

## **ADVANCE MITIGATION PROGRAM**

## Upper Cache and Upper Putah Sub-basins Regional Advance Mitigation Needs Assessment

Version 1.0

Establishing Caltrans' Need for Advance Mitigation for Caltrans Districts 1, 3, and 4 for the Upper Cache and Upper Putah Sub-basins forecast fiscal years 2021/2022 to 2030/2031

**California Department of Transportation – District 1** 

March 2024

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### LIST OF ACRONYMS

Acronym	Definition
ACE	Areas of Conservation Emphasis
AMA	Advance Mitigation Account
AMP	Advance Mitigation Program
AMP Guidelines	Advance Mitigation Program Final Formal Guidelines
Basin Plan	Water Quality Control Plan for the Central Valley Region, the Sacramento River Basin and the San Joaquin River Basin
BEI	Bank Enabling Instrument
BLM	Bureau of Land Management
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEHC	California Essential Habitat Connectivity
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNRA	California Natural Resources Agency
CO <sub>2</sub>	carbon dioxide
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DPS	Distinct Population Segment
EFH	essential fish habitat
EPA	U.S. Environmental Protection Agency
ESU	Evolutionarily Significant Unit
FESA	federal Endangered Species Act
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FishPAC	Fish Passage Advisory Committee
FWS	U.S. Fish and Wildlife Service
GAI	geographic area of interest
GAP	Gap Analysis Program

GIS	geographic information system			
HCP	habitat conservation plan			
HU	hydrologic unit			
HUC	hydrologic unit code			
HUC-6	hydrologic unit code six-digit			
HUC-8	hydrologic unit code eight-digit			
HUC-10	hydrologic unit code 10-digit			
HUC-12	hydrologic unit code 12-digit			
LCP	Local Conservation Plan			
Master Process Agreement	Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California			
	mitigation credit accoment			
	miligation credit agreement			
	National Environmental Policy Act			
	National Eish and Wildlife Foundation			
NDS	National Park Service			
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 2021/22—2030/31			
SHS	State Highway System			
SONCC	southern Oregon/northern California Coast			
STIP	State Transportation Improvement Program			
SWAP	State Wildlife Action Plan			
SWRCB	State Water Resources Control Board			
TBD	to be provided			

TMDL	total maximum daily load
UA	uncertified area
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
Water Boards	SWRCB and RWQCB
WOTUS	waters of the U.S.

## **EXECUTIVE SUMMARY**

This Upper Cache and Upper Putah Sub-basins Regional Advance Mitigation Needs Assessment ("RAMNA") was developed with the goal of realizing the benefits of long-range planning to help manage the risks and priorities of the California Department of Transportation ("Caltrans") Advance Mitigation Program ("AMP"). It was developed in accordance with the AMP Final Formal Guidelines ("AMP Guidelines")<sup>1</sup> and incorporates information and feedback received from outreach to the natural resource regulatory agencies,<sup>2</sup> the Federal Highway Administration, other transportation agencies, Native American tribes, interested parties, and the public. Caltrans District 1 is the lead district for this planning-level effort.

**Background**. In 2017, the California Streets and Highways Code ("SHC") § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account ("AMA"), to be operated by Caltrans as a revolving account. The stated intent of the legislation was for Caltrans, through the AMP, to realize the potential of advance mitigation to "accelerate transportation project delivery" and to "protect natural resources through transportation project [compensatory] mitigation" [SHC § 800(a)]. To this end, SHC § 800.6(a) identifies 11 specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. The 11 activities authorized by SHC § 800 et seq. consist of purchasing or establishing compensatory mitigation credits<sup>3.4</sup> developed through an authorized regulatory mechanism.<sup>5</sup> Upon delivery, the credits are expected to be both available and at hand for Caltrans and natural resource regulatory agencies to use as offsets to transportation project impacts. The actual finding, however, of a specific credit's adequacy and/or suitability to offset an impact, as well as the placement of natural resource regulatory agency compensatory mitigation conditions on transportation

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

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

<sup>&</sup>lt;sup>3</sup> 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.

<sup>&</sup>lt;sup>4</sup> Credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established.

<sup>&</sup>lt;sup>5</sup> Authorized regulatory mechanisms include the regulatory processes to establish mitigation banks and in-lieu fee programs.

projects, is conducted in the future through each transportation project's environmental studies and permits.

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

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

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

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

#### ES.1 Geographic Area of Interest and Resource Focus

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



#### Figure ES-1. GAI Road Infrastructure

The time period assessed in this RAMNA is for fiscal years 2021/22 through 2030/31, a planning period consistent with Caltrans:

- Long-term transportation plans conceptualized in the *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2021/22—2030/31* ("SHOPP Ten-Year Book"; Caltrans 2023a). Transportation projects in the SHOPP Ten-Year Book have not undergone the environmental and permitting process.
- Modeled compensatory mitigation needs published in the Statewide Advance Mitigation Needs Assessment<sup>6</sup> Report Fourth Quarter 2021/22 Fiscal Year ("SAMNA Report"; Caltrans 2023c). Compensatory mitigation needs in the SAMNA Report are modeled and do not reflect an environmental and permitting process.

The GAI assessed in this RAMNA consists of the Upper Cache and Upper Putah Subbasins. GAIs are established at an ecoregion or eight-digit hydrologic unit code ("HUC-8") scale to define appropriate planning areas for mitigation implementation and anticipated use areas that align with natural resource regulatory agency practices (Caltrans 2019a). Caltrans District 1 selected the GAI because implementing landscape-scale mitigation in the sub-basins is likely to maximize State Highway Operation and Protection Program ("SHOPP") and State Transportation Improvement Program ("STIP") funded transportation project acceleration while maximizing environmental benefits.

Because the SAMNA model forecast impacts on hundreds of species' habitats, to further focus the planning effort, Caltrans District 1 identified species for which natural resource regulatory agencies condition transportation projects and those transportation projects that would most likely benefit if compensatory mitigation credits were available. These "species of mitigation need" are the state threatened Clear Lake hitch (*Lavinia exilicauda chi*), federally threatened California red-legged frog (*Rana draytonii*), and federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

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

### ES.2 Environmental Setting

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

<sup>&</sup>lt;sup>6</sup> The SAMNA Reporting Tool is a geographic information system ("GIS") overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2018).

The GAI consists of approximately 1.2 million acres in northern California within the Upper Cache and Upper Putah Sub-basins (HUC-8s), which are overlapped by portions of the Central California Coast, Great Valley, Northern California Coast, Northern California Coast Ranges, and Northern California Interior Coast Ranges Ecoregion Sections.

#### ES.3 Relevant Plans, Policies, and Regulations

Compensatory mitigation is informed by regulatory requirements, regulatory mechanisms for credit establishment, and conservation. Laws, regulations, 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 89 documents that may be relevant to advance mitigation planning and advance mitigation project delivery: 30 state and federal laws, guidelines, and regulations; 17 statewide and regional resource management plans; 12 plans and permits and other documents focused on species of mitigation need; 11 state agency, federal agency, Native American tribal, and local government land management plans; 3 water resources plans and documents; 12 county, city, and local government general plans; and 4 nongovernmental organization conservation and management documents. A summary and links to these documents can be found in Chapter 3.

### **ES.4 Existing Mitigation Opportunities**

For the purposes of the RAMNA, existing mitigation opportunities are potential opportunities for Caltrans to use AMA funds to purchase compensatory mitigation that was previously approved by one or more natural resource regulatory agencies. In accordance with SHC § 800.6(a), the approved credits or values eligible for purchase may have been established through a conservation bank, mitigation bank, natural community conservation plan ("NCCP"), habitat conservation plan ("HCP"), in-lieu fee program, or mitigation credit agreement ("MCA") developed in accordance with a CDFW-approved regional conservation investment strategy ("RCIS").

Chapter 4 presents readily available information regarding existing mitigation opportunities for the GAI. In brief, Caltrans identified one NCCP/HCP where Caltrans may be eligible to participate, 18 pending or active conservation and/or mitigation banks, one in-lieu fee program, one approved RCIS, and no MCAs.

Existing mitigation opportunities can also inform both regional understanding and advance mitigation project scoping because they may be expressions of resource agency conservation goals and objectives<sup>7</sup> and may be suitable for concurrent transportation project mitigation.

<sup>&</sup>lt;sup>7</sup> 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.

#### ES.5 Estimated Impacts

Prior to developing a focused advance mitigation project scope to purchase or establish mitigation credits or values, as authorized by SHC § 800.6(a), Caltrans must determine whether it needs advance mitigation credits. Since environmental and permitting processes have not yet taken place, Caltrans must rely on estimating future SHOPP transportation project<sup>8</sup> impacts through the SAMNA model, as well as qualitative assessments of STIP-eligible transportation project needs,<sup>9</sup> to define the range of its potential advance mitigation needs.

Chapter 5 provides transportation project impact estimates for fiscal years 2021/22 to 2030/31. In the GAI, 15 SHOPP transportation projects and no non-SHOPP STIPeligible transportation projects are in their conceptualization phase for the planning period. Many of these planned transportation improvements are not forecast to affect terrestrial or aquatic resources and many forecast impacts may be avoided during transportation project delivery. Nevertheless, the compensatory mitigation estimates presented reflect the best available information about compensatory mitigation needs at this time.

Impact estimates for threatened and endangered fish, wetlands, non-wetland waters, and riparian habitat from SHOPP transportation projects included in the SAMNA, are summarized in Tables ES-1 through ES-4. Since natural resource regulatory agencies routinely place wetland, non-wetland water, and riparian habitat conditions on transportation projects, it is likely that Caltrans transportation project schedules would benefit from available credits for these resources. Similarly, impact estimates for terrestrial species and species of mitigation need are summarized in Tables ES-5 and ES-6, respectively.

<sup>&</sup>lt;sup>8</sup> Caltrans undertakes SHOPP transportation projects to address maintenance, safety, operation, and rehabilitation of the SHS; such projects do not add new capacity to the system. <u>https://catc.ca.gov/programs/state-highway-operation-and-protection-program</u>

<sup>&</sup>lt;sup>9</sup> Metropolitan planning organizations, regional transportation planning agencies, and other public agencies also undertake transportation projects to address non-SHOPP STIP-funded transportation improvements.

## Table ES-1. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)<sup>a</sup>

Sub-basin (HUC-8)		Sub-basin Number	# of Transportation Projects⁵	Clear Lake Hitch (acres)	Total (acres)
Upper Cache		18020116	6	1.9	1.9
Upper Putah		18020162	0	0.0	0.0
т	otal	Not applicable	6	1.9	1.9

Source: Caltrans 2023b, 2023f

<sup>a</sup> Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.

<sup>b</sup> Transportation projects are listed in Appendix B.

# Table ES-2. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects <sup>a</sup>	Freshwater Emergent Wetland (acres)	Freshwater Forested/ Shrub Wetland (acres)	Freshwater Pond (acres)	Total (acres) <sup>ь</sup>
Upper Cache	18020116	2	<0.1	<0.1	<0.1	0.1
Upper Putah	18020162	3	<0.1	0.1	<0.1	0.1
Total <sup>b,c</sup>	Not applicable	5	<0.1	0.1	<0.1	0.1

Source: Caltrans 2023b, 2023g

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Totals may be different due to rounding.

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

## Table ES-3. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects <sup>a</sup>	Lake/Pond (acres)	Stream/River (acres)	Total (acres) <sup>ь</sup>
Upper Cache	18020116	6	0.3	1.6	1.8
Upper Putah	18020162	5	<0.1	0.6	0.6
Total <sup>b,c</sup>	Not applicable	10	0.3	2.2	2.4

Source: Caltrans 2023b, 2023h

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Totals may be different due to rounding.

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

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects <sup>a</sup>	Montane Riparian (acres)	Total (acres)	
Upper Cache	18020116	1	<0.1	<0.1	
Upper Putah	18020162	5	1.7	1.7	
Total	Not applicable	6	1.7	1.7	

# Table ES-4. Summary of Estimated SHOPP Impacts on Riparian Habitat in the GAI (acres)<sup>a</sup>

Source: Caltrans 2023b, 2023e

<sup>a</sup> Transportation projects are listed in Appendix B.

# Table ES-5. Summary of Estimated SHOPP Impacts on Special-status Species Habitat within the GAI

Ecoregion Section	Number of Caltrans SHOPP Projectsª	Number of Habitats <sup>b</sup>	Special-status Species <sup>c,d</sup>	Estimated Total Habitat Impact (acres)
Great Valley	1	2	42	0.1
Northern California Coast Ranges	10	16	46	42.3
Northern California Interior Coast Ranges	5	8	48	5.7
Total <sup>e</sup>	13	16	55	48.1

Source: Caltrans 2023b

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Excludes urban.

<sup>c</sup> 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.

<sup>d</sup> Included in the SAMNA. See SAMNA report (Caltrans 2023c).

<sup>e</sup> Totals may not reflect numbers presented in the rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Ecoregion Section	California Red-Legged Frog: Number of Caltrans SHOPP Projects <sup>a</sup>	California Red-Legged Frog: Estimated Habitat Impact (acres)	Valley Elderberry Longhorn Beetle: Number of Caltrans SHOPP Projects <sup>a</sup>	Valley Elderberry Longhorn Beetle: Estimated Habitat Impact (acres)	Total (acres)
Great Valley	1	0.1	1	0.1	0.1
Northern California Coast Ranges	7	32.0	1	0.1	32.0
Northern California Interior Coast Ranges	5	5.5	3	1.1	5.5
Total <sup>b</sup>	10	37.6	3	1.2	37.6

# Table ES-6. Summary of Estimated SHOPP Impacts on Terrestrial Species ofMitigation Need within the GAI

Source: Caltrans 2023b

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Totals may not reflect numbers presented in the rows above. Some SHOPP transportation projects cross more than one ecoregion section.

### **ES.6 Benefiting Transportation Project Considerations**

One intent of the AMP's founding legislation is for Caltrans to realize the potential of advance mitigation to accelerate transportation project delivery. At this time (March of fiscal year 2023/24), Caltrans is 2 years into the SHOPP Ten-Year Book planning period. Hence, for the time period under consideration, fiscal years 2021/22 through 2030/31, Caltrans District 1 intends to prioritize purchasing or developing mitigation credits or values that are planned for the middle to the end of the 10-year planning period.

Organized by aquatic resources, riparian habitat, and species of mitigation need, a temporal analysis of Caltrans needs is provided in Chapter 6. Prior to proposing advance mitigation projects, Caltrans District 1 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

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

### ES.7 Conservation Goals and Objectives

To increase the probability that advance mitigation project scopes promoted within and/or undertaken by Caltrans will successfully meet natural resource regulatory agency goals

and objectives, this RAMNA was reviewed by these agencies and their comments and suggestions were incorporated.

#### Wildlife Resources Goals and Objectives

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

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

- Conserving and expanding habitat for California red-legged frog and valley elderberry longhorn beetle, the terrestrial species of mitigation need
- Preserving, enhancing, and increasing connectivity between blocks of wildlife habitat to allow for dispersal that will maintain resilience and variability of wildlife populations
- Supporting resiliency of the landscape to climate change
- Decreasing mortality and competition, and protecting population health for species of mitigation need
- Prioritizing multi-species and multi-resource benefits

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

#### Aquatic Resources Goals and Objectives

When establishing aquatic resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies that have the authority to approve aquatic resource-related credit establishment and have

the authority to approve their application to satisfy conditions on transportation projects. At a broad scale, Caltrans' understanding of aquatic resources goals and objectives presented in the RAMNA encompasses restoring, maintaining, and enhancing largescale ecological processes, environmental gradients, biological diversity, and regional linkages. Aquatic resources goals developed for this RAMNA prioritize:

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

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

## ES.8 Authorized Activity Summary

A summary of Caltrans' need for compensatory mitigation credits in the GAI and the feasibility of each SHC § 800.6(a) authorized activity to address is provided in Chapter 9. As pointed out in Chapter 6, given the expected timing of mitigation need, at this time (March of fiscal year 2023/24) mitigation that can be purchased or established by 2025/26 (within the next 2 years) could potentially address mitigation for impacts on aquatic resources in the following sub-basins:

- Upper Cache Sub-basin:
  - 1.4 acres of fish habitat, 0.1 acre of wetland, 1.3 acres of non-wetland waters, and <0.1 acre of riparian habitat impacts, potentially contributing to the acceleration of 3, 2, 3, and 1 transportation projects, respectively
- Upper Putah Sub-basin:
  - 0.1 acre of wetland, 0.6 acre of non-wetland waters, 1.7 acres of riparian habitat, and 0.2 acre of vernal pool habitat impacts, potentially contributing to the acceleration of 3, 5, 5, and 1 transportation projects, respectively

Additionally, mitigation that can be purchased or established by 2024/25 (within the next 2 years) for terrestrial resources could potentially address mitigation for impacts on terrestrial species of mitigation need within the following ecoregions:

- Great Valley Ecoregion Section:
  - 0.1 acre of California red-legged frog habitat and 0.1 acre of valley elderberry longhorn beetle habitat impacts, potentially contributing to the acceleration of 1 and 1 transportation projects, respectively
- Northern California Coast Ranges Ecoregion Section:
  - 32 acres of California red-legged frog habitat and 0.1 acre of valley elderberry longhorn beetle habitat impacts, potentially contributing to the acceleration of 7 and 1 transportation projects, respectively
- Northern California Interior Coast Ranges Ecoregion Section:
  - 5.5 acres of California red-legged frog habitat and 1.1 acres of valley elderberry longhorn beetle habitat impacts, potentially contributing to the acceleration of 5 and 3 transportation projects, respectively

All or some of these needs could form the basis for Caltrans District 1 to develop an advance mitigation project scope.

