ranges (all results in acres)

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise-Redshank Chaparral	Coastal Oak Woodland	Coastal Scrub	Dryland Grain Crops	Eucalyptus	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Riverine	Urban	Valley Foothill Riparian	Valley Oak Woodland
Not applicable	Not applicable	**Total**	**71.0**	**5.5**	**1.7**	**1.7**	**2.9**	**2.9**	**5.8**	**0.3**	**0.2**	**0.1**	**0.4**	**0.5**	**<0.1**	**0.1**	**84.7**	**1.7**	**0.2**
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California red-legged frog	*Rana draytonii*	FT, SSC	71.0	5.5	0.7	0	1.2	2.9	0	0.3	0	0	0.4	0.5	<0.1	0.1	0	1.7	0.2
California tiger salamander	*Ambystoma californiense*	FE, FT, ST	70.3	5.4	0.7	0	1.2	0	0	0.3	0	0	0.4	0	0	0	0	1.7	0.2
Foothill yellow-legged frog	*Rana boylii*	FS, SSC	16.9	2.2	0.2	0.9	0.6	1.3	0	0	0	0	0	0.1	<0.1	0	0	1.2	<0.1
Tricolored blackbird	*Agelaius tricolor*	FS, ST, SSC	71.0	0	0	0	0	0	5.8	0.3	0.2	0.1	0	0	0	0	84.7	1.7	0
Invertebrates	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Longhorn fairy shrimp	*Branchinecta longiantenna*	FE	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	15.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kern primrose sphinx moth	*Euproserpinus euterpe*	FT	0.7	0	0	0	0	0	0	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	See below	See below	See below	See below	See below	See below	See below	See below	See below
Arroyo toad	*Anaxyrus californicus*	FE, SSC	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0.4	0
Western spadefoot	*Spea hammondii*	FS, SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0	0.4	0.5	0	0.1	0	0	0.2
California newt	*Taricha torosa*	SSC	13.8	0.9	0.2	0	0.2	0.4	0	0	0	0	0	0.1	0	0	0	1.1	<0.1
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California legless lizard	*Anniella pulchra*	FS, SSC	0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	0	0	0	1.7	0.2
Coachwhip	*Masticophis flagellum*	SSC[b]	56.4	0.9	<0.1	0.1	0.6	1.1	0	0.3	0	0	0	0.1	0	0	0	0.1	0
Blunt-nosed leopard lizard	*Gambelia sila*	FE, SE, SFP	2.5	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
California mountain kingsnake[f]	*Lampropeltis zonata*	FS[b]	0	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blainville's horned lizard	*Phrynosoma blainvillii*	FS, SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0	0	0.5	0	0	0	1.7	0.2
Two-striped gartersnake	*Thamnophis hammondii*	FS, SSC	70.3	5.4	0.7	1.7	1.2	2.9	0	0.3	0	0	0.4	0.4	<0.1	0.1	0	1.7	0.2

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise-Redshank Chaparral	Coastal Oak Woodland	Coastal Scrub	Dryland Grain Crops	Eucalyptus	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Riverine	Urban	Valley Foothill Riparian	Valley Oak Woodland
Common gartersnake	*Thamnophis sirtalis*	FE, SE, SFP	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0.4	0.5	<0.1	0	0	1.7	0.2
Desert night lizard	*Xantusia vigilis*	FS, SSC	4.1	0.7	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Grasshopper sparrow	*Ammodramus savannarum*	SSC	8.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Golden eagle	*Aquila chrysaetos*	FS, SFP, SFS	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	<0.1	0	84.7	1.7	0.2
Short-eared owl	*Asio flammeus*	SSC	0.5	0.1	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0
Long-eared owl	*Asio otus*	SSC	71.0	5.4	0.6	1.7	1.2	0	0	0.3	0	0	0	0.5	0	0	0	1.7	0.2
Burrowing owl	*Athene cunicularia*	FS, SSC	71.0	5.4	0.6	1.7	1.2	2.9	0	0.3	0	0	0	0.4	0	0	84.7	1.7	0.2
Redhead	*Aythya americana*	SSC	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0
Mountain plover	*Charadrius montanus*	FS, SSC	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Western snowy plover	*Charadrius alexandrinus rivosus*	FT, SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0	0.1	0.4	0.5	<0.1	0.1	84.7	1.7	0.2
Northern harrier	*Elanus hudsonius*	SSC	0	0	0	0.8	0	0	0	0	0	0	0	0.1	0	0	0	0	0
Olive-sided flycatcher	*Contopus cooperi*	SSC	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0.1	0.4	0.5	<0.1	0.1	84.7	1.7	0.2
White-tailed kite	*Elanus leucurus*	FS, SFP	71.0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	1.7	0
Peregrine falcon	*Falco peregrinus*	SFP, SFS	0.5	0	0	0	0	0	<0.1	0	0	0	0	0	0	0	0	0	0
Bald eagle	*Haliaeetus leucocephalus*	FS, SE, SFP, SFS	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0.4	0.5	<0.1	0.1	0	1.7	0.2
Yellow-breasted chat	*Icteria virens*	SSC	0	0	0	0	0	2.6	0	0	0	0	0	0	0	0	0	1.7	0
Loggerhead shrike	*Lanius ludovicianus*	SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0	0	0	0.5	<0.1	0	84.7	1.7	0.2
Osprey	*Pandion haliaetus*	FS, SFS	55.5	3.3	0.5	0	0.6	0	0	0.3	0	0	0.4	0.2	<0.1	0.1	0	1.1	0
Bryant's savannah sparrow	*Passerculus sandwichensis alaudinus*	SSC	4.2	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
American white pelican	*Pelecanus erythrorhynchos*	SSC	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise-Redshank Chaparral	Coastal Oak Woodland	Coastal Scrub	Dryland Grain Crops	Eucalyptus	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Riverine	Urban	Valley Foothill Riparian	Valley Oak Woodland
Oregon vesper sparrow	*Pooecetes gramineus affinis*	SSC	4.6	1.2	<0.1	0	0	0	0.1	0	0	0	0	0.1	0	0	0	0	0.1
Purple martin	*Progne subis*	SSC	8.0	2.6	0.5	0	0.6	0	0	0.3	0	0	0.4	0	<0.1	0	37.0	0.6	0
Black skimmer	*Rynchops niger*	SSC	27.5	0	0	0	0	0.1	0	0	0	0	0	0	0	0	24.7	0	0
Yellow warbler	*Setophaga petechia*	SSC	0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	<0.1	0	84.7	1.7	0.2
California spotted owl	*Strix occidentalis occidentalis*	FS, SSC	0	0	0	0	0.5	0	0	0	0	0	0	0	<0.1	0	0	0	0
Bewick's wren	*Thryomanes bewickii*	SSC	0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	<0.1	0	84.7	1.7	0.2
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0
Hutton's vireo[v]	*Vireo huttoni*	SSC	0	3.8	0.6	1.4	1.2	2.3	0	0.3	0	0	0	0.2	<0.1	0	84.3	1.7	<0.1
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
Nelson's antelope ground squirrel	*Ammospermophilus nelsoni*	FS, ST	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pallid bat	*Antrozous pallidus*	FS, SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0	0.5	<0.1	0.1	84.7	1.7	0.2
Ringtail	*Bassariscus astutus*	SFP	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0	0.5	<0.1	0	0	1.7	0.2
California pocket mouse	*Chaetodipus californicus*	SSC	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	<0.1	0	0	0	0.2
Townsend's big-eared bat	*Corynorhinus townsendii*	FS, SSC	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0.2	0.1	0	0.5	<0.1	0.1	84.7	1.7	0.2
Giant kangaroo rat	*Dipodomys ingens*	FE, SE	18.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fresno kangaroo rat	*Dipodomys nitratoides*	FE, SE	0.5	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big-eared kangaroo rat	*Dipodomys venustus elephantinus*	SSC	1.9	0.7	<0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Western mastiff bat	*Eumops perotis*	FS, SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0	0.5	<0.1	0	84.7	1.7	0.2
Western red bat	*Lasiurus blossevillii*	SSC	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0.4	0.5	<0.1	0.1	84.7	1.7	0.2
Small-footed myotis	*Myotis ciliolabrum*	FS	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0.4	0.5	<0.1	0.1	84.7	1.7	0.2
Long-eared myotis	*Myotis evotis*	FS	0	5.3	0.7	1.7	1.2	2.8	5.8	0.3	0.2	0.1	0.4	0.4	<0.1	0.1	0	1.7	0.2

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise-Redshank Chaparral	Coastal Oak Woodland	Coastal Scrub	Dryland Grain Crops	Eucalyptus	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Riverine	Urban	Valley Foothill Riparian	Valley Oak Woodland
Fringed myotis	*Myotis thysanodes*	FS	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0.4	0.5	<0.1	0.1	84.7	1.7	0.2
Yuma myotis	*Myotis yumanensis*	FS	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0.4	0.5	<0.1	0.1	84.7	1.7	0.2
Dusky-footed woodrat	*Neotoma fuscipes*	SSC	0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	<0.1	0	0	1.7	0.2
Big-eared woodrat	*Neotoma macrotis*	SSC	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southern grasshopper mouse	*Onychomys torridus*	SSC	5.6	0	0	0	0	0.3	0	0	0	0	0	0.2	0	0	0	0	0
San Joaquin pocket mouse	*Perognathus inornatus*	FS	66.3	3.8	0	0	0.1	0	0	0	0	0	0	0.4	0	0	0	0	0.2
Mountain lion	*Puma concolor*	SC	71.0	5.5	0.7	1.7	1.2	2.9	0	0.3	0	0	0	0.5	<0.1	0	0	1.7	0.2
Ornate shrew	*Sorex ornatus*	SSC	71.0	5.5	0.7	0	1.2	2.9	0	0.3	0	0	0	0.5	0	0	0	1.7	0.2
Brush rabbit	*Sylvilagus bachmani*	FE, SE	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0	0.5	<0.1	0	84.7	1.7	0.2
American badger	*Taxidea taxus*	SSC	71.0	5.5	0.7	1.7	1.2	2.9	5.8	0.3	0.2	0.1	0	0.5	<0.1	0	0	1.7	0.2
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	69.6	3.2	0.2	0	0.1	0	0	0	0	0	0	0	0	0	0	1.1	0.2
Plants	*See below*	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
San Benito evening-primrose	*Camissonia benitensis*	FT	39.5	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0
California jewelflower	*Caulanthus californicus*	FE, SE	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coyote ceanothus	*Ceanothus ferrisiae*	FE	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Lucia purple amole	*Chlorogalum purpureum* var. *purpureum*	FT	32.9	0	0	0	0	0	0	0	0	0	0	0.4	<0.1	0	0	0	0
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	FT	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Luis Obispo fountain thistle	*Cirsium fontinale* var. *obispoense*	FE, SE	32.9	0	0	0	0	2.6	0	0	0	0	0	0.4	0	0	0	0	0
Santa Clara Valley dudleya	*Dudleya abramsii* ssp. *setchellii*	FE	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kern mallow	*Eremalche parryi* ssp. *kernensis*	FE	40.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Common Name	Species Name	Status	Annual Grassland	Blue Oak Woodland	Blue Oak-Foothill Pine	Chamise-Redshank Chaparral	Coastal Oak Woodland	Coastal Scrub	Dryland Grain Crops	Eucalyptus	Irrigated Row and Field Crops	Irrigated Grain Crops	Lacustrine	Mixed Chaparral	Montane Hardwood	Riverine	Urban	Valley Foothill Riparian	Valley Oak Woodland
Contra Costa goldfields	*Lasthenia conjugens*	FE	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Joaquin woollythreads	*Monolopia congdonii*	FE	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spreading navarretia	*Navarretia fossalis*	FT	32.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White-rayed pentachaeta	*Pentachaeta bellidiflora*	FE, SE	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco popcornflower	*Plagiobothrys diffusus*	SE	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Lucia mint	*Pogogyne clareana*	SE	0	0	0	0	0	0	0	0	0	0	0	0.4	<0.1	0	0	0	0
Rock sanicle	*Sanicula saxatilis*	FS, SR	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cuesta Pass checkerbloom	*Sidalcea hickmanii* ssp. *anomala*	FS, SR	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0
Parish's checkerbloom	*Sidalcea hickmanii* ssp. *parishii*	FS, SR	0	0	0	0	0	0	0	0	0	0	0	0.4	<0.1	0	0	0	0
Metcalf Canyon jewelflower	*Streptanthus albidus* ssp. *albidus*	FE, FS	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

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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 were identified in Chapter 5 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 shall 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

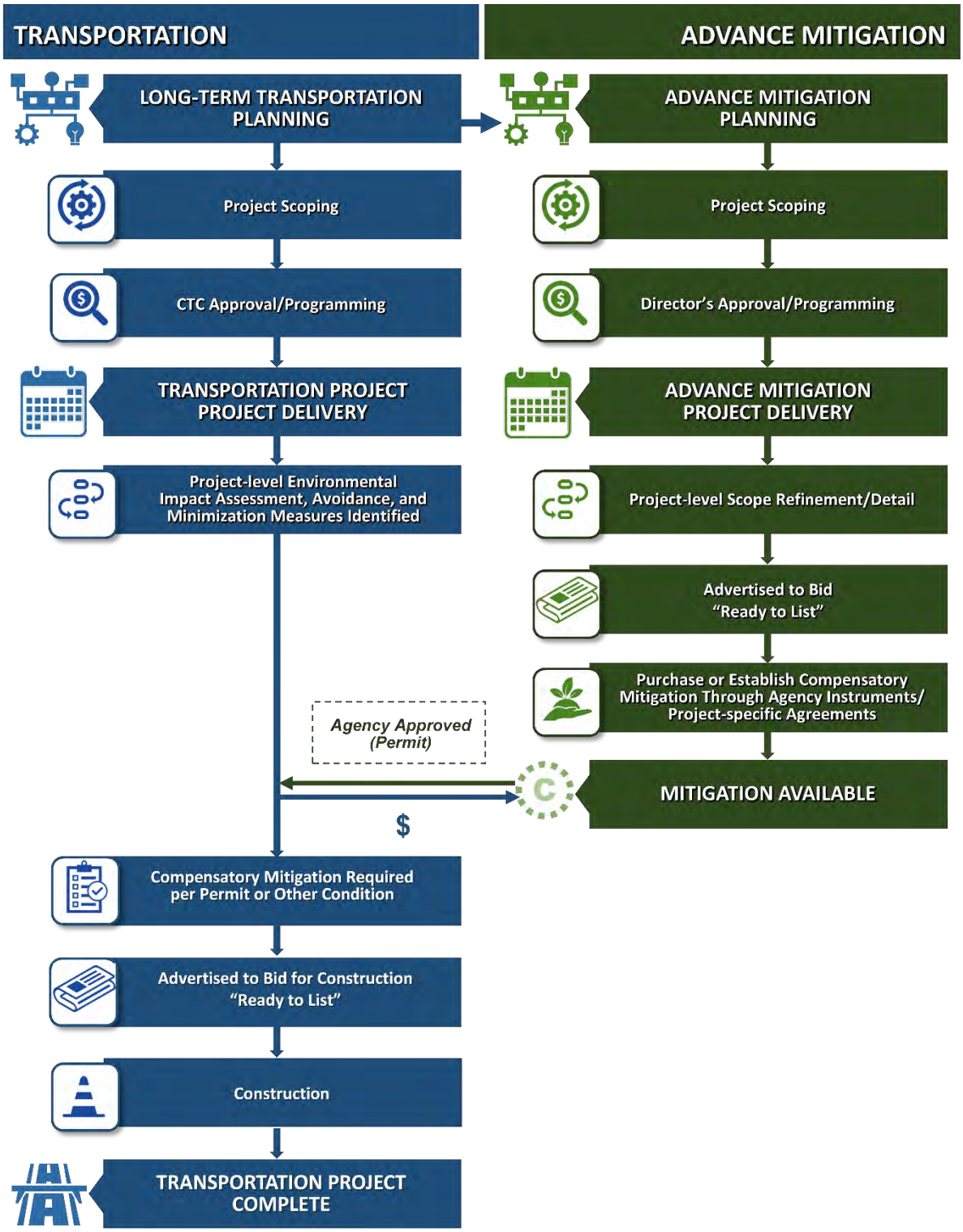
Broadly speaking, an advance mitigation project is an SHC § 800.6(a) authorized activity that consists of (1) purchasing compensatory mitigation that has been previously approved by the natural resource regulatory agencies through a conservation bank, mitigation bank, HCP/NCCP, or in-lieu fee program; 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, 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 perform 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). The date when a Caltrans potential transportation project is expected to be Ready to List[1] is an appropriate estimate for identifying when a Caltrans

[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.

advance mitigation project will need to deliver compensatory mitigation to a potential benefiting transportation project.

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



6.2 Patterns of Estimated Potential Impacts

Given that the planning horizon for this assessment covers the 2017/2018 through 2026/2027 fiscal years, and that some of the transportation projects may have already gone to bid, it is necessary to consider which of the 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
- 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 Tables 5-1 and 5-2.

- As shown in Tables 6-1 through 6-5 and Figures 6-2 through 6-6, when the SHOPP transportation projects identified previously have their aquatic resource impacts examined relative to their expected advertising date, the compensatory mitigation needs are clustered in the middle and later half of the 10-year planning horizon.
- As shown in Table 6-6 and Figure 6-7, when the SHOPP transportation projects identified previously have their vernal pool impacts examined relative to their expected advertising date, the compensatory mitigation needs are forecast primarily for the Central California Coast Ranges Ecoregion Section, near the beginning and later half of the 10-year planning horizon.
- As shown in Table 6-7 and Figure 6-8, when the SHOPP transportation projects identified previously have their forecast species of mitigation need impacts examined relative to their expected advertising date, the compensatory mitigation needs are clustered in the middle of the 10-year planning horizon for the Central California Coast Ecoregion Section.
- As shown in Table 6-8 and in Figure 6-9, when the SHOPP transportation projects identified previously have their forecast species of mitigation need impacts examined relative to their expected advertising date, the compensatory mitigation needs are clustered in the middle and later half of the 10-year planning period for the Central California Coast Ranges Ecoregion Section.

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

Table 6-1. Central Coastal: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Water: Number of Transportation Projects	Water: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	1	0.1	0	0.0	1	0.1	1.9
2018/19	0	0.0	0	0.0	0	0.0	0.0
2019/20	2	0.2	2	0.2	2	0.2	6.8
2020/21	0	0.0	0	0.0	0	0.0	0.0
2021/22	0	0.0	0	0.0	0	0.0	0.0
2022/23	2	0.1	1	0.3	2	0.3	7.6
2023/24	3	0.6	6	1.3	3	3.7	57.8
2024/25	2	0.4	4	0.4	3	1.0	17.5
2025/26	1	0.1	2	0.2	2	0.3	6.3
2026/27	0	0.0	1	<0.1	1	0.2	2.1
Total	**11**	**1.5**	**16[b]**	**2.5[b]**	**14**	**5.7**	**100%**

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Figure 6-2. Central Coastal: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

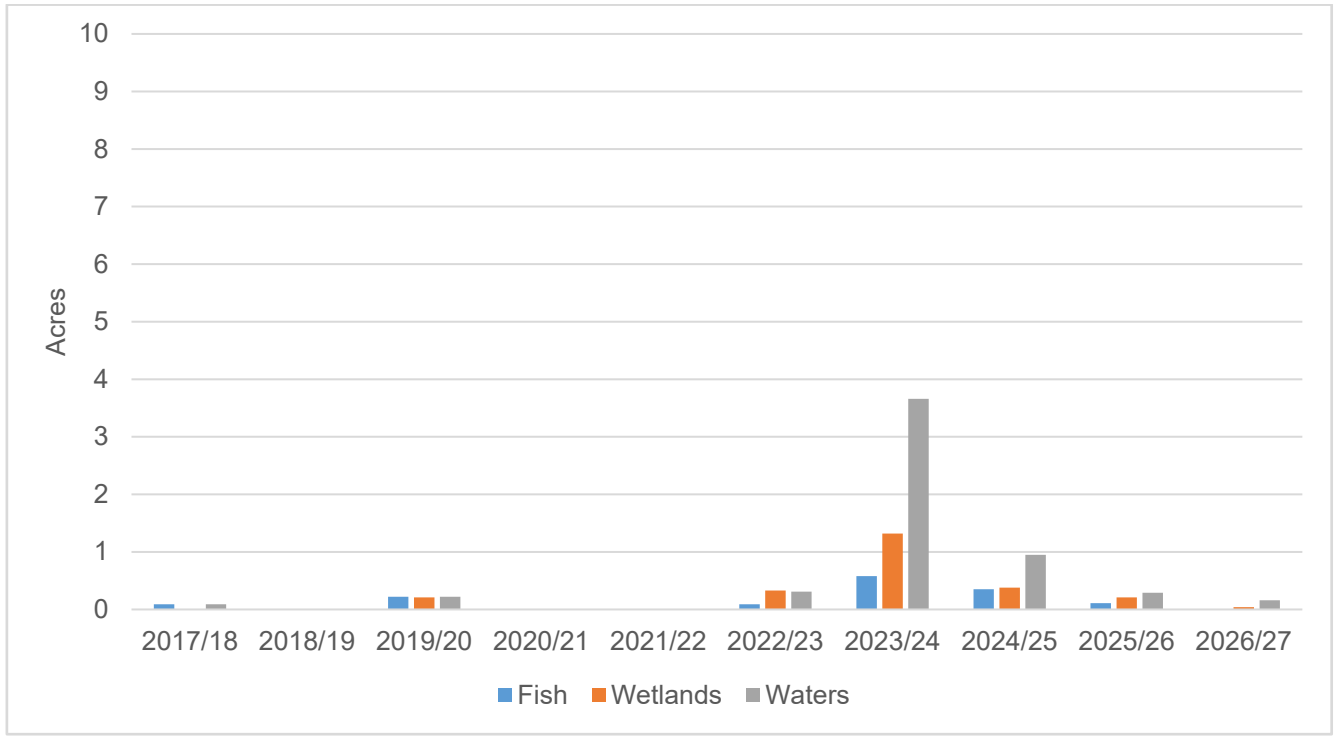

Table 6-2. Monterey Bay: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Water: Number of Transportation Projects	Water: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	0	0.0	0	0.0	0	0.0	0.0
2018/19	2	0.2	1	0.1	3	3.5	19.2
2019/20	0	0.0	0	0.0	0	0.0	0.0
2020/21	0	0.0	0	0.0	0	0.0	0.0
2021/22	3	1.1	1	3.1	3	3.2	17.6
2022/23	3	7.7	3	0.9	3	7.4	41.4
2023/24	3	0.4	2	1.8	3	3.0	16.7
2024/25	0	0.0	0	0.0	0	0.0	0.0
2025/26	3	0.2	2	<0.1	3	0.2	1.3
2026/27	3	0.6	4	0.2	3	0.7	3.9
Total	**17**	**10.3**	**13[b]**	**6.1[b]**	**18**	**15.0**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100
[b] As provided in Table 5-7, in the coastal zone and for the planning period, the SAMNA estimated 1.1 acres of wetland impacts from seven transportation projects.