Broadly speaking, SHC § 800.6(a) authorized activities can be divided into two groups: (1) purchasing compensatory mitigation that has been previously established and approved by the natural resource regulatory agencies through a conservation/mitigation bank, HCP/NCCP, in-lieu fee program, or MCA; or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance. The time it takes to perform each authorized activity varies; however, purchasing or paying fees for compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans Districts will consider all feasible options when developing advance mitigation project scopes. At this time (March of fiscal year 2023/24), purchasing credits approved through a bank or establishing new credits through a bank or in-lieu fee instrument is likely feasible. The feasibility of each authorized activity to meet the forecast mitigation need in time to accelerate transportation projects will depend on the availability of a regulatory and administrative pathway and other conditions.

As pointed out above, when Caltrans scopes advance mitigation projects to establish mitigation, Caltrans intends to center the advance mitigation projects on the species of mitigation need and aquatic resources, as well as address conservation benefits and values for other special-status terrestrial species and resources. Caltrans also intends to scope credit establishment projects that align with conservation goals and objectives, address multi-resource benefits, and address overlapping jurisdictions.

#### ES.9 Next Steps

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

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

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## 1. INTRODUCTION

California's State Highway System ("SHS") relies on long-range planning documents to guide its operation and maintenance. In this *Upper Cache and Upper Putah Sub-basins Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 1 presents its forecast of natural resource compensatory mitigation<sup>1</sup> needs for the Upper Cache and Upper Putah sub-basins for a 10-year planning horizon. Sources used for this RAMNA are cited throughout this document, and links to geographic information system ("GIS") sources are provided in Appendix A, *GIS Sources*.

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

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

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

This document is intended to be both an internal communication tool between Caltrans' Functional Units<sup>2</sup> 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: <a href="https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation">https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation</a>.

<sup>&</sup>lt;sup>1</sup> 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.

<sup>&</sup>lt;sup>2</sup> "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 (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.

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") <sup>b</sup> 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"). <sup>c</sup>	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 <sup>c,d</sup> to generate mitigation credits pursuant to an MCA <sup>b</sup> established under a CDFW-approved RCIS. <sup>c</sup> The scope may include Caltrans first entering into or funding the preparation of an MCA. <sup>c</sup> The scope may also include Caltrans first entering into or funding the preparation of an RCIS. <sup>c</sup>	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)

#### Table 1-1. Advance Mitigation Project Types<sup>a</sup>

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 <sup>e</sup> 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 <sup>f</sup> pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS. <sup>c</sup>	SHC § 800.6(a)(4) SHC § 800.9

<sup>a</sup> Caltrans intends to contract or subcontract implementation tasks when appropriate and as required. <sup>b</sup> 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.

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

<sup>d</sup> 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.

<sup>e</sup> The State Water Resources Control Board ("SWRCB") and Regional Water Quality Control Boards ("RWQCBs") do not typically approve establishment of or accept preservation credits.

<sup>f</sup> 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 on Figures 1-1 and 1-2, the AMP Guidelines present a 10-step process, of which the first 5 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.

#### **1.1.1. 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. At this time, Steps 1 and 2 of the AMP's 5-step advance mitigation planning phase are complete.



#### Figure 1-1. Advance Mitigation Planning Phase

Source: Caltrans (2019a)

This RAMNA satisfies Step 3 (Figure 1-1; Caltrans 2019a) and provides the results of a regional assessment of Caltrans' advance mitigation needs in the Upper Cache and Upper Putah sub-basins.<sup>3</sup>

Caltrans District 1 will first use the information and analysis presented in this RAMNA to inform Step 4 of the advance mitigation planning phase. Step 4 is the point when Caltrans justifies, proposes, and scopes an advance mitigation project based on its needs (Figure 1-1; Caltrans 2019a). Advance mitigation project scopes informed by this RAMNA will provide enough information, at the appropriate level of detail, for an advance mitigation project to be nominated to the Caltrans Director for funding approval. The advance mitigation planning phase will conclude when the Caltrans Director approves a specific nominated Caltrans District 1 advance mitigation project for funding (Step 5; Figure 1-1; Caltrans 2019a). Thereafter, Caltrans District 1 will use the RAMNA as a reference (Caltrans 2019a).

<sup>&</sup>lt;sup>3</sup> 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).

#### 1.1.2. Advance Mitigation Project Delivery Phase

Steps 6 through 10 consist of the AMP's advance mitigation project delivery phase (Figure 1-2; Caltrans 2019a). Advance mitigation project delivery is undertaken after an advance mitigation project has been approved by the Caltrans Director and has been programmed<sup>4</sup> (Figure 1-2; Caltrans 2019a). This phase consists of implementing one or more of the 11 authorized advance mitigation activities (Table 1-1).

#### 1.1.3. Program Constraints

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

- Gas tax-derived funds may be used to develop only those mitigation credits or values anticipated to be needed to fulfill the mitigation requirements of transportation improvements [California Constitution, Article XIX § 2(a)].
- AMA funds are likely not sufficient to address all of Caltrans' anticipated compensatory mitigation needs.
- Long-term transportation planning is dynamic, and compensatory mitigation needs may change over a 10-year planning horizon as funding sources and transportation project lists are refined and updated.
- Advance mitigation planning does not imply an endorsement of a transportation project alternative.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that a future transportation project impact will be authorized by a natural resource regulatory agency. Avoidance and minimization considerations continue to be required.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that the advance compensatory mitigation will be considered adequate and/or suitable by a natural resource regulatory agency for a specific transportation project's impact. Appropriateness of use of advance mitigation credits developed will be assessed on a case-by-case basis. For example, using mitigation credits from a conservation bank where only preservation exists would not qualify for wetland or riparian impacts for some regulatory agencies.
- Natural resource regulatory agency approvals are discretionary and often conditional; well-executed advance mitigation does not necessarily increase the likelihood of obtaining agency approval for any particular transportation project.
- The 2008 Mitigation Rule expresses a preference for advance mitigation (in several forms) but also provides flexibility for off-site and out-of-kind mitigation where important aquatic resources in a watershed area have been identified as

<sup>&</sup>lt;sup>4</sup> 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.

priority areas because of the importance of such resources, widespread loss of such resources, and/or the likelihood of successful execution of mitigation at priority sites.

- Advance mitigation projects should optimize their conservation benefit in such a way that the number and types of mitigation credits (or similar) are maximized.
- Advance mitigation projects, like transportation projects and conservation projects, have financial, technical, and strategic risks and require a scope, schedule, and budget.
- Advance mitigation projects to establish credits allow for longer timelines for plant establishment, which is crucial to success.
- Transportation projects must include mitigation costs in the scoping and programming of their budgets because they are required by law to reimburse the AMA for use of mitigation produced by the AMP [SHC § 800.6(b)].
- The AMA is a revolving account. With a revolving account, reimbursed funds are reinvested into new advance mitigation projects.

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

### **1.2 Caltrans District 1 Transportation Infrastructure**

Headquartered in Eureka, Caltrans District 1 encompasses Del Norte, Humboldt, Lake, and Mendocino Counties. Caltrans District 1 headquarters maintains and operates over 622 centerline miles of freeways, expressways, and conventional highways. These roadways range from scenic two-lane highways to controlled-access freeways. State Route 1 and US Highway 101, two major north and south routes connecting northern and southern California, traverse Caltrans District 1. Part of Caltrans Districts 3 and 4 occur within the geographic area of interest ("GAI") evaluated for this RAMNA (Figure 1-3). The highways within Caltrans Districts 1, 3, and 4 that occur within the GAI include U.S. Highways 5, 80, and 505, and State Routes 16, 20, 29, 53, 113, 121, 128, 175, and 281.

Other transportation agencies that implement transportation improvements within Caltrans District 1, 3, and 4's boundaries (MPOs, RTPAs, and other public agencies) in this RAMNA's GAI are the Colusa County Transportation Commission, Lake County/City Area Planning Council, Mendocino Council of Governments, Metropolitan Transportation Commission, and Sacramento Area Council of Governments. The aforementioned transportation agencies are eligible for State Transportation Improvement Program ("STIP") funding.

Figure 1-3 shows the road infrastructure within the GAI evaluated for this RAMNA; transportation project locations and activities associated with the State Highway Operation and Protection Program ("SHOPP").



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

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

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

Partner	Web Address
CDFW, North Central Region	https://wildlife.ca.gov/Regions/2
CDFW, Bay Delta Region	https://wildlife.ca.gov/Regions/3
California SWRCB	https://www.waterboards.ca.gov/
California RWQCB, Central Valley <sup>1</sup>	https://www.waterboards.ca.gov/centralvalley/
National Marine Fisheries Service ("NMFS") West Coast, California Coastal Office	https://www.westcoast.fisheries.noaa.gov/
U.S. Army Corps of Engineers ("Corps"), South Pacific Division, Sacramento District	https://www.spk.usace.army.mil/
Corps, San Francisco District	https://www.spn.usace.army.mil/
U.S. Environmental Protection Agency ("EPA"), Region 9	http://www.epa.gov/region9/
U.S. Fish and Wildlife Service ("FWS"), Bay Delta Field Office	https://www.fws.gov/office/san-francisco-bay- delta-fish-and-wildlife
FWS, Sacramento Field Office	https://www.fws.gov/sacramento/

<sup>1</sup> Transportation projects along Highway 128 may extend into San Francisco Bay RWQCB's jurisdictional boundary.

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 conditions. As a lead agency under CEQA and NEPA, Caltrans may also determine compensatory mitigation is required.

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

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

As discussed previously, credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established. Establishing conservation banks, mitigation banks,<sup>5</sup> and in-lieu fee programs requires an instrument. Existing policies and regulations prescribe what an instrument must contain and address, and the terms of use for the credits generated by the mitigation bank, conservation bank, or in-lieu fee program. Similarly, establishing HCPs and NCCPs requires an agreement.

### 1.4 SAMNA

Predicting likely future transportation project effects on natural resources takes place at the intersection of transportation planning and conservation planning. In 2023, 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 2021/22–2030/31* ("SHOPP Ten-Year Book"; Caltrans 2023a) for fiscal years 2021 to 2031 (Caltrans 2023b). The forecast was performed using the Caltrans Statewide Advance Mitigation Needs Assessment Reporting Tool ("SAMNA Reporting Tool"), a GIS overlay model developed by Caltrans to support advance mitigation

<sup>&</sup>lt;sup>5</sup> 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.

planning (Caltrans 2023c). Potential impacts for all 12 Caltrans Districts were estimated. Statewide, almost 1,000 transportation projects and over 600 wildlife and aquatic resources were evaluated through the SAMNA Reporting Tool, yielding thousands of results (Caltrans 2023c). The results for Caltrans District 1 are provided in Appendix A of Caltrans (2023c). The subset of the Caltrans District 1 transportation projects that are planned within the GAI during the planning period covered by this RAMNA, as well as the hydrologic unit code eight-digit ("HUC-8") and ecoregion section, advertised year, and planned activities for each planned transportation project, are included in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, of this RAMNA.

For consistency and as appropriate, tables, figures, and information presented throughout this document, including in Chapter 2, *Environmental Setting*, are consistent with the geospatial data within the SAMNA Reporting Tool. SAMNA Reporting Tool geospatial data and model assumptions are described more fully in Caltrans 2023c. Results are presented in four different reports: terrestrial and aquatic species and subspecies, threatened and endangered fish, wetlands, and non-wetland waters. The unit of measure for impacts is acres.

**SAMNA Caveats:** The Statewide Advance Mitigation Needs Assessment ("SAMNA") is strictly and specifically intended to be used by Caltrans to justify, propose, and scope advance mitigation projects (Caltrans 2023c). 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 the SAMNA 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 therefore be fully liable.

### 1.5 GAI and Resource Focus

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

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

#### 1.5.1. GAI

As pointed out in Section 1.4, the RAMNA is consistent with SAMNA Reporting Tool geospatial data and model assumptions. In consultation with the natural resource regulatory agencies, it was determined that presenting SAMNA results by HUC-8 subbasin 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 Upper Cache and Upper Putah sub-basins form an ecological boundary and not a political boundary, some portions of the GAI overlap Caltrans Districts 3 and 4. In addition to Caltrans District 1, Caltrans Districts 3 and 4 may choose to take the lead on an advance mitigation project that would address its needs within the GAI.

To identify a focus area, consistent with Step 2 of the advance mitigation planning process (Figure 1-1), in 2023, Caltrans District 1 subject matter specialists:

- Reviewed the entirety of Caltrans District 1's SAMNA results by HUC-8 and ecoregion (Caltrans 2023b; available on: <u>www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation</u>);
- Reviewed the SAMNA results' associated potential future transportation project locations and activities anticipated for the SHOPP (Caltrans 2023a);
- Reviewed non-SHOPP STIP-eligible transportation improvement plans for the next 10 years;
- Noted that advance mitigation planning for the Mad-Redwood, Lower Eel, and South Fork Eel sub-basins was performed in 2021 (Caltrans 2021a);
- Noted that advance mitigation planning for the Big-Navarro-Garcia, Upper Eel, and Russian sub-basins was performed in 2023 (Caltrans 2023d);
- Observed that the portions of Caltrans District 1 located within the Upper Cache and Upper Putah sub-basins within the GAI have forecast compensatory mitigation needs during the planning period; and
- Identified the Upper Cache and Upper Putah 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 1-3).

### **1.5.2. Species of Mitigation Need**

Compensatory mitigation for species within the GAI was identified as both a historical and anticipated future transportation project compensatory mitigation need within Caltrans District 1. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for some species more routinely than others and have benefited from mitigation credits, when available.

Caltrans does not typically need compensatory mitigation credits for species where impacts can be avoided or minimized. Hence, to further focus the planning effort, Caltrans District 1 identified species that, if compensatory mitigation credits were available, transportation projects could potentially benefit. The determination was made after reviewing SAMNA results for the planning period. These "species of mitigation need" are the state threatened Clear Lake hitch (*Lavinia exilicauda chi*), federally threatened California red-legged frog (*Rana draytonii*), and federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

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

#### 1.5.3. Aquatic Resources

For the purposes of this document, aquatic resources include all wetlands and nonwetland waters that may be subject to Corps, EPA, RWQCB, and/or CDFW regulations, as well as special-status fish that may be subject to CDFW, FWS, and/or NMFS regulations.

Compensatory mitigation for wetlands, non-wetland waters, and riparian habitat within the GAI were identified as both historical transportation project compensatory mitigation needs and anticipated future transportation project compensatory mitigation needs within Caltrans District 1. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for these resources and have benefited from mitigation credits, when available.