Figure 6-3. Monterey Bay: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

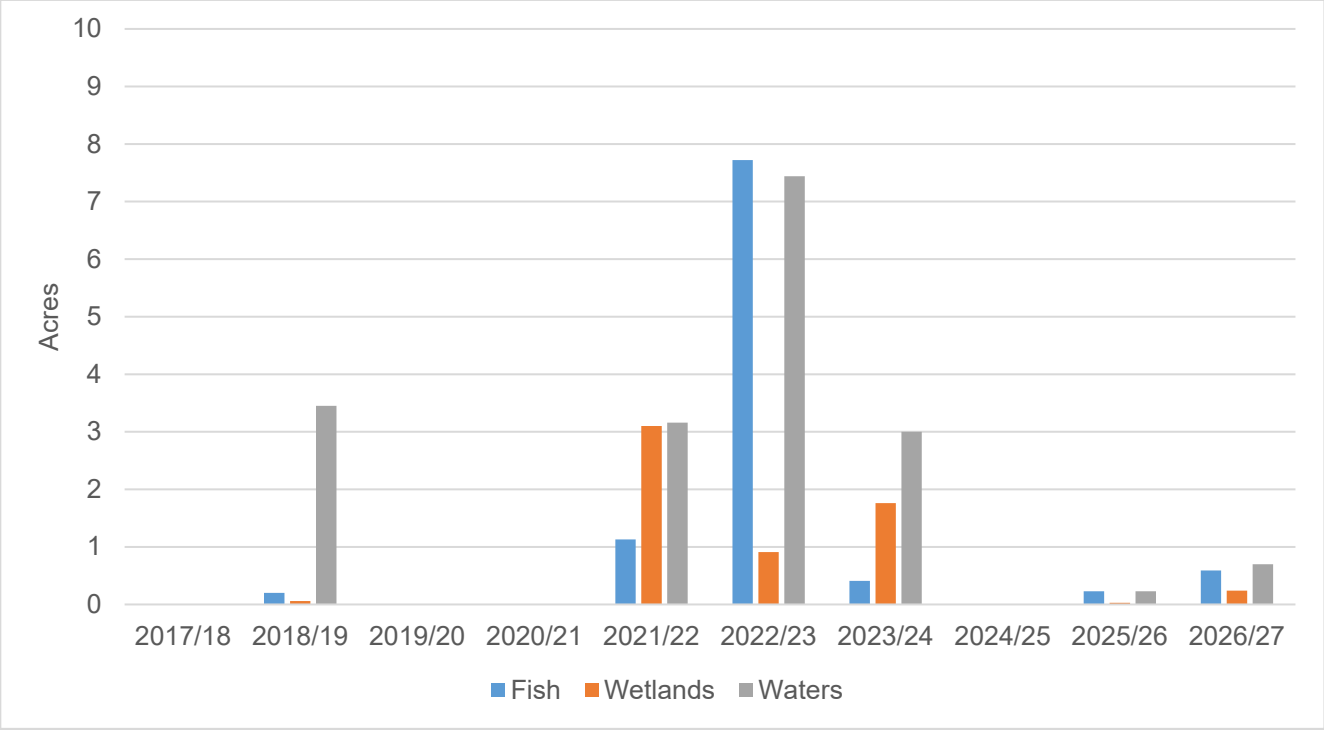

Table 6-3. Pajaro: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Water: Number of Transportation Projects	Water: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)
2017/18	0	0.0	0	0.0	0	0.0	0.0
2018/19	1	0.1	1	0.2	1	0.4	29.5
2019/20	0	0.0	0	0.0	0	0.0	0.0
2020/21	0	0.0	0	0.0	0	0.0	0.0
2021/22	0	0.0	0	0.0	0	0.0	0.0
2022/23	1	0.5	1	<0.1	1	0.8	53.7
2023/24	0	0.0	1	0.1	1	<0.1	0.7
2024/25	0	0.0	0	0.0	1	<0.1	2.7
2025/26	0	0.0	0	0.0	1	0.1	8.1
2026/27	1	<0.1	2	0.2	1	0.1	5.4
Total	**3**	**0.6**	**5[b]**	**0.5[b]**	**6**	**1.5**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100
[b] As provided in Table 5-7, in the coastal zone and for the planning period, the SAMNA estimated 0.3 acres of wetland impacts from two transportation projects in this HUC-8.

Figure 6-4. Pajaro: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

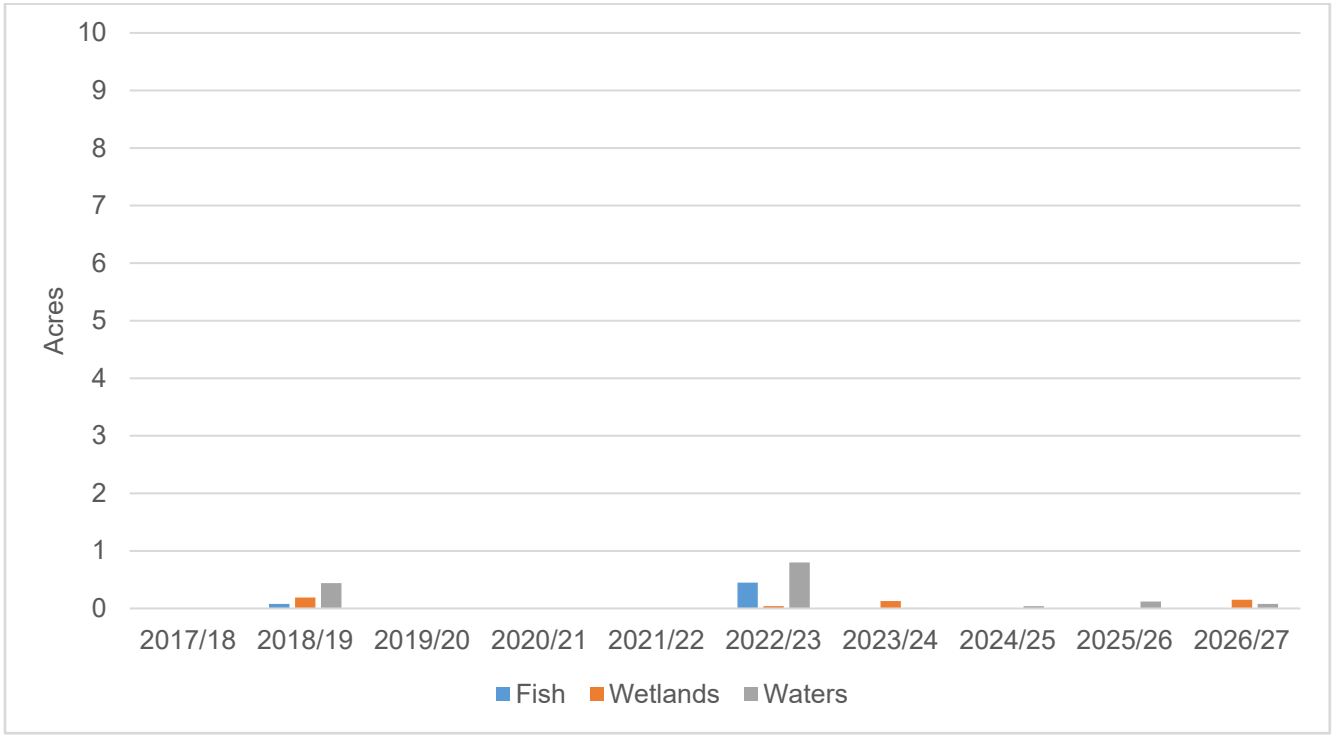

Table 6-4. Salinas: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Water: Number of Transportation Projects	Water: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	1	0.3	0	0.0	1	0.3	3.4
2018/19	1	0.1	2	0.3	2	0.8	8.9
2019/20	2	0.4	2	0.9	2	0.5	5.5
2020/21	0	0.0	0	0.0	0	0.0	0.0
2021/22	0	0.0	0	0.0	0	0.0	0.0
2022/23	0	0.0	1	<0.1	1	0.2	2.6
2023/24	1	0.7	3	4.7	3	2.7	30.7
2024/25	2	0.5	6	0.3	6	2.9	33.0
2025/26	0	0.0	1	0.2	1	1.0	11.7
2026/27	0	0.0	3	0.5	4	0.4	4.2
Total	**7**	**2.0**	**18[b]**	**7.5[b]**	**20**	**8.9**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100
[b] As provided in Table 5-7, in the coastal zone and for the planning period, the SAMNA estimated 0.3 acres of wetland impacts from five transportation projects in this HUC-8.

Figure 6-5. Salinas: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

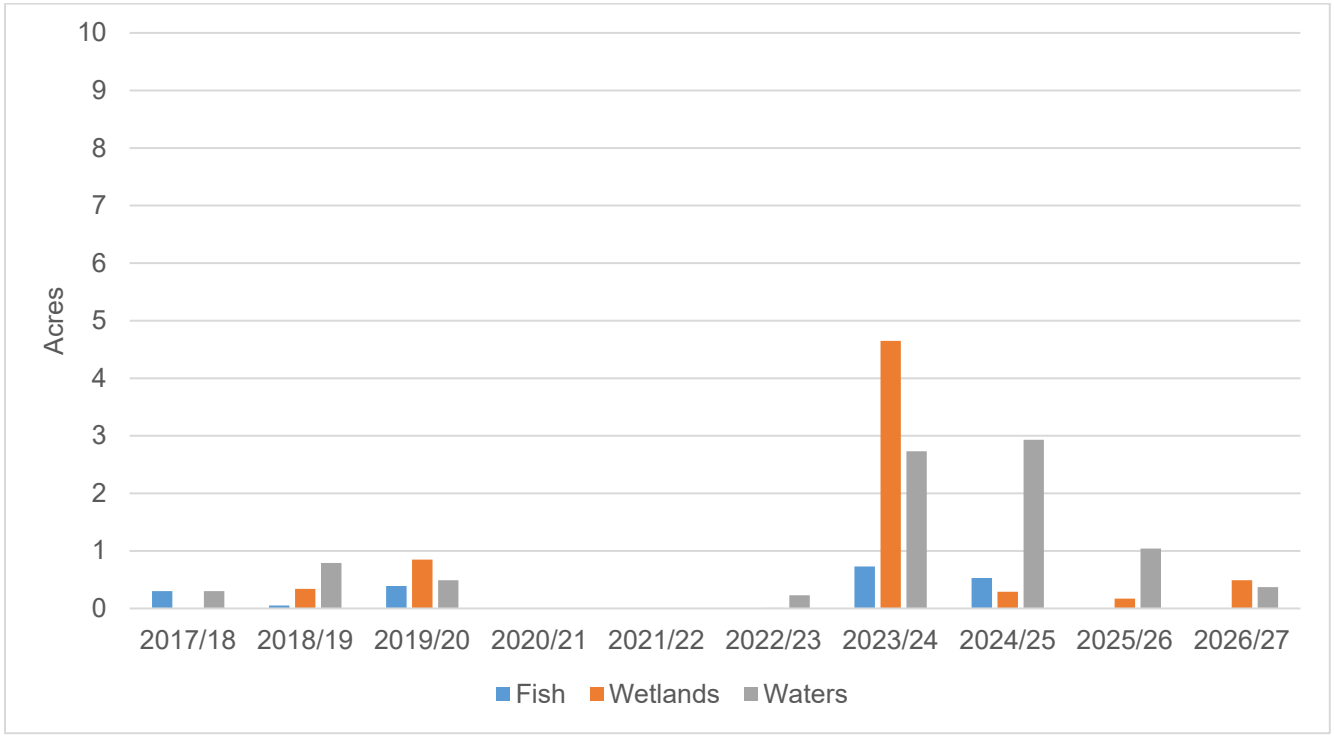

Table 6-5. San Francisco Coastal South: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)	Water: Number of Transportation Projects	Water: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	0	0.0	0	0.0	0	0.0	0.0
2018/19	0	0.0	0	0.0	0	0.0	0.0
2019/20	0	0.0	0	0.0	0	0.0	0.0
2020/21	0	0.0	0	0.0	0	0.0	0.0
2021/22	1	0.3	0	0.0	1	0.3	39.2
2022/23	1	0.2	1	<0.1	1	0.2	30.4
2023/24	0	0.0	0	0.0	0	0.0	0.0
2024/25	0	0.0	0	0.0	1	0.2	15.5
2025/26	1	0.2	0	0.0	0	0.0	14.9
2026/27	0	0.0	0	0.0	0	0.0	0.0
Total	**3**	**0.7**	**1[b]**	**<0.1[b]**	**3**	**0.7**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100
[b] As provided in Table 5-7, in the coastal zone and for the planning period, the SAMNA estimated <0.1 acres of wetland impacts from one transportation project in this HUC-8.

Figure 6-6. San Francisco Coastal South: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

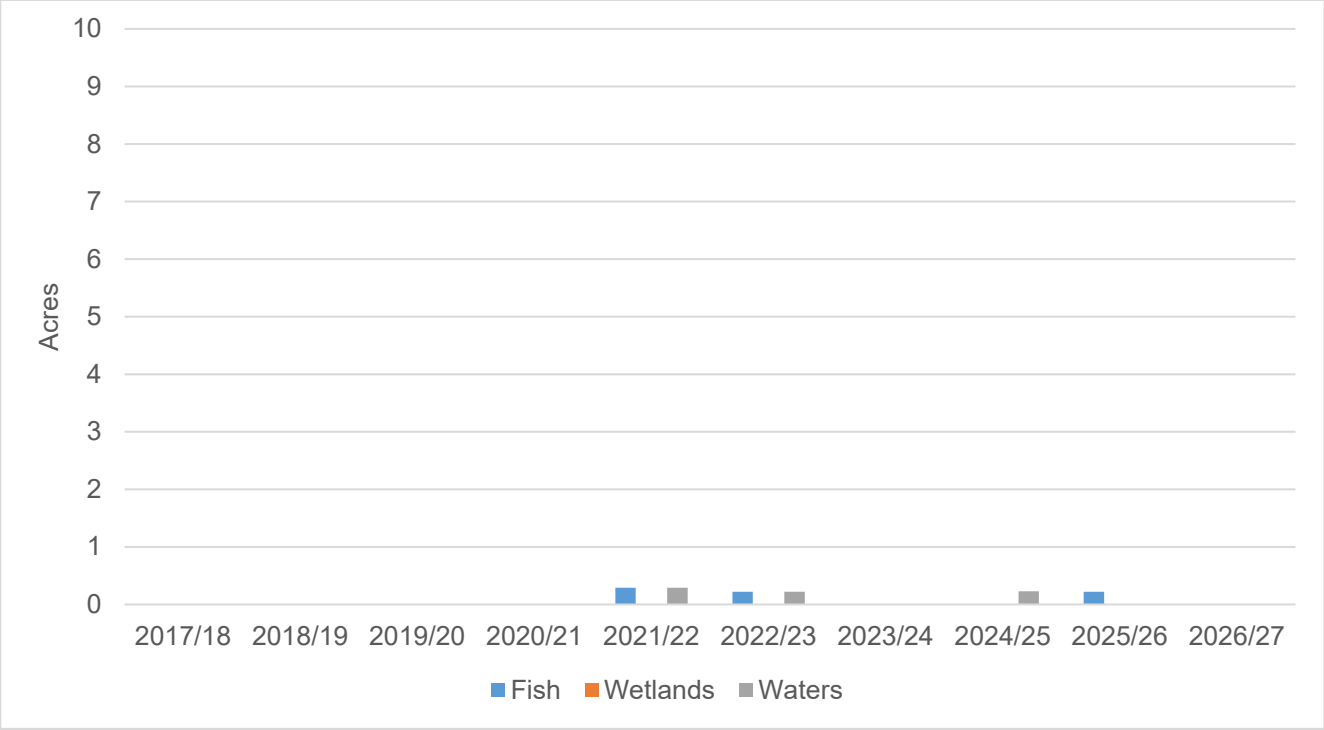

Table 6-6. Central California Coast and Central California Coast Ranges Ecoregion Sections: Estimated Impacts on Vernal Pool Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Central California Coast: Number of Transportation Projects	Central California Coast: Estimated Potential Impacts (acres)	Central California Coast Ranges: Number of Transportation Projects	Central California Coast Ranges: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	0	0.0	0	0.0	0.0
2018/19	0	0.0	0	0.0	0.0
2019/20	0	0.0	2	6.5	29.7
2020/21	1	0.5	0	0.0	2.3
2021/22	0	0.0	0	0.0	0.0
2022/23	2	5.7	1	0.3	27.3
2023/24	1	1.0	0	0.0	0.0
2024/25	1	0.1	5	7.1	32.8
2025/26	1	0.2	1	1.0	5.5
2026/27	0	0.0	4	0.5	2.4
Total	**6**	**6.6**	**13**	**15.4**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100

Figure 6-7. Central California Coast and Central California Coast Ranges Ecoregion Sections: Estimated Impacts on Vernal Pools, by Transportation Project Delivery Year

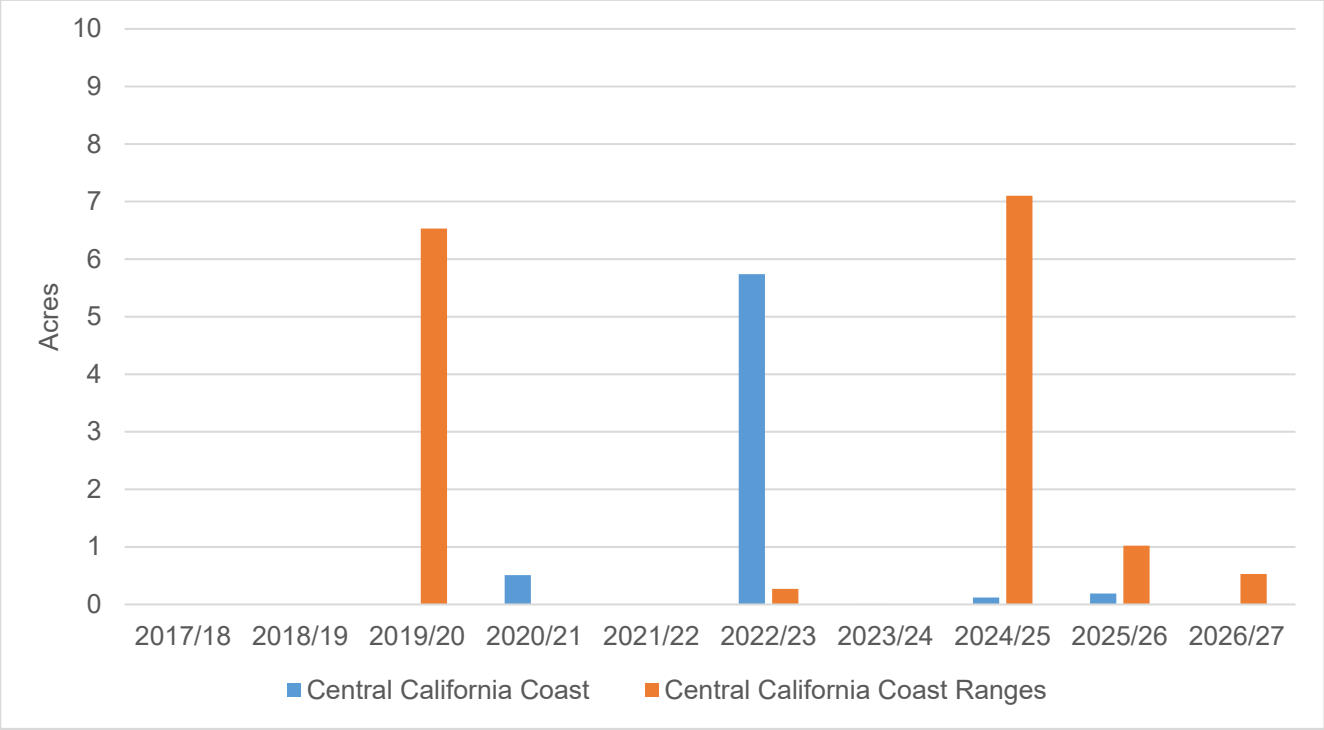

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Table 6-7. Central California Coast Ecoregion Section: Estimated Impacts on Species of Mitigation Need, by Transportation Project Delivery Year

Expected Advertisement Year	California Red-legged Frog: Number of Transportation Projects	California Red-legged Frog: Estimated Potential Impacts (acres)	California Tiger Salamander: Number of Transportation Projects	California Tiger Salamander: Estimated Potential Impacts (acres)	Foothill Yellow-legged Frog: Number of Transportation Projects	Foothill Yellow-legged Frog: Estimate Potential Impacts (acres)	Tricolored Blackbird: Number of Transportation Projects	Tricolored Blackbird: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	1	2.3	1	0.7	0	0.0	1	0.7	0.4
2018/19	3	13.5	3	10.7	2	8.5	3	8.3	4.4
2019/20	5	5.1	5	5.0	3	0.6	3	4.6	1.6
2020/21	1	3.9	0	0.9	0	0.0	1	3.9	0.8
2021/22	7	95.6	1	24.8	5	67.9	3	23.5	22.7
2022/23	5	46.4	4	15.4	4	28.6	4	9.7	10.7
2023/24	15	198.6	14	88.9	10	109.1	11	76.4	50.6
2024/25	9	3.7	4	1.5	8	3.6	4	0.2	1.0
2025/26	8	10.0	5	2.2	7	9.8	8	2.2	2.6
2026/27	8	19.4	8	10.8	3	8.2	9	10.4	5.2
Total	**62**	**398.6**	**45**	**160.0**	**42**	**236.2**	**47**	**134.0**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100

Figure 6-8. Central California Coast Ecoregion Section: Estimated Impacts on Species of Mitigation Need, by Transportation Project Delivery Year

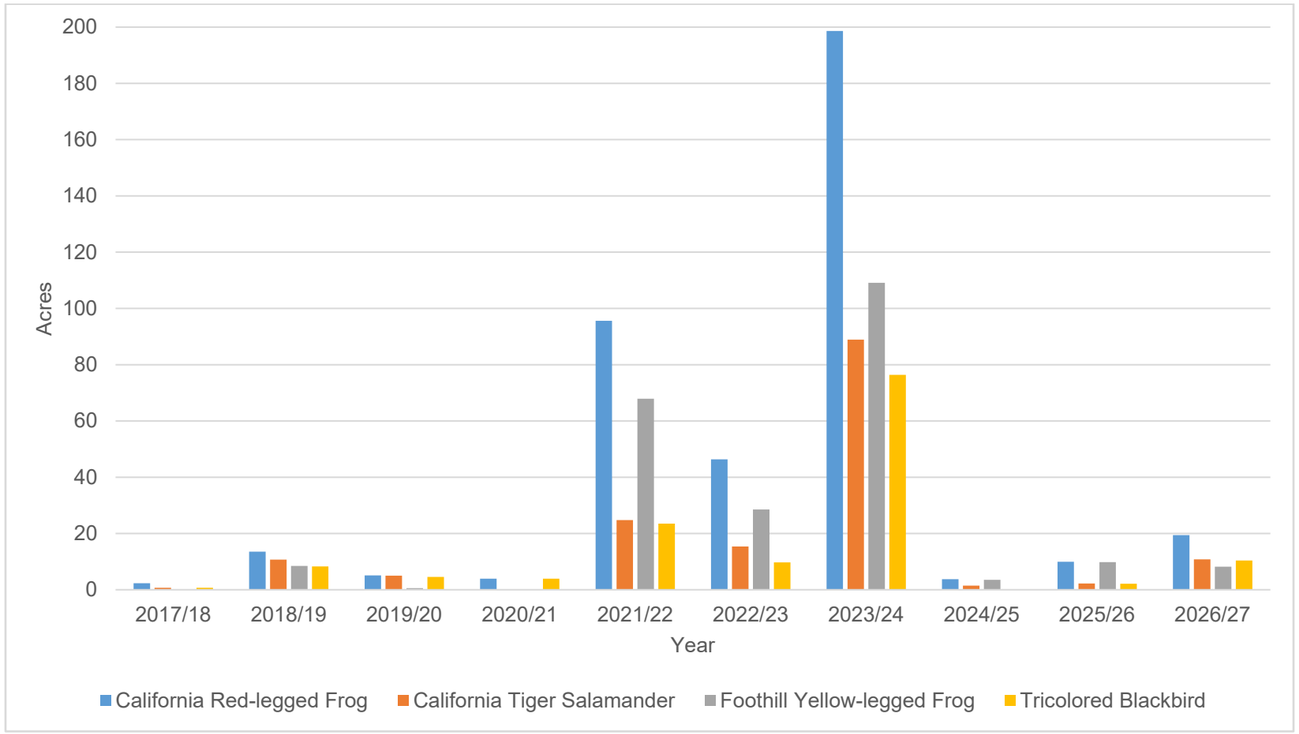
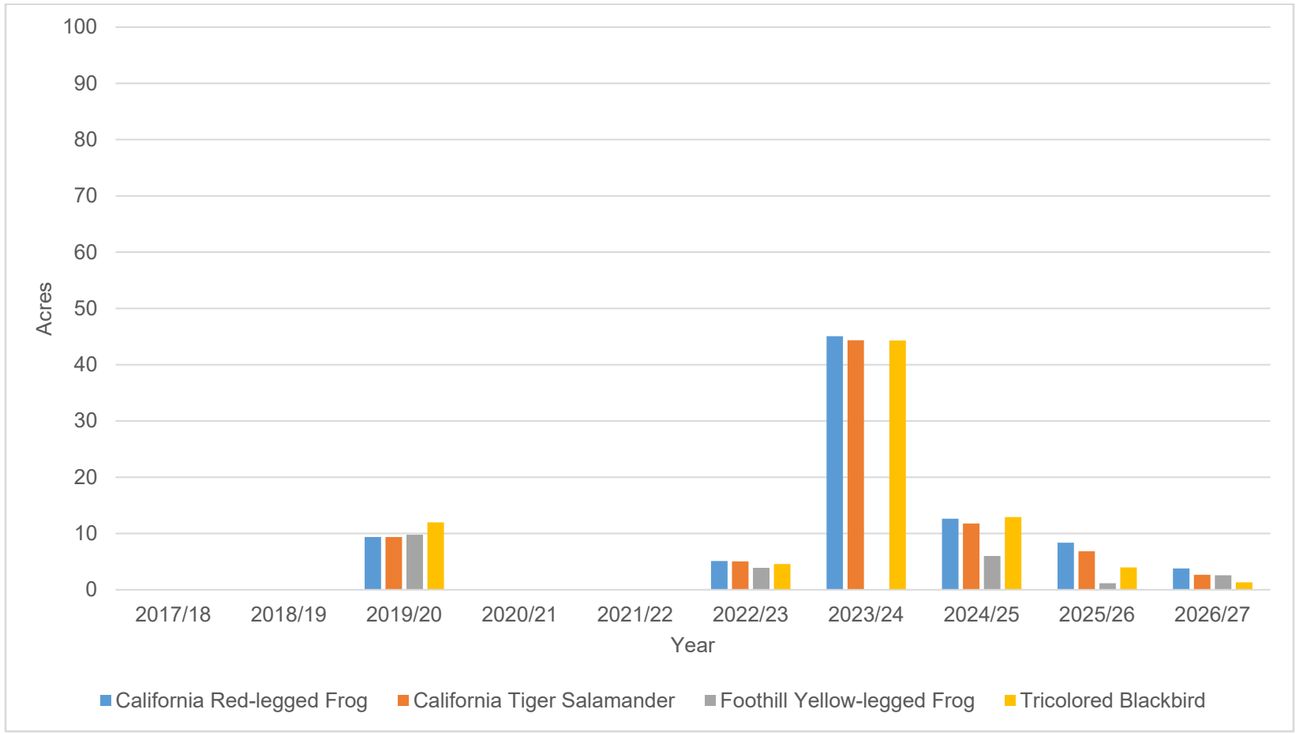


Table 6-8. Central California Coast Ranges Ecoregion Section: Estimated Impacts on Species of Mitigation Need, by Transportation Project Delivery Year

Expected Advertisement Year	California Red-legged Frog: Number of Transportation Projects	California Red-legged Frog: Estimated Potential Impacts (acres)	California Tiger Salamander: Number of Transportation Projects	California Tiger Salamander: Estimated Potential Impacts (acres)	Foothill Yellow-legged Frog: Number of Transportation Projects	Foothill Yellow-legged Frog: Estimate Potential Impacts (acres)	Tricolored Blackbird: Number of Transportation Projects	Tricolored Blackbird: Estimated Potential Impacts (acres)	Percentage of Total Mitigation Need (%)[a]
2017/18	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2018/19	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2019/20	4	9.4	0	0.0	4	9.8	4	12.0	15.2
2020/21	0	0.0	4	9.4	0	0.0	0	0.0	0.0
2021/22	0	0.0	0	0.0	0	0.0	0	0.0	0.0
2022/23	2	5.1	2	5.0	2	3.9	2	4.6	7.0
2023/24	2	45.1	2	44.3	1	0.1	1	44.3	50.1
2024/25	7	12.6	7	11.8	5	6.0	7	12.9	16.2
2025/26	2	8.4	1	6.8	2	1.2	2	4.0	7.6
2026/27	8	3.8	8	2.7	5	2.6	8	1.3	3.9
Total	**25**	**84.3**	**24**	**80.0**	**19**	**23.5**	**24**	**79.1**	**100%**

[a] Indicative of the timing of mitigation need. [∑ impacts (year) ÷ ∑ total impacts]*100

Figure 6-9. Central California Coast Ranges Ecoregion Section: Estimated Impacts on Species of Mitigation Need, by Transportation Project Delivery Year



6.3 Acceleration Priorities

Caltrans' transportation project sequence prioritization reflects the updated information provided in the 2017/18 to 2026/27 (Quarter 2) SHOPP Ten-Year Book and is based on meeting the District's needs and performance targets while financially balancing the District's accounts. As a result of the dynamic nature of transportation planning, since the 2017/18 to 2026/27 (Quarter 2) SHOPP Ten-Year Book was published, delivery schedules associated with 20 transportation projects have changed.

The following projects will be delayed, based on the current SHOPP Ten-Year Book (2019/20 to 2028/29, Quarter 4):

- SHOPP Project ID 19988 will be delayed from 2024/25 to 2029/30.
- SHOPP Project ID 20019 will be delayed from 2026/27 to 2027/28.
- SHOPP Project ID 17521 will be delayed from 2021/22 to 2022/23.
- SHOPP Project ID 19156 will be delayed from 2023/24 to 2026/27.
- SHOPP Project ID 19939 will be delayed from 2025/26 to 2026/27.
- SHOPP Project ID 20013 will be delayed from 2026/27 to 2028/29.
- SHOPP Project ID 19160 will be delayed from 2022/23 to 2025/26.
- SHOPP Project ID 19159 will be delayed from 2022/23 to 2023/24.
- SHOPP Project ID 19094 will be delayed from 2023/24 to 2024/25.
- SHOPP Project ID 20025 will be delayed from 2026/27 to 2027/28.
- SHOPP Project ID 20002 will be delayed from 2025/26 to 2030/31.
- SHOPP Project ID 19948 will be delayed from 2025/26 to 2027/28.
- SHOPP Project ID 9189 will be delayed from 2019/20 to 2021/22.
- SHOPP Project ID 19080 will be delayed from 2022/23 to 2026/27.
- SHOPP Project ID 19940 will be delayed from 2024/25 to 2028/29.
- SHOPP Project ID 19955 will be delayed from 2024/25 to 2027/28.
- SHOPP Project ID 19957 will be delayed from 2024/25 to 2025/26.
- SHOPP Project ID 19954 will be delayed from 2025/26 to 2029/30.

Additionally, at this time the following projects will be accelerated:

- SHOPP Project ID 20024 will be accelerated from 2026/27 to 2025/26.
- SHOPP Project ID 19943 will be accelerated from 2024/25 to 2025/26.

The following projects have been excluded from the most current 10-Year Book (2019/20 to 2028/29, Quarter 4):

- SHOPP Project IDs 15998, 15999, 13695, 20745, 20744, 20003, 19944, 19076, 19085, 20035, 20001, 20038, 19956, 20017, 20034, 19942, and 19154

However, the following projects have been added to the most current 10-Year Book (2019/20 to 2028/29, Quarter 4):

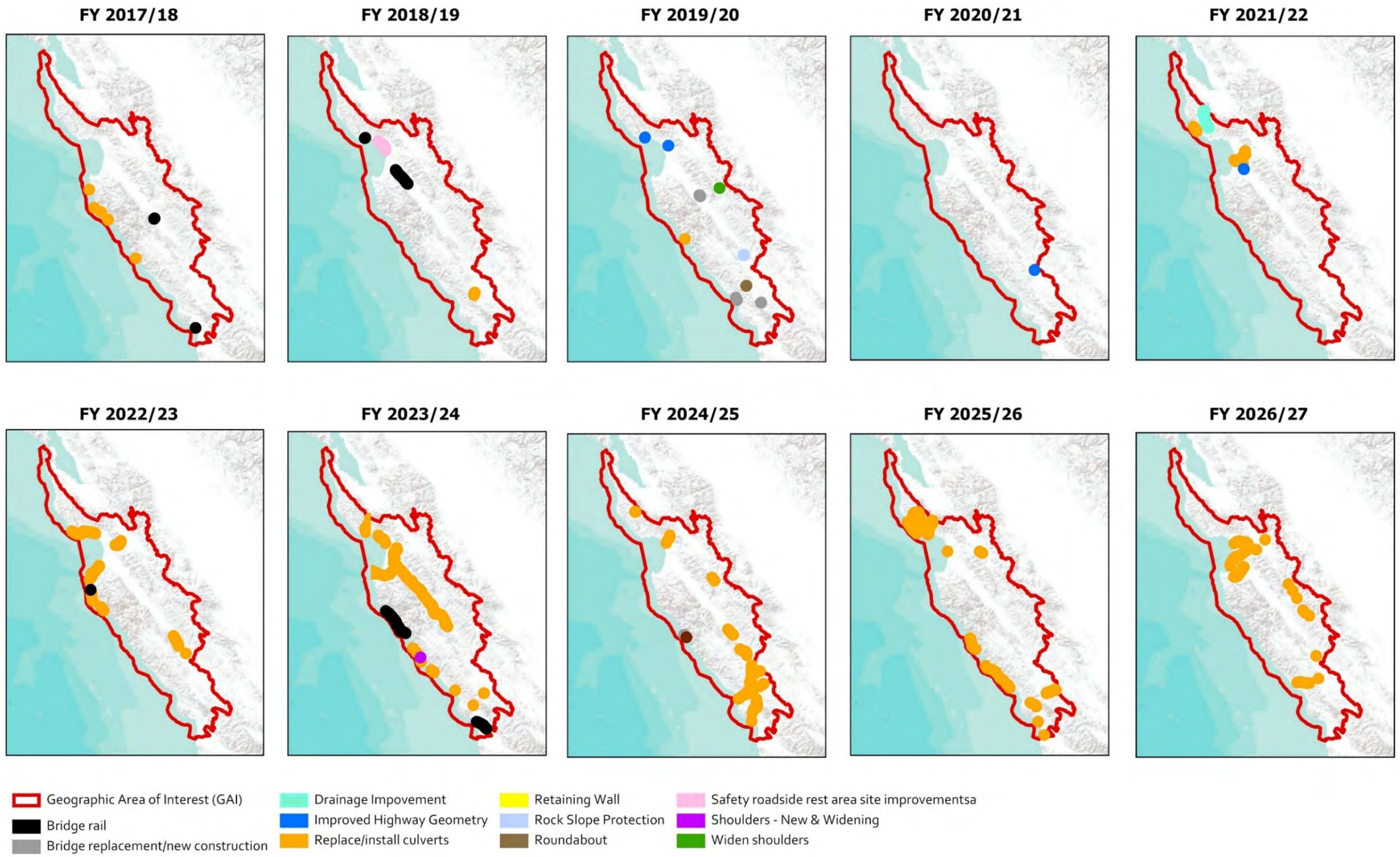
- SHOPP Project IDs 21703, 20020, 20019, 20023, 21710, 21708, 21709, and 21706

As shown in Tables 6-1 through 6-6 and Figures 6-2 through 6-7, which are based on Quarter 2 of the Ten-Year Book, most impacts on aquatic resources throughout the five HUCs were forecast for the middle to late part of the 10-year period evaluated in the SAMNA, 2017/18 to 2026/27.

Similarly, as shown in Tables 6-7 and 6-8 and Figures 6-8 and 6-9, most impacts on the species of mitigation need in both ecoregions were forecast for the middle of the 10-year period evaluated in the SAMNA, 2017/18 to 2016/27.

At this time, the Road Repair and Accountability Act of 2017 (also known as Senate Bill 1) priorities are the District's priorities, which generally fall in the middle and end of the 10-year assessment period. Figure 6-10 illustrates the location of the prioritized transportation projects, by year.

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



Sources: Esri, USGS, NOAA

Note: SHOPP transportation projects are listed in Table 5-1. SHOPP projects shown above are listed by year, below. Projects identified with a "*" are a priority for delivery based on Senate Bill 1 funding. Additionally, "^" indicates that a project has been added since the 2017/18 SHOPP 10-Year Book, Quarter 2.

2017/18: None
2018/19: None
2019/20: 20889, 20890, 11313, 9195, 9261, 20891
2020/21: None
2021/22: 9289, 15835, 9189*, 9294
2022/23: 17668
2023/24: 19164, 19084, 19158, 19159*, 19093, 19162
2024/25: 13546, 19935, 19943*, 19094*
2025/26: 20024*, 19160*, 19957*, 19938
2026/27: 19939*, 20029, 19080*
2027/28: 20019*, 20025*, 19948*, 20000, 19955*, 21705^, 19941^, 19951^, 21703^, 20020^, 20019^
2028/29: 20013*, 19940*, 21710^, 21708^, 19996^, 20016^, 21709^, 21706^

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 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, and thus contribute to an improved environmental outcome within 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 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. 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.[1] 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. To determine the wildlife resource conservation goals and objectives applicable to the GAI, Caltrans:

[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).

- 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 four wildlife species of mitigation need chosen to focus the assessment (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
    - 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 impact 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 is 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 also regulated by other natural resource regulatory agencies. This RAMNA identifies goals and objectives for aquatic resources, including fish species, separately in Chapter 8.

Table 7-1. Natural Resource Regulatory Agencies with Wildlife Resources Oversight

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 Coastal Act. Through the issuance of CDPs, CCC implements the policies of the Coastal Act, including protecting sensitive resources, water quality, public access to the coast, etc. 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, either as specific species habitats or as geographic areas because of the presence of rare or valuable plants or animal species or habitat. Areas designated as ESHAs are also typically threatened by habitat fragmentation, disturbance, degradation, or other anthropogenic factors.
CDFW – Region 3, Bay Delta, Region 4, Central, and Habitat Conservation Planning Branch	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 regulates all federally protected wildlife species and critical habitats and requires consultation and coordination to be in compliance with the ESA. FWS authorities, including its role in mitigation, are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to, the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. FWS approves HCPs to address impacts on federally protected species, for projects lacking a federal nexus, under ESA § 10(a)1(B). For projects with a federal nexus and potential impacts on federally protected species, FWS issues biological opinions under Section 7 of the ESA.
NMFS	NMFS has jurisdiction over all federally protected fish and wildlife marine species and critical habitats and requires consultation and coordination to be in compliance with the ESA. Similar to FWS, NMFS manages wildlife and fisheries resources in the marine and estuarine environment. NMFS issues biological opinions under Section 7 of the ESA for projects that may affect federally listed species managed by the agency. In addition, NMFS manages marine mammals under the Marine Mammal Protection Act, with the exception of sea otters, which are managed by FWS. NMFS is also responsible for addressing impacts on EFH under the Magnuson-Stevens Fishery Conservation and Management Act.

[a] In addition to the agencies listed above, the Water Boards may exert jurisdiction over species to the extent that WILD/RARE/WARM/COLD/SPWN 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. As described in Section 1.5, species of mitigation need were selected to focus the planning effort and 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 terrestrial species of mitigation need identified for the GAI are California red-legged frog, California tiger salamander, foothill yellow-legged frog, and tricolored blackbird. Each species is briefly described below.

7.3.1. California Red-legged Frog

California red-legged frog is a federally threatened amphibian species and a California species of special concern that has been extirpated from 70 percent of its historical range. Most California red-legged frog occurrences have been recorded below 3,500 feet; however, they can be found from sea level up to elevations of 5,200 feet (FWS 2002a). Eight Recovery Units were established by the Recovery Plan for the California Red-legged Frog (FWS 2002a). The GAI falls within the Central Coast and Diablo Range and Salinas Valley California red-legged frog Recovery Units.

Typical aquatic breeding habitat for California red-legged frog includes slow-moving streams and pools within streams and human-made ponds that can sustain all aquatic life stages. These areas must hold water for at least 20 weeks during the year, which is the minimum amount of time needed for breeding and tadpole development and metamorphosis (FWS 2010a; Hayes and Jennings 1988). Aquatic habitat need not be present every year, because the frog can live 8 to 10 years in the wild (FWS 2010a). Non-breeding aquatic and riparian habitat includes springs, seeps, moist cracks within dried ponds, and vegetated areas growing within the floodplains of rivers and streams. These areas do not hold enough water for frog breeding but provide the space needed for foraging and cover to sustain individuals and are particularly important during drought periods and for dispersal to other breeding habitats (Alvarez 2004; FWS 2010a). Upland habitats are also important because they buffer aquatic habitats from degradation and provide space for foraging, sheltering, dispersal, and avoiding predation (FWS 2010a). Upland habitat consists of areas where California red-legged frog can seek shelter such as under boulders, rocks, animal burrows, fallen logs, and agricultural debris such as watering troughs and haystacks (FWS 2010a; Jennings and Hayes 1994).

7.3.2. California Tiger Salamander

The Central California DPS of California tiger salamander is a federally and state threatened amphibian. Historically, this DPS occurred in the valleys and bordering foothills of the Central Valley and Inner Coast Range from San Luis Obispo, Kern, and Tulare Counties in the south to Sacramento and Yolo Counties in the north (FWS 2017c). Most of the historical Central Valley populations of this California endemic species have been extirpated (FWS 2017c). Typical habitat associations include grassland, oak savanna, and edges of mixed woodland and lower-elevation coniferous forest (FWS 2017c). The species can also be found in other habitats that occur adjacent to

preferred habitat types, such as orchards and residential areas. This species is found from near sea level up to a maximum elevation of approximately 3,940 feet above mean sea level in the Coast Ranges and 1,640 feet above mean sea level in the Sierra Nevada foothills (FWS 2017c).

California tiger salamanders need both suitable upland habitat for refuge and aquatic habitat for breeding and larval development. Historic California tiger salamander breeding habitat was primarily natural vernal pools and ponds, but now includes modified ephemeral and permanent ponds such as livestock ponds (FWS 2017c). Optimal breeding ponds are ephemeral, forming in winter and drying in summer, and free of predatory nonnative fish and bullfrogs (FWS 2017c). The California tiger salamander is nocturnal and spends most of its life underground (FWS 2017c). It relies on networks of underground burrows created by species such as Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), and mole species (*Scapanus* spp.) for refuge (FWS 2017c).

7.3.3. Foothill Yellow-legged Frog

The GAI falls within the range of two foothill yellow-legged frog clades: (1) the West/Central Coast clade and (2) the Southwest/South Coast clade. Both of these clades are listed as state endangered, and the entire species is under review for federal listing. Typical habitat for this species includes shallow, flowing water in streams and rivers containing cobble-sized substrate (Jennings and Hayes 1994). Breeding and oviposition (egg laying) occurs along the margins of relatively shallow and wide portions of the channel. Metamorphosed individuals use a variety of aquatic habitat types including pools, riffles, and glides (Thompson et al. 2016). This stream-dwelling frog species occurs in California from the Oregon border along the Coast Ranges to the San Gabriel Mountains in Southern California and south along the foothills of the western side of the Sierra Nevada Mountains to the edge of the Tehachapi Mountains (Stebbins and McGinnis 2012).

7.3.4. Tricolored Blackbird

Tricolored blackbird is a state threatened bird species that resides throughout the Central Valley from Shasta County south to Kern County, and across to the coast from Sonoma County south to Santa Barbara County. The species is also found in the lowlands west of the deserts in southern California, extending south into northern Baja California, and can be found breeding at a few scattered locations in Siskiyou, Modoc, Lassen, Humboldt, and Mendocino Counties. However, the largest breeding colonies and majority of the breeding population occur in the Central Valley (CDFW 2018d). These colonies can be quite large, ranging from 100 nests per colony to historical numbers of as many as 300,000 breeding birds. Tricolored blackbirds often occupy and breed at two or more sites during the breeding season, a rare trait among birds (CDFW 2018d). Historically, tricolored blackbirds nested primarily in freshwater wetlands dominated by cattails (*Typha* sp.) and tules or bulrush (*Schoenoplectus* sp.). As these habitats have been lost to human land uses, tricolored blackbirds have increasingly been nesting in thorny vegetation near

water such as open patches of Himalayan blackberry (*Rubus armeniacus*) and milk thistle (*Silybum marianum*) (CDFW 2018d). Foraging habitats during the breeding season include grasslands, low-density shrublands, pastures, dry seasonal pools, and some agricultural crops, such as alfalfa and rice (CDFW 2018d). Breeding birds usually forage within 1 to 2 miles of their breeding colony but may disperse as far as 4 miles from their breeding colony to forage (Shuford and Gardali 2008).

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 D 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 Taxa Documents	See below	See below
*Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)*	FWS 2002a	Identifies California red-legged frog Recovery Units and their respective Core Areas, including those within the GAI, which include: ▪ Central Coast Recovery Unit ▪ South San Francisco Bay Core Area ▪ Watsonville Slough-Elkhorn Slough Core Area ▪ Carmel River-Santa Lucia Core Area ▪ Estero Bay Core Area ▪ Arroyo Grande Creek Core Area ▪ Diablo Range and Salinas Valley Recovery Unit ▪ East San Francisco Bay Core Area ▪ Santa Clara Valley Core Area ▪ Gabilan Range Core Area ▪ Estrella River Core Area
Revised Designation of Critical Habitat for the California Red-legged Frog	FWS 2010a	Identifies critical habitat for the California red-legged frog.
California tiger salamander Central California DPS Designation of Critical Habitat	FWS 2005c	Identifies critical habitat for the Central California DPS California tiger salamander.
California tiger salamander Central California DPS 5-Year Review	FWS 2014	Identifies protected lands that have known occurrences of California tiger salamander.

Document	Reference	Areas of Important Habitat
*Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)*	FWS 2017c	Identifies California tiger salamander Recovery Units and their respective Management Units, including those within the GAI, which include: ▪ Bay Area Recovery Unit ▪ Northwest Diablo Range Management Unit ▪ East Santa Cruz Mountains Management Unit ▪ Southwest Diablo Range Management Unit ▪ Central Coast Recovery Unit ▪ Carmel Valley Management Unit ▪ Salinas Valley Management Unit ▪ Peachtree Valley Management Unit ▪ Fort Hunter Liggett Management Unit
*A Status Review of the Foothill Yellow-legged Frog (*Rana boylii*) in California*	CDFW 2019c	Identifies six foothill yellow-legged frog clades, including those within the GAI, which include: ▪ West/Central Coast Clade ▪ Southwest/South Coast Clade
*A Status Review of the Tricolored Blackbird (*Agelaius tricolor*) in California*	CDFW 2018d	Identifies locations of breeding colonies within the GAI.
Conservation and Land Management Documents	See below	See below
Año Nuevo State Park Final General Plan/Environmental Impact Report	California Department of Parks and Recreation 2008	▪ Identifies tricolored blackbird as present within the inland and coastal portions of the park. ▪ Identifies ponds, freshwater emergent wetlands, and riparian areas in the state park as California red-legged frog habitat, with known records in ponds located next to the visitor center. ▪ Establishes guidelines specific to California red-legged frog: – Protect California red-legged frog habitat when considering future development. – Control and/or eradicate nonnative animals, including bullfrogs, that affect California red-legged frog. – Support scientific surveys to determine the distribution, status, and condition of California red-legged frog to develop management strategies for its protection and perpetuation. – Minimize disturbance to California red-legged frog when scheduling and implementing activities that may result in streambed alteration or disturbance to wetlands or riparian habitat.

Document	Reference	Areas of Important Habitat
Aptos Creek Watershed Assessment and Enhancement Plan	Santa Cruz Resource Conservation District 2003a	Includes general goals and objectives related to projects that would increase fish populations that would also benefit foothill yellow-legged frog, which is known to occur in Bridge Creek near the confluence with Aptos Creek.
Bakersfield Field Office Record of Decision & Approved Resource Management Plan	BLM 2014	Identifies two Areas of Critical Environmental Concern within the GAI: ▪ Tierra Redondo Area of Critical Environmental Concern ▪ Cypress Mountain Area of Critical Environmental Concern
Big Basin Redwoods State Park Final General Plan/ Environmental Impact Report	California Department of Parks and Recreation 2013	▪ Identifies tricolored blackbird occurrence as “probable” and foothill yellow-legged frog occurrence as “possible” within the park. ▪ Identifies California red-legged frog as occurring in several locations in the state park, including the wetland and riparian habitats of Rancho del Oso and Waddell Creek, and the lacustrine habitat at Sempervirens Reservoir. California red-legged frog is also found in upland habitats in the state park when individuals are dispersing to and from their aquatic habitat. ▪ Establishes guidelines specific to California red-legged frog: – Control and/or eradicate nonnative animals, including bullfrogs, that affect California red-legged frog. – Monitor populations of California red-legged frog to develop management strategies for its protection and perpetuation. – Minimize disturbance to California red-legged frog when scheduling and implementing activities that may result in streambed alteration or disturbance to wetlands or riparian habitat. – Take appropriate measures to minimize disturbances in critical habitats for California red-legged frog during the breeding season.
Big Sur River Watershed Management Plan	Resource Conservation District of Monterey County 2014	▪ Identifies California red-legged frog as occurring and suitable habitat for both California red-legged frog and foothill yellow-legged frog as present in the Big Sur River watershed. ▪ Identifies management actions to enhance steelhead habitat that could also benefit California red-legged frog, including maintenance of instream flow, enhancement of riparian habitat, reduction of fine sediment delivery, provision of instream woody debris and undercut banks for cover, and managing for nonnative species.