The Upper Cache sub-basin (HUC-8 18020116) and Upper Putah sub-basin (HUC-8 18020162) inform the analysis of estimated impacts provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, as well as the discussion in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

## 1.6 RAMNA

This RAMNA is a planning-level document that:

• Provides a desktop analysis of relevant available information pertaining to the Upper Cache and Upper Putah sub-basins, referred to as the GAI;

- Applies to fiscal years 2021/22 to 2030/31 (planning period), which is concurrent with the time period addressed by the SHOPP Ten-Year Book (Caltrans 2023a);
- Discusses potential compensatory mitigation conditions that may be placed on future transportation projects by the seven resource and regulatory agency signatories<sup>6</sup> to the Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program ("Master Process Agreement"; Caltrans et al. 2020);
- Focuses on wildlife habitats and aquatic resources that have a high probability of requiring transportation project-related compensatory mitigation within the GAI and during the planning period;
- Documents Caltrans' forecast of potential wildlife and aquatic resource compensatory mitigation needs for the GAI and planning period, as reported by the SAMNA (Caltrans 2023b);
- Identifies information that will be important to Caltrans when scoping any of the AMP's authorized activities within the GAI, in accordance with SHC § 800.6(a), including documenting the existing compensatory mitigation supply;
- Incorporates information and feedback received from outreach to the natural resource regulatory agencies, FHWA, MPOs, RTPAs, other public agencies that implement transportation projects, Native American tribes, interested parties, and the public; and
- Analyzes Caltrans' options to meet its compensatory mitigation needs within the GAI through the AMP's authorized activities.

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

# **1.7 Coordination History**

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

<sup>&</sup>lt;sup>6</sup> Natural resource regulatory signatories are CDFW; SWRCB; Corps Los Angeles, Sacramento, and San Francisco Districts; EPA; FWS; NMFS.

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

Caltrans is authorized to provide AMA-funded mitigation credits to MPOs, RTPAs, and other public agencies that implement transportation projects, upon reimbursement, for their use to satisfy STIP-funded transportation project mitigation. To help inform the potential demand for compensatory mitigation in that area, Caltrans District 1 Transportation Planning researched STIP-eligible mitigation needs during the planning period. Caltrans District 1 also routinely discusses STIP-eligible mitigation needs during regularly scheduled meetings with the Colusa County Transportation Commission, Lake County/City Area Planning Council, Mendocino Council of Governments, Metropolitan Transportation projects in their planning phase and located within the GAI were identified through Caltrans' research and outreach.

### 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 November 2023, Caltrans distributed this RAMNA for review by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Table 1-3 lists the commenters and the date of their communication. All comments received were considered, addressed, and incorporated into the document, as appropriate.

Commenter	Date of Comment Letter
CDFW <sup>a</sup>	January 18, 2024
State Water Boards	January 10, 2024
FWS	January 9, 2024
Corps	January 16, 2024
NMFS	Not provided
EPA	Not provided

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

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

#### 1.7.3. Interagency Meeting and Coordination

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

Table 1-4	. Interagency	Meetings
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Meeting Participants	Meeting Date
California Coastal Commission, CDFW, NMFS, SWRCB, Corps, EPA, FWS, Caltrans	January 16, 2024
CDFW, Caltrans	February 29, 2024

# 1.8 Document Organization

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

Chapter	Title	Content
Chapter 1	Introduction	This chapter introduces the RAMNA, placing it in the context of the AMP Guidelines, transportation network, and regulatory framework.
Chapter 2	Environmental Setting	This chapter describes the GAI analyzed in the RAMNA. It relies on geospatial data from the SAMNA Reporting Tool and other readily available information.
Chapter 3	Relevant Plans, Policies, and Regulations	This chapter briefly describes laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI, and informs both regional understanding and advance mitigation scoping.
Chapter 4	Existing Mitigation Opportunities	This chapter summarizes the mitigation credits (or similar) currently available to Caltrans and/or pending that are applicable to the environmental resources discussed in the RAMNA and located within or near the GAI.
Chapter 5	Modeled Estimated Impacts	This chapter summarizes the SAMNA forecast and regional estimates of compensatory mitigation need for the GAI.
Chapter 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) within the GAI that have a high probability of successfully accelerating transportation project delivery and protecting natural resources through transportation project mitigation.
Chapter 10	References	This chapter lists references cited in the RAMNA.

### Table 1-5. Document Organization

Chapter	Title	Content
Appendices	Various	Appendices supporting this document: Appendix A – GIS Sources Appendix B – Transportation Projects Planned for the GAI during the Planning Period Appendix C – Land Cover Types Appendix D – Complete SAMNA Species Results Appendix E – Hydrologic Units Appendix F – Aquatic Resource Locations Appendix G – Conservation and Mitigation Bank Service Area Maps

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# 2. ENVIRONMENTAL SETTING

In this chapter, Caltrans describes the GAI in terms of ecoregion sections, land ownership, topography, climate, land cover types, invasive species, special-status terrestrial species, critical habitat, essential fish habitat, connectivity, sub-basins, hydrology, flood hazard areas, water quality, wild and scenic rivers, aquatic resources,<sup>1</sup> riparian habitat, and fire hazard severity zones. Intended to inform advance mitigation project scoping, this assessment relied on readily available literature and GIS sources, including vegetation and other geospatial data layers developed for the SAMNA Reporting Tool (Caltrans 2023c). Sources used for this assessment are cited throughout the chapter, and links to GIS sources are provided in Appendix A, *GIS Sources*.

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

# 2.1 Ecoregion Sections

The GAI consists of approximately 1.2 million acres in northern California within the Upper Cache and Upper Putah sub-basins (HUC-8s), which are overlapped by portions of the Central California Coast, Great Valley, Northern California Coast, Northern California Coast Ranges, and Northern California Interior Coast Ranges Ecoregion Sections (Table 2-1, Figure 2-1). Ecoregion sections are defined as the largest ecological unit of the U.S. Department of Agriculture ("USDA"), U.S. Forest Service ("USFS") National Hierarchical Framework of Ecological Units, which are nested within larger provinces (Cleland et al. 1997). The Central California Coast Ecoregion Section is within the larger California Coastal Chaparral Forest and Shrub Province. The Great Valley Ecoregion Section is within the larger California Interior Coast Ranges Ecoregion Sections are within the larger California Coastal Steppe – Mixed Forest – Redwood Forest Province. The Northern California Coast Ranges Ecoregion Section is within the larger Mixed Forest – Redwood Forest Province. The Northern California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger Mixed Forest – Redwood Forest Province. The Northern California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Sections are within the larger California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger California Coast Ranges Ecoregion Section is within the larger Sierran Forest – Alpine Meadows Province (McNab et al. 2007).

<sup>&</sup>lt;sup>1</sup> For the purposes of advance mitigation planning, aquatic resources consist of wetlands and nonwetland waters that may be subject to Corps, EPA, RWQCB, and/or CDFW regulations, and specialstatus fish that may be subject to management by CDFW, FWS, and/or NMFS regulations.

Section	Acreage <sup>a</sup>	Ecoregion Section as Percentage of GAI
Central California Coast	1,825	0.2
Great Valley	77,913	6.7
Northern California Coast	19,925	1.7
Northern California Coast Ranges	780,258	67.0
Northern California Interior Coast Ranges	284,427	24.4
Total	1,164,348	100.0

### Table 2-1. Ecoregion Sections in the GAI

Source: Caltrans 2023b

<sup>a</sup> Numbers were rounded to the nearest whole number.

# 2.2 Land Ownership

The GAI spans parts of Colusa, Lake, Napa, Solano, and Yolo Counties (Figure 2-2). Privately owned and managed lands account for most of the land within the GAI (60.5 percent). Federal lands account for 28.1 percent of land within the GAI, and are administered and managed by the USDA's USFS, U.S. Department of Interior's Bureau of Land Management ("BLM"), Bureau of Reclamation, and Corps (Table 2-2, Figure 2-2). USFS land includes the Mendocino National Forest. Lands within the GAI owned or managed by nonprofit conservancies and land trusts account for 5.1 percent of the GAI. State lands, which account for 4.2 percent of land within the GAI, include lands owned and managed by the CDFW, California Department of Forestry and Fire Protection, California Department of General Services, California Department of Parks and Recreation, California State Lands Commission, University of California, and other public lands. Only 1.9 percent of land within the GAI is governed by counties, cities, and special districts, and 0.2 percent of land within the GAI is owned or managed by Native American tribes (Table 2-2, Figure 2-2).





#### Table 2-2. Land Ownership

Land Owner or Land Use	Total Acreage per Agency/Owner <sup>a</sup>	Ownership as Percentage of GAI
Private (agriculture)	421,730	36.1
Private (urban and other)	284,378	24.4
BLM	210,632	18.0
USFS	88,331	7.6
Non-Profit Conservancy and Land Trust	59,539	5.1
CDFW	28,505	2.4
U.S. Bureau of Reclamation	27,636	2.4
City, county, and special district	22,698	1.9
California State Lands Commission	9,987	0.9
California Department of Parks and Recreation	3,456	0.3
California Department of Forestry and Fire Protection	3,437	0.3
University of California	3,127	0.3
Tribes/Tribal Lands	2,470	0.2
Corps	1,308	<0.1
California Department of General Services	340	<0.1
State (other)	83	<0.1
Private (unassigned)	<1	<0.1
Total	1,167,657	100.0

Sources: Bureau of Indian Affairs; California Protected Lands Database; California Conservation Easement Database; Caltrans 2023b, U.S. Census Bureau; USDA; and California Department of Technology for land parcels

<sup>a</sup> Numbers were rounded to the nearest whole number.



### Figure 2-2. Land Ownership

### 2.2.1. Protected Lands

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

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

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

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 Figure 2-3 shows, no GAP status 1 lands are identified in the database for the GAI, and most of the planned SHOPP transportation projects are within areas with no assigned rank or adjacent to areas identified as Rank 3. Lands with conservation easements are also identified in the California Protected Areas Database; some SHOPP transportation projects, specifically those in the southern part of the GAI, are near conservation easements (Figure 2-3).

# 2.3 Topography

The Upper Cache and Upper Putah sub-basins, which define the GAI, are characterized by rolling hills and mountains within the Coastal Ranges. The GAI is generally bounded on the west by the Coastal Ranges, on the north by the Mendocino National Forest, and on the east and south by the Central Valley. Elevations within the GAI range from 4 to 5,945 feet above mean sea level (Figure 2-4).



Figure 2-3. Protected Lands: Conservation Easements and GAP Status





# 2.4 Climate

The GAI is characterized by a Mediterranean-type climate, with dry, warm summers and cool, wet winters. Snowfall is most common at elevations over 3,000 feet. Average temperatures range from 32 to 96 degrees Fahrenheit. Average precipitation varies by location; however, most precipitation occurs during winter, with snowfall at higher elevations and little precipitation occurring during summer (Caltrans 2019b).

In the next 30 years, the climate is expected to change. Results of Caltrans' climate vulnerability assessment are summarized in Section 2.4.1. The predicted resilience of the GAI to effects resulting from climate change is summarized in Section 2.4.2.

#### 2.4.1. Climate Vulnerability Assessment

In 2019, Caltrans performed a statewide climate change vulnerability assessment for the SHS (Caltrans 2019b). The analysis provided in the *Caltrans Climate Change Vulnerability Assessments: District 1 Technical Report* (Caltrans 2019b) is based on global climate change data compiled by the Intergovernmental Panel on Climate Change. Caltrans applies three future emissions scenarios for greenhouse gas emission concentrations in the technical report—representative concentration pathway 2.6, which assumes global annual greenhouse gas emissions will peak in the next few years and then begin to decline substantially; representative concentration pathway 4.5, which assumes emissions will peak around 2040 and then begin to decline; and representative concentration pathway 8.5, which assumes that high emission trends continue to the end of the century—for three future 30-year periods centered on the years 2025 (2010 to 2039), 2055 (2040 to 2069), and 2085 (2070 to 2099).

The effects of climate change within the GAI pose risks for transportation infrastructure, reliability, and capacity. Transportation systems were designed for historical climate conditions; changing climatic conditions, including an increased frequency of extreme weather events, are expected to disrupt and damage the SHS. Predicted climate change effects consist of projected increases in the average and maximum temperatures, including more frequent extreme heat events; more volatile precipitation, with increases in heavy precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of drought, wildfires, flash flooding, and landslides over the three periods analyzed in the technical report (Caltrans 2019b). At higher elevations, extreme temperatures are expected to rise, which may result in tree mortality and changing snowmelt patterns (Caltrans 2019b).

### 2.4.2. 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 within 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: a hotter and drier future, and a warmer and wetter future; two future carbon dioxide ("CO<sub>2</sub>") scenarios—one with no reductions in CO<sub>2</sub> emissions and one with a peak in 2040 followed by a significant decline in CO<sub>2</sub> 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 2-5. The northern portion of the GAI generally has higher climate resilience (Ranks 3 through 5), with the highest ranks associated with the Mendocino National Forest. The southern portion of the GAI generally has lower climate resilience (Ranks 2 through 4).



Figure 2-5. Terrestrial Climate Resilience Rankings

# 2.5 Land Cover Types

General land cover types are depicted on the maps provided in Appendix C, *Land Cover Types*. Land cover types within 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 2023e). Based on these data, tree-dominated habitats account for the largest habitat type, encompassing 36.2 percent of the GAI, with blue oak woodland the most common. Shrub-dominated habitats account for 34 percent of the GAI, with mixed chaparral the most common. Herbaceous-dominated habitats account for 12.9 percent of the GAI, with annual grassland the most common. Developed and non-vegetated habitat types (barren areas) combined account for 5.8 percent of the GAI, with lacustrine the most common (Table 2-3, Appendix C). Land cover is generally shown on Figure 2-6.

CWHR Habitat Type	Acres <sup>a</sup>	Cover as Percentage of GAI <sup>b</sup>
Tree-dominated Habitats	428,891	36.21
Blue Oak Woodland	134,874	11.39
Blue Oak Woodland, Valley Foothill Riparian	48	<0.01
Blue Oak-Foothill Pine	52,326	4.42
Blue Oak-Foothill Pine, Blue Oak Woodland	3,317	0.28
Closed-Cone Pine-Cypress	29,315	2.47
Coastal Oak Woodland	4,356	0.37
Desert Riparian	218	0.02
Douglas Fir	12,540	1.06
Eucalyptus	69	0.01
Juniper	4	<0.01
Klamath Mixed Conifer	57	<0.01
Montane Hardwood	121,058	10.22
Montane Hardwood-Conifer	24,267	2.05
Montane Riparian	4,696	0.40
Ponderosa Pine	9,992	0.84
Redwood	115	0.01
Sierran Mixed Conifer	23,271	1.96

### Table 2-3. Land Cover Types

CWHR Habitat Type	ļ	Acres <sup>a</sup>	Cover as Percentage of GAI <sup>b</sup>
Valley Foothill Riparian		3,640	0.31
Valley Oak Woodland		4,728	0.40
White Fir		<1	<0.01
Shrub-dominated Habitats		402,605	33.99
Chamise-Redshank Chaparral		116,982	9.88
Coastal Scrub		818	0.07
Mixed Chaparral		280,901	23.72
Montane Chaparral		3,904	0.33
Herbaceous-dominated Habitats		153,295	12.94
Annual Grassland		118,091	9.97
Fresh Emergent Wetland		15,758	1.33
Freshwater Emergent Marsh		177	0.01
Pasture		15,675	1.32
Perennial Grassland		2,884	0.24
Saline Emergent Wetland		274	0.02
Wet Meadow		435	0.04
Aquatic Habitats		68,569	5.79
Lacustrine		67,003	5.66
Riverine		1,566	0.13
Developed Habitats		126,453	10.68
Cropland		94,968	8.02
Deciduous Orchard		542	0.05
Irrigated Row and Field Crops		14	<0.01
Orchard-Vineyard		9,639	0.81
Urban		20,407	1.72
Vineyard		883	0.07
Non-vegetated Habitats		4,634	0.39
Barren		4,634	0.39
	Total	1,184,447	100.00

Source: Caltrans 2023e

<sup>a</sup> Numbers were rounded to the nearest whole number. <sup>b</sup> Numbers were rounded to the hundredths.



Figure 2-6. Major Land Cover<sup>a</sup>

<sup>a</sup> For greater detail, see Appendix C.

# 2.6 Invasive Species

Both invasive plant and animal species are known to occur within 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 (FWS 2012).

Three organizations maintain invasive species databases for California. The Invasive Species Council of California maintains a list of invasive plant and animal species throughout the state of California (California Invasive Species Advisory Committee 2010). The California Department of Food and Agriculture ("CDFA") also maintains a list of noxious weeds for California (CDFA 2023). 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 2023).

Nonnative invasive plant pathogens occur within the GAI. The pathogen that causes sudden oak death (*Phytophthora ramorum*), a water mold, is particularly problematic in north coast redwood forests and has killed millions of oaks and tanoaks (*Lithocarpus densiflorus*) along the California coast (California Oak Mortality Task Force 2021; CDFW 2015). This pathogen infests a range of shrub and tree host species, causing branch and shoot dieback and leaf spots. It spreads aerially by wind and can survive in infested plant material, litter, soil, and water (Goheen et al. 2006).

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

Invasive plant species within the GAI that are identified as problematic in the SWAP or Cal-IPC inventory include, but are not limited to, tree-of-heaven (*Ailanthus altissima*), barbed goatgrass (*Aegilops triuncialis*), giant reed (*Arundo donax*), wild oats (*Avena barbata* and *A. fatua*), false brome (*Brachypodium distachyon*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), cheatgrass (*Bromus tectorum*), purple star-thistle (*Centaurea calcitrapa*), tocalote (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), poison hemlock (*Conium maculatum*), pampas grass (*Cortaderia jubata* and *C. selloana*), artichoke thistle (*Cynara cardunculus*), Bermuda grass (*Cynodon dactylon*), bristly dogtail grass (*Cynosurus echinatus*), Scotch broom (*Cytisus scoparius*), wild and Fuller's teasel (*Dipsacus fullonum* and *D. sativus*), stinkwort (*Dittrichia graveolens*), Brazilian water weed (*Egeria densa*), Russian olive (*Elaeagnus angustifolia*), medusa head (*Elymus caput-medusae*), blue gum (*Eucalyptus globulus*), eggleaf spurge (*Euphorbia oblongata*),

Japanese knotweed (Fallopia japonica), tall fescue (Festuca arundinacea), rattail sixweeks grass (Festuca myuros), Italian ryegrass (Festuca perennis), edible fig (Ficus carica), fennel (Foeniculum vulgare), French broom (Genista monspessulana), cutleaf geranium (Geranium dissectum), English ivy (Hedera helix), shortpod mustard (Hirschfeldia incana), common velvet grass (Holcus lanatus), Mediterranean barley (Hordeum marinum), hare barley (Hordeum murinum), whorled hydrilla (Hydrilla verticillata), Klamathweed (Hypericum perforatum), rough cat's-ear (Hypochaeris radicata), yellow flag iris (Iris pseudacorus), lens-podded hoary cress and heart-podded hoary cress (Lepidium chalepense and L. draba), perennial pepperweed (Lepidium latifolium), Klamath peppergrass (Lepidium perfoliatum), ox-eye daisy (Leucanthemum vulgare), Uruguayan primrose willow and creeping water primrose (Ludwigia hexapetala and L. peploides), pennyroyal (Mentha pulegium), parrotfeather (Myriophyllum) aquaticum), Eurasian watermilfoil (Myriophyllum spicatum), tree tobacco (Nicotiana glauca), Harding grass (Phalaris aquatica), crisp-leaved pondweed (Potamogeton crispus), Himalayan blackberry (Rubus armeniacus), sheep sorrel (Rumex acetosella), ravenna grass (Saccharum ravennae), scarlet sesban (Sesbania punicea), Spanish broom (Spartium junceum), tamarisk (Tamarix parviflora), tall sock-destroyer (Torilis arvensis), and big periwinkle (Vinca major) (Cal-IPC 2023; CDFW 2015).

Nonnative animals that are/may be present within the GAI and that can negatively affect aquatic species include New Zealand mudsnails (*Potamopyrgus antipodarum*), quagga mussels (*Dreissena bugensis*), zebra mussels (*Dreissena polymorpha*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), brown trout (*Salve fortinalis*), sacramento pikeminnow (*Ptychocheilus grandis*), yellow perch (*Perca flavescens*), sunfish (*Lepomis sp.*), black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis annularis*), bullhead (*Ameiurus spp.*), Mississippi silversides (*Menida audens*), threadfin shad (*Dorosoma petenense*), and American bullfrog (*Rana catesbiana*) (CDFW 2015). Introduced nonnative animals such as bullfrogs and fish can negatively affect foothill yellow-legged frogs (*Rana boylii*) and other aquatic species through competition for food resources, acting as disease vectors, and predation (Hayes et al. 2016).

Nonnative animals that are/may be present in the GAI and that can negatively affect terrestrial wildlife through competition, predation, or parasitism include feral pigs (*Sus scrofa*), European starlings (*Sturnus vulgaris*), and brownheaded cowbirds (*Molothrus ater*) (CDFW 2015). Invasive animal species that are/may be associated with urban areas include common ravens (*Corvus corax*), domestic dogs (*Canis lupus familiaris*), domestic cats (*Felis catus*), Argentine ants (*Linepithema humile*), and fire ants (*Solenopsis invicta*) (CDFW 2015). Steller's jay (*Cyanocitta stelleri*) and common raven are native to California but are considered subsidized predators, benefiting from urbanization and human-altered habitats to increase their range.

# 2.7 Special-status Terrestrial Species

Special-status terrestrial species are discussed below, with additional detail provided in Appendix D, *Complete SAMNA Species Results*. Threatened and endangered fish species with the potential to occur within the GAI are discussed in Section 2.16.2.

Special-status terrestrial species with the potential to occur within the GAI were extracted from the SAMNA Reporting Tool's species-attributed vegetation data layer, which was developed using the CWHR (CDFW 2021a), the Jepson Herbarium's floristic province layer, CDFW's RareFind 5 database (CDFW 2017), and other information (Caltrans 2018; Appendix D).

Special-status terrestrial species included in the SAMNA are those that are considered federally and/or state threatened or endangered species, state candidate threatened or endangered species, state fully protected species, state species of concern, state rare species, and federal sensitive species (which includes species that are USFS sensitive and/or BLM sensitive). Based on a search of the SAMNA Reporting Tool's species-attributed vegetation layer, 70 non-fish special-status species have the potential to occur within the GAI (51 species in the Central California Coast Ecoregion Section, 59 species in the Great Valley Ecoregion Section, 44 species in the Northern California Coast Ecoregion Section, 52 species in the Northern California Coast Ranges Ecoregion Section, and 59 species in the Northern California Interior Coast Ranges Ecoregion Section).

Although it is the best information currently available, the SAMNA Reporting Tool's species list is uncertain (Appendix D). The species-attributed list developed for the SAMNA Reporting Tool depends on a species having a defined geographic range within the CWHR or having occurrences documented in the California Natural Diversity Database (Caltrans 2023c). When CWHR home range and/or California Natural Diversity Database occurrence information is incorrect or out-of-date, the probability that a species will be misidentified as potentially present increases. Therefore, SAMNA results go through a sensibility evaluation prior to being used to inform advance mitigation scoping (Appendix D). Further, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

# 2.8 Critical Habitat

FWS and NMFS regulate impacts on critical habitat under the FESA. The FESA (16 USC § 1531–1544) defines critical habitat for a threatened or endangered species as (i) "specific areas within the geographical area occupied by the species at the time it is listed ... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection;" and (ii) "specific areas outside the geographical area occupied by the species at the time it is listed ... upon a determination by the Secretary

that such areas are essential for the conservation of the species." Further, the FESA clarifies that critical habitat "shall not include the entire geographical area which can be occupied by the threatened or endangered species." Critical habitat designations reflect a rigorous process. Before publishing the rule finalizing the critical habitat designation, FWS publishes proposals to designate critical habitat in the *Federal Register* and considers information received during the public comment period (FWS 2017a).

The GAI includes federally designated final critical habitat for five species (FWS 2023a, NMFS 2021):

- California red-legged frog (*Rana draytonii*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- Delta smelt (*Hypomesus transpacificus*)
- Northern spotted owl (*Strix occidentalis caurina*)
- Slender Orcutt grass (Orcuttia tenuis)

Critical habitat is an important consideration when establishing compensatory mitigation. Designated critical habitat for the terrestrial species is indicated on Figure 2-7.

Note that designated critical habitat represented by points on Figure 2-7 are units too small to depict at the regional level assessed in this RAMNA.

# 2.9 Essential Fish Habitat

NMFS is responsible for ensuring impacts on essential fish habitat ("EFH") are addressed. EFH was defined by Congress in 1996 in an amendment to the Magnuson-Stevens Fishery Conservation and Management Act. EFH covers federally managed fish and invertebrate species that are not found strictly in 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). As Figure 2-8 shows, no EFH designated areas are within the GAI. However, EFH is proximate to the GAI; EFH for coho salmon (*Oncorhynchus kisutch*) and Chinook salmon (*Oncorhynchus tshawytscha*) lie just outside the western border of the GAI (Figure 2-8).







Figure 2-8. Essential Fish Habitat

# 2.10 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 2022a).

#### 2.10.1. Wildlife Movement

Caltrans identified four connectivity assessments applicable and relevant to the GAI: the California Essential Habitat Connectivity ("CEHC") Project, ACE, CDFW's *Restoring California's Wildlife Connectivity 2022* 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 2023a; Spencer et al. 2010). These connectivity areas were broadly defined, focusing on ecological integrity rather than species-specific habitat needs, and included potential riparian connections between landscape blocks. For instance, connectivity areas were selected to connect existing reserves across land that has been highly altered and fragmented by agriculture, urbanization, and roads, which typically constrain wildlife movement (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 2-9). 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



### Figure 2-9. Terrestrial Connectivity

• Rank 1 (limited connectivity opportunity) – areas where land use limits connectivity, including some lakes

Connectivity is an important consideration when establishing compensatory mitigation. Most of the planned SHOPP transportation projects occur within areas with a connectivity rank of 1, 2, or 3, with fewer planned transportation projects occurring within areas with a connectivity rank of 4 or 5 (Figure 2-9).

## 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 2-10) (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. The area covered by the Bay Area Critical Linkages Project extends north, west, and south 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 the 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).



Figure 2-10. Bay Area Critical Linkages

### CDFW's Restoring California's Wildlife Connectivity 2022 Report

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

Three priority wildlife movement barriers were identified within the GAI based on CDFW's 2022 dataset (Figure 2-11). These barriers and target species for movement include: (1) Highway 16 Cache Creek to Highway 20 in Colusa County, (2) Highway 20 Junction with Highway 16 in Colusa County, and (3) Highway 20 Cache Creek in Lake County. Tule elk (*Cervus canadensis nannodes*) is the target species for movement for all these barriers (CDFW 2022a). Tule elk are endemic to California; however, as defined in Section 2.8, they are not a special-status species.



Figure 2-11. CDFW Priority Wildlife Connectivity Project Locations within the GAI

### 2.10.2. Fish Passage

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

SHC § 156.1 requires Caltrans to:

- 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/programs/legislative-affairs/reports.
- 2. Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds.
- 3. Submit assessments to the California Fish Passage Assessment Database.
- 4. Construct all new transportation projects in a way that does not pose or create a barrier to fish passage.

The CESA and FESA list 10 Evolutionarily Significant Units ("ESUs")/Distinct Population Segments ("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 winterrun ESU Chinook salmon, and southern California DPS steelhead
- Seven identified species currently listed as state and/or federally threatened: SONCC 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 2-12 depicts the six California Fish Passage Advisory Committee ("FishPAC") locations throughout the state. The FishPAC is a partnership between Caltrans, CalTrout, CDFW, FWS, NMFS, Pacific States Marine Fisheries Commission, and other local fish passage advocates. The FishPACs share science and data related to known fish barriers and prioritize SHS locations based on high-value habitat recovery.



Figure 2-12. California Fish Passage Advisory Committee Locations
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.

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

The FishPAC helps Caltrans advance the desired outcomes of SHC § 156 (J. Walth, Caltrans, personal communication, 2020). Since 2006, in collaboration with FishPAC, Caltrans has partially or fully remediated 51 barriers on the SHS and identified 556 additional barriers to salmon and steelhead statewide. Results of Caltrans and FishPAC's efforts to locate, assess, prioritize, and remediate fish passage barriers on the SHS are documented in the Fish Passage Annual Reports prepared by Caltrans and submitted to the legislature as required by SHC § 156.1. As specified above, the FishPAC also provides SHS-related information to the Fish Passage Assessment Database, to be incorporated into its periodic updates.<sup>2</sup> Information regarding verified SHS fish passage barriers is available through the appropriate FishPAC.

## 2.11 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 hydrologic unit code ("HUC") that is georeferenced to USGS topographic maps (USGS 2014). Each HUC classification consists of 2 to 12 digits. For example, 6-digit HUCs, or "HUC-6s," map to the basin level; HUC-8s map to the sub-basin level; and 12-digit HUCs, or "HUC-12s," map to the sub-watershed level.

<sup>&</sup>lt;sup>2</sup> More information about the Fish Passage Assessment Database can be found in CalFish 2019.

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 subbasins; therefore, information in this RAMNA is also presented by HUC-8 (Caltrans 2023c; USGS 2014). However, the California Department of Water Resources and the Water Boards (SWRCB and the RWQCBs) do not exclusively use HUC-8 codes (California Department of Water Resources 2016). The Water Boards also use the Calwater system (that is, hydrologic units, or "HUs") for state-level purposes such as assigning beneficial uses to waters. The Calwater system is a hierarchical system similar to USGS HUCs. Calwater levels begin with the division of the state into 10 hydrologic regions. Each hydrologic region is progressively subdivided into five smaller, nested levels: HUs, hydrologic areas, hydrologic sub-areas, super planning watersheds, and planning watersheds.

Appendix E, *Hydrologic Units*, provides a crosswalk between the HUC-8 and HU classification systems for each HUC-8 within the GAI. The GAI overlaps two sub-basins that loosely correspond to the Cache Creek, Colusa Basin, Cortina, Eel River, Putah Creek, Russian River, Sacramento Delta, San Pablo, Stony Creek, Suisun, Upper Elmira, and Valley Putah-Cache HUs (Appendix E). Figure 2-13 shows the sub-basins and state-level HUs within the GAI.

# 2.12 Hydrology

The two sub-basins of the GAI drain an area of 1,164,348 acres (1,819 square miles) (Table 2-4). Described individually in Appendix E, *Hydrologic Units*, these sub-basins include 1,818 rivers and streams that traverse 2,022 miles within the Central Valley RWQCB boundary (Table 2-4, Figure 2-13). Sub-basin acreages shown in Table 2-4 may include areas outside of the GAI.

Sub-basin Name	Sub-basin Code (HUC-8)	Drainage Area (acres)ª	Rivers and Streams (count)	Total Reach Length (miles)ª
Upper Cache	18020116	745,638	1,268	1,317
Upper Putah	18020162	418,710	550	705
То	tal Not applicable	1,164,348	1,818	2,022

#### Table 2-4. Sub-basins

Source: California Department of Water Resources (2016)

<sup>a</sup> Numbers were rounded to the nearest whole number.



Figure 2-13. HUC-8 Sub-basins and HUs

# 2.13 Flood Hazard Areas

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

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

Flood hazard areas within the GAI are shown on Figure 2-14. Waterbodies associated with the majority of flood hazard risk within the GAI include Cache Creek, Clear Lake, Lake Berryessa, Putah Creek, and the Sacramento River floodplains. 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.

## 2.14 Water Quality

Water quality objectives for surface waters and groundwater within the GAI are provided in the *Water Quality Control Plan for the Central Valley Region, the Sacramento River Basin and the San Joaquin River Basin* ("Basin Plan") (Central Valley RWQCB 2019). Water quality objectives identified in the Basin Plan can be numerical or narrative. For example, the "chemical constituents" water quality objective for the protection of aquatic life and human health consists of federal water quality criteria for toxic "priority pollutants" under the California Toxics Rule (40 CFR § 131.38) and National Toxics Rule (40 CFR § 131.36). In contrast, the water quality objective for taste and odor is narrative. Undesirable tastes and odors in water are an aesthetic nuisance and can indicate the presence of other pollutants.