Document	Reference	Areas of Important Habitat
Carmel River Watershed Assessment and Action Plan	Resource Conservation District of Monterey County 2016	▪ Includes the following recommended actions for the Carmel River: – Enhance and restore habitat for California red-legged frog. – Revegetate and restore unstable banks and incised reaches. – Restore lagoons and estuaries. – Reduce flood risk. – Improve water quality and quantity, particularly in summer months. ▪ Identifies California red-legged frog as being widely distributed throughout the Carmel River Watershed, a core critical habitat area where recovery and management actions are monitored and managed by federal and state agencies. ▪ Indicates that California red-legged frog would benefit from a management plan that addresses pond management, water quality, nonnative predators, habitat fragmentation, and water diversion. ▪ Identifies foothill yellow-legged frog as occurring in the Carmel River Watershed
CEHC	Spencer et al. 2010	▪ Identifies Natural Landscape Blocks and Essential Connectivity Areas in the Central Coast Ecoregion. ▪ Identifies roughly 68 percent of the central coast region as potential core habitat areas and habitat linkages that should be further evaluated for their conservation value. The California tiger salamander biodiversity element included 53 percent of this area.
City of Watsonville LCP	City of Watsonville 1998	Identifies that California tiger salamander, California red-legged frog, and tricolored blackbird are known to occur in the Watsonville coastal zone vicinity.
Conserving California's Coastal Habitats: A Legacy and a Future with Sea Level Rise	Heady et al. 2018	▪ Identifies California tiger salamander and California red-legged frog as imperiled species within the study area. ▪ Identifies the vulnerability of different habitats to sea-level rise within the study area.
County of San Luis Obispo General Plan Conservation and Open Space Element	San Luis Obispo County 2010	▪ Identifies areas where California tiger salamanders occur within the county. ▪ Identifies areas where tricolored blackbirds occur within the county.
County of Santa Cruz 1994 General Plan and LCP	County of Santa Cruz 1994	Identifies special-status species with associated habitat to be protected within the county, including tricolored blackbird.

Document	Reference	Areas of Important Habitat
Ellicott Slough National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Assessment	FWS 2010b	Identifies California tiger salamander breeding and over-summering habitat at the Ellicott Unit and Buena Vista Property. Identifies that the refuge falls into one of the recovery units for California red-legged frog and that designated critical habitat is present within the Ellicott and Harkins Slough Units.
Final Santa Clara Valley Habitat Plan	ICF International 2012	▪ Identifies landscape linkages within the Santa Clara Valley study area (portions of which are in the GAI). ▪ Identifies land cover types associated with the California red-legged frog, including: – 341,773 acres of primary and secondary habitat within the study area (which includes a portion of the GAI) ▪ Identifies land cover types associated with California tiger salamander, including: – 324,748 acres of modeled breeding and non-breeding habitat within the RCIS area (which includes a portion of the GAI) ▪ Identifies land cover types associated with the foothill yellow-legged frog, including: – 690 miles of primary and secondary modeled habitat within the study area (which includes a portion of the GAI) ▪ Identifies land cover types associated with the tricolored blackbird, including: – 140,291 acres of tricolored blackbird modeled habitat within the study area (which includes a portion of the GAI) ▪ Identifies that 23 percent of all critical habitat within the study area (which includes a portion of the GAI) is protected as Type 1 open space and another 33 percent is located in Type 2–4 open space. ▪ Identifies California red-legged frog and foothill yellow-legged frog as occurring in the plan area.

Document	Reference	Areas of Important Habitat
Fort Ord Multi-species Habitat Conservation Plan	ICF International 2019a	Identifies habitat for California tiger salamander within the plan area (which includes a portion of the GAI), including: ▪ 72 acres of occupied and 17 acres of potential California tiger salamander breeding habitat within the plan area, which is within the GAI ▪ 19,598 acres of potential California tiger salamander upland habitat within the plan area ▪ 39 of 66 ponds in the plan area with documented occurrences of California tiger salamander adults or breeding ▪ a potential metapopulation of California tiger salamander consisting of 10 occupied locations (Pools 5, 42, 56, 57, 58, 59, 60, Machine Gun Flats, 101 East, and 101 West) in the plan area ▪ a highly hybridized population of California tiger salamander at Armstrong Ranch, located to the north of the plan area, in the GAI Identifies habitat for California red-legged frog within the plan area (which includes a portion of the GAI), including: ▪ 0.4 acre of occupied and 89 acres of potential California red-legged frog breeding habitat within the plan area, which is within the GAI ▪ 16,362 acres of potential California red-legged frog upland habitat within the plan area Documented occurrences are limited to a single location in the Plan Area: Pond 998.
Guadalupe-Nipomo Dunes National Wildlife Refuge Comprehensive Conservation Plan	FWS 2016	Identifies presence of California red-legged frog in six freshwater ponds in the refuge and includes multiple objectives to achieve the goal of recovery for California red-legged frog in the refuge.
Integrated Natural Resources Management Plan/ Environmental Assessment – U.S. Army Garrison Fort Hunter Liggett	U.S. Army 2012	Identifies potential suitable habit for California red-legged frog, foothill yellow-legged frog, and California tiger salamander and potential presence of tricolored blackbird on or near Fort Hunter Liggett.
Los Osos Habitat Conservation Plan Draft Environmental Impact Report	County of San Luis Obispo 2019	▪ Identifies that suitable habitat for tricolored blackbird is present within the HCP area and that individuals have been reported from the area, although nesting has not been documented in the HCP area. ▪ Identifies that suitable habitat for California red-legged frog is present within the HCP area.

Document	Reference	Areas of Important Habitat
Los Padres National Forest Land Management Plan	USFS 2005	Identifies presence of California red-legged frog and foothill yellow-legged frog in the Los Padres National Forest.
Monterey County General Plan Final Environmental Impact Report	ICF International 2010	▪ Identifies that potential nesting habitat for tricolored blackbird occurs within the county. ▪ Identifies areas with existing or potential occurrences of species of mitigation need within the county.
Monterey County RCIS (*Draft Conservation Strategy*)	AECOM 2020	▪ Identifies California tiger salamander habitat within the county (which includes a portion of the GAI), including known occurrences and modeled habitat within the RCIS area and natural communities associated with the species: freshwater emergent wetland, valley oak woodland, mixed chaparral, annual grassland, and vernal pool. ▪ Five management units of the Central Coast Range Recovery Unit occur within the RCIS area: Fort Ord, Carmel Valley, Fort Hunter-Liggett, Salinas Valley, and Peachtree Valley. ▪ Identifies California red-legged frog habitat within the county (which includes a portion of the GAI), including: – 8,200 acres of habitat protection and enhancement of designated critical habitat, particularly at Elkhorn Slough and Carmel River ▪ Identifies foothill yellow-legged frog habitat within the county (which includes a portion of the GAI), including: – 45,000 acres of habitat protection ▪ Identifies that Monterey is the epicenter for hybridization with nonnative barred salamanders. ▪ Identifies goals to establish preserves for all life stages in the five management units in the RCIS area, and to establish corridors between metapopulations. ▪ Identifies goal to target eradication of hybrid and nonnative barred tiger salamanders in Fort Ord and Peachtree Valley. ▪ Identifies a goal to restore East Garrison Pond and at least one additional aquatic feature totaling at least 2 acres at Fort Ord. ▪ Identifies tricolored blackbird habitat within the RCIS area (which includes a portion of the GAI), including known occurrences and modeled habitat within the RCIS area. – Natural communities associated with the species are: freshwater emergent wetland, agriculture, and annual grassland.

Document	Reference	Areas of Important Habitat
Pacific Gas & Electric Company Bay Area Operations and Maintenance HCP	ICF International 2017	Identifies California tiger salamander habitat within the plan area (which includes a portion of the GAI), including: ▪ 41,151 acres of modeled California tiger salamander habitat in the plan area consisting of 114 acres of potential breeding habitat and 41,038 acres of potential upland habitat ▪ approximately 869 acres of designated critical habitat in the plan area ▪ high-quality California tiger salamander habitat in the study area, including within the GAI in Santa Clara County northeast of Gilroy and surrounding San Felipe Lake
Pajaro River Watershed IRWMP – Work Plan	San Benito County Water District 2005	Identifies suitable wetland habitat for California red-legged frog in the Pajaro River watershed.
Pigeon Point Light Station State Historic Park General Plan	California Department of Parks and Recreation 2017	Identifies multiple known occurrences of California red-legged frog in the park, suitable habitat for red-legged frog, and FWS-designated critical habitat for red-legged frog adjacent to the eastern boarder of the park, including an easement area of park land. Includes a habitat restoration plan for California red-legged frog.
Pinnacles National Monument General Management Plan	NPS 2012	Identifies that California tiger salamander occurs within the monument. Identifies suitable habitat for California red-legged frog and foothill yellow-legged frog at the national monument. Includes goal of reestablishing foothill yellow-legged frog at the national monument. Identifies presence of California red-legged frog in Bear Gulch Cave, Bear Gulch Reservoir, and Bear Gulch Creek.
Resource Management Plan for the Southern Diablo Mountain Range & Central Coast of California Record of Decision	BLM 2007	Identifies the Fort Ord Area of Critical Environmental Concern within the GAI. Requires the initiation of riparian restoration in systems that have been identified as not functioning or having a reduced functional trend and the protection of riparian areas for California red-legged frog.
San Gregorio Creek Watershed Management Plan	Natural Heritage Institute 2010	Identifies that California red-legged frog occurs within the San Gregorio watershed.
Santa Clara County General Plan Final Environmental Impact Report	County of Santa Clara 2014	▪ Identifies areas where California tiger salamanders occur, and land uses in the vicinity of that area. ▪ Identifies areas where tricolored blackbirds occur, and land uses in the vicinity of that area.

Document	Reference	Areas of Important Habitat
Santa Clara County RCIS	ICF International 2019b	▪ Identifies landscape linkages within the RCIS area (portions of which are in the GAI). ▪ Identifies currently protected lands in and adjacent to the RCIS area. ▪ Identifies the presence of California red-legged frog throughout the RCIS, mostly in the vicinity of Henry W. Coe State Park, Anderson Lake, and Mount Hamilton. Identifies that designated critical habitat for red-legged frog encompasses most of the eastern half of the RCIS. Suitable breeding, refugia, and dispersal habitat for California red-legged frog is located throughout the RCIS. ▪ Identifies California tiger salamander habitat within the RCIS area (which includes a portion of the GAI), including: – 605,000 acres of modeled California tiger salamander habitat in the RCIS area, including occupied upland and breeding habitat, potential upland habitat, and potential breeding habitat (portions of which are in the GAI) – critical habitat within the RCIS area (portions of which are in the GAI) – land cover types associated with California tiger salamander ▪ Identifies an objective to protect at least 11 preserves, each at least 3,398 acres in size, containing at least four breeding ponds in areas not dominated by hybrid or nonnative tiger salamanders, distributed across the California tiger salamander management units overlapping the RCIS area. Management units within the RCIS area overlap the GAI. ▪ Identifies priorities for California tiger salamander breeding habitat restoration and enhancement, including in Henry W. Coe State Park, a portion of which is in the GAI. ▪ Identifies priorities for protection of California tiger salamander critical habitat by conservation planning unit, including all such units within the GAI: Llagas Creek, Pacheco Creek, Pajaro River, and Uvas Creek conservation planning units. ▪ Identifies 48 occurrences of foothill yellow-legged frog within the RCIS and the presence of suitable breeding/foraging and low-use habitat within the RCIS. ▪ Identifies priorities for protection of foothill yellow-legged frog by conservation planning unit, including all such units within the GAI: Llagas Creek and Uvas Creek conservation planning units. ▪ Identifies tricolored blackbird habitat within the county (which includes a portion of the GAI), including: – 177,300 acres of modeled habitat in the county, including foraging, wintering and nesting habitat (portions of which are in the GAI) – recently active colony locations in the county, which include locations straddling the Pajaro River and Pacheco Creek conservation planning units ▪ Land cover types associated with the tricolored blackbird. ▪ Identifies a goal (Goal 5) to increase the number of tricolored blackbird nesting colonies and the amount of suitable tricolored nesting habitat and foraging and wintering habitat in the county.

Document	Reference	Areas of Important Habitat
Santa Clara Valley Habitat Conservation Plan	ICF International 2012	▪ Identifies approximately 100 occurrences of California tiger salamander scattered throughout Henry W. Coe State Park and Joseph D. Grant County Park, and identifies the presence of suitable breeding, upland, and dispersal habitat throughout the study area. ▪ Identifies 93 occurrences of California red-legged frog throughout the study area including Upper Alameda Creek in the Sunol Wilderness and Henry W. Coe State Park. Outlines conservation efforts such as bullfrog removal in key stock ponds within Henry W. Coe State Park and identifies suitable breeding and upland habitat within the study area. ▪ Identifies occurrences of foothill yellow-legged frog in the upper reaches of Coyote Creek, streams within the Pajaro River watershed, the eastern side of the valley including Penetencia Creek and the Santa Cruz Mountains west of Gilroy. Suitable breeding and foraging habitat are present in foothill streams throughout the study area. ▪ Identifies a few documented colonies of tricolored blackbirds within the study area and adjacent properties. Suitable breeding habitat is possibly present and foraging habitat is prevalent throughout the valley floor.

Document	Reference	Areas of Important Habitat
SWAP	CDFW 2015	▪ Identifies California Grassland, Vernal Pools, and Flowerfields; Coastal Sage Scrub; American Southwest Riparian Forest and Woodland; Northwest Coast Cliff and Outcrop; Coastal Dune and Bluff Scrub; and North Coast Deciduous Scrub and Terrace Prairie as conservation targets for the Central California Coast Ecoregion. Identifies California Grassland, Vernal Pools, and Flowerfields and American Southwest Riparian Forest and Woodland as conservation targets for the Central California Coast Ranges Ecoregion. Identifies Coastal Lagoons as a conservation target for the Central California Coastal HUC 1806. ▪ Identifies California Grassland, Vernal Pools, and Flowerfields; American Southwest Riparian Forest and Woodland in the Central California Coast Ecoregion and California Grassland, Vernal Pools, and Flowerfields and American Southwest Riparian Forest and Woodland in the Central California Coast Ranges Ecoregion as habitat for the California tiger salamander. ▪ Includes a conservation action to identify sites for eradication of nonnative tiger salamanders and bullfrogs. ▪ Identifies California Grassland, Vernal Pools, and Flowerfields; Coastal Sage Scrub; American Southwest Riparian Forest and Woodland in the Central California Coast Ecoregion and California Grassland, Vernal Pools, and Flowerfields and American Southwest Riparian Forest and Woodland in the Central California Coast Ranges Ecoregion as habitat for the tricolored blackbird. ▪ Identifies California Grassland, Vernal Pools, and Flowerfields; Coastal Sage Scrub; American Southwest Riparian Forest and Woodland; and North Coast Deciduous Scrub and Terrace Prairie in the Central California Coast Ecoregion and California Grassland, Vernal Pools, and Flowerfields; and American Southwest Riparian Forest and Woodland in the Central California Coast Ranges Ecoregion as habitat for California red-legged frog and foothill yellow-legged frog.
The Conservation Lands Network: San Francisco Bay Area Upland Habitat Goals Project Report 2011	Bay Area Open Space Council 2011	Identifies landscape units within the conservation lands network that contain potential habitat for California tiger salamander, California red-legged frog, and foothill yellow-legged frog, or where these conservation target species occur based on California Natural Diversity Database occurrence information and expert opinion. Includes recommended conservation actions to maintain, manage, and restore pond networks, especially those associated with streams, by removal of predatory fish and bullfrogs; management of emergent vegetation; alteration of wet and dry periods; and assurance of structural integrity to support higher occupancy rates and more robust metapopulations of California tiger salamander and California red-legged frog. Includes recommended conservation actions to conduct comprehensive surveys for foothill yellow-legged frog to better quantify the species' distribution and provide a basis for metapopulation dynamics and viability, and to maintain watershed integrity.

Document	Reference	Areas of Important Habitat
The Conservation Lands Network 2.0 Report	Bay Area Open Space Council 2019	▪ Identifies the following information within the study area (which includes a portion of the GAI): – areas essential, important, connector, and contributing to conservation goals – conservation suitability of lands – landscape linkages, and categories of linkages (broad, intact; few natural linkages; last remaining linkage) – protected areas – land cover types – potential ponds ▪ Identifies tricolored blackbird as a conservation target associated with that habitat target: Wetlands/Lakes/Open Water. Identifies suitable habitat for California red-legged frog and foothill yellow-legged frog. Includes goals to restore and enhance habitat for California red-legged frog and foothill yellow-legged frog.
The Forest of Nisene Marks State Park Amended General Plan/Final Environmental Impact Report	California Department of Parks and Recreation 2005	Identifies that areas within the park, including White's Lagoon, Buzzard Lagoons, Hinckley Basin, and other temporary wetland areas, provide suitable habitat for California tiger salamander.
Twin Lakes State Beach General Plan	California Department of Parks and Recreation 1998	Identifies that "tiger salamander" occurs within the park.

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 2015), 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 2015). The *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (FWS 2017c) and the *Status Review of the Tricolored Blackbird in California* (CDFW 2018e) 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 (CDFW 2018d; FWS 2017c). These pressures and stressors were evaluated in relation to the types of effects that could result from transportation projects funded through SHOPP and STIP and 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 all 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, as well as increased mortality of the species from vehicle strikes. Roads and highways hinder the movement of amphibian species and are considered permanent physical barriers leading to increased habitat fragmentation and isolation of populations (FWS 2002a, 2017b; CDFW 2019c).

Roads near aquatic habitats that are poorly constructed or inadequately maintained may lead to increased erosion, sedimentation, and petrochemical runoff, negatively affecting amphibian populations (CDFW 2019c), including California red-legged frog, foothill yellow-legged frog, and California tiger salamander. Culverts under roads may provide some connectivity for various species, but if not constructed properly they also can impede dispersal and trap some species (CDFW 2019c).

Tricolored blackbirds have experienced substantial habitat loss from urbanization and agricultural development. They are a highly social and obligate colonial nesting species, and reductions in population size resulting from the loss or degradation of habitat may make the tricolored blackbird more vulnerable to additional declines attributable to these inherent natural history factors. The degree to which a small population would limit the species' ability to survive and reproduce is not known (CDFW 2018e). Regardless, road

and highway projects that either directly affect habitat or that accommodate further human development that subsequently affects habitat can be expected to have a negative effect on tricolored blackbird populations.

7.5.2. 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 habitat type, and further threats to already endangered or threatened natural resources. Invasive species are considered a threat to all species of mitigation need. Introduced fish, crayfish, and bullfrogs are known to predate larval California tiger salamander (FWS 2017b) and all life stages of California red-legged frog (FWS 2002a) and foothill yellow-legged frog (CDFW 2019c). The invasive barred tiger salamander is known to hybridize with the California tiger salamander, producing offspring that are more likely to survive than either parent species. These hybrids also were shown to negatively affect populations of the native California tiger salamander (Ryan et al. 2009). The effects of invasive plant species on habitat values for California red-legged frogs are not fully understood, although species such as giant reed (*Arundo donax*) and cape ivy (*Delairea odorata*) may alter the structure of native riparian habitat and decrease available surface water (FWS 2002a). Invasive grasses can be a major problem for California tiger salamander. Improper grazing practices and habitat management can lead to a buildup of thatch consisting of nonnative grasses, which has been cited by FWS as a threat to California tiger salamander (FWS 2017b). The brown-headed cowbird (*Molothrus ater*) is known to parasitize tricolored blackbird nests. However, this is not a major threat to the species (CDFW 2018e). Some invasive plant species may be considered a benefit to the tricolored blackbird because they are known to nest in several invasive plants such as Himalayan blackberry, milk thistle, and mustard (*Brassica* sp.).

7.5.3. Disease and Predation

Disease is considered a threat to the California tiger salamander, which is affected by various forms of ranavirus and a chytrid fungus that can lead to mortality and has the potential to affect populations (FWS 2017b). Although the effects of chytrid fungus, often referred to as Bd, on California red-legged frogs and foothill yellow-legged frogs is not well known, it is known to cause a deadly amphibian disease called chytridiomycosis (CDFW 2019c; FWS 2002a). Disease is not considered to be a major threat to the tricolored blackbird (CDFW 2018d).

Predation is considered a major threat to all the species of mitigation need in the GAI. As noted above, California red-legged frogs, California tiger salamanders, and foothill yellow-legged frogs are all susceptible to predation from invasive species including bullfrogs, crayfish, and nonnative fish (FWS 2002a, 2017b; CDFW 2019c). A variety of species are known to predate tricolored blackbird, and a few of these predator species have caused the complete failure of entire tricolored blackbird breeding colonies through heavy

predation on eggs and nestlings (CDFW 2018d). These predators tend to be wading birds that hunt in large groups, such as black-crowned night-heron (*Nycticorax nycticorax*), cattle egret (*Bubulcus ibis*), and white-faced ibis (*Plegadis chihi*).

7.5.4. 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 (Caltrans 2019c).

Large populations of California red-legged frog can survive stochastic events such as fires, floods, or drought; however, many populations are small and isolated because of habitat loss and other stressors. These smaller and more vulnerable populations are in danger of extirpation because of climate change. Within the coastal regions of the GAI, drought can have negative impacts on the reproductive success of California red-legged frog. However, differing life history traits of invasive species such as bullfrogs may be more affected by drought, thus providing a beneficial scenario for the survival of California red-legged frogs that may subsist (FWS 2002a).

California tiger salamanders require breeding habitat that holds water for a minimum of 12 weeks to complete larval metamorphosis, and may be affected by climate change through a decrease in hydroperiods necessary to support their life cycle. A change to hydroperiods in this way may reduce the ability of this species to reproduce, while favoring nonnative hybrid tiger salamanders that are known to travel farther and faster than native salamanders under higher temperatures (FWS 2017b). In addition, climate change may affect California tiger salamander through altered prey-predator relationships, increased effects from ultraviolet radiation, and increased effects from diseases (FWS 2014).

Increased variability and changes in the type, magnitude, and timing of precipitation suggested by climate change models discussed above will result in more variable and extreme flows in river systems that support foothill yellow-legged frog (CDFW 2019c). This has the potential to increase the likelihood of egg mass and tadpole scouring and stranding. The magnitude and nature of these effects will vary regionally and locally based on several underlying factors. For example, given the projected increase in temperatures, a correlating reduction in seasonal snowpack is expected. Such a reduction could disrupt the timing and duration of peak stream flows, which could result in increased sedimentation and other deleterious effects on foothill yellow-legged frog breeding habitat. Foothill yellow-legged frog populations in stream and river systems of the Sierra Nevada foothills would be more susceptible to this type of climate change effect than those in the GAI, where far less annual precipitation occurs as snowfall. Conversely, climate has a greater influence on fire regimes in mesic environments than arid ones (CDFW 2019c). With drier than usual conditions in recent decades, significant portions of

the mesic coastal watersheds in the GAI have experienced wildfires and landslides that can drastically affect habitat suitability for foothill yellow-legged frogs.

Climate change is expected to negatively affect two important tricolored blackbird communities, grassland and freshwater marsh, more than any other habitats and lead to a decrease in these habitats throughout California by 16 to 46 percent and 71 to 91 percent, respectively (CDFW 2018d). However, it is not known what effect these changes will have on grassland and freshwater habitat within the GAI. Drought has been shown to reduce available surface water in late summer and early fall. While not a direct measure of tricolored blackbird breeding habitat, declines in surface water during droughts result in reduced availability of wetlands with sufficient water to provide high-quality nesting substrates (CDFW 2018d). Drought has also been shown to have negative effects on upland nesting habitat when precipitation is insufficient to generate the tall, thick growth that is required as a nesting substrate (CDFW 2018d). In addition, drought may negatively affect insect prey populations in tricolored blackbird habitat. However, this has not been studied to a degree that it can be quantified (CDFW 2018d).

Essential habitat connectivity in the GAI, including large remaining blocks of intact habitat or natural landscape, is shown on Figure 2-11. 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. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018a) is presented on Figure 2-6. The majority of the GAI shows moderate to high climate resilience with some obvious patterns. Resilience is lowest within the northern portion of the GAI, along the San Francisco Peninsula south to, and including most of, the Monterey Bay area. Most of this area is considered moderately resilient, with rankings ranging from 1 to 4, with the bulk of the area showing climate resiliency of 2 or 3. The central and southern portions of the GAI show higher resilience, ranging from 3 to 5, with the vast majority of this area showing climate resiliency rankings of 4 or 5.