Beneficial uses for surface waters, groundwater, and coastal features are also identified in the Basin Plan (Central Valley RWQCB 2019). 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 retrofits that improve permeability or flows. Therefore, this RAMNA considers beneficial uses identified for waterbodies located within the GAI relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources, and are consistent with the AMP's objective to protect natural resources through transportation project mitigation (Table 2-5).



Figure 2-14. Flood Hazard Areas

#### Table 2-5. Beneficial Uses

Beneficial Use	Central Valley Basin Plan	Relevant to RAMNA? <sup>a</sup>
Agricultural supply	Applicable	No
Cold freshwater habitat	Applicable	Yes
Industrial process supply	Applicable	No
Industrial power supply	Applicable	No
Industrial service supply	Applicable	No
Migration of aquatic organisms	Applicable	Yes
Municipal and domestic supply	Applicable	No
Navigation	Applicable	No
Non-contact water recreation	Applicable	No
Spawning, reproduction, and/or early development	Applicable	Yes
Warm freshwater habitat	Applicable	Yes
Water contact recreation	Applicable	No
Wildlife habitat	Applicable	Yes

Source: Central Valley RWQCB 2019

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

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

The CWA Section 303(d) list of impaired waters includes 16 waterbodies within the GAI (SWRCB 2021). 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 a relevant aquatic resource-related beneficial use (Table 2-5). The primary sources of these impairments are rural and agricultural land uses, mining, silvicultural activities, sewage system and septic tank system discharges, and urban runoff. Waterbodies, their impairments, and whether total maximum daily loads ("TMDLs") have been established are provided in Table 2-6 (SWRCB 2021). A RWQCB may need to consult with the CDFW

or other natural resource regulatory agencies to determine whether a beneficial use may be affected by a water quality-related decision.

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? <sup>a</sup>
Upper Cache	Bear Creek (Colusa County)	Mercury	Being addressed with EPA-approved TMDL	Yes
Upper Cache	Cache Creek, Lower (Clear Lake Dam to Cache Creek Settling Basin near Yolo Bypass)	Mercury	Being addressed with EPA-approved TMDL	Yes
Upper Cache	Cache Creek, North Fork (below Indian Valley Reservoir, Lake County)	Mercury	Being addressed with EPA-approved TMDL	Yes
Upper Cache	Clear Lake	Mercury	Being addressed with EPA-approved TMDL	Yes
Upper Cache	Davis Creek (downstream from Davis Creek Reservoir, Yolo County)	Mercury	Required, not established yet	Yes
Upper Cache	Davis Creek (upstream from Davis Creek Reservoir, Yolo County)	Mercury	Required, not established yet	Yes
Upper Cache	Davis Creek Reservoir	Mercury	Required, not established yet	Yes
Upper Cache	Gordon Slough (from headwaters and Goodnow Slough to Adams Canal, Yolo County)	Oxygen, Dissolved	Required, not established yet	Yes
Upper Cache	Harley Gulch	Mercury	Being addressed with EPA-approved TMDL	Yes
Upper Cache	Indian Valley Reservoir (Lake County)	Mercury	Required, not established yet	Yes
Upper Cache	Lower Blue Lake	Mercury	Required, not established yet	Yes
Upper Cache	Sulphur Creek (Colusa County)	Mercury	Required, not established yet	Yes
Upper Cache	Winters Canal (Yolo County)	Diazinon	Being addressed with action other than TMDL	Yes
Upper Putah	Lake Berryessa	Mercury	Required, not established yet	Yes
Upper Putah	Delta Waterways (northwestern portion)	Diazinon	Being addressed with EPA-approved TMDL	Yes

Table 2-6. Impaired Waters within the GAI

Sub-basin	Impaired Water	Impairment	TMDL Status	Relevant to RAMNA? <sup>a</sup>
Upper Putah	James Creek	Mercury	Required, not established yet	No
Upper Putah	Putah Creek (Solano Lake to Putah Creek Sinks; partly in Delta Waterways, northwestern portion)	Mercury	Required, not established yet	No
Upper Putah	Lake Solano	Mercury	Required, not established yet	Yes

Source: SWRCB (2021)

<sup>a</sup> TMDLs relevant to the RAMNA reflect impaired aquatic resource-related beneficial uses.

## 2.15 Wild and Scenic Rivers

The purpose of the federal Wild and Scenic Rivers Act of 1968 (16 USC Chapter 28) and the state Wild and Scenic Rivers Act of 1972 (Public Resources Code § 5093.50) is to protect and enhance the wild, scenic, and recreational values of designated rivers (National Wild and Scenic Rivers System 2016; Water Education Foundation 2023). 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 by roads. Recreational river areas include rivers or sections of roads. Recreational river areas include rivers or sections of rivers that are readily accessible by road or railroad, have some development along shorelines, and may have impoundments or diversions.

No federally designated wild and scenic rivers are within the GAI. In 2005, 31 miles of Cache Creek and North Fork Cache Creek were designated as state wild and scenic rivers. The protected segments start downstream of Clear Lake Dam, ending at Camp Haswell, including 2 miles of the North Fork Cache Creek downstream of Highway 20 to its confluence with Cache Creek (CalWild 2023). Figure 2-15 depicts the state designated wild and scenic segments of Cache Creek and North Fork Cache Creek within the GAI.

# 2.16 Aquatic Resources

A high-level view of major aquatic resources within the GAI is provided on Figure 2-16, and detailed maps of aquatic resources are provided in Appendix F, *Aquatic Resource Locations*. For the purposes of advance mitigation planning, aquatic resources within the GAI include wetlands and non-wetland waters that may be subject to Corps, EPA, Water Boards, and/or CDFW regulations, as well as threatened and endangered fish that may be subject to CDFW, FWS, and/or NMFS regulations. Riparian habitat is discussed separately in Section 2.17.



Figure 2-15. Wild and Scenic Rivers within the GAI



Figure 2-16. Aquatic Resource Features and Major Stream Systems<sup>a</sup>

<sup>a</sup> For greater detail, see Appendix F.

Corps and EPA jurisdiction under Section 404 of the CWA includes any activity that may cause a discharge of dredged or fill material into waters of the U.S. ("WOTUS"), including wetlands. Corps jurisdiction also includes any work or structure affecting navigable WOTUS, pursuant to Section 10 of the Rivers and Harbors Act and 33 CFR § 329, respectively. The Water Boards' jurisdiction includes any activity that may cause a discharge of waste to WOTUS, including rivers, streams, and lakes as well as ephemeral, intermittent, and perennial watercourses and wetlands, seeps, and springs. CDFW regulates any activity that may divert or obstruct the natural flow of a river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake<sup>3</sup>; and deposit or dispose material into any river, stream, or lake.

#### 2.16.1. Historical Context

Historically, the Upper Cache and Upper Putah hydrologic sub-basins were fertile lands occupied and used by Native Americans for fishing and hunting. Clear Lake within the Upper Cache basin is one of the oldest and largest freshwater lakes in California. After Euro-American settlement of the area, the lands were primarily used for farms, cattle, dryland grain production, and orchards (Lake County 2023; Sacramento River Watershed Program 2023a). Early settlers of Yolo County intensively farmed the areas adjacent to the Sacramento River and Cache and Putah Creeks. In the 1900s, the area was also mined for sand and gravel, which led to management policies that included in-channel and reclamation ordinances, and plans to minimize environmental effects (Cache Creek Conservancy 2023). Monticello Dam was built in the 1950s to supply irrigation, municipal, and industrial water, forming Lake Berryessa and altering the natural flow pattern of Putah Creek. Spring and fall irrigation releases led to reduced flows in Putah Creek and increased turbidity from eroding channels, impacting fish populations and encouraging the growth of nonnative plant species (Sacramento River Watershed Program 2023b).

#### 2.16.2. Threatened and Endangered Fish Species

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

Threatened and endangered fish species with the potential to occur within the GAI were extracted from the SAMNA Reporting Tool's fish habitat layer, which was developed using the USGS National Hydrography Dataset and other information (Caltrans 2018, 2023f). Based on a search of the fish habitat layer, six federally or state listed threatened or endangered fish species have the potential to occur within the GAI:

- state threatened Clear Lake hitch (*Lavinia exilicauda chi*)
- federally and state endangered central California coast ESU coho salmon
- federally threatened and state endangered Delta smelt
- federally threatened southern DPS green sturgeon (*Acipenser medirostris*)
- state threatened longfin smelt (*Spirinchus thaleichthys*)

<sup>&</sup>lt;sup>3</sup> Rivers, streams, and lakes include ephemeral, intermittent, and perennial watercourses.

• federally threatened Central Valley DPS steelhead (*Oncorhynchus mykiss irideus*)

However, four of these species do not occur within the GAI: central California coast ESU coho salmon (occurs west of the GAI, NMFS 2012), Delta smelt (occurs south of the GAI, USFWS 1995), southern DPS green sturgeon (occurs west and south of the GAI, NMFS 2018), and longfin smelt (occurs south of the GAI, USFWS 1995).

Clear Lake hitch is endemic to Clear Lake and its tributary streams in Lake County (CDFW 2014). The Central Valley DPS steelhead is known to occur throughout the Sacramento and San Joaquin Rivers and their tributaries. Within the GAI, the species is known to occur in Putah Creek, with NMFS-designated final critical habitat occurring within the western point of the GAI near the confluence of Putah Creek and the Sacramento River (NMFS 2014).

Although it is the best information currently available, the SAMNA Reporting Tool's fish species list is uncertain (Caltrans 2023f). Therefore, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

#### 2.16.3. Wetlands

Wetland resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the FWS National Wetlands Inventory maps (FWS 2021) and data from the San Francisco Estuary Institute (2022) California Aquatic Resource Inventory (Table 2-7, Appendix F; Caltrans 2023g). These data were used to estimate the extent of wetlands within the GAI; however, the data layers are largely based on aerial imagery, have not been ground-truthed, provide no information on plant species associated with mapped areas, and are therefore relatively coarse. Although suitable for advance mitigation project scoping, site-specific wetland studies that result in more detailed mapping and classification of wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. For example, under Section 404 of the CWA, the Corps considers wetlands to be jurisdictional WOTUS only if they have the three parameters of hydrology, hydrophytic vegetation, and hydric soils as well as satisfy criteria to be connected to a traditionally navigable water.

Aquatic resource types outlined here follow the *Classification of Wetlands and Deepwater Habitats of the United States* (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 2-7 (Caltrans 2023g).

Туре	Upper Cache (acres) 18020116	Upper Putah (acres) 18020162	Total (acres)
Depressional	708.6	1,696.8	2,405.4
Depressional Forested	<0.1	21.4	21.4
Depressional Perennial	204.3	371.8	576.1
Depressional Perennial Non-vegetated	649.0	Not mapped	649.0
Depressional Perennial Unnatural	3,582.5	328.6	3,911.1
Depressional Perennial Unnatural Emergent	20.9	Not mapped	20.9
Depressional Perennial Unnatural Non-vegetated	Not mapped	1.1	1.1
Depressional Seasonal	<0.1	0.7	0.7
Depressional Seasonal Natural Emergent	30.6	75.0	105.6
Depressional Seasonal Natural Forested	<0.1	13.4	13.4
Depressional Seasonal Natural Shrub-Scrub	Not mapped	123.7	123.7
Depressional Seasonal Unnatural Emergent	Not mapped	9.7	9.7
Depressional Seasonal Unnatural Forested	Not mapped	<0.1	<0.1
Depressional Seasonal Unnatural Non-vegetated	Not mapped	<0.1	<0.1
Depressional Seasonal Unnatural Shrub-Scrub	Not mapped	<0.1	<0.1
Depressional Unnatural Non-vegetated	Not mapped	4.4	4.4
Freshwater Emergent Wetland	Not mapped	0.3	0.3
Freshwater Forested/Shrub Wetland	3,402.7	642.0	4,044.7
Freshwater Pond	1,361.1	910.4	2,271.5
Individual Vernal Pool	680.0	634.6	1,314.6
Lacustrine	2.7	Not mapped	2.7
Lacustrine Unnatural Non-vegetated	154.9	27.3	182.2
Lake	171.6	1.0	172.6
Riverine	Not mapped	15.1	15.1
Riverine Unnatural	40,479.5	19,364.5	59,844.0
Slope	8,309.0	3,376.7	11,685.7
Total <sup>a</sup>	59,758	27,619	87,377

Table 2-7. Wetland and Non-wetland Water Types within the GAI

Sources: Caltrans (2023g, 2023h) <sup>a</sup> Rounded to the nearest whole number.

#### Vernal Pools

Vernal pools are waters of the state. The SAMNA Reporting Tool's wetland layer does not include vernal pools. However, potential vernal pool habitat can be inferred from the modeled vernal pool fairy shrimp habitat developed for the SAMNA that is based on California Natural Diversity Database vernal pool species occurrences.<sup>4</sup> Vernal pools mapped using CDFW's vernal pools ACE dataset [ds2732] are shown on the left side of Figure 2-17, 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 2-17.

#### 2.16.4. Non-wetland Waters

Other, non-wetland water resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the USGS National Hydrography Dataset (Table 2-7, Appendix F; Caltrans 2023h). Although suitable for advance mitigation project scoping, site-specific studies that result in more detailed mapping and classification of other, non-wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. Similar to the wetlands data, the waters data layer is separate from the land cover types discussed previously in Section 2.6; therefore, total acreages of water land cover types presented in Table 2-3 may not align with those presented in Table 2-7 (Caltrans 2023h).

<sup>&</sup>lt;sup>4</sup> Although the SAMNA Reporting Tool does not use California Natural Diversity Database occurrences of vernal pool plants to map vernal pools, vernal pool plant species impact forecasts are provided in Appendix D.

#### Figure 2-17. Vernal Pools



# 2.17 Riparian Habitat

Riparian habitats may include portions that are wetlands or non-wetland waters, but they also may be outside of these categories. California does not have a GIS layer for riparian ecotones, and the natural resource regulatory agencies with authority in California do not have a definition for riparian habitat. Nevertheless, CWHR does include three riparian habitat types: montane riparian, valley foothill riparian, and desert riparian, which are included in the SAMNA's terrestrial vegetation data layer (Caltrans 2023e). Within the GAI, riparian habitat types are a subset of the land cover types in Table 2-3 and include desert riparian, montane riparian, and valley foothill riparian.

# 2.18 Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection prepares Fire Hazard Severity Zone maps that classify the severity of fire hazards in California (Figure 2-18). These maps are developed by assigning a hazard score based on factors that influence fire likelihood and behavior, including fire history, existing and potential fuel, predicted flame length, blowing embers, terrain, and typical fire weather. Hazard scores are averaged over zone areas to result in a moderate, high, or very high zone class. As indicated on Figure 2-18, high fire hazard severity zones are located throughout the southwestern part of the GAI, with very high and moderate zones occurring within the Coastal Ranges and moderate zones occurring within the eastern slopes of the Coastal Ranges. This information is important for scoping advance mitigation projects and transportation projects undertaken within the GAI, and it may inform the types of materials that can be used within an area based on their fire resistance capabilities.



Figure 2-18. Fire Hazard Severity Zones

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# 3. RELEVANT PLANS, POLICIES, AND REGULATIONS

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

Table 3-1 provides the following information for each reference identified:

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

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

### 3.1 Relationship to Goals and Objectives

As stated in Chapter 1, *Introduction*, the GAI for this RAMNA was selected by Caltrans District 1 based on the SAMNA results and other information. Caltrans District 1

specifically identified compensatory mitigation for Clear Lake hitch, California red-legged frog, valley elderberry longhorn beetle, and aquatic resources as historical and anticipated mitigation needs. Therefore, Table 3-1 emphasizes documents related to the specified wildlife and aquatic resources, which, in turn, form the basis for the goals and objectives presented in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*. As much as practicable, however, Caltrans intends for any compensatory mitigation established within the GAI to support these specific wildlife and aquatic resources and to also benefit other wildlife and aquatic resources.

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

Title	Status	Spatial Data	Reference Purpose	Link	Date
State Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
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:	https://leginfo.legislature.ca.gov/faces/codes_displ aySection.xhtml?sectionNum=156.&lawCode=SH C	1/1/2006 (effective date)
			<ul> <li>Provide an annual list of fish passage priorities for the SHS to the legislature.</li> <li>Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds.</li> <li>Submit assessments to FishPAC.</li> <li>Construct all new transportation projects in a way that does not pose or create a barrier to fish passage.</li> </ul>		
			Caltrans collaborates with the FishPAC to identify passage priority locations for the SHS. The FishPAC is a partnership between CDFW, NMFS, FWS, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.		
California Fish and Game Commission Wetlands Resources Policy	Updated periodically	No	California Fish and Game Commission's policy to seek to provide for the protection, preservation, restoration, enhancement, and expansion of wetland habitat in California.	https://fgc.ca.gov/About/Policies/Miscellaneous#W etlands	8/18/2005 (last amended)
California Water Boards 2010 Update to Strategic Plan 2008–2012	Final	No	Update to strategic plan from the Water Boards. Goals include implementing strategies to fully support beneficial uses for all waterbodies 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_p lan_update_report_062310.pdf	6/1/2010
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:	<u>https://dot.ca.gov/programs/legislative-</u> affairs/reports	10/1/2021 (most recent)
			<ul> <li>Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed;</li> <li>Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species; and</li> <li>Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts.</li> </ul>		
			Subject matter experts include CDFW, NMFS, FWS, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.		
CESA	Updated periodically (by California legislature)	No	CESA prohibits the take of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in FGC § 2081, subdivisions (b) and (c), are met. (See California Code of Regulations, Title 14, § 783.4.)	https://www.wildlife.ca.gov/Conservation/CESA	9/10/2018 (last amended)
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/pro grams/cwa401/docs/wrapp2008/executive_order_ w59_93.pdf	8/23/1993

Title	Status	Spatial Data	Reference Purpose	Link	Date
Native Plant Protection Act	Final	No	Enacted in 1977, the Act allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the Native Plant Protection Act. The Act prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations and emergencies, and after properly notifying CDFW for vegetation removal from canals, roads, and other sites; changes in land use; and in certain other situations.	https://leginfo.legislature.ca.gov/faces/codes_displ ayText.xhtml?division=2.&chapter=10.&lawCode= FGC	1/1/1977
Porter-Cologne Water Quality Control Act	Updated periodically (by California legislature)	No	Law that governs water quality in California, establishing the nine RWQCBs and their jurisdiction to protect California's surface water and groundwater through water quality objectives and the beneficial uses of water as outlined in a project's waste discharge requirements.	https://www.waterboards.ca.gov/laws_regulations/ docs/portercologne.pdf	1/1/2019 (last amended)
State Board Resolution No. 68-16	Final	No	Policy for maintaining high water quality.	https://www.waterboards.ca.gov/board_decisions/ adopted_orders/resolutions/1968/rs68_016.pdf	10/28/1968
State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State	Final	No	Created by the SWRCB and implemented by the Water Boards. 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/pro grams/cwa401/wrapp.html	5/28/2020 (effective date)
Streambed Alteration Program FGC § 1602	Updated periodically (by California legislature)	No	Implemented by CDFW. Regulates activities that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In general terms, CDFW jurisdiction extends to top-of-bank or the outer extent of riparian habitat, if present. Additionally, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species.	https://www.wildlife.ca.gov/conservation/lsa	6/27/2017 (last amended)
Water Quality Control Plan for the Central Valley Region	Updated periodically	Yes	Implemented by Central Valley Basin RWQCB. Establishes general and site-specific water quality standards and objectives in the Sacramento River Basin.	<u>https://www.waterboards.ca.gov/centralvalley/wat</u> <u>er_issues/basin_plans/#basinplans</u>	5/24/2018 (last revision)
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	Updated periodically	No	EPA and SWRCB's listing of regulated impaired waterbodies.	https://www.waterboards.ca.gov/water_issues/pro grams/water_quality_assessment/2018_integrate d_report.html	4/11/2018 (last updated)
40 CFR § 131.12 California Antidegradation Policy	Final	No	Implemented by SWRCB. Required by federal law, the Antidegradation Policy applies to the disposal of waste to high-quality surface water and groundwater.	<u>https://www.waterboards.ca.gov/plans_policies/an</u> <u>tidegradation.html</u>	8/21/2015 (last amended)
Corps Regulatory Guidance Letter 18-01	Final	No	Corps' guidance document on determining compensatory mitigation credits for the removal of obsolete dams and other structures from rivers and streams.	https://usace.contentdm.oclc.org/utils/getfile/collec tion/p16021coll9/id/1473	9/25/2018
CWA	Updated periodically (by Congress)	No	Authorized by EPA and delegated to the Corps and SWRCB, the CWA establishes the basic structure for regulating discharges of pollutants into WOTUS and regulating quality standards for surface waters.	https://www.law.cornell.edu/uscode/text/33/1344	2/4/1987 (last amended)
CWA § 401	Updated periodically (by Congress)	No	Implemented by EPA and SWRCB. Regulates discharge of pollutants into WOTUS.	https://www.law.cornell.edu/uscode/text/33/1341	12/27/1977 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
CWA § 402 National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit	Updated periodically (by Congress)	No	<ul> <li>Implemented by EPA and SWRCB. Regulates discharge of stormwater from municipal sources that is a conveyance or system of conveyances and is:</li> <li>owned by a state, city, town, village, or other public entity that discharges to WOTUS:</li> </ul>	https://www.epa.gov/npdes/stormwater- discharges-municipal-sources	1/19/2019 (last amended)
			<ul> <li>designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches);</li> <li>not a combined sewer; and</li> <li>not part of a sewage treatment plant or publicly owned treatment works.</li> </ul>		
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)
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
FESA	Updated periodically (by Congress)	No	Authorizes FWS and NMFS to protect federally listed threatened and endangered species.	https://www.fws.gov/endangered/laws-policies/	11/24/2003 (last amended)
Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division	Final	No	Corps' guidelines for mitigation and monitoring in the South Pacific Division, including California.	https://www.spd.usace.army.mil/portals/13/docs/regulatory/mitigation/mitmon.pdf	12/19/2014 (last amended)
FWS Endangered Species Act Compensatory Mitigation Policy	Final	No	FWS' mitigation policy for ESA-listed species as well as those proposed for listing and at-risk species.	https://www.fws.gov/sites/default/files/policy/pdfs/ FWS-ESA-Compensatory-Mitigation-Policy- amend_1.pdf	7/3/2023
FWS Mitigation Policy	Final	No	FWS' mitigation policy to provide guidance for avoiding, minimizing, and compensating for action-caused impacts to species and their habitats.	https://www.fws.gov/sites/default/files/policy/pdfs/ FWS-Mitigation-Policy.pdf	5/2/2023
National Wetlands Mitigation Action Plan	Final	No	EPA and Corps comprehensive, interagency document to further achievement of the goal of no net loss of wetlands and to set forth the no net loss policy.	https://www.epa.gov/cwa-404/national-wetlands- mitigation-action-plan	12/26/2002
The Navigable Waters Protection Rule	In progress	No	The navigable waters protection rule, dated April 21, 2020, has been vacated by the court and implementation has been halted. Rulemakings to revise the rule are currently in progress.	https://www.epa.gov/nwpr/final-rule-navigable- waters-protection-rule	6/9/2021 (announcement of rulemaking process)
Section 10 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	Authorizes the Corps to protect navigable WOTUS by requiring a permit for construction of any structure over a navigable WOTUS. A Section 10 permit is required if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable WOTUS.	https://www.epa.gov/cwa-404/section-10-rivers- and-harbors-appropriation-act-1899	7/26/1947 (last amended)
Section 14 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	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 U.S.	https://www.law.cornell.edu/uscode/text/33/408	10/23/2018 (last amended)
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/chapte r-28	12/19/2014 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Statewide and Regional Resource Planning Documents	See below	See below	See below	See below	See below
A Climate Change Vulnerability Assessment of California's Terrestrial Vegetation	Final	Yes	CDFW's document to assess the climate vulnerability of terrestrial vegetation.	https://nrm.dfg.ca.gov/FileHandler.ashx?Documen tID=116208&inline	1/1/2016
A Strategy for California @ 50 Million – Supporting California's Climate Change Goals	Final	Yes	Planning report from the California Governor's Office that focuses on sustainability efforts across California in response to climate change.	http://opr.ca.gov/docs/EGPR Nov 2015.pdf	11/1/2015
ACE Connectivity Project Version 3.0	Updated periodically	Yes	A CDFW effort to analyze large amounts of map-based data to inform decisions around goals such as biodiversity conservation, habitat connectivity, and climate change resiliency.	https://wildlife.ca.gov/Data/Analysis/ACE	7/10/2019 (last updated)
California Biodiversity Initiative	Final	No	A CNRA, California Department of Food and Agriculture, and Governor's Office of Planning and Research high-level planning document. Provides a roadmap to secure California's biodiversity future.	https://californiabiodiversityinitiative.org/pdf/califor nia-biodiversity-action-plan.pdf	9/2018
California Essential Habitat Connectivity Project	Final	Yes	CDFW and Caltrans assessment to identify large remaining blocks of intact habitat or natural landscape and model linkages between them that need to be maintained, particularly as corridors for wildlife.	https://www.wildlife.ca.gov/conservation/planning/ connectivity/CEHC	2/1/2010
California Water Action Plan 2016 Update	Final	No	Calls for action to restore key mountain meadow habitat, manage headwaters, restore coastal watersheds, and enhance water flows in streams statewide.	http://resources.ca.gov/docs/california_water_acti on_plan/Final_California_Water_Action_Plan.pdf	2016
California Watershed Assessment Manual Volume I	Final	No	Provides guidance for conducting a watershed assessment in California.	https://www.epa.gov/system/files/documents/2022 -02/caliwam.pdf	5/1/2005
Caltrans Adaptation Strategies Report: District 1	Final	No	Caltrans initiated a major agency-wide effort to adapt its infrastructure so that it can withstand future conditions. The effort began by determining which assets are most likely to be adversely affected by climate change in each Caltrans District.	https://dot.ca.gov/programs/transportation- planning/division-of-transportation-planning/air- guality-and-climate-change/2020-adaptation- priorities-reports	2/1/2021
Caltrans Climate Change Vulnerability Assessment, District 1 Technical Report	Final	No	Caltrans assessment of climate change vulnerabilities for the District.	https://dot.ca.gov/programs/transportation- planning/division-of-transportation-planning/air- quality-and-climate-change/2019-climate-change- vulnerability-assessments	10/1/2019
Conservation and Mitigation Banking	Updated periodically	No	CDFW's main public webpage describing the process for creating and using mitigation banks.	https://wildlife.ca.gov/Conservation/Planning/Bank ing	1/1/2022
Large Mammal-Vehicle Collision Hot Spot Analyses, California, USA	Final	Yes	Western Transportation Institute's report documenting the methods and results of hot-spot analyses of large wild mammal-vehicle collisions in California, with an emphasis on mule deer. These analyses identified the road sections that had the highest concentration of deer-vehicle crashes and mule deer carcasses. Special-status species were not addressed.	https://westerntransportationinstitute.org/wp- content/uploads/2019/09/4W6693_Huijser-and- Begley-FINAL-Report-Caltrans-Statewide- 20190913-reduced-image-size.pdf	9/13/2019
Record of Decision for Amendments to Forest Service and BLM Planning Documents within the Range of the Northern Spotted Owl	Final	No	This document, colloquially referred to as "The Northwest Forest Plan," is a landscape approach to federal land management designed to protect threatened and endangered species while also contributing to the region's social and economic sustainability. It also includes an Aquatic Conservation Strategy, which aims to restore and maintain the ecological health of watersheds and aquatic ecosystems.	https://www.fs.usda.gov/detail/r6/landmanagemen t/planning/?cid=fsbdev2_026990	4/13/1994

Title	Status	Spatial Data	Reference Purpose	Link	Date
Restoring California's Wildlife Connectivity 2022. 2022 Priority Wildlife Connectivity Project Locations by Region	Final	Yes	CDFW's priority wildlife movement barriers across the state. This document is focused on large wild mammal game species; however, some priorities would benefit special-status species.	https://nrm.dfg.ca.gov/FileHandler.ashx?Documen tID=204648&inline	12/1/2022
Safeguarding California Plan: 2018 Update	Final	No	A CNRA conservation plan. 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
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. California red-legged frog is a target for conservation in the document within the GAI.	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
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
Special-Status Taxa <sup>a</sup> Documents	See below	See below	See below	See below	See below
Recovery Plan for the California Red- legged Frog	Final	Yes	FWS' recovery plan for the California red-legged frog. Goals center on reestablishing populations in priority zones that include Putah and Cache Creeks and Lake Berryessa tributaries. Includes a general goal to restore wetland habitat within priority zones. Recovery criteria include stabilizing existing populations throughout the known range, protecting suitable habitat, and ensuring population and habitat connectivity.	https://ecos.fws.gov/ecp/species/2891	5/28/2002
California Red-Legged Frog 5-Year Review	Updated periodically	Yes	FWS' most recent formal review of the condition of the California red-legged frog.	https://ecos.fws.gov/ecp/species/2891	12/16/2022
Critical Habitat Designation for California Red-Legged Frog	Updated periodically	No	<i>Federal Register</i> posting of critical habitat designation for California red-legged frog, which includes a portion of the GAI.	https://ecos.fws.gov/ecp/species/2891	3/17/2010
California Red-legged Frog Biological Opinions	Updated periodically	No	FWS' list of the 295 most recent biological opinions that have been issued for California red- legged frog, of which 38 were for projects within the GAI.	https://ecos.fws.gov/ecp/species/2891	7/17/2023 (most recent)
Revised Recovery Plan for Valley Elderberry Longhorn Beetle	Final	Yes	FWS' recovery plan for the valley elderberry longhorn beetle. The Putah Creek Management Unit for this species occurs within the GAI. Recovery criteria for this species to be delisted are complex and detailed in Table 1 of the recovery plan along with additional requirements found on pages 12 and 13 of the recovery plan.	https://ecos.fws.gov/ecp/species/7850	10/4/2019
Withdrawal of the Proposed Rule to Remove the Valley Elderberry Longhorn Beetle from the Federal List of Endangered and Threatened Wildlife	Final	No	FWS' publication in the <i>Federal Register</i> withdrawing the plan to de-list the species. Included in the withdrawal notification is FWS' most recent formal review of the species condition.	https://ecos.fws.gov/ecp/species/7850	9/17/2014
Critical Habitat Designation for Valley Elderberry Longhorn Beetle	Final	Yes	<i>Federal Register</i> posting of critical habitat designation for valley elderberry longhorn beetle, which is entirely outside the GAI.	https://ecos.fws.gov/ecp/species/7850	8/8/1980

Title	Status	Spatial Data	Reference Purpose	Link	Date
Valley Elderberry Longhorn Beetle Biological Opinions	Updated periodically	No	FWS' list of the 87 most recent biological opinions that have been issued for valley elderberry longhorn beetle, of which 21 were for projects within the GAI.	https://ecos.fws.gov/ecp/species/7850	2/28/2023 (most recent)
Species Status Assessment for the Clear Lake Hitch ( <i>Lavinia exilicauda chi</i> ) Version 1.0	Final	Yes	FWS' special status assessment of Clear Lake hitch. FWS determined that Clear Lake hitch did not warrant listing under FESA. The document identifies two reproducing populations within the GAI: Clear Lake and its tributaries as well as Thurston Lake and its tributary Thurston Creek.	https://ecos.fws.gov/ecp/species/9298	4/1/2020
Conservation Strategy for the Clear Lake Hitch	Final	Yes	Management plan for Clear Lake hitch. Management objectives include restoring gravel spawning beds in Kelsey Creek; restoring 1,650 acres of wetland and riparian habitat through the Middle Creek Project; and restoring wetland and riparian habitat in Middle, Manning, Kelsey, and Adobe Creeks, and Tule Lake.	https://www.lakecountyca.gov/1452/Listing	7/7/2022
A Status Review of Clear Lake Hitch	Final	Yes	CDFW's most recent formal review of the condition of Clear Lake hitch.	https://www.lakecountyca.gov/1452/Listing	5/20/2014
Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon	Final	Yes	FWS' recovery plan for 33 vernal pool species in California and Oregon, including 25 plants, 7 invertebrates, and 1 amphibian. 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://ecos.fws.gov/docs/recovery_plan/060614.p df	12/15/2005
State Land Management Plans	See below	See below	See below	See below	See below
General Planning Handbook for California State Parks	Final	Yes	California State Parks' guidelines for general plan development, which requires an inventory of known natural resources and general guidelines to comply with federal and state laws. State Park entities with information pertinent to Chapters 7 and 8 of this RAMNA are listed below.	http://www.parks.ca.gov/pages/21299/files/plannin g_handbook_april_2010.pdf	4/1/2010
Anderson Marsh State Historic Park General Plan	Final	No	California State Parks' land management plan for the park. Clear Lake hitch is known to occur within the park boundaries. Includes a general goal to restore habitats within the park and a specific goal to restore Molesworth Creek.	https://www.parks.ca.gov/?page_id=24353	1/1/1988
FWS Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	No FWS-managed lands are within the GAI.	Not applicable	Not applicable
U.S. Military Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	No active military facilities with a land management plan are within the GAI.	Not applicable	Not applicable
Native American Tribes – Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	Although the Middletown Rancheria, Robinson Rancheria Band, and Scotts Valley Band of Pomo Indians, as well as the Yocha Dehe Wintun Nation, ElemIndian Colony of Pomo Indians of the Sulphur Bank Rancheria, and Habematolel Pomo of Upper Lake occur within the GAI, these nations do not appear to have publicly available land management plans pertinent to this RAMNA.	Not applicable	Not applicable
Hopland Band of Pomo Indians Wetlands Program Plan	Final	Yes	Hopland Band of Pomo Indians' programmatic plan for monitoring and protecting wetlands on Hopland Reservation lands. Includes a general goal to restore riparian wetland, vernal pool, and seep meadow habitat.	https://www.epa.gov/sites/default/files/2015- 10/documents/hopland_wpp.pdf	3/15/2011