7.5.5. Contaminants

Contaminants have been implicated as a threat to all species of mitigation need in the GAI. Pesticides, herbicides, mineral fertilizers, industrial chemicals, and airborne pollutants are known to have negative effects on amphibians. California-red legged frog is especially affected by aqueous pesticides because of the many life stages that take place within aquatic environments (FWS 2002a). Foothill yellow-legged frogs are also highly susceptible to toxicity from herbicides and pesticides (CDFW 2019c). While not directly related to contaminants, the application of rodenticides and other rodent control methods pose a direct threat to California tiger salamander by removing rodents from the landscape and preventing new burrow construction, thus reducing habitat for the California tiger salamander (FWS 2017b). Similarly, the application of rodenticides may pose a threat to tricolored blackbird (CDFW 2018d), as well as exposure to neonicotinoid insecticides. The use of neonicotinoid insecticides may negatively affect tricolored

blackbirds through the suppression of insect prey populations (CDFW 2018d). However, more study is needed to determine the effects of neonicotinoid insecticides on tricolored blackbirds.

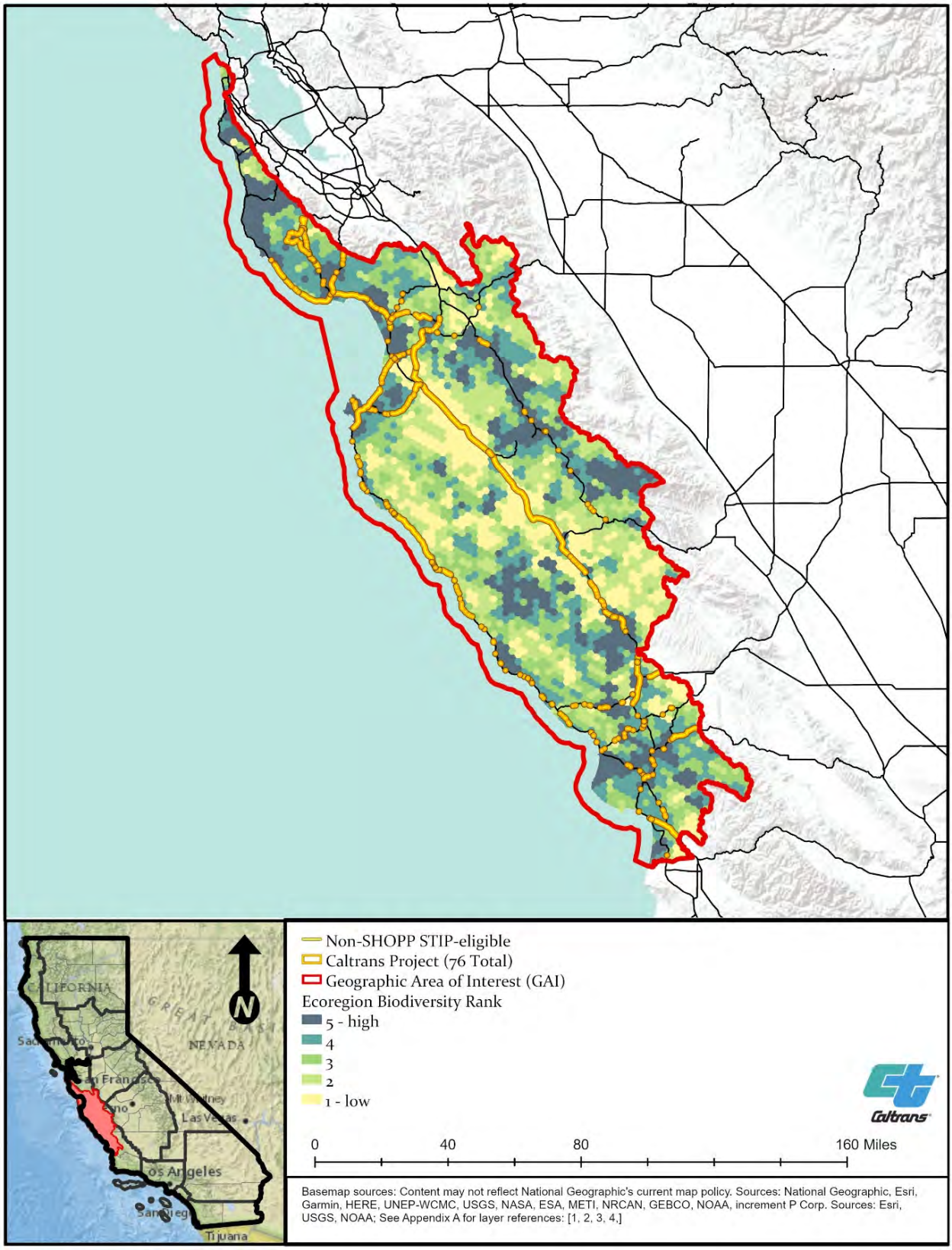
7.6 Multi-species Benefits

While the species of mitigation need identified for this GAI are California red-legged frog, California tiger salamander, foothill yellow-legged frog, and tricolored blackbird, several other special-status species share habitat with these species and could potentially be affected by Caltrans transportation projects that will need compensatory mitigation to satisfy natural resource regulatory agency conditions on a transportation project (Table 5-12). Advance mitigation planning provides Caltrans an opportunity to integrate the protection and preservation of multiple California native species, biodiversity, and ecosystems into project scoping. 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 much of the SHS with SHOPP and STIP-eligible projects, while other portions of the SHS within the GAI with SHOPP and STIP-eligible projects show low biodiversity, especially in areas along the coast. Habitats are mapped in Appendix C, and the other special-status species that may occur in these habitats are provided in Appendix E.

As described in Chapter 4, one HCP and one HCP/NCCP covering multiple species occur within the GAI. While the primary purpose of these plans is to benefit the covered species addressed in each plan through acquisition, protection, and restoration of covered species habitat, these actions will benefit a variety of species that utilize these habitats. It is likely that any Caltrans mitigation requirements that are addressed through these plans will also provide benefits to other co-occurring species in addition to the covered species.

Other efforts, such as planting Caltrans easements with species beneficial to pollinators, are expected to contribute to biodiversity protection and enhancement in the GAI. In addition, planting native plants in Caltrans easements also enhances biodiversity by reducing invasive species cover. One or both of those factors can be associated with roadways, depending on location. 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 in order to inform advance mitigation scoping and thereby improve the conservation benefits of mitigation in the GAI.

Figure 7-1. Terrestrial Biodiversity 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; objectives are specific, measurable, achievable, relevant, and time-bound, aligning to a desired result specified by a goal. 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 lift[2] 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.

[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.

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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 existing habitat for species of mitigation need within the GAI	See below	See below	See below
Objective WILD-1.1: Acquire, protect, restore, and/or enhance existing habitat.	**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 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 2015) conservation targets: California grassland, vernal pools, and flowerfields; coastal sage scrub; American southwest riparian forest and woodland; North Coast deciduous scrub and terrace prairie, and coastal lagoons (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:** Create, enhance, or restore breeding habitat in protected areas where it is limited. **Sub-Objective WILD-1.1.7:** 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.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog ▪ tricolored blackbird	▪ *SWAP* (CDFW 2015) and companion plans ▪ *CEHC* (Spencer et al. 2010) ▪ *Recovery Plan for the California Red-legged Frog* (Rana aurora draytonii) (FWS 2002a) ▪ *California tiger salamander, Central California Distinct Population Segment* (Ambystoma californiense) *5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (Ambystoma californiense) (FWS 2017b) ▪ *A Status Review of the Foothill Yellow-legged Frog (*Rana boylii*) in California* (CDFW 2019f) ▪ *Conservation Plan for the Tricolored Blackbird* (Agelaius tricolor) (Tricolored Blackbird Working Group 2007) ▪ *A Status Review of the Tricolored Blackbird* (Agelaius tricolor) *in California* (CDFW 2018d) ▪ *PG&E Bay Area O&M HCP* (ICF International 2017) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Fort Ord MSHCP* (ICF International2019a) ▪ *Resource Management Plan for the Southern Diablo Mountain Range and Central Coast of California Record of Decision* (BLM 2007) ▪ *Bakersfield Record of Decision/Approved Resource Management Plan* (BLM 2014) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ Multiple LCPs
	Sub-Objective WILD-1.1.8: Increase California tiger salamander habitat by increasing small mammal burrow availability in areas that provide suitable upland habitat within the dispersal range of potential or known breeding ponds. Increase ground squirrel, pocket gopher, or other small mammal burrowing populations, where burrow availability is limited, by enhancing habitat for small mammal burrows in accordance with measures in FWS 2017b or by other science-supported actions.	▪ California tiger salamander	▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b)

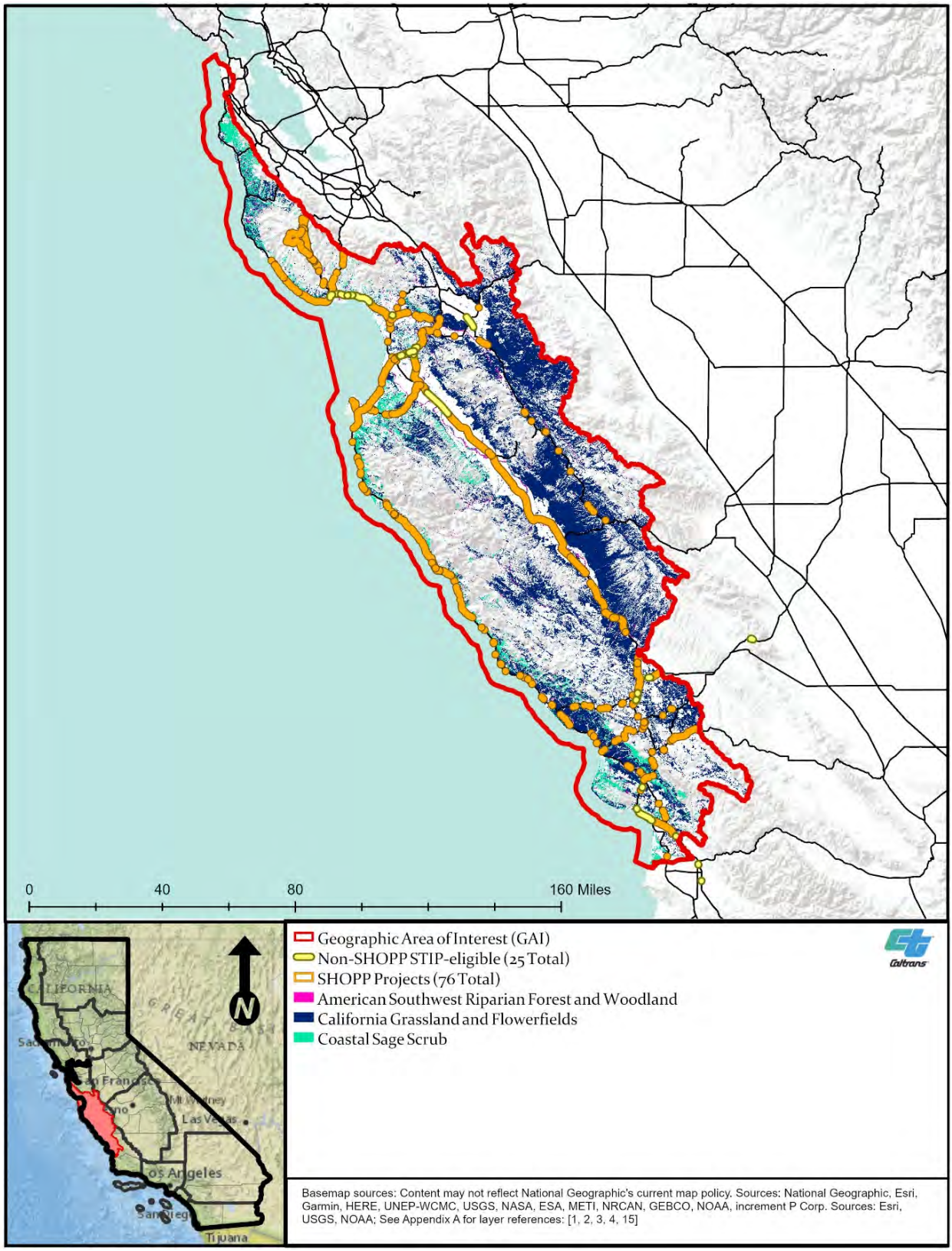
Objective	Sub-Objective	Affected Species[a]	Alignment with Conservation and Management Plans[b]
	Sub-Objective WILD-1.1.9: Prioritize protection of active or recently active tricolored blackbird colony sites. **Sub-Objective WILD-1.1.10:** Protect and enhance tricolored blackbird foraging habitat surrounding active or recently active colony sites.	▪ tricolored blackbird	▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Santa Clara County RCIS* (ICF International 2019b)
Goal WILD-2: Preserve, enhance, and increase connectivity between blocks of species of mitigation need habitat.	See below	See below	See below
Objective WILD- 2.1: Acquire, protect, restore, and/or enhance movement corridors.	**Sub-Objective WILD-2.1.1:** Identify movement 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 existing corridors. **Sub-Objective WILD-2.1.3:** Identify areas that will enhance connectivity between existing protected breeding locations and create new breeding habitat for the species of mitigation need.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog ▪ tricolored blackbird	▪ *SWAP* (CDFW 2015) and companion plans ▪ *CEHC* (Spencer et al. 2010) ▪ *Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)* (FWS 2002a) ▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b) ▪ *A Status Review of the Foothill Yellow-legged Frog* (Rana boylii) *in California* (CDFW 2019f) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Fort Ord MSHCP* (ICF International 2019) ▪ *Bakersfield Record of Decision/Approved Resource Management Plan* (BLM 2014)
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.	**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 ESHA, 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.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog ▪ tricolored blackbird	▪ *SWAP* (CDFW 2015) and companion plans ▪ *CEHC* (Spencer et al. 2010) ▪ *Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)* (FWS 2002a) ▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b) ▪ *A Status Review of the Foothill Yellow-legged Frog (*Rana boylii*) in California* (CDFW 2019f) ▪ *A Status Review of the Tricolored Blackbird (*Agelaius tricolor*) in California* (CDFW 2018d) ▪ *Safeguarding California Plan: 2018 Update* (CNRA 2018) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Bakersfield Record of Decision/Approved Resource Management Plan* (BLM 2014) ▪ Multiple LCPs

Objective	Sub-Objective	Affected Species[a]	Alignment with Conservation and Management Plans[b]
Goal WILD-4: Decrease mortality 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.	**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.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog ▪ tricolored blackbird	▪ *SWAP* (CDFW 2015) and companion plans ▪ *Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)* (FWS 2002a) ▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b) ▪ *A Status Review of the Foothill Yellow-legged Frog (*Rana boylii*) in California* (CDFW 2019f) ▪ *A Status Review of the Tricolored Blackbird (*Agelaius tricolor*) in California* (CDFW 2018d) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Fort Ord MSHCP* (ICF International 2019) ▪ *Bakersfield Record of Decision/Approved Resource Management Plan* (BLM 2014)
Objective WILD-4.2: Reduce impacts from nonnative predators.	**Sub-Objective WILD-4.2.1:** Identify and implement measures to reduce predation, such as designing ponds that dry up on an annual basis to discourage bullfrogs from establishing.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog	▪ *Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)* (FWS 2002a) ▪ *Recovery Plan for Upland Species of the San Joaquin Valley, California* (FWS 1998) ▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California tiger salamander (*Ambystoma californi*ense)* (FWS 2017) ▪ *A Status Review of the Foothill Yellow-legged Frog (*Rana boylii*) in California* (CDFW 2019f) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Bakersfield Record of Decision/Approved Resource Management Plan* (BLM 2014)
Objective WILD-4.3: Reduce road-associated mortality.	**Sub-Objective WILD-4.3.1:** Identify locations to develop safe SHS wildlife crossing areas in the GAI and direct the species of mitigation need to them.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog	▪ *SWAP – Transportation Companion Plan* (CDFW 2016a) ▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b) ▪ *Draft Monterey County RCIS* (AECOM 2020)
Objective WILD-4.5: Protect from hybridization.	**Sub-Objective WILD-4.5.1:** Acquire and protect land in areas not dominated by hybrid or nonnative salamanders. **Sub-Objective WILD-4.5.2:** Fund hybrid or nonnative tiger salamander population eradication efforts. **Sub-Objective WILD-4.5.3:** In areas where hybrids occur, create, restore, and enhance habitat that favors native California tiger salamander genotypes (that is, managing depth of pools to ensure that they are ephemeral).	▪ California tiger salamander	▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b). ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Fort Ord MSHCP* (ICF International 2019)

Objective	Sub-Objective	Affected Species[a]	Alignment with Conservation and Management Plans[b]
Goal WILD-5: Provide 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.	**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 within the GAI. **Sub-Objective WILD-5.1.2:** Identify SHS right-of-way areas where enhancement efforts may benefit pollinators, as well as the species of mitigation need. **Sub-Objective WILD-5.1.3:** Consider the needs of other co-occurring species when planning site-specific actions to restore or create aquatic breeding habitat for California tiger salamander. **Sub-Objective WILD-5.1.4:** 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.	▪ California red-legged frog ▪ California tiger salamander ▪ foothill yellow-legged frog ▪ tricolored blackbird	▪ *SWAP* (CDFW 2015) and companion plans ▪ *CEHC* (Spencer et al. 2010) ▪ *Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*)* (FWS 2002a) ▪ *California tiger salamander, Central California Distinct Population Segment (*Ambystoma californiense*) 5-year review* (FWS 2014) ▪ *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*)* (FWS 2017b) ▪ *A Status Review of the Foothill Yellow-legged Frog (*Rana boylii*) in California* (CDFW 2019f) ▪ *A Status Review of the Tricolored Blackbird (*Agelaius tricolor*) in California* (CDFW 2018d) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Draft Monterey County RCIS* (AECOM 2020) ▪ *Final Santa Clara Valley Habitat Plan* (ICF International 2012) ▪ *Bakersfield Record of Decision/Approved Resource Management Plan* (BLM 2014) ▪ Multiple LCPs

[a] This column includes species of mitigation need that could benefit from these objectives.
[b] More information on these plans is provided in Chapters 3 and 4.

Figure 7-2. SWAP Terrestrial Conservation Target Habitats



7.8 Summary

Caltrans anticipates that future SHOPP and STIP-eligible transportation projects may be conditioned by CCC, CDFW, FWS, or 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 and drought; and
- Contaminants.

Hence, 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 function 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 within 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 within the GAI. These goals and objectives were selected to address habitat loss, fragmentation, and degradation and to address impacts from climate change and drought. Further, Caltrans anticipates that actions completed through restoration, enhancement, and/or preservation may also provide opportunities to address invasive species, predation, and road-associated mortality.

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, and 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, reducing conditions that favor predators, and protecting species of mitigation need from road-associated mortality and hybridization. These objectives address issues

related to habitat loss, fragmentation, and degradation, and threats from invasive species and predation.

Goal WILD-5 seeks to guide advance mitigation scoping to prioritize multi-species and multi-resource benefits. 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 Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects that will provide a functional lift for the species of mitigation need and maximize conservation benefits from mitigation within 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, and non-wetland waters 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 restoration and enhancement 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 and STIP-eligible 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 restoration and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800. 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.[1] Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to authorized 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

[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).

regulatory requirements and conservation science. To determine the aquatic resource conservation goals and objectives applicable to the GAI, Caltrans:

- First, in Section 8.2, identified natural resource regulatory agencies with the authority to condition transportation projects with aquatic resource-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 (Section 1.5).
- 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
  - Opportunities to provide co-benefits, where possible, to water quality, groundwater recharge, and species that require aquatic habitats
- Last, Caltrans analyzed the aforementioned information in relation to the transportation-related activities that could potentially affect aquatic resources, and the potential range of compensatory mitigation that could satisfy a transportation project condition associated with the activities.

The results 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.

Table 8-1. Natural Resource Regulatory Agencies that Regulate Aquatic Resources

Agency	Summary
CDFW – Region 3, Bay Delta, and Region 4, Central Region	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. 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.
CCC	CCC protects the coast by planning for and regulating new development in the coastal zone pursuant to the policies of the Coastal Act. Through the issuance of CDPs, CCC implements the policies of the Coastal Act, including protecting sensitive resources, water quality, public access to the coast, etc. CCC also coordinates with local governments in developing and certifying LCPs, which allow local governments to assume the authority to issue Coastal Development Permits within their jurisdiction. The agency 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, such as a specific species habitat or as a specific geographic area.
NMFS, West Coast Region	NMFS has jurisdiction over all federally protected fish and wildlife marine species and critical habitats and requires consultation and coordination to be in compliance with the ESA. NMFS manages wildlife and fisheries resources in the marine and estuarine environment. NMFS issues biological opinions under Section 7 of the ESA for projects that may affect federally listed species managed by the agency. In addition, NMFS manages marine mammals under the Marine Mammal Protection Act, with the exception of sea otters, which are managed by FWS. NMFS is also responsible for addressing impacts on EFH under the Magnuson-Stevens Fishery Conservation and Management Act.
EPA, Region 9	EPA has authority under the federal 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.

Agency	Summary
State Water Board and RWQCB – Region 2, San Francisco Bay, and Region 3, Central Coast	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 Water Boards, incorporate the beneficial use designation of surface waters of the state and must take into consideration 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 into WOTUS. Projects that occur in one region are regulated by that regional board, whereas projects that cross regions are regulated by the State Water Board.
Corp – South Pacific Division – San Francisco District and Los Angeles District	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 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. It is the preference of the Corps to use the following order of priority for mitigation: mitigation bank, in-lieu fee program, on-site permittee responsible mitigation, and off-site permittee responsible mitigation.
FWS	FWS has jurisdiction over all federally protected wildlife, federally protected inland/ non-anadromous fish species, and critical habitats, and requires consultation and coordination to be in compliance with the ESA. FWS authorities, including its role in mitigation, are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to, the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. FWS approves HCPs to address impacts on federally protected species, for projects lacking a federal nexus, under ESA Section 10(a)1(B). For projects with a federal nexus and potential impacts on federally protected species, FWS issues biological opinions under ESA Section 7. FWS does not, however, have jurisdiction over anadromous fish.

8.3 Aquatic Resources Overview

An overview of aquatic resources was provided in Chapter 2 and is further summarized below.

8.3.1. Wetlands and Non-wetland Waters

The GAI conforms to the following HUC-8 boundaries: Central Coastal (HUC-8 18060006), Monterey Bay (HUC-8 18060015), Pajaro (HUC-8 18060002), Salinas (HUC-8 18060005), and San Francisco Coastal South (HUC-8 18050006). In the GAI, the Big Sur, Carmel, Estrella, Nacimiento, Pajaro, Salinas, San Antonio, San Benito, and San Lorenzo Rivers are the major stream systems (Central Coast RWQCB 2019; San Francisco Bay RWQCB 2017). 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 originates from rainfall.

Aquatic habitat types with the potential to occur in the GAI are mapped in Appendix H. Based on the SAMNA Reporting Tool's wetlands and waters layer, the GAI has a total of 123,075 acres of aquatic habitat, consisting of five wetland habitats that are listed in Table 2-8 and three non-wetland waters habitats that are listed in Table 2-9 (Caltrans 2017c, 2017d). Thirteen 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. They are detailed in Table 2-7.

8.3.2. Steelhead

Steelhead is federally listed as threatened. Two DPS of steelhead overlap the GAI: Central California Coast DPS and South-Central California Coast DPS (Section 2.9, Figure 2-8). The Central California Coast steelhead DPS includes all naturally spawned anadromous steelhead originating below natural and human-made impassable barriers from the Russian River to and including Aptos Creek, and all drainages of San Francisco and San Pablo Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers (71 *Federal Register* 834). The South-Central California Coast steelhead DPS includes naturally spawned steelhead originating below natural and human-made barriers from the Pajaro River to (but not including) the Santa Maria River.

Steelhead in these DPSs exhibit winter-run migration timing such that adults enter freshwater rivers generally between December and March after rains increase flows to the point that sandbars on the mouths of coastal lagoons are breached, allowing for fish passage. Steelhead will then spawn in tributaries of main rivers and then return to the ocean after spawning. Spawning habitat consists of freshwater streams with cold, clear water and suitable spawning substrates (Moyle 2002).

8.3.3. Tidewater Goby

This species occurs throughout most of the California and is a federal endangered species (59 *Federal Register* 5494). Tidewater goby occurs in brackish waters of coastal lagoons and estuaries and has very rarely been found in the open ocean. This species is considered to occur as a meta-population, defined as having local populations that are frequently isolated from each other, with three large naturally occurring gaps along California's coast. In the GAI, there is a gap between the Salinas River in Monterey County and Arroyo del Oso in San Luis Obispo County (FWS 2007).