Title	Status	Spatial Data	Reference Purpose	Link	Date
Impacts of Climate Change on the Big Valley Band of Pomo Indians	Updated periodically	No	Big Valley Band of Pomo Indians' report on the impacts of climate change on the Band. Identifies Clear Lake hitch as a species of concern, and identifies Adobe and Kelsey Creeks as essential spawning habitat for Clear Lake hitch. Identifies tule wetlands as cultural and ecologically important habitats, and identifies water primrose as an invasive species that is negatively impacting this habitat around Clear Lake's shoreline.	https://www.bvrancheria.com/epa	1/1/2022
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/stnf/landmanageme nt/?cid=STELPRDB5411675	1/1/2013
Managing Sierra Nevada Forests	Final	No	USFS' published collection of papers summarizing the state of the science on topics relevant to this forest management approach, and presenting case studies of collaborative planning efforts and field implementation of these new practices.	https://pitmodoc.opennrm.org/docs/416	3/1/2012
Mendocino National Forest Land Management Plan	Final	Yes	Management plan to guide all resource management activities within the national forest.	https://www.fs.usda.gov/detailfull/mendocino/land management/planning/?cid=fsbdev3_004518&wid th=full	2/1/1995
BLM Land Management Plans	See below	See below	See below	See below	See below
Ukiah Resource Management Plan	Final	Yes	BLM's resource management plan for the Ukiah Field Office. It includes goals to restore riparian and wetland areas by eradicating nonnative vegetation on 272 miles of streams.	<u>https://eplanning.blm.gov/eplanning-</u> ui/project/79315/570	9/25/2006
National Park Service ("NPS") Land Management Plans	See below	See below	See below	See below	See below
Nationwide Rivers Inventory	Final	Yes	Listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic Rivers System. A segment of Cache Creek situated entirely within the GAI is listed in this inventory.	https://www.nps.gov/subjects/rivers/nationwide- rivers-inventory.htm	2/28/2022
Not applicable	Not applicable	Not applicable	No NPS lands occur within the GAI.	Not applicable	Not applicable
Local Government Land Management Plans	See below	See below	See below	See below	See below
Cache Creek Resources Management Plan for Lower Cache Creek	Updated periodically	Yes	Yolo County's plan for habitat management of Cache Creek from approximately river mile 12 to approximately river mile 30.5. Includes goals for the enhancement and restoration of Cache Creek.	https://www.yolocounty.org/government/general- government-departments/county- administrator/county-administrator- divisions/natural-resources/cache-creek-area- plan-ccap	7/23/2020 (last amended)
Lake County Land Trust Conservation Priority Plan	Updated periodically	No	Lake County Land Trust's plan for prioritizing conservation and restoration actions in Lake County. The plan was developed in concert with Lake County, the City of Clearlake, the RWQCB, CDFW, USFS, BLM, and the Middletown Rancheria.	http://www.lakecountylandtrust.org/conservation- priority-plan.html	11/1/2019

Title	Status	Spatial Data	Reference Purpose	Link	Date
Water Resources Plans and Documents	See below	See below	See below	See below	See below
Clear Lake Integrated Watershed Management Plan	Final	Yes	Lake County's management plan for Clear Lake and the immediate watersheds that feed into the lake. The watershed boundary for this plan generally refers to the Kelsey Creek-Clear Lake, Middle Creek, and Scotts Creek hydrologic unit code 10-digit regions ("HUC-10s") as well as the western portion of the Upper Cache Creek HUC-10. The plan includes several goals for aquatic habitat restoration.	https://www.lakecountyca.gov/1130/Clear-Lake- Integrated-Watershed-Manageme	2/1/2010
Sacramento Valley Integrated Regional Water Management Plan	Final	Yes	Northern California Water Associations' management plan for the Sacramento Valley. Within the GAI, the plan area consists of the portion of the GAI in Colusa County.	<u>https://norcalwater.org/efficient-water-</u> <u>management/efficient-water-management-</u> <u>regional-sustainability/regional-planning/irwmp/</u>	12/5/2006
Solano Subbasin Groundwater Sustainability Plan	Updated periodically	Yes	Solano Subbasin's Groundwater Sustainability Plan. Includes a variety of goals to improve groundwater supplies and to create temporary habitat for environmental water uses such as migratory shorebirds along the Pacific Flyway.	https://sgma.water.ca.gov/portal/gsp/preview/117	11/30/2021 (last amended)
Sustainable Groundwater Management Act Portal	Updated periodically	Yes	California Department of Water Resources' central website for information on groundwater sustainability agencies and groundwater sustainability plans available for download.	https://sgma.water.ca.gov/portal/	Updated nearly continuously
Westside Sacramento Integrated Regional Water Management Plan Update	Updated periodically	Yes	Regional water management groups' water management plan for the West Sacramento region. The regional water management group consists of the Lake County Watershed Protection District, Napa County Flood Control and Water Conservation District, Colusa County Resource Conservation District, Solano County Water Agency, and the Water Resource Association of Yolo County. Goals include improving the form and function of degraded natural channels, improving water quality, and eliminating New Zealand mud snails from Putah Creek.	https://www.westsideirwm.com/irwm-plan/	1/1/2019
County General Plans	See below	See below	See below	See below	See below
Colusa County General Plan	Updated periodically	No	General plan for Colusa County. Requires a buffer of indeterminate amount between development and riparian corridors, wetlands, and special-status species. Contains a land use designation of resource conservation.	https://www.countyofcolusa.org/137/General-Plan	6/30/2020 (last amended)
Lake County General Plan	Updated periodically	Yes	General plan for Lake County. Requires a buffer of indeterminate amount between development and significant watercourses, riparian vegetation, and wetlands. Contains a land use designation of resource conservation.	https://www.lakecountyca.gov/554/Lake-County- General-Plan	9/1/2008 (last amended)
Napa County General Plan	Updated periodically	No	General plan for Napa County. Requires setbacks of indeterminate amount from streams and buffers around riparian areas, ecologically sensitive areas, and habitat supporting special-status species.	https://www.countyofnapa.org/1760/General-Plan	12/16/2014 (last amended)
Solano County General Plan	Updated periodically	No	General plan for Solano County. Contains a land use designation of natural resource that contains marshlands and wetland habitats. Requires the following riparian buffers: for parcels more than 2 acres in size, a minimum 150-foot development setback shall be provided, for parcels of 0.5–2.0 acres, a minimum 50-foot setback shall be provided, and for parcels less than 0.5 acre, a minimum 20-foot setback shall be provided.	<u>https://www.solanocounty.com/depts/rm/planning/</u> general_plan.asp	8/11/2015 (last amended)
The County of Mendocino General Plan	Updated periodically	No	General plan for Mendocino County. Requires a 200-foot buffer to protect stream corridors and adjacent riparian habitat.	https://www.mendocinocounty.org/government/pla nning-building-services/plans/mendocino-county- general-plan	1/1/2020 (last amended)
2030 Countywide General Plan – County of Yolo	Updated periodically	No	General plan for Yolo County. Requires a buffer of indeterminate amount to protect the habitat value and biological function of oak woodlands, grasslands, riparian areas, vernal pools, and wetland habitats. Contains a land use designation for riverbed and riparian areas.	https://www.yolocounty.org/government/general- government-departments/county- administrator/general-plan/adopted-general-plan	10/1/2018 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
City General Plans	See below	See below	See below	See below	See below
City of Clearlake 2040 General Plan Update	Updated periodically	No	General plan for the City of Clearlake. Requires a buffer of indeterminate amount around sensitive resources, including floodplains, wetlands, and riparian buffer areas along stream channels. Contains a land use designation for Open Space.	https://clearlake.ca.us/314/General-Plan	1/10/2014 (last amended)
City of Davis General Plan	Updated periodically	No	General plan for the City of Davis. Requires a buffer of indeterminate amount around oak woodland, riparian woodland and scrub vegetation, drainages, vernal pools and swales, other wetlands, native grassland, special-status species populations, and elderberry shrubs. Contains a land use designation for Open Space.	https://www.cityofdavis.org/city-hall/community- development-and-sustainability/planning-and- zoning/general-plan	1/1/2007 (last amended)
City of Lakeport General Plan 2025	Updated periodically	No	General plan for the City of Lakeport. Requires a 3:1 replacement for any tree removed; and undergrowth revegetation. Heritage trees (trees that are at least 36 inches in diameter or any tree having significant historical or cultural importance to the community) shall be replaced at a 5:1 ratio. These ratios would also pertain to riparian trees and elderberry trees. Contains a land use designation for Open Space.	https://www.cityoflakeport.com/community_develo pment/_planning/general_plan.php	1/1/2015 (last amended)
City of West Sacramento General Plan 2035 Policy Document	Updated periodically	No	General plan for the City of West Sacramento. Requires a buffer of indeterminate amount around riparian corridors, wetlands, levees, and drainage canals. Contains land use designations for Sustainable Growth and Development and Open Space, Recreation, and Resource Lands.	https://www.cityofwestsacramento.org/governmen t/departments/community-development/planning- division/general-plan-2035	1/11/2016 (last amended)
City of Winters General Plan Policy Document	Updated periodically	No	General plan for the City of Winters. Contains land use designation for Open Space.	<u>https://www.cityofwinters.org/city-of-winters-</u> general-plan/	8/7/2018 (last amended)
General Plan Update 2035 City of Woodland General Plan	Updated periodically	No	General plan for the City of Woodland. Requires a buffer of indeterminate amount around alkali sinks, freshwater wetlands, freshwater marsh, riparian forest, and drainages. This plan calls out Willow Slough and Cache Creek as important aquatic features outside, and adjacent to, the document's planning area. Contains land use designations for Open Space for Conservation.	https://www.cityofwoodland.org/1000/Documents	5/16/2017 (last amended)
Other Conservation and Management Documents	See below	See below	See below	See below	See below
California EcoAtlas	Updated periodically (nearly daily)	Yes	Statewide database, managed by the San Francisco Estuary Institute, that tracks the extent and condition of wetlands in California.	https://www.ecoatlas.org/	Updated nearly daily
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/	5/1/2013
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 that is tracking wetland conditions statewide.	https://www.sccwrp.org/publications/	4/1/2015
Putah Creek Riparian Reserve Management Plan	Final	Yes	University of California Davis' management plan for university property located on and in the vicinity of Putah Creek within the GAI.	https://putahcreek.ucdavis.edu/sites/g/files/dgvnsk 1546/files/inline-files/putah-creek-mgmt-plan.pdf	8/1/2005

<sup>a</sup> 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; or state species of special concern.

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# 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 1.

# 4.1 SHOPP Advance Mitigation Credits

The 2016 SHOPP, with California Transportation Commission approval, released the first funds used to program Caltrans advance mitigation projects in several Caltrans Districts. The projects were programmed against the \$40 million reserve created in the 2016 SHOPP for advance mitigation project delivery. Thirteen pilot advance mitigation projects were programmed in the SHOPP, and their delivery is underway.

Within Caltrans District 1, the California Transportation Commission approved the establishment of a mitigation bank with the working title of "Mendocino Coast Mitigation Bank," to be delivered through the Request for Proposal and contracting process. Because this bank is currently pending, the contract has been awarded to the bank sponsor but the extent of its service area and other key information are not available. The Mendocino Coast Mitigation Bank is intended to supply credits for use for transportation-related projects to be delivered under Caltrans' SHOPP. Contracted credits are expected to be available starting in 2024 (first release) and to be complete within 7 to 8 years. Any credits created in excess of those required by Caltrans will be the property of the bank sponsor and could be purchased by Caltrans under normal transportation project credit purchase conditions. Available information on the Mendocino Coast Mitigation Bank is provided in Table 4-1.

Name	Year Approved	Signatoriesª	Area (acres)	Service Area	Credit Types
Mendocino Coast Mitigation Bank (working title)	In progress	Corps and others, to be determined <sup>b</sup>	To be determined	Within Mendocino County; service area to be determined	26.2 acres of three- parameter wetland credits and 12.2 acres of other WOTUS (non- wetland and non-riparian within the ordinary high- water mark). Additional credits if possible.

### Table 4-1. SHOPP Advance Mitigation Credits

<sup>a</sup> This signatory agency is also a signatory to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).

<sup>b</sup> The bank sponsor may also seek and receive approval from the SWRCB, RWQCB, FWS, NMFS, and EPA.

# 4.2 HCPs and NCCPs

HCPs<sup>1</sup> and NCCPs<sup>2</sup> define covered activities that consist of specific projects and actions that may have adverse effects on covered species and natural communities. FWS and/or CDFW estimate adverse effects associated with the covered activities and issue incidental take permits. Once the HCP, NCCP, or HCP/NCCP is adopted and the incidental take permit(s) are issued, signatories and participating special entities, where applicable, can request take authorization for project-related effects on covered species. Participation in an adopted HCP, NCCP, or HCP/NCCP streamlines permit processes by eliminating the need to obtain project-specific incidental take permits from FWS and/or CDFW, and by providing early documentation of compliance with the CESA and FESA.

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

Caltrans identified the following active and/or pending HCPs, NCCPs, and HCP/NCCPs within the GAI that apply to transportation-related activities, that Caltrans may be able to use to meet its compensatory mitigation needs, and that may offer Caltrans the opportunity to participate in pre-transfer mitigation purchases, as authorized in SHC § 800.6(a)(2):

• Yolo County HCP/NCCP

Figure 4-1 depicts the location of the above-listed HCP/NCCP. 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 within 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, covered activities that were not road infrastructure-related and could not be adapted to road infrastructure, or did not provide take coverage that would be usable for Caltrans projects.

<sup>&</sup>lt;sup>1</sup> Pursuant to Section 10 of the FESA or consultations under Section 7 of the FESA.

<sup>&</sup>lt;sup>2</sup> Pursuant to Section 2835 of the FGC.



Figure 4-1. HCPs and NCCPs within the GAI

Name	Signatories <sup>c</sup>	Date	Area (acres)	Participating Transportation Agencies	Covered Species	Covered Natural Communities
Yolo County HCP/ NCCP	FWS, CDFW	2019	654,723	Yolo County	Swainson's hawk, giant garter snake, valley elderberry longhorn beetle, and eight other wildlife and one plant species.	Cultivated lands, grassland, shrubland and scrub, woodland and forest, and riparian and wetlands

Table 4-2. Overview of HCPs and NCCPs within the GAI<sup>a,b</sup>

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

<sup>b</sup> This table lists HCPs and NCCPs that may be applied to Caltrans' mitigation needs.

<sup>c</sup> These signatory agencies are also signatories to the Master Process Agreement for Planning and Developing

Advance Mitigation Throughout California for the California Department of Transportation (Caltrans et al. 2020).

### 4.3 Conservation and Mitigation Banks

A conservation or mitigation bank is privately or publicly owned land managed for its natural resource values and can be for profit or nonprofit. 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 and sensitive habitats. The legal document for the establishment, operation, and use of a conservation or mitigation bank is a Bank Enabling Instrument ("BEI").

Caltrans identified 18 active or pending conservation and/or mitigation banks with service areas that overlap all or part of the GAI. Information on the agency approvals and the types of credits available are provided in Table 4-3. Several of these conservation and mitigation banks do not provide credits for the species of mitigation need identified in this RAMNA; however, credits for other listed species or habitats are available, as listed in Table 4-3. Figures showing conservation and mitigation bank service areas that are publicly available within the GAI are included in Appendix G, *Conservation and Mitigation Bank Service Areas*.

Several additional conservation and/or mitigation banks have service areas that are partially within the GAI but do not overlap any state highways within the GAI. These banks were omitted from Table 4-3 and Appendix G because they would not be usable by Caltrans for fulfilling mitigation requirements.

Name	Year Approved	Current Status	Signatories⁵	Bank Location (County) <sup>c</sup>	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Bullock Bend Mitigation Bank	2016	Active – credits available	FWS, CDFW, Corps, EPA, NMFS	Yolo	No	119.65	Swainson's hawk nesting buffer; Central Valley steelhead; Chinook salmon – Central Valley spring run, fall/late fall run, and winter run; riverine riparian; floodplain riparian
Burke Ranch Conservation Bank	2007	Active – credits available	FWS, CDFW	Solano	No	964.14	California tiger salamander, Swainson's hawk foraging habitat, burrowing owl foraging habitat, vernal pool preservation, playa pool preservation, playa wetlands preservation
Campbell Ranch Conservation Bank	2005	Active – credits available	FWS	Solano	No	160.00	Vernal pool fairy shrimp, vernal pool tadpole shrimp
Colusa Basin Mitigation Bank	2014	Active – credits available	FWS, CDFW, Corps, EPA	Colusa	Not available	162.78	Giant garter snake, seasonal wetland
Dolan Ranch Conservation Bank	1999	Active – credits available	FWS, CDFW	Colusa	No	252.00	Swainson's hawk, burrowing owl, vernal pool tadpole shrimp, vernal pool fairy shrimp, vernal pool creation, vernal pool preservation—giant garter snake credits sold out

# Table 4-3. Overview of Conservation and Mitigation Banks within the GAI<sup>a</sup>

Name	Year Approved	Current Status	Signatories <sup>b</sup>	Bank Location (County) <sup>c</sup>	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Elsie Gridley Mitigation Bank	2006	Active – credits available	FWS, CDFW, Corps	Solano	No	1,815.00	Swainson's hawk foraging habitat, valley elderberry longhorn beetle, California tiger salamander upland, burrowing owl foraging habitat, tricolored blackbird, northern harrier, vernal pool fairy shrimp, vernal pool tadpole shrimp, vernal pools, vernal pool creation, perennial wetlands, seasonal wetland creation, freshwater emergent marsh – riparian wetlands (sold out)
Goldfields Conservation Bank	2008	Active – credits available	FWS	Solano	No	152.00	Vernal pool tadpole shrimp, Contra Costa goldfields
Muzzy Ranch Conservation Bank	2008	Active – credits available	FWS, CDFW	Solano	No	1,391.00	Swainson's hawk and other raptor foraging habitat, California tiger salamander, burrowing owl nesting and foraging habitat, vernal pool branchiopods, Delta green ground beetle (anticipated), San Joaquin Valley Orcutt grass
Noonan Ranch Conservation Bank	2009	Active – credits available	FWS	Solano	No	189.00	California tiger salamander, vernal pool fairy shrimp, Contra Costa goldfields, riparian preservation
North Bay Highlands Conservation Bank	2014	Active – credits available	FWS	Marin	No	609.00	California red-legged frog
Name	Year Approved	Current Status	Signatories <sup>b</sup>	Bank Location (County) <sup>c</sup>	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
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North Suisun Mitigation Bank	2008	Active – credits available	FWS, CDFW, Corps, EPA	Solano	No	627.00	California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, San Joaquin Valley Orcutt grass, Contra Costa goldfields, vernal pool creation (sold out)
Ohlone West Conservation Bank	2016	Active – credits available	FWS, CDFW	Alameda	Not available	640.00	California red-legged frog, Alameda whipsnake, California tiger salamander, Callippe silverspot butterfly
Oursan Ridge Conservation Bank	2017	Active – credits available	FWS, CDFW	Contra Costa	No	430.00	California red-legged frog, Alameda whipsnake
Ridge Cut Giant Garter Snake Conservation Bank	2010	Active – credits available	FWS	Yolo	No	186.00	Giant garter snake
Ridge Top Ranch Wildlife Conservation Bank	2014	Active – credits available	FWS	Solano	No	745.00	California red-legged frog, Callippe silverspot butterfly
River Ranch Wetlands Mitigation Bank	2010	Active – credits available	CDFW, Corps, EPA	Yolo	No	114.00	Wetland/WOTUS, riparian
Seigler Valley Wetland Mitigation Bank	2015	Active – credits available	Corps	Lake	No	36.10	Freshwater wet meadow, forested wetland, freshwater emergent marsh

Name	Year Approved	Current Status	Signatories <sup>b</sup>	Bank Location (County) <sup>c</sup>	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Stillwater Plains Mitigation Bank	2000	Active – credits available	FWS, CDFW, Corps, EPA	Shasta	No	834.00	Boggs Lake hedge-hyssop, vernal pool creation, vernal pool preservation, vernal swale, emergent marsh, constructed channel, intermittent drainage, ephemeral drainage, riparian scrub, oak woodland, valley elderberry longhorn beetle (sold out)

<sup>a</sup> Up-to-date information on approved conservation and mitigation banks, including available credits, can be found at the following websites: <u>https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks;</u> <u>https://ribits.ops.usace.army.mil/ords/f?p=107:2</u>

<sup>b</sup> These signatory agencies are also signatories to the Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation (Caltrans et al. 2020).

<sup>c</sup> Bank service area boundaries may extend well outside of the county where the bank itself is located. See Appendix G.

# 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. However, when the instrument allows for pre-transfer credit purchases, credits can be purchased prior to permitted impacts.

One active in-lieu fee program has a service area that overlaps the GAI: the National Fish and Wildlife Foundation ("NFWF") Sacramento District California In-Lieu Fee Program. This program covers aquatic resources and vernal pools, and has multiple service areas in these two categories divided primarily by watershed. The GAI overlaps with four separate service areas (one aquatic resource and three vernal pool service areas) (Table 4-4; Figure 4-2). The Sacramento District California In-Lieu Fee Program's instrument has been amended to include pre-transfer credit purchases.

Name	Year Approved	Signatories <sup>b</sup>	Instrument Includes Pre- transfer Credit Purchases?	Location	Credit Types
Sacramento District California In-Lieu Fee Program	2014	Corps, EPA, NMFS, RWQCB, NFWF	Yes	Corps Sacramento District Boundary (entire)	<ul> <li>Cache-Putah aquatic resources</li> <li>Lake-Napa vernal pools</li> <li>Solano-Colusa vernal pools</li> <li>All other vernal pools</li> </ul>

Table 4-4. Overview	of In-lieu Fee	Programs	within the GAI <sup>a</sup>
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<sup>a</sup> Up-to-date information on approved in-lieu fee programs, including available credits, can be found at: <u>https://ribits.ops.usace.army.mil/ords/f?p=107:47:13453394859366::NO</u>

<sup>b</sup> All agencies other than NFWF are also 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 4-2. In-lieu Fee Programs within the GAI

# 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 within their areas, including investments performed for compensatory mitigation. To promote the conservation quality of compensatory mitigation investments, the RCIS Program provides an advance mitigation tool that can be applied to resources subject to regulations implemented by CDFW. MCAs are developed when and where an RCIS is approved by CDFW and contains the elements described in FGC 1856(b). Then, with respect to the SHS, a useful MCA would create credits that may be used as compensatory mitigation to offset impacts identified under the CESA and Lake and Streambed Alteration Program.

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

### 4.5.1. RCISs

Caltrans identified the following CDFW-approved RCIS, with a service area that overlaps the GAI (Figure 4-3):

• Yolo RCIS/Local Conservation Plan ("LCP")

### Yolo RCIS/Local Conservation Plan

The Yolo RCIS/LCP was finalized in October 2020 (ICF 2020). The Yolo Habitat Conservancy and California Department of Water Resources are the proponents. The RCIS covers the entirety of Yolo County, totaling 653,549 acres, and overlaps the eastern part of the GAI. The document contains both an RCIS and LCP, which overlap significantly but retain certain elements that are distinct from one another. The RCIS portion of the document addresses 41 focal species (8 plants and 32 animals), while the LCP portion addresses those same 41 species plus an additional 102 species (47 plants and 55 animals) as either "Group 2 Conservation Species" or "Group 3 Conservation Species." The RCIS also identifies Other Conservation Elements, which are defined as elements that will benefit from conservation actions and habitat enhancement actions set forth in the RCIS. One of the identified Other Conservation Elements is ""Riparian, Wetland, and Rivers and Streams," which may become eligible for mitigation credits under an MCA.



Figure 4-3. RCIS Areas within the GAI

The following RCIS focal species is also a species of mitigation need in this RAMNA: valley elderberry longhorn beetle. Conservation goals for valley elderberry longhorn beetle generally include identifying and protecting occupied habitat and establishing elderberry host plants, where possible. Several active and proposed transportation projects, including STIP and SHOPP projects, are identified and accounted for in the RCIS (ICF 2020). The Yolo RCIS/LCP overlaps exactly with the Yolo HCP/NCCP, since both documents cover Yolo County in its entirety.

## 4.5.2. Mitigation Credit Agreements

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

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

# 4.6 Wildlife Crossing and Aquatic Corridor Enhancements

In 2022, FGC § 1955 et seq. authorized CDFW to approve compensatory mitigation credits for a "wildlife connectivity action" through its banking or RCIS programs. Therefore, when wildlife crossings and aquatic corridor enhancements improve the permeability of the SHS, through a BEI or MCA developed under an RCIS, CDFW is authorized to recognize CESA and Lake and Streambed Alteration credits for construction made separate and distinct from a specific transportation project. Connectivity information for the GAI is summarized in Section 2.10.

<sup>&</sup>lt;sup>3</sup> <u>https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation</u>

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# 5. MODELED ESTIMATED IMPACTS

In this chapter, Caltrans documents the potential compensatory mitigation needs in the GAI for fiscal years 2021/22 to 2030/31. Needs were based on estimated potential compensatory mitigation requirements of Caltrans' anticipated SHOPP transportation projects as well as regional and local STIP-eligible transportation projects, as appropriate. Because the assessment is intended to inform advance mitigation project scoping, the impact estimates used to forecast compensatory mitigation needs do not distinguish between permanent or temporary impacts. Actual transportation project impacts, and natural resource regulatory agency compensatory mitigation conditions on transportation projects, will be determined in the future through each transportation project's environmental studies and permits.

In this chapter, Caltrans:

- Describes its approach to, and major assumptions when, estimating transportation-related compensatory mitigation needs within the GAI; and
- Provides its estimate of impacts for the 10-year planning period for aquatic resources, riparian habitat, and species of mitigation need.

Because Caltrans District 1 chose to focus the analysis on terrestrial resources (Section 1.5), the results presented below are organized by the Central California Coast, Great Valley, Northern California Coast, Northern California Coast Ranges, and Northern California Interior Coast Ranges ecoregions within Districts 1, 3, and 4, which is also the GAI.

# 5.1 Approach

Transportation projects eligible to use AMA-funded advance mitigation credits may only be SHOPP or STIP transportation projects (SHC § 800.7; Caltrans 2019a). Therefore, the compensatory mitigation needs for aquatic resources and wildlife within 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.
- STIP-eligible needs are assessed qualitatively, through Caltrans District 1, 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: SAMNA Model Results

SHOPP impacts were forecast through the SAMNA. The SAMNA consists of an intersection of assumed transportation project footprints with natural resource layers

developed for the SAMNA. As briefly described in Section 1.4, more detailed SAMNA information is provided in the *Advanced Mitigation Needs Assessment GIS Tool Report for California Department of Transportation* (Caltrans 2018).

To identify the list of SHOPP projects planned for the GAI, Caltrans consulted the SHOPP Ten-Year Book for fiscal years 2021/22 to 2030/31 (Caltrans 2023a). The intent of the SHOPP Ten-Year Book is to raise awareness of planned future transportation projects; however, detailed transportation project information is not provided. The SHOPP Ten-Year Book includes 15 SHOPP transportation projects within the GAI that are currently in the planning and conceptual phases (Appendix B). The general locations of all 15 planned transportation projects are shown on most of the maps in this document.

SAMNA estimates are not precise and are not intended to be used for transportation project permitting; however, they are suitable for informing advance mitigation project scopes. The AMP developed the SAMNA strictly and specifically for Caltrans' use in advance mitigation planning—that is, when Caltrans is justifying, proposing, and scoping advance mitigation projects (Caltrans 2019a, 2023a). The SAMNA model, its foundation, and assumptions are described in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2023c), and some of its uncertainties are highlighted in Appendix D, *Complete SAMNA Species Results*. All results are provided in acres. Some species and resources are not forecast to be affected.

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

### 5.1.2. Non-SHOPP STIP-eligible Needs Assessment

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

Obtaining a reliable list of STIP transportation projects within the 10-year planning horizon is problematic. It is never known which transportation projects will be funded through the STIP until the funds are voted on by the California Transportation Commission, at which point the transportation projects are well past their planning and conceptualization phases and entering their delivery phases. Because of this timing, funded STIP projects will likely need compensatory mitigation before the AMP can deliver the needed mitigation. AMP planning, therefore, must glean a list of transportation projects from the broader set of non-SHOPP transportation projects. Additionally, the STIP is currently receiving very little funding in favor of the "fix-it-first" philosophy of the Road Repair and Accountability Act of 2017, although a backlog exists of transportation projects that potentially need these funds.

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<sup>1</sup> regional transportation plan, with a Ready to List<sup>2</sup> year identified as occurring in the 10-year planning horizon. The list would be further refined through consultation with the Caltrans Districts and their regional and local transportation partners (see Section 1.7.1 for the consultation summary). However, no planned STIP-eligible transportation projects were identified within the GAI for fiscal years 2021/22 to 2030/31.

### Non-SHOPP STIP-eligible Potential Impacts

Because no planned STIP-eligible transportation projects were identified within the GAI for fiscal years 2021/22 to 2030/31, no STIP-eligible related impacts or mitigation needs are anticipated.

# 5.2 Estimated Aquatic Resources Impacts

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

Below, estimated aquatic resource impacts are presented for the HUC-8 sub-basins that make up the GAI. Aquatic resource impacts are categorized as potential impacts on threatened and endangered fish, wetlands, and non-wetland waters. Riparian habitat is also discussed. Refer to Appendix F, *Aquatic Resource Locations*, for maps depicting the location and extent of wetlands and non-wetland waters within the GAI. Riparian habitat is a land cover type mapped in Appendix C, *Land Cover Types*.

### 5.2.1. Estimated Impacts on Threatened and Endangered Fish Habitat

One threatened and endangered fish species has the potential to be affected during the planning period. This species, the state threatened Clear Lake hitch, was identified as a species of mitigation need. Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated (Section 1.5). This aquatic species of mitigation need is discussed briefly in the subsection below.

Using the methods described in Section 5.1.1, impacts on threatened and endangered fish habitat were estimated for the 15 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 15 SHOPP transportation projects evaluated, 6 are forecast to affect approximately

<sup>&</sup>lt;sup>1</sup> Transportation project funding is reasonably assured.

<sup>&</sup>lt;sup>2</sup> 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.

2 acres of threatened and endangered fish habitat within the GAI (Table 5-1; Caltrans 2023b, 2023f).

Sub-basin (HUC-8)	Sub-basin Number	# of Transportation Projects <sup>b</sup>	Clear Lake Hitch (acres)	Total (acres)
Upper Cache	18020116	6	1.9	1.9
Upper Putah	18020162	0	0.0	0.0
Тс	otal Not applicable	6	1.9	1.9

# Table 5-1. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat within the GAI<sup>a</sup