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 Hydrologic 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 Resource Goals and Objectives, by HUC-8

Central Coastal HUC-8 18060006	Monterey Bay HUC-8 18060015	Pajaro HUC-8 18060002	Salinas HUC-8 18060005	San Francisco Coastal South HUC-8 18050006
▪ Arroyo del Corral ▪ Big Creek[a] ▪ Bixby Creek ▪ Burns Creek ▪ Chorro Creek ▪ Dairy Creek ▪ Garrapata Creek ▪ Juan Hiquera Creek ▪ Limekiln Creek[b] ▪ Little Sur River ▪ Post Creek ▪ Prewitt Creek ▪ Rocky Creek[d] ▪ Salmon Creek[e] ▪ San Luis Obispo Creek ▪ San Luisito Creek ▪ Willow Creek[f]	▪ Arana Gulch ▪ Amaya Creek ▪ Antonelli Pond ▪ Aptos Creek ▪ Bennett Slough ▪ Bonita Lagoon ▪ Boulder Creek ▪ Branciforte Creek ▪ Buena Vista Pond ▪ Calabasas Pond ▪ Carbonera Creek ▪ Corcoran Lagoon ▪ Hester Creek ▪ Hinckley Creek ▪ Jessie Street Marsh ▪ Kings Creek ▪ Laurel Creek ▪ Moore Creek ▪ Moores Gulch ▪ Moran Lake ▪ Natural Bridges Marsh ▪ Neary Lagoon ▪ San Lorenzo Lagoon ▪ San Lorenzo River ▪ Soquel Creek ▪ Soquel Lagoon ▪ Two Bar Creek ▪ Valencia Creek ▪ Zayante Creek	▪ College Lake ▪ Ellicott Pond ▪ Harkins Slough ▪ Laguna Creek ▪ Llagas Creek ▪ Pacheco Creek ▪ Pajaro River ▪ Pescadero Creek[c] ▪ Pinto Lake ▪ Tequisquita Slough ▪ Uvas Creek ▪ Willow Creek[f]	▪ East Garrison Pond ▪ Estrella River ▪ Limekiln Creek[b] ▪ Nacimiento River ▪ Rocky Creek[d] ▪ Salinas River ▪ Salinas River Slough ▪ Salmon Creek[e] ▪ San Antonio River ▪ Santa Margarita Creek ▪ Willow Creek[f]	▪ Baldwin Creek ▪ Bean Hollow Creek ▪ Big Creek[a] ▪ Big Sur River ▪ Bogess Creek ▪ Carmel River ▪ Coyote Creek ▪ Crespi Pond ▪ Ellicott Slough ▪ Gazos Creek ▪ Lobitos Creek ▪ Majella Slough ▪ Meadow Creek ▪ Molino Creek ▪ Morro Bay ▪ Pescadero Creek[c] ▪ Pescadero Marsh ▪ Pilarcitos Creek ▪ Point Pillar Marsh ▪ San Gregorio Creek ▪ San Jose Creek ▪ San Pedro Creek ▪ San Vicente Creek ▪ Scott Creek ▪ Tunitas Creek ▪ Waddell Creek ▪ Whitehouse Creek ▪ Wilder Creek ▪ Younger Lagoon

[a] Three National Hydrology Dataset ("NHD") named features are called Big Creek in the GAI: two in the Central Coastal HUC-8, one that drains into the Pacific Ocean and one that is a tributary to another stream; and one in the San Francisco Coastal South HUC-8 that drains into the Pacific Ocean.
[b] Two NHD named features are called Limekiln Creek in the GAI: one in the Central Coastal HUC-8 that drains into the Pacific Ocean and one in the Salinas HUC-8 that is a tributary to another stream.

[c] Three NHD named features are called Pescadero Creek in the GAI: one in the San Francisco Coastal South HUC-8 that drains into the Pacific Ocean and two in the Pajaro HUC-8 that are tributaries to other streams.
[d] Two NHD named features are called Rocky Creek in the GAI: one in the Central Coastal HUC-8 that drains into the Pacific Ocean and one in the Salinas HUC-8 that is a tributary to another stream.
[e] Two NHD named features are called Salmon Creek in the GAI: one in the Central Coastal HUC-8 that drains into the Pacific Ocean and one in the Salinas HUC-8 that is a tributary to another stream.
[f] Five NHD named features are called Willow Creek in the GAI: two in the Central Coastal HUC-8 that drain into the Pacific Ocean, two in the Salinas HUC-8 that are tributaries to other streams, and one in the Pajaro HUC-8 that is a tributary to another stream.

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
2008 Final Compensatory Mitigation Rule	73 *Federal Register* 19670	Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including in order of priority mitigation banks, in-lieu fee programs, permittee-responsible on-site and then off-site 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).
303(d) List of Impaired Water Bodies	State Water Board 2018	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 F), 101 waterbodies are listed as impaired in the GAI. Of the 101, 62 have an established total maximum daily load.
California Wetlands Conservation Policy	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."
Caltrans 2018 Fish Passage Annual Legislative Report	Caltrans 2019d	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.
Definition and Delineation of Wetlands in the Coastal Zone	CCC 2011	Creates a CCC wetland definition and wetland delineation procedures using a one-parameter approach for identifying a wetland.

Document	Reference	Information Identified
National Wetlands Mitigation Action Plan	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 *National Wetlands Mitigation Action Plan* were incorporated into the 2008 Final Compensatory Mitigation Rule, which was updated in 2015 and includes the no net loss policy.
Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division	Corps 2015	Provides guidelines for compensatory mitigation site selection. A watershed approach should be used when selecting sites to establish compensatory mitigation.
State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State	State Water Board 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.
Water Quality Control Plan for the Central Coast Basin	Central Coast RWQCB 2019	Identifies water quality objectives and beneficial uses for the Central Coast Basin.
Water Quality Control Plan for the San Francisco Bay Basin	San Francisco Bay RWQCB 2017	Identifies water quality objectives and beneficial uses for the San Francisco Bay Basin.
Conservation and Land Management Documents	See below	See below
Año Nuevo State Park Final General Plan	California Department of Parks and Recreation 2008	Includes a goal to remove bullfrogs from riparian systems for the benefit of salmonids and other native aquatic species, including tidewater goby, which is known to occur in the coastal area of the state park.
Aptos Creek Watershed Assessment and Enhancement Plan	Santa Cruz Resource Conservation District 2003a	Includes general goals and objectives centered on increasing fish populations for coho salmon and steelhead and also prioritizes potential projects to fulfill this goal in Lower Aptos Creek, Lower Valencia Creek, Mangels Gulch, Lower Nisene Marks State Park, and several watershed-wide projects.

Document	Reference	Information Identified
Big Basin Redwoods State Park Final General Plan Environmental Impact Report	California Department of Parks and Recreation 2013	▪ Includes a general goal to remove bullfrogs from riparian systems for the benefit of salmonids and other native aquatic species, including tidewater goby. ▪ Includes a goal to reintroduce tidewater goby to Waddell Creek.
Big Sur River Watershed Management Plan	Resource Conservation District of Monterey County 2014	Includes the following restoration recommendations for the Big Sur River: ▪ Remove the fish passage barriers at river mile 4.5 and Juan Hiquera Creek. ▪ Restore riparian vegetation. ▪ Replace the culvert on Post Creek with a box culvert to reduce sedimentation at the Coast Ridge Road crossing.
Carmel Area LCP	County of Monterey 1995	Includes a goal for the installation of a fish ladder for steelhead at the diversion dam on San José Creek.
Carmel River Watershed Assessment and Action Plan	Resource Conservation District of Monterey County 2016	Includes the following recommended actions for the Carmel River: ▪ Enhance and restore habitat for steelhead. ▪ Revegetate and restore unstable banks and incised reaches. ▪ Restore lagoons and estuaries. ▪ Reduce flood risk. ▪ Improve water quality and quantity, particularly in summer months. ▪ Modify fish passage barriers, particularly the Los Padres Dam, to allow for fish passage.
City of Grover Beach LCP	City of Grover Beach 2014	Includes a goal for preservation of riparian and marsh vegetation along the western branch of Meadow Creek.
City of Pacific Grove LCP	City of Pacific Grove 2019	Includes a goal for preservation of freshwater wetlands, particularly Crespi Pond and Majella Slough.
City of Santa Cruz LCP	City of Santa Cruz 2008	Includes goals to enhance the San Lorenzo River and Neary Lagoon. Includes recommendations for enhancement of non-City-owned aquatic features including Younger Lagoon, Jessie Street Marsh, Arana Gulch, Moore Creek, Natural Bridges Marsh, and Antonelli Pond.
Ecological Restoration Implementation Plan	USFS 2013	Includes a goal to conduct nonnative species eradication along the Big Sur River.

Document	Reference	Information Identified
Ellicott Slough National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Assessment	FWS 2010b	Includes goals to restore the Harkins Slough, Ellicott Pond, Calabasas Pond, and Buena Vista Pond for increased amphibian use and recruitment and to remove gum (*Eucalyptus* sp.) and pampasgrass (*Cortaderia selloana*) from the refuge.
Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead	NMFS 2016	This document uses terms with definitions specific to it, these include: ▪ Diversity strata: a set of geographically distinct areas with similar environmental conditions ▪ Essential population: a population that is known to support recovery ▪ Supporting population: a population that is expected to play a role in recovery ▪ Independent population: a population that is likely to persist over 100 years without additional migrants ▪ Dependent population: a population that is not likely to persist over 100 years without additional migrants ▪ Redundancy and occupancy criteria: at least 50 percent of historically independent populations must have a low extinction risk, total aggregate abundance of independent populations in a diversity strata must exceed 50 percent of the aggregate abundance across diversity strata, other populations that are not expected to attain a viable status must be shown to immigrate to populations that are viable, and the distribution of extant populations must have connectivity in a diversity strata and connectivity to a neighboring diversity strata ▪ Low, moderate, and high extinction risk: risks for extinction are based on a series of conditions and equations that are itemized in Table 2 of Volume 1 of this document The Santa Cruz Mountains are the only diversity strata that occurs in the GAI. Aptos Creek, Pescadero Creek, Pilarcitos Creek, San Gregorio Creek, San Lorenzo River, Scott Creek, Soquel Creek, and Waddell Creek are the areas with essential independent anadromous fish populations in the GAI that must attain low extinction risk before the species can be de-listed. Laguna Creek has the supporting independent population in the GAI that must attain moderate extinction risk before the species can be de-listed. Gazos Creek, San Vicente Creek, and Tunitas Creek have the supporting dependent populations in the GAI that contribute to redundancy and occupancy criteria. San Pedro Creek is the only stream in the GAI that contains a supporting dependent population that does not currently support an independent population that contributes to redundancy and occupancy criteria.
Fort Ord Multi-Species Habitat Conservation Plan	ICF International 2019a	Includes the following goals: ▪ Restore 5 acres of general aquatic and wetland/riparian habitat. ▪ Restore East Garrison Pond. ▪ Reduce invasive plant species to no more than 5 percent in any habitat type.

Document	Reference	Information Identified
Guadalupe-Nipomo Dunes National Wildlife Refuge Comprehensive Conservation Plan	FWS 2016	Includes goals to increase the population of marsh sandwort (*Arenaria paludicola*) and La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*) in the refuge through wetland enhancement and to control the feral swine population to reduce the threat from invasive species.
Los Padres National Forest Land Management Plan	USFS 2005	Includes goals to enhance 22 acres of aquatic habitat and remove tamarisk (*Tamarix* sp.) from the forest.
Lower San Lorenzo River & Lagoon Management Plan	Swanton Hydrology and Geomorph-ology, et al. 2002	Includes the following objectives for the lower San Lorenzo River: ▪ Restore riparian forests. ▪ Increase the width of the riparian corridor. ▪ Improve water quality consistent with steelhead and coho salmon needs. ▪ Increase populations of steelhead, coho salmon, and other native species.
Monterey Bay National Marine Sanctuary Final Management Plan	NOAA 2008	Includes a goal to improve water quality of streams that flow into Monterey Bay by reducing sedimentation and erosion.
Draft Monterey County RCIS	AECOM 2020	Includes regional objectives to improve water quality, enhance or restore aquatic habitats, restore hydrologic functions, and remove fish passage barriers. Focuses on California sycamore woodland as an aquatic habitat for enhancement or restoration. Focuses on the following species for aquatic habitat protection in the following manner with a general goal to enhance as much of the protected habitat as feasible: ▪ California brackish snail (*Tryonia imitator*) – 390 acres of habitat protection ▪ Southern sea otter (*Enhydra lutris neries*) – 530 acres of habitat protection ▪ Steelhead (South-Central California DPS) – 6,400 acres of habitat protection focusing on the following locations: Pajaro River, Salinas River, Carmel River, San Jose Creek, Little Sur River, Big Sur River, Garrapata Creek, Bixby Creek, Rocky Creek, Big Creek, Limekiln Creek, Prewitt Creek, Willow Creek, and Salmon Creek, with specific enhancement actions included in Table 5-32 of the document (too numerous to include here) ▪ Tidewater goby – 340 acres of habitat protection, focusing on the Pajaro River and Bennett's Slough ▪ Vernal pool fairy shrimp (*Branchinecta lynchi*) – 16,000 acres of habitat protection including 85 percent of suitable habitat in the Fort Hunter-Liggett core area and 80 percent of occurrences in the RCIS area

Document	Reference	Information Identified
Morro Bay State Park General Plan	California Department of Parks and Recreation 1988	Includes a goal to protect three wetland areas and restore the Chorro Creek Wetland.
Pacific Coast Salmon Fishery Management Plan	Pacific Fishery Management Council 2016	Includes numerous goals to ensure fisheries stock for chinook (*Oncorhynchus tshawytscha*), coho, and pink salmon (*O. gorbuscha*). The goal relevant to the GAI is that coho cannot be retained by fisheries off the California coast.
Pajaro River Watershed IRWMP – Work Plan	San Benito County Water District 2005	Objectives of the plan include minimizing salt intrusion to maintain water quality; meet total maximum daily loads in the watershed; reduce flood risk; enhance or restore habitats to promote water management, particularly in Soap Lake; and conduct wetland enhancement at Tequisquita Slough and College Lake.
Pinnacles National Monument Draft General Management Plan and Environmental Assessment	NPS 2012	Includes a goal to revegetate the riparian area currently affected by the Moses Spring parking area.
Pinto Lake Watershed: Implementation Strategies for Restoring Water Quality in Pinto Lake	Santa Cruz Resource Conservation District 2013	Includes options for improving water quality in Pinto Lake, which include removing nonnative fish, dredging sediment, designating a local area for vehicle washing that will not run into the lake, constructing detention ponds, and replacing nonnative plant species with native plant species.
Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California – Volume 1	FWS 2013	The goal of the plan is the comprehensive restoration and management of tidal marsh ecosystems throughout northern and central California, including habitat for tidewater goby. Five recovery units are identified, of which the Central Coast and Morro Bay units occur in the GAI. The Central Coast species target is California clapper rail (*Rallus longirostris obsoletus*) and the Morro Bay target is California seablite (*Suaeda californica*).

Document	Reference	Information Identified
*Recovery Plan for the Tidewater Goby (*Eucyclogobius newberri*)*	FWS 2005b	The tidewater goby is split into 6 units and 26 subunits in this recovery plan. The units and subunits that occur in the GAI include the Greater Bay unit with the GB 4 through GB 11 subunits, the Central Coast Unit with the CC 1 through CC 3 subunits, and the Conception unit with the CO 1 subunit. Recovery criteria focus on improving habitat and reducing threats such that there is a 95 percent or greater probability of the species persisting for 100 years in each of the subunits before de-listing can occur. Aquatic features in the GAI where tidewater goby are known to occur include: San Gregorio Creek, Pescadero Creek, Bean Hollow Creek, Waddell Creek, Scott Creek, Laguna Creek, Baldwin Creek, Old Dairy Creek, Wilder Creek, Younger Lagoon, Moore Creek, Moran Lake, San Lorenzo Lagoon, Corcoran Lagoon, Soquel Creek, Aptos Creek, Bennett Slough, Arroyo del Corral, unnamed estuaries between Piedras Blancas and Point Estero, unnamed aquatic features between Estero Point and Morro Bay, and unnamed aquatic features between Point San Luis and Point Sal.
Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	FWS 2005a	Regions in the GAI covered by the plan are Carrizo, containing the Central Coastal Range and Paso Robles core areas; Central Coast, containing the Fort Ord, San Benito, and Fort Hunter-Liggett core areas; and Santa Barbara, which does not contain core areas that occur in the GAI. Listed species for recovery that use aquatic habitat in these core areas include vernal pool fairy shrimp and Contra Costa goldfields (*Lasthenia conjugens*). California fairy shrimp (*Linderiella occidentalis*) is also expected to benefit from this plan.
Resource Management Plan for the Southern Diablo Mountain Range & Central Coast of California	BLM 2007	Requires the initiation of riparian restoration in systems that have been identified as not functioning or having a reduced functional trend and the protection of wetlands and riparian areas for California fairy shrimp.
Salinas River National Wildlife Refuge Comprehensive Conservation Plan	FWS 2002b	Includes goals to restore riparian vegetation along at least 1,500 feet of the southern bank of the Salinas River and to enhance the Salinas River Slough for the benefit of steelhead.
San Antonio and Nacimiento Rivers Watershed Management Plan	Monterey County Water Resources Agency 2008	Includes the following objectives for the Nacimiento River watershed: ▪ Reduce mercury sedimentation and acid mine drainage. ▪ Control the spread of invasive species. Includes the following objectives for the San Antonio River watershed: ▪ Control the spread of invasive species.

Document	Reference	Information Identified
San Gregorio Creek Watershed Management Plan	Natural Heritage Institute 2010	Includes the following objectives for the San Gregorio Creek-Frontal Pacific Ocean HUC-10 (1805000602): ▪ Control nonnative species. ▪ Restore connectivity between the mainstem of San Gregorio Creek and its lower portion, particularly downstream of Stage Road and downstream of State Route 1. ▪ Enhance large woody debris in the creek. ▪ Increase cobble/boulder habitat for fish species. ▪ Increase the resilience of the San Gregorio Lagoon sandbar.
San Lorenzo River Salmonid Enhancement Plan	Santa Cruz County Environmental Health Services 2004	Includes recommendations centered on enhancing habitat for steelhead and coho salmon. These include the following: ▪ Focus sediment reduction on Kings, Two-Bar, Boulder, Zayante, and Branciforte Creeks. ▪ Surface year-round timber harvest roads in the Zayante Creek area. ▪ Include conifer species in revegetation projects designed for streambank stabilization to support large woody material. ▪ Remove or modify fish passage barriers, particularly in the Lower River Gorge portion of the San Lorenzo River.
San Lorenzo Urban River Plan	City of Santa Cruz 2003	Recommends actions at the following aquatic systems: ▪ Carbonera Creek – control sediment. ▪ Branciforte Creek – enhance habitat for steelhead, remove nonnative trees, and control sediment. ▪ Jessie Street Marsh – create a salt/brackish marsh plain between East Cliff Drive and Lemos Avenue, enhance freshwater marsh habitat between Lemos Avenue and Barson Street, and enhance existing riparian habitat.
San Mateo County LCP	County of San Mateo 2012	Includes a goal for habitat enhancement for Point Pillar Marsh and Pescadero Marsh.
San Vicente Creek Watershed Plan for Salmonid Recovery	Santa Cruz Resource Conservation District 2014	Includes recommendations centered on enhancing habitat for steelhead and coho salmon. These include the following: ▪ Reestablish floodplain connectivity. ▪ Roughen floodplains with large woody material. ▪ Eliminate cave ivy (*Delairea odorata*) from the watershed. ▪ Dredge 120 to 150 cubic yards of sediment from the Upper pond and plant native wetland plants.

Document	Reference	Information Identified
Santa Clara County RCIS	ICF International 2019b	Targets the following aquatic habitats for conservation of additional acreage: ▪ Coast live oak woodland and forest – 2,900 acres ▪ Valley oak forest/woodland – 1,700 acres ▪ Central coast riparian forest – 578 acres ▪ Sycamore alluvial woodland – 40 acres ▪ Perennial freshwater marsh – 50 acres ▪ Seasonal wetland – 30 acres ▪ Serpentine seep/spring – 10 acres ▪ Pond – 104 acres Targets aquatic habitat for the following species for conservation of habitat at additional acreages: ▪ Steelhead – protect 12 miles and restore 15 miles of stream habitat (prioritizing the Pajaro River watershed) for the Central California Coast DPS and protect 43 mile and restore 11 miles of stream habitat (prioritizing the populations in Stevens Creek and Coyote Creek) for the South-Central California Coast DPS. Also prioritize the removal or modification of fish barriers along Stevens Creek, Coyote Creek, Uvas Creek, and Pajaro River.
Santa Clara Valley Habitat Conservation Plan	ICF International 2012	Overall conservation actions of this HCP include the following goals: ▪ Protection of 100 miles of streams; ▪ Restoration of between 70 and 428 acres of riparian habitat; and ▪ Creation of between 20 and 72 acres of wetland ponds. Targets the following aquatic habitats for conservation: ▪ Oak woodland (which can have riparian forms) ▪ Riparian forest and scrub communities ▪ Pond ▪ Freshwater perennial wetland ▪ Seasonal wetland Targets the following areas for stream protection and enhancement: ▪ Pacheco Creek ▪ Uvas Creek (upper portion) ▪ Pajaro River (prioritized for least Bell's vireo habitat enhancement) ▪ Llagas Creek (prioritized for least Bell's vireo habitat enhancement)
Santa Cruz Integrated Regional Water Management Plan	Regional Management Group 2019	Includes goals to improve riparian zone condition and streams that support salmonids by 40 percent as measured by increases in rapid riparian zone condition assessment scores and salmonid habitat condition tracking scores by 2030. Also includes a goal to increase total wetland habitat area by 30 percent by 2030.

Document	Reference	Information Identified
Seacliff State Beach General Plan	California Department of Parks and Recreation 1990	Includes a goal to restore riparian trees and habitat along Aptos Creek.
Soquel Creek Salmonid Assessment and Enhancement Plan	Santa Cruz Resource Conservation District 2003b	Includes the following recommendations for improving aquatic habitat: ▪ Replace exotic tree and shrub species along the Soquel lagoon in a manner that does not reduce shading or cause erosion. ▪ Increase tree densities along the creek to allow for more shading. ▪ Increase large woody material in Amaya, Hester, Laurel, and Burns Creeks to trap sediment. ▪ Surface rural roads around the creek that have continuous use to reduce sediment erosion. ▪ Modify the passage impediments on the East and West branches of the creek.
Soquel Creek Watershed Assessment and Enhancement Project Plan	Santa Cruz Resource Conservation District 2003c	Includes general goals to improve habitat for salmonids and notes Soquel Creek area specific enhancement opportunities, as outlined below: ▪ Construct a summer sandbar at the creek mouth. ▪ Plant large trees and enlarge culverts in between the lagoon and Moores Gulch. ▪ Revegetate the reach upstream of Hinckley Creek and restore the riparian corridor by reconfiguring an erosion control-prevention project. ▪ Improve steelhead passage between Ashbury Falls and the Highland Way slide. ▪ Enlarge the box culvert at the mouth of Hester Creek to increase large woody material recruitment.
South-Central California Steelhead Recovery Plan	NMFS 2013	This plan includes recovery criteria that require a minimum number of viable populations in specific locations before de-listing can occur; additionally, each of these areas must also have all three life-history types (fluvial-anadromous, lagoon-anadromous, and freshwater resident): ▪ Four populations in the Interior Coast Range; ▪ One population in the Carmel River Basin; ▪ Three populations in the Big Sur Coast; and ▪ Five populations in the San Luis Obispo terrace.
Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon	NOAA 2016	This plan, while directed toward improvement of the Central California Coast DPS of coho salmon, includes goals and objectives that improve habitat generally in Scott Creek and unnamed streams in Santa Cruz and San Mateo County.

Document	Reference	Information Identified
Steelhead Restoration and Management Plan for California	California Department of Fish and Game 1996	Identified restoration recommendations in the Carmel River and San Luis Obispo County coastal stream systems. Recommendations consist generally of modifying flow regimes to reduce risk to steelhead, reduce water diversion, and remove fish passage barriers.
Strategic Plan to Protect California's Coast and Ocean 2020–2025	OPC 2019	Identified targets for specific actions including: ▪ Protect, restore, or create an additional 10,000 acres of coastal wetlands by 2025. ▪ Have a net increase in coastal wetlands of 20 percent by 2030 and 50 percent by 2040. ▪ Ensure the California coast is resilient to at least 3.5 feet of sea-level rise by 2050.
SWAP	CDFW 2015	Identified American southwest riparian forest and woodland, California grassland, vernal pools, flowerfields, coastal lagoons, freshwater marsh, and salt marsh as conservation targets.
Twin Lakes State Beach General Plan	California Department of Parks and Recreation 1998	Includes a goal to restore of Bonita Lagoon.
Wilder Ranch State Park General Plan	California Department of Parks and Recreation 1986	Includes a goal to increase riparian vegetation 50 feet from the existing boundary of vegetation along the portion of Wilder Creek below the Wilder Ranch complex.

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 2015), 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[2] or indirectly from negative impacts of pressures (e.g., habitat fragmentation)" (CDFW 2015). The Corps defines human stressors as human-caused sources of disturbance within 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 STIP and could benefit from in-kind mitigation purchased or established through an advance mitigation project. When designating an area as 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, 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 2015, 2016a).

Reduced habitat complexity, removal of native riparian vegetation, degradation of water quality, removal of instream wood, and sedimentation are all listed as factors for steelhead being listed under the ESA and are still affecting steelhead (NMFS 2013, 2016). Steelhead depend on a mix of stream and coastal habitats including chaparral-dominated inland streams, woodland-dominated inland streams, coastal estuaries, and seasonal lagoons in the GAI (NMFS 2013). Roads have altered the connections between the types of habitat, as well as the amount of sediment supply into streams and rivers. Increased sedimentation has direct negative effects on steelhead by interfering with their physiological and biological processes, and indirect effects through degradation of their

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

habitat (NMFS 2016). Tidewater goby is similarly threatened by loss of wetland habitat as well as coastal development (FWS 2007).

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 or aquatic resource type, and further threats to already endangered or threatened natural resources. 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 2015). Invasive plant species that affect riparian systems in the GAI include creeping bent (*Agrostis stolonifera*), giant reed, Himalayan blackberry (*Rubus armeniacus*), and Canary Island date palm (*Phoenix canariensis*) (Cal-IPC 2020). Invasive animal species, some of which are native but have become invasive under urban conditions, that can damage aquatic ecosystems in general include raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), striped bass (*Morone saxatilis*), and black crappie (*Pomoxis nigromaculatus*). Additionally, feral swine (*Sus scrofa*) have also been noted to be a problem in some areas (FWS 2016) and zebra mussels (*Dreissena bugensis*) have been found at the Ridgemark Golf Course Pump and San Justo Reservoir in San Benito County (CDFW 2017).

These species damage aquatic ecosystems by direct predation on native species or by outcompeting native species for food (CDFW 2015). Zebra mussels are known to cause significant ecosystem and economic damage by consuming and reducing phytoplankton, an important component of aquatic food webs, and by overcrowding the bottom of lakes and reservoirs and clogging water pipes, screens, and filters (California Science Advisory Panel 2007). Invasive fishes such as channel catfish (*Ictalurus punctatus*) and striped bass are factors in steelhead declines. Both of these species have been observed in the freshwater systems of the Central Coast and are predators limiting steelhead population size (NMFS 2016). Bullfrogs have also been recorded as threatening steelhead populations, particularly juvenile steelhead (NMFS 2013). Sunfish (Centrarchids) introduction has been observed to be followed by localized extirpation of tidewater goby, including from Las Pulgas Creek in the GAI (FWS 2007).

8.5.3. Altered Hydrology and Water Quality

Water quality and hydrology can be directly altered by physical barriers, such as dams, roads, and canals, which can have effects both upstream and downstream by truncating connectivity and altering flow. The loss of wetlands can result in increased flash flooding and decreased water quality in downstream tributaries. Water-related structures found throughout the Central Coast's rivers and tributaries, such as culverts and bridges, have affected the aquatic ecosystem by altering historical flooding regimes, erosion, and sediments deposition processes that maintain floodplains (CDFW 2015). 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 2005b).

Recently, groundwater overuse has become a factor affecting steelhead by causing disruptions to gaining stream surface flow (NMFS 2016). In many watersheds, the creation of dikes, levees, tide gates, and culverts has also reduced hydrologic connectivity. Removing or altering hydrologic connections can negatively affect the ability of steelhead to migrate to and from their natal streams. Connection removal and alterations can also negatively affect salinity and temperature profiles that the tidewater goby depend on in coastal lagoons. Increased water temperature can be detrimental to the survival of most life stages of steelhead but would most likely affect summer-rearing juveniles. These effects can reduce overall reproductive success of steelhead and tidewater goby through a reduction in egg development, increased risk of mortality before spawning, and direct loss of spawning habitat (FWS 2007; NMFS 2016).

Fish barrier removal priorities exist both on and off the SHS. However, on-system fish passage barriers take priority over off-system until such time that no feasible on-system barriers exist. Caltrans and CDFW agree to a collaborative barrier prioritization process via the FishPACs. This prioritization is updated each year in the *Caltrans Fish Passage Annual Legislative Report* (Caltrans 2019d). 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, statues 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 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 (Caltrans 2019c).

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 2015). Climate change is expected to amplify the pattern of wet high river flows in the winter and dry low river flows in the summer. Increased summer droughts of greater than 30 days have been shown to decrease plant biomass in willows and cottonwoods but have less of an effect on nonnative tamarisk (Langridge 2018).

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 2016). A recent study found that steelhead in California were most at risk to instream flooding, sea surface temperature, and ocean acidification, with populations south of San Francisco Bay being more vulnerable to climate change than those found north of San Francisco Bay (Crozier et al. 2019). The increased temperatures projected from climate change could increase algal growth on mudflats, which, in turn, can reduce oxygen available for coastal fish species such as tidewater goby, and projections for acidification of tidal estuaries could also exceed the tolerance of tidewater goby. Additionally, sea-level rise could flood coastal wetlands with higher saline waters, which could reduce the freshwater to ocean transitional habitat available for steelhead and force tidewater goby farther upstream into narrower, less suitable habitat (Langridge 2018).

8.5.5. Wildfire Risk

By 2100, wildfire frequency, size, and intensity are expected to increase in the Central Coast, particularly in the eastern portion of the Central Coast Ranges (CDFW 2015). Terrestrial and wetland 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, resulting in increased water temperatures and changes to the food web within the river or stream. Temperature is important to steelhead during critical life stages. Increased wildfires will likely contribute to additional erosion in riverine habitats (Langridge 2018), affecting the water quality of steelhead and tidewater goby water habitat.

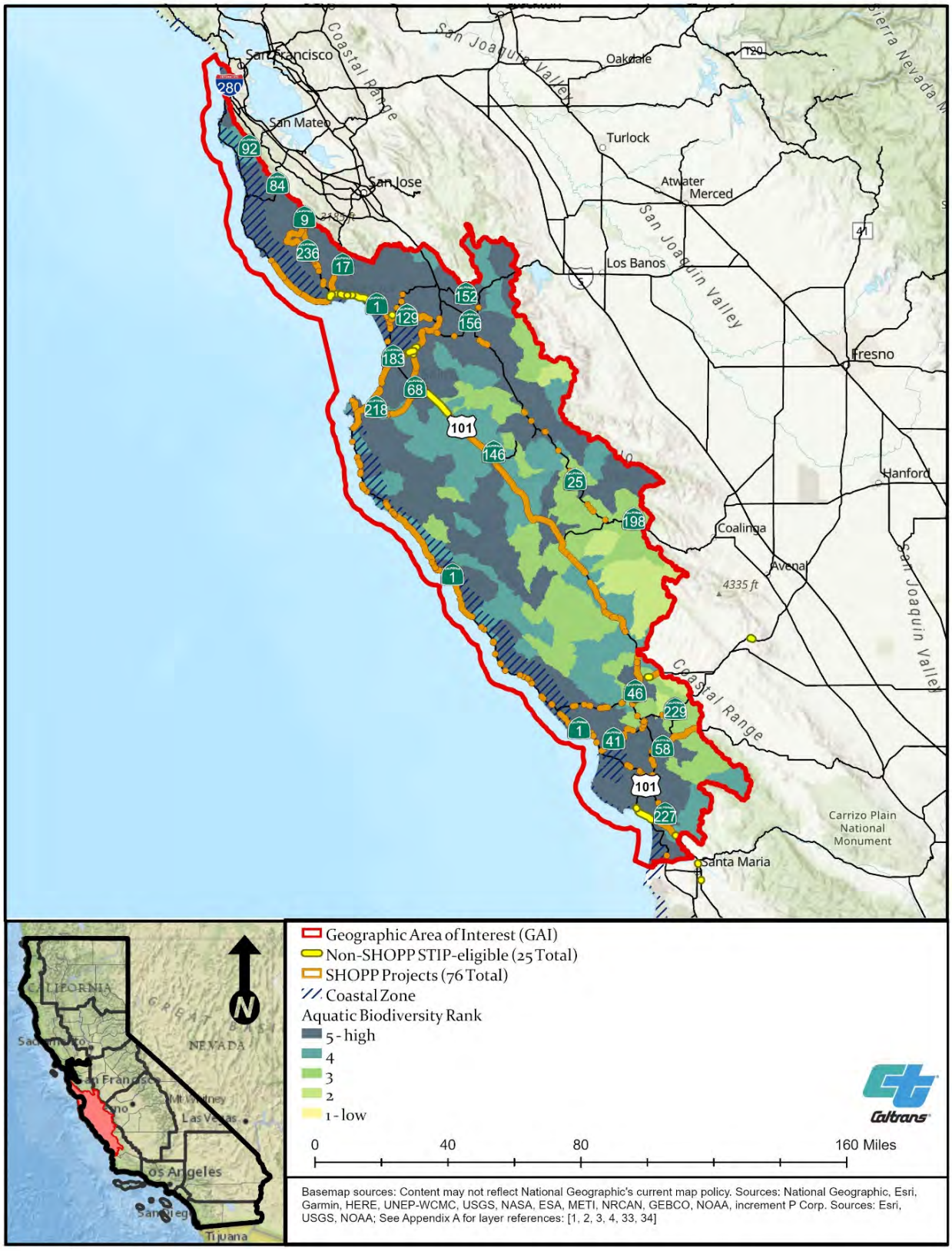
8.6 Multi-resource Benefits

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, special-status species, wetlands, and non-wetland 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 and STIP-eligible projects, especially in the central third portion of the GAI and along the eastern edge. Large areas with high aquatic biodiversity occur in the northern and southern third 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, increasing the amount of shaded riverine aquatic habitat to benefit salmonids would provide the co-benefits of contributing to the complexity and connectivity of riparian habitat used by other special-status species. Likewise, enhancement and/or restoration of seasonal wetland habitat, including vernal pools, would likely benefit several aquatic and terrestrial species that depend on these types of habitats, such as vernal pool fairy shrimp and Contra Costa goldfields.
- Enhancing and/or restoring the aquatic resources of the GAI is expected to support or contribute to beneficial uses of non-wetland waters of the GAI. For example, enhancement and/or restoration of wetland and riparian habitat would likely improve water quality in adjacent river and stem systems that may provide fish spawning habitat for salmonids and tidewater goby. Further, enhancement and/or restoration of wetlands adjacent to GAI waterways could sequester contaminants on waterways identified as 303(d) impaired and/or with an established total maximum daily load.

Caltrans will consider aquatic resources' biodiversity values, special-status species with the potential to co-occur in aquatic habitats, ESHAs, the beneficial uses of waterways, and impaired waterways 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 and STIP 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, 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 and objectives presented here are intended to align with the watershed approach, as practiced by natural resource regulatory agencies. The watershed approach is an analytical process through which the Corps, State Water Board, 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 resource through strategic selection of compensatory mitigation sites. The Corps subscribes to a watershed approach for compensatory mitigation that uses the HUC-based classification system, or a topographic watershed-based system, depending on the size and location of a transportation or other project (Corps 2015). The State Water Board and RWQCBs 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 (State Water Board 2019b). Additionally, steelhead and tidewater goby have goals separate from those pursued by the Corps and the Water Boards, including the elimination of fish passage impediments and aquatic predators such as sunfish and bullfrog (FWS 2007; NMFS 2013, 2016). The goals, objectives, and sub-objectives presented in Table 8-4 reflect Caltrans' intention to develop advance mitigation project scopes for in-kind mitigation.

Table 8-4. Advance Mitigation Conservation Goals and Objectives 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 W59-93. **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 Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South HUC-8s, particularly the Big Sur, Carmel, Estrella, Nacimiento, Pajaro, Salinas, San Antonio, San Benito, and San Lorenzo Rivers as well as other named and unnamed tributaries into Monterey Bay and the Pacific Ocean, many of which are listed in Table 8-2. **Sub-Objective AR-1.1.4:** Enhance and/or rehabilitate wetland and non-wetland water resource functions, such as connectivity, abundance of native plants, stream geomorphology, hydrologic regime, substrate diversity and complexity, and water quality, that define habitat value for aquatic organisms. **Sub-Objective AR-1.1.5:** Identify areas of coastal wetlands dominated by nonnative plant species, such as dense-flowered cord grass (*Spartina densiflora*) and remove them, reducing threats to multiple ecosystem functions, as well as improving habitat for tidewater goby.	▪ *SWAP* (CDFW 2015) ▪ *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015) ▪ *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Board 2019b) ▪ *Definition and Delineation of Wetlands in the Coastal Zone* (CCC 2011) ▪ *Morro Bay State Park General Plan* (California Department of Parks and Recreation 1988) ▪ *Seacliff State Beach General Plan* (California Department of Parks and Recreation 1990) ▪ *Wilder Ranch State Park General Plan* (California Department of Parks and Recreation 1986) ▪ *Twin Lakes State Beach General Plan* (California Department of Parks and Recreation 1998) ▪ *Salinas River National Wildlife Refuge Comprehensive Conservation Plan* (FWS 2002b) ▪ *Resource Management Plan for the Southern Diablo Mountain Range & Central Coast of California* (BLM 2007) ▪ *Los Padres National Forest Land Management Plan* (USFS 2005) ▪ *Pinnacles National Monument Draft General Management Plan and Environmental Assessment* (NPS 2012) ▪ *City of Grover Beach Local Coastal Program Land Use Plan* (City of Grover Beach 2014) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *Pajaro River Watershed IRWMP – Work Plan* (San Benito County Water District 2005) ▪ *Santa Clara Valley HCP* (ICF International 2012) ▪ *Monterey County RCIS* (AECOM 2020) ▪ *Water Quality Control Plan for the Central Coast Basin* (Central Coast RWQCB 2019) ▪ *Santa Cruz IRWMP* (Regional Management Group 2019) ▪ *Soquel Creek Watershed Assessment and Enhancement Project Plan* (Santa Cruz Resource Conservation District 2003c) ▪ *San Gregorio Creek Watershed Management Plan* (Natural Heritage Institute 2010) ▪ *City of Santa Cruz LCP* (City of Santa Cruz 2008) ▪ *Monterey Bay National Marine Sanctuary Final Management Plan* (NOAA 2008)
Goal 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 water aquatic resources. **Sub-Objective AR-1.2.2:** Establish and/or reestablish 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-1.2.3:** Establish and/or reestablish riparian vegetation in the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South HUC-8s, particularly the Big Sur, Carmel, Estrella, Nacimiento, Pajaro, Salinas, San Antonio, San Benito, and San Lorenzo Rivers as well as other named and unnamed tributaries into Monterey Bay and the Pacific Ocean, many of which are listed in Table 8-2.	▪ *SWAP* (CDFW 2015*)* ▪ *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015) ▪ *2008 Final Compensatory Mitigation Rule* (73 *Federal Register* 19670) ▪ *National Wetlands Mitigation Action Plan* (EPA and Corps 2002) ▪ *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material in Waters of the State* (State Water Board 2019b) ▪ *Definition and Delineation of Wetlands in the Coastal Zone* (CCC 2011) ▪ *California Wetlands Conservation Policy* (Executive Order W-59-93) ▪ *Steelhead Restoration and Management Plan for California* (California Department of Fish and Game 1996) ▪ *Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead* (NMFS 2016) ▪ *South-Central California Steelhead Recovery Plan* (NMFS 2013) ▪ *Recovery Plan for the Tidewater Goby* (FWS 2005b) ▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California – Volume 1* (FWS 2013) ▪ *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (FWS 2005a) ▪ *Strategic Plan to Protect California's Coast and Ocean 2020–2025* (OPC 2019)

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 non-wetland waters	See below	See below
Objective AR-2.1: Restore and/or enhance water quality.	**Sub-Objective AR-2.1.1:** Restore and/or enhance of non-wetland waters with RWQCB biology-related beneficial use designations, such as cold freshwater habitat; estuarine habitat; fish migration; fish spawning, reproduction, and/or early development; freshwater replenishment; groundwater recharge (where there is a surface water connection); inland saline water habitat; marine habitat; preservation of biological habitats of special significance; preservation of rare, threatened, or endangered species; replenishment of surface waters; and wildlife habitat. **Sub-Objective AR-2.1.2:** Address erosion, nutrients, contaminants, and temperatures in the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South HUC-8s. **Sub-Objective AR-2.1.3:** Implement habitat restoration and enhancement actions that address water quality for aquatic resources, for example, Carbonera Creek, Branciforte Creek, San Lorenzo River, Nacimiento River, 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, and CCA-designated areas. **Sub-Objective AR-2.1.5:** Restore or create adjacent wetlands to enhance water quality within tributaries. **Sub-Objective AR-2.1.6:** Identify small streams and sections of larger streams to remove nonnative plant species that degrade stream water quality, such as cape ivy (*Delairea odorata*), giant reed, tamarix, Himalayan blackberry, greater periwinkle (*Vinca minor*), whorled hydrilla (*Hydrilla verticillata*), and water-milfoil (*Myriophyllum aquaticum, M. spicatum*). **Sub-Objective AR-2.1.7:** Improve stream temperatures by increasing shaded riverine aquatic habitat in Branciforte Creek, San Lorenzo River, Carmel River, Big Sur River, Pajaro River, Llagas Creek, Scott Creek, and Pacheco Creek for fish and other aquatic life.	▪ *Water Quality Control Plan for the Central Coast Basin* (Central Coast RWQCB 2019) ▪ *Water Quality Control Plan for the San Francisco Bay Basin* (San Francisco Bay RWQCB 2017) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *San Antonito and Nacimiento Rivers Watershed Management Plan* (Monterey County Water Resources Agency 2008) ▪ *Pajaro River Watershed IRWMP – Work Plan* (San Benito County Water District 2005) ▪ *Soquel Creek Salmonid Assessment and Enhancement Plan* (Santa Cruz Resource Conservation District 2003b) ▪ *City of Santa Cruz LCP* (City of Santa Cruz 2008) ▪ *Monterey Bay National Marine Sanctuary Final Management Plan* (NOAA 2008)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Objective AR-2.2: Improve surface water hydrology.	**Sub-Objective AR-2.2.1:** Restore and/or enhance natural hydrologic regimes. **Sub-Objective AR-2.2.2:** Reconnect severed aquatic systems and improve connectivity within aquatic systems. **Sub-Objective AR-2.2.3:** Reestablish hydrologic regimes or drainage patterns for better function of riverine, lake, vernal pool, freshwater pond, freshwater forested/shrub wetland aquatic habitats, and coastal wetlands.	▪ *SWAP* (CDFW 2015) ▪ *Steelhead Restoration and Management Plan for California* (California Department of Fish and Game 1996) ▪ *Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead* (NMFS 2016) ▪ *South-Central California Steelhead Recovery Plan* (NMFS 2013) ▪ *Recovery Plan for the Tidewater Goby* (FWS 2005b) ▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California – Volume 1* (FWS 2013) ▪ *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (FWS 2005a) ▪ *Carmel Area Land Use Plan Local Coastal Program* (County of Monterey 1995) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *Santa Cruz IRWMP* (Regional Management Group 2019) ▪ *Soquel Creek Watershed Assessment and Enhancement Project Plan* (Santa Cruz Resource Conservation District 2003c) ▪ *San Gregorio Creek Watershed Management Plan* (Natural Heritage Institute 2010)
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 and invasive 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 adjacent wetlands to enhance groundwater-surface water dynamics within tributaries.	▪ *Resource Management Plan for the Southern Diablo Mountain Range & Central Coast of California* (BLM 2007) ▪ *Los Padres National Forest Land Management Plan* (USFS 2005) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *San Antonito and Nacimiento Rivers Watershed Management Plan* (Monterey County Water Resources Agency 2008) ▪ *Pajaro River Watershed IRWMP – Work Plan* (San Benito County Water District 2005)
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 threatened and endangered salmon and 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 within the GAI to restore access to habitats that support key populations for recovery of threatened and endangered salmon and 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 remediation, both internally and from natural resource regulatory agencies. **Sub-Objective AR-3.1.3:** Align with LCP ESHA requirements to prioritize restoration and/or enhancement in ESHAs containing fish species of mitigation need such that a functional lift to the ESHA is provided, when feasible.	▪ *SWAP* (CDFW 2015) ▪ *Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead* (NMFS 2016) ▪ *Steelhead Restoration and Management Plan for California* (California Department of Fish and Game 1996) ▪ *South-Central California Steelhead Recovery Plan* (NMFS 2013) ▪ *Carmel Area Land Use Plan Local Coastal Program* (County of Monterey 1995) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Recovery Plan for the Tidewater Goby* (FWS 2005b) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Monterey County RCIS* (AECOM 2020) ▪ *Santa Clara County RCIS* (ICF International 2019b) ▪ *Aptos Creek Watershed Assessment and Enhancement Plan* (Santa Cruz Resource Conservation District 2003a) ▪ *San Lorenzo River Salmonid Enhancement Plan* (Santa Cruz County Environmental Health Services 2004) ▪ *Santa Cruz IRWMP* (Regional Management Group 2019) ▪ *Soquel Creek Salmonid Assessment and Enhancement Plan* (Santa Cruz Resource Conservation District 2003b) ▪ *Soquel Creek Watershed Assessment and Enhancement Project Plan* (Santa Cruz Resource Conservation District 2003c) ▪ *San Gregorio Creek Watershed Management Plan* (Natural Heritage Institute 2010)

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 functional value in areas of lower climate resilience, such as the northern quarter of the GAI, Pescadero Marsh, Scott Creek, Pajaro River, Salinas River, Ellicott Slough, and Morro Bay 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 Pescadero Marsh, Point Pillar Marsh, Crespi Pond, Majella Slough, Meadow Creek, Morro Bay, and the coastal region around the Carmel and Salinas Rivers. **Sub-Objective AR-4.1.3:** Prioritize riparian areas of the Central Coastal, Monterey Bay, Pajaro, Salinas, and San Francisco Coastal South HUC-8s for enhancement and/or restoration to improve freshwater quantity and quality, floodplain connectivity, and in-stream cover continuity. **Sub-Objective AR-4.1.4:** Enhance, rehabilitate, establish and/or reestablish aquatic habitats by using native species such as Fremont's cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa),* willows (*Salix* sp.), cattails (*Typha* spp.), rushes (*Juncus* sp.), and bulrushes (*Schoenoplectus* sp.) to reduce the effects of climate change. **Sub-Objective AR-4.1.5:** Reduce adverse in-stream flooding effects by restoring affected headwater and tributary hydrological functions for the San Lorenzo River, Big Sur River, Carmel River, and Pajaro River. **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 the San Lorenzo River, Big Sur River, Carmel River, and Pajaro River.	▪ *SWAP* (CDFW 2015) ▪ *Strategic Plan to Protect California's Coast and Ocean 2020–2025* (OPC 2019) ▪ *Twin Lakes State Beach General Plan* (California Department of Parks and Recreation 1998) ▪ *Ellicott Slough National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Assessment* (FWS 2010) ▪ *San Mateo County Local Coastal Program Land Use Plan* (County of San Mateo 2012) ▪ *City of Pacific Grove Local Coastal Program Land Use Plan* (City of Pacific Grove 2019) ▪ *City of Grover Beach Local Coastal Program Land Use Plan* (City of Grover Beach 2014) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *San Antonito and Nacimiento Rivers Watershed Management Plan* (Monterey County Water Resources Agency 2008) ▪ *Pajaro River Watershed IRWMP – Work Plan* (San Benito County Water District 2005) ▪ *San Gregorio Creek Watershed Management Plan* (Natural Heritage Institute 2010) ▪ *City of Santa Cruz LCP (City of Santa Cruz 2008)*
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 in aquatic habitats, such as giant reed, tamarisk, Russian olive (*Elaeagnus angustifolia*), red gum (*Eucalyptus camaldulensis*), tree of heaven (*Ailanthus altissima*), and cape ivy 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 Big Sur, Carmel, Estrella, Nacimiento, Pajaro, Salinas, San Antonio, San Benito, and San Lorenzo Rivers.	▪ *SWAP* (CDFW 2015) ▪ *Strategic Plan to Protect California's Coast and Ocean 2020–2025* (OPC 2019) ▪ *Ellicott Slough National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Assessment* (FWS 2010) ▪ *San Mateo County Local Coastal Program Land Use Plan* (County of San Mateo 2012) ▪ *City of Pacific Grove Local Coastal Program Land Use Plan* (City of Pacific Grove 2019) ▪ *City of Grover Beach Local Coastal Program Land Use Plan* (City of Grover Beach 2014) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *San Antonito and Nacimiento Rivers Watershed Management Plan* (Monterey County Water Resources Agency 2008) ▪ *Pajaro River Watershed IRWMP – Work Plan* (San Benito County Water District 2005) ▪ *San Gregorio Creek Watershed Management Plan* (Natural Heritage Institute 2010) ▪ *City of Santa Cruz LCP* (City of Santa Cruz 2008)

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: Coordinate mitigation to provide benefits to other resources.	**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 vernal pool crustaceans and plants, chinook, and coho salmon. **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. **Sub-Objective AR-5.1.5:** Prioritize enhancement, rehabilitation, establishment, and/or reestablishment in areas that benefit EFH, such as spawning areas for chinook, coho, and pink salmon.	▪ *SWAP* (CDFW 2015) ▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California – Volume 1* (FWS 2013) ▪ *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (FWS 2005a) ▪ *Guadalupe-Nipomo Dunes National Wildlife Refuge Comprehensive Conservation Plan* (FWS 2016) ▪ *Salinas River National Wildlife Refuge Comprehensive Conservation Plan* (FWS 2002b) ▪ *San Lorenzo Urban River Plan* (City of Santa Cruz 2003) ▪ *Lower San Lorenzo River & Lagoon Management Plan* (City of Santa Cruz 2002) ▪ *Big Sur River Watershed Management Plan* (Resource Conservation District of Monterey County 2014) ▪ *Carmel River Watershed Assessment and Action Plan* (Resource Conservation District of Monterey County 2016) ▪ *Resource Management Plan for the Southern Diablo Mountain Range & Central Coast of California* (BLM 2007) ▪ *Pacific Coast Salmon Fishery Management Plan* (Pacific Fishery Management Council 2016) ▪ *Santa Clara Valley Habitat Conservation Plan* (ICF International 2012) ▪ *Fort Ord Multi-Species Habitat Conservation Plan* (ICF International 2019a) ▪ *Santa Clara County Regional Conservation Investment Strategy* (ICF International 2019b) ▪ *Monterey County RCIS* (AECOM 2020) ▪ *Soquel Creek Salmonid Assessment and Enhancement Plan* (Santa Cruz Resource Conservation District 2003b) ▪ *San Gregorio Creek Watershed Management Plan* (Natural Heritage Institute 2010) ▪ *Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead* (NMFS 2016) ▪ *Recovery Plan for the Tidewater Goby* (FWS 2005b) ▪ *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* (NOAA 2016)

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8.8 Summary

Caltrans anticipates that future SHOPP and STIP-eligible transportation projects may be conditioned by the Corps, State Water Board, RWQCB, CCC, NMFS, and CDFW to address the pressures and stressors that threaten aquatic resources in the GAI. The pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species;
- Altered hydrology 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 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 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 restore and/or 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 and water quality.

Goal AR-3 seeks to direct advance mitigation planning toward fish species of mitigation concern. The objectives are designed to restore and/or enhance habitat for steelhead and tidewater goby and increase the survivability of these species. The sub-objectives were selected to address the following pressures and stressors: altered hydrology and water quality; habitat loss, fragmentation, and degradation; and invasive species.

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 natural resource 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 Caltrans seeks to use 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 within the GAI.

9. ASSESSMENT OF AUTHORIZED ACTIVITIES

Informed by this RAMNA and its reviewers' comments and feedback, Caltrans District 5 will nominate advance mitigation projects to the Caltrans Director and request funding approval (see Step 4 in 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 5 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, at a minimum, be consistent with natural resource regulatory agency goals and objectives, may be expressed in an approved regulatory instrument or interagency agreement, and/or be aligned with conservation goals and objectives identified in Chapters 7 or 8.

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's 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[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: http://ppmoe.dot.ca.gov/des/oe/contractor-info.html.

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 and non-SHOPP STIP-eligible transportation projects to natural resources is shown in figures throughout this document. Estimated transportation project mitigation needs within the GAI for fiscal years 2017/18 to 2026/27 are presented in Chapter 5, and the timing of the needs is analyzed in Chapter 6. For the time interval under consideration, 2017/18 to 2026/27, District 5 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 and that are planned for the middle and end of the planning period. Hence, given the expected timing of mitigation need, at this time (May of fiscal year 2020/21) mitigation that can be purchased or established by 2023/24 (within the next 2 years) could potentially address approximately:

- 2.0 acres of wetland, 4.1 acres of non-wetland waters, and 1.1 acres of fish habitat (including species of mitigation need: steelhead and tidewater goby) impacts in the Central Coastal HUC-8, potentially contributing to the acceleration of 13, 9, and 6 transportation projects, respectively.
- 2.0 acres of wetland, 3.9 acres of non-wetland waters, and 1.2 acres of fish habitat (including species of mitigation need: steelhead and tidewater goby) impacts in the Monterey Bay HUC-8, potentially contributing to the acceleration of 8, 9, and 9 transportation projects, respectively.
- 0.3 acres of wetland, 0.3 acres of non-wetland waters, <0.1 acre of fish habitat (including species of mitigation need: steelhead and tidewater goby) impacts in the Pajaro HUC-8, potentially contributing to the acceleration of 3, 4, and 1 transportation project, respectively.

- 5.6 acres of wetland, 7.1 acre of non-wetland waters, 1.3 acres of fish habitat (including species of mitigation need: steelhead and tidewater goby) impacts in the Salinas HUC-8, potentially contributing to the acceleration of 13, 14, and 3 transportation projects, respectively.
- 0.2 acre of non-wetland waters, 0.2 acre of fish habitat (including species of mitigation need: steelhead and tidewater goby) impacts in the San Francisco Coastal South HUC-8, potentially contributing to the acceleration of 1 and 1 transportation project, respectively.
- 0.3 acre of vernal pool habitat impacts in the Central California Coast Ecoregion, potentially contributing to the acceleration of 3 transportation projects.
- 8.7 acres of vernal pool habitat impacts in the Central Coast Ranges Ecoregion, potentially contributing to the acceleration of 10 transportation projects.
- 231.8 acres of California red-legged frog habitat impacts in the Central California Coast Ecoregion, potentially contributing to the acceleration of 40 transportation projects.
- 69.8 acres of California red-legged frog habitat impacts in the Central California Coast Ranges Ecoregion, potentially contributing to the acceleration of 19 transportation projects.
- 103.4 acres of California tiger salamander habitat impacts in the Central California Coast Ecoregion, potentially contributing to the acceleration of 31 transportation projects.
- 65.6 acres of California tiger salamander habitat impacts in the Central California Coast Ranges Ecoregion, potentially contributing to the acceleration of 18 transportation projects.
- 130.7 acres of foothill yellow-legged frog habitat impacts in the Central California Coast Ecoregion, potentially contributing to the acceleration of 28 transportation projects.
- 9.8 acres of foothill yellow-legged frog habitat impacts in the Central California Coast Ranges Ecoregion, potentially contributing to the acceleration of 13 transportation projects.
- 89.2 acres of tricolored blackbird habitat impacts in the Central California Coast Ecoregion, potentially contributing to the acceleration of 32 transportation projects.
- 62.5 acres of tricolored blackbird habitat impacts in the Central California Coast Ranges Ecoregion, potentially contributing to the acceleration of 18 transportation projects.

All or some of these needs could form the basis for Caltrans District 5 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 be 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).

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
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

Advance Mitigation Project Type	Authorization	Section
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation 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[e] 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] 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. NCCP and/or HCP Fees

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

Caltrans identified one HCP/NCCP and one HCP with plan areas that overlap the GAI (Table 4-2, Figure 4-1). Caltrans is not a permittee to the NCCP/HCP (Table 4-2). When Caltrans is not a permittee, it is unknown whether Caltrans would be able to contribute to an NCCP because Caltrans would need to apply as a Participating Special Entity to the plan's sponsor to qualify for some of the plan's privileges. It is also unknown whether the NCCPs where Caltrans might qualify as a Participating Special Entity are structured in such a way that Caltrans could purchase bulk credits or values in advance of transportation project delivery—that is, through advance mitigation project delivery.

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. For NCCPs where Caltrans would seek Participating Special Entity status, such as the Santa Clara Valley Habitat Plan HCP/NCCP, there may be schedule benefits if contributions were complete by 2023/24 (Table 4-2, see Figure 6-3

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

for schedule). The District and a specific NCCP sponsor would need to determine the feasibility of this approach.

9.3.2. Conservation Bank Credit Purchase

Conservation banks were discussed in Section 4.3. Conservation banks are species-focused, and each bank's alignment with natural resource protection is documented through its BEI. In the GAI, CDFW is a signatory to four conservation banks, two of which offer California tiger salamander credits (Table 4-3, Figures 4-2 and 4-3). FWS is a signatory to seven banks, four of which offer red-legged frog credits and two of which (with CDFW) offer California tiger salamander credits (Table 4-3). CDFW and FWS are cosignatories for four of the banks. No bank offers tricolored blackbird credits or foothill yellow-legged frog credits. One bank offers NMFS-approved steelhead credits.

Conservation bank service areas are shown in Figures 4-2 and 4-3, and the anticipated transportation project impact forecast is presented by year in Figure 6-3. 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 2021/22, when the credits might contribute to transportation project acceleration. Steelhead credit needs are also apparent.

Feasibility. This authorized activity may be feasible. Caltrans District 5 may be able to address some of its California tiger salamander mitigation need through credits purchased previously through the SHOPP (Table 4-1). However, additional purchases to address other needs may be made. 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 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 the California tiger salamander is a dually listed species, it is probable that compensatory mitigation will be incorporated into future ESA biological assessments/opinions in coordination with FWS. It is also probable that steelhead compensatory mitigation will be incorporated into future ESA biological assessments/ opinions in coordination with NMFS. For all banks, a BEI amendment would be required to formalize a process for bulk pre-permit credit purchases, and additional time for amending the bank instrument should be considered. At this time (May of fiscal year 2020/21), the Interagency Project Delivery Team is developing new bank templates that incorporate pre-permit purchase terms, and these are anticipated to be finalized within 2021. The decision to amend a BEI is at the discretion of the bank sponsor.

9.3.3. Mitigation Bank Credit Purchase

Mitigation banks were discussed in Section 4.3. Mitigation banks are wetlands- and waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. Two mitigation banks in the GAI provide wetland and/or non-wetland water credits; the Corps is a signatory to both (Table 4-3, Figure 4-3).

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, at which point the credits or values would be available to transportation projects. The mitigation bank service area is shown in Figure 4-3, and the anticipated transportation project schedule is shown in Figure 6-3. For all banks, a BEI amendment would be required to formalize a process for bulk pre-permit credit purchases, and additional time for amending the bank instrument should be considered. At this time (May of fiscal year 2020/21), the Interagency Project Delivery Team is developing new bank templates that incorporate pre-permit purchase terms, and these are anticipated to be available in 2021. 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 were discussed in Section 4.4. 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. Once enough money is received by an in-lieu fee program, it implements a wetland, stream, or threatened or endangered species habitat restoration, creation, enhancement, or preservation activity in the watershed.[2] The in-lieu fee program's alignment with natural resource protection is documented through its enabling instrument. FWS is signatory to one in-lieu fee program established in the GAI.[3]

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, 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 FWS approval, be incorporated into future biological opinions on transportation projects. At this time (May of fiscal year 2020/21), the District will need to approach the Resource Conservation District of Santa Cruz County In-lieu Fee Program to confirm bulk credit pre-permit purchase terms; the Resource Conservation District of Santa Cruz County In-lieu Fee Program may need to amend its enabling instrument to allow for pre-permit bulk credit purchases.

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. At this time (May of fiscal year 2020/21), instructions and guidance for establishing MCAs are under development by CDFW.[4] There are currently one CDFW-approved and two in-progress RCISs that overlap the GAI (Section 4.5). All of the species of mitigation need are also focal species in the CDFW-approved Santa Clara RCIS.

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[2] https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pdf/banking_faq.pdf
[3] https://www.spk.usace.army.mil/Missions/Regulatory/Mitigation/In-Lieu-Fee-Programs/
[4] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation

Feasibility. At this time (May of fiscal year 2020/21), 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 CDFW[5] 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 there also may be circumstances where the Corps and/or State Water Board would participate.

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

- Chapter 2, *Environmental Setting*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix C, *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, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3 to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans' understanding that a conservation bank that addresses one or more of the following goals would be consistent with CDFW and FWS goals:

- Conserve and expand existing habitat for species of mitigation need within the GAI (WILD-1).
- Preserve, enhance, and increase connectivity between blocks of species of mitigation need habitat (WILD-2).
- Support climate resiliency (WILD-3).
- Decrease mortality 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 presented sub-objectives, which are intended to help guide Caltrans advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

[5] https://wildlife.ca.gov/Conservation/Planning/Banking/Templates
[6] https://www.fws.gov/endangered/esa-library/pdf/Conservation_Banking_Guidance.pdf

Feasibility. This authorized activity may be feasible. As pointed out above, 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 Corps[7] 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 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 wetland and water 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 jurisdiction. Within the coastal zone, Caltrans would also prioritize coastal wetland establishment in accordance CCC authorities.

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

An understanding of Corps, RWQCB, FWS, CCC, NMFS, and CDFW 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, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3 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 majority of the following goals would be consistent with natural resource regulatory agency goals:

- No net loss to area, functions, values, and condition of WOTUS[8] and waters of the state to ensure the overall net loss and long-term net gain in the quantity, quality,

[7] https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/mitig_info/
[8] https://wildlife.ca.gov/Conservation/Planning/Banking/Templates

and permanence of wetland acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property, as described in Executive Order W-59-93[9] (AR-1).

- Restore and/ or enhance the chemical, physical, and biological integrity of non-wetland waters (AR-2).
- Restore or enhance and expand habitat for steelhead and tidewater goby (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 8-3 presented 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, water, 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.[10] With respect to wildlife, like the Corps, FWS also follows federal guidance for establishing an in-lieu fee program; however, a supportive regulatory and 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 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix F, *Hydrologic Units*
- Appendix H, *Aquatic Resource Locations*

[9] Preservation alone is not recognized by the Corps or RWQCB as providing no net loss.
[10] https://www.spl.usace.army.mil/Missions/Regulatory/Mitigation/

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, CCC, State Water Board 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 ESA biological assessments/opinions in coordination with FWS and NMFS.

Feasibility. This authorized activity may be feasible. As pointed out 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 enabling instrument. Caltrans may contract or subcontract implementation tasks.

9.3.9. MCA Credit or Value Establishment

As pointed out 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*, MCAs are species- and species-habitat focused and can include credits for riparian habitat to meet mitigation needs under a Lake and Streambed Alteration Agreement. An MCAs' alignment with natural resource protection will be documented through the foundational RCIS and the MCA itself (CDFW 2019d). RCIS development is also an SHC § 800.6(a)-authorized advance mitigation project deliverable.

Caltrans envisions that credits or values created through an MCA and funded through the AMA could be established under three scenarios:

- Caltrans enters into or funds the preparation of an MCA, where Caltrans is the MCA sponsor. Caltrans, CDFW, and a third-party landowner would likely be signatories to the MCA. This scenario assumes an existing RCIS anticipates the requirements and needs for MCA credits. In other words, the focal species, non-focal species, or other conservation elements of the associated conservation or habitat enhancement actions proposed in the MCA included in the RCIS would directly apply to and address Caltrans needs.
- Caltrans funds performance of conservation actions and habitat enhancement actions as needed to generate mitigation credits pursuant to an MCA, where a third party is the MCA sponsor. The MCA sponsor, CDFW, and the 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 prepares or funds the preparation of an RCIS that anticipates transportation project requirements and needs for MCA credits before entering into or funding the preparation of an MCA itself.

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[11] and CDFW would be the signatory. Two species of mitigation need, tricolored blackbird and foothill-yellow legged frog, are state-only listed species; an MCA for CESA credits within one of the RCIS areas may be appropriate. Caltrans may also request other agencies to be signatories to the MCA, such as the CCC, or seek project-specific interagency agreements with other natural resource regulatory agencies whose jurisdiction overlaps with CDFW's. 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 (May of fiscal year 2020/21), instructions and guidance for establishing MCAs are under development by CDFW,[12] and the RCIS Program is conducting pilot efforts to inform its development of MCA Guidelines and associated agreements. Consequently, 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 how CDFW's pilots are going, but given the nature of the AMP's revolving account, Caltrans has determined that it cannot commit AMA funds to a pilot effort.

Nevertheless, in the future, Caltrans anticipates that when a CDFW-approved RCIS is in place[13] and after the Caltrans Director's approval for funding, it is expected that delivering an advance mitigation project to establish an MCA and its credits or values would take 4 to 9 years: 2 to 3 years to set up the MCA, followed by 2 to 6 years to perform a conservation action or habitat enhancement action[14] to establish the credits or values. Credits would become available to Caltrans' SHOPP and STIP transportation projects according to the credit release schedule in the CDFW-approved MCA. Caltrans would include seeking signatures from natural resource regulatory agencies with overlapping jurisdictions and/or conducting parallel evaluations with the other agencies into the scope and schedule.

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[11] Caltrans is the Lead Agency under CEQA; CDFW's permitting authority does not include conditioning transportation projects under CEQA (Section 7).
[12] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[13] 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, which could add 2 to 3 years to the schedule.
[14] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation

Wildlife Crossing and Aquatic Corridor Enhancements

As described in Section 4.5 and pointed out above, the RCIS and MCA framework provides CDFW with a compensatory mitigation mechanism to approve credits for wildlife crossing and aquatic corridor enhancements. In other words, through an MCA developed under an RCIS, CDFW would be authorized to recognize credits established through wildlife crossing and aquatic corridor enhancement made separate from and distinct from specific transportation projects. An MCA for connectivity would be consistent with Caltrans' understanding of natural resource regulatory agency goal and objectives to restore or enhance and expand habitat for coho salmon and steelhead (AR-3), support resiliency of aquatic resources to climate change (AR-4), and provide multi-resource benefits (AR-5).

To support future transportation project permits, it would be necessary for a wildlife crossing or aquatic corridor improvement MCA funded through the AMA to establish CESA and/or Lake and Streambed Alteration Program credits. In addition to the uncertainty listed above related to MCA implementation and associated agreements, connectivity enhancements have additional uncertainty related to mitigation crediting framework and outputs (temporary versus permanent), cost feasibility, engineering, and delivery timelines. 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 the RCIS Program's MCA Guidelines for wildlife crossing and aquatic corridor enhancements 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 preservation 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 (May of fiscal year 2020/21), this authorized activity is not feasible. A supportive regulatory and administrative pathway for a resource 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 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

This project type may be undertaken by Caltrans if all of the 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, in this case, 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 (May of fiscal year 2020/21), a number of the authorized activities listed in Table 9-3 appear to be feasible (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 2018 through 2027 (Chapter 5) and evaluated its needs in light of when transportation projects might need the mitigation (Chapter 6 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).

Based on its evaluation, Caltrans found that, at this time (May of fiscal year 2020/21), a number of 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, California tiger salamander, tricolor blackbird, and state waters/streams could be addressed within the same credit purchase or through establishing a single credit establishment project.

Nevertheless, since Caltrans still has remaining California tiger salamander credits from the bulk credits purchased from the Sparling Ranch Conservation Bank (service area overlaps with GAI) and the La Purisima Conservation Bank in 2018, it is likely that additional tiger salamander credits would be a lower priority for purchase through the AMP. Further, credits purchased by 2023/24 (within the next 2 years) have the potential to address the following:

- **Pajaro HUC-8 forecast non-wetland waters and wetlands impacts**. Specifically, mitigation credits purchased for an anticipated 0.3-acre wetland impact and 0.25-acre water impact have the potential to accelerate 3 transportation projects.
- **Central California Coast or Central California Coast Ranges Ecoregions forecast California red-legged frog habitat impacts**. Specifically, mitigation credits purchased for an anticipated 301.6 acres of red-legged frog habitat impacts have the potential to accelerate 59 transportation projects.

Under some conditions, establishing new mitigation credits through existing mechanisms may also be possible.

Table 9-4. Wildlife Resources Credit Options and Feasibility, May 2021

Authorized Activity	Regulatory and Administrative Pathway Available	Available/ Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete[a]
Pay NCCP and/or HCP fees	Yes	Yes, one HCP/NCCP	Yes, CDFW and FWS	1 to 3 years
Purchase conservation bank credits	Yes, with instrument amendment	Yes, five FWS or CDFW and FWS approved banks in GAI with red-legged frog or California tiger salamander credits; one NMFS approved bank with steelhead credits	Yes, CDFW and FWS for dually listed species	1 to 3 years
Purchase in-lieu fee credits	Yes, may require instrument amendment	Yes, one FWS	No	1 to 3 years
Purchase MCA credits	No	Not applicable	Not applicable	Not applicable
Establish conservation bank	Yes	Yes, CDFW, FWS, and NMFS	Yes, with CDFW, FWS, NMFS, and CCC	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
Establish MCA credits or values[b]	Yes, in part; one approved RCIS; two RCISs in progress; MCA guidelines in progress	Maybe—MCA guidelines in progress	Maybe, CDFW, CCC, State Water Boards, FWS, and NMFS Potential for parallel evaluations	Unknown (pilot underway)

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, in part; one approved RCIS; two RCISs in progress; MCA guidelines in progress	Maybe—RCIS guidelines available; MCA guidelines in progress	Maybe, CDFW, CCC, State Water Boards, FWS, and NMFS Potential for parallel evaluations	Unknown (pilot underway)
Establish mitigation that meets an RCIS objective	No	NA	NA	NA
Establish mitigation in accordance with a programmatic mitigation plan	No	NA	NA	NA

Note: NA = not applicable or 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.

Table 9-5. Aquatic Resources Credit Options and Feasibility, May 2021

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, with instrument amendment	Yes, two Corps banks	Yes, CCC, RWQCB, Corps, EPA, CDFW, FWS, and NMFS	1 to 3 years
Purchase in-lieu fee credits	No	No	Not available	Not available
Purchase MCA credits	No	Not available	Not available	Not available
Establish mitigation bank	Yes	Yes, Corps, EPA, CDFW, FWS, NMFS, and CCC	Yes, CCC, RWQCB, Corps, EPA, CDFW, FWS, and NMFS	2 to 6 years
Establish in-lieu fee program	Yes	Yes, for Corps, EPA, FWS, NMFS, and CCC	Maybe, CCC, Corps, FWS, NMFS, EPA, and RWQCB	2 to 6 years
Establish MCA credits or values[b]	Yes, in part; one approved RCIS; two RCISs in progress; MCA guidelines in progress	Maybe—MCA guidelines in progress	Maybe, CCC, RWQCB, and NMFS Potential for parallel evaluation(s)	Unknown (pilot underway)
Establish RCIS and MCA[b]	Yes, in part; one approved RCIS; two RCISs in progress; MCA guidelines in progress	Maybe—RCIS guidelines available; MCA guidelines in progress	Maybe, CCC, RWQCB, and NMFS Potential for parallel evaluation(s)	Unknown (pilot underway)

Authorized Activity	Regulatory and Administrative Pathway Available	Available/ Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete[a]
Establish mitigation that meets an RCIS objective	No	Not available	Not available	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available

Note: NA = not applicable
[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.

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 5 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 and 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 5 will also consider based on its localized knowledge of delivering mitigation in its region. As just one 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, as well as Section 9.1, to inform the advance mitigation project scope, Caltrans District 5 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.

District 5 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 5 will commit to delivering the advance mitigation project within the scope, schedule, and budget communicated with nomination materials. At that point, Caltrans District 5 will initiate project delivery (see Steps 6 through 10 in Figure 1-2; Caltrans 2019a). Advance mitigation project delivery 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. In addition:

- 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 Caltrans or under contract to Caltrans through a competitive bid process, and may include existing mitigation providers—for example, banks, NCCPs, MCAs, as well as 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 Chapters 7 and 8.
- 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 agreement(s) 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-8s 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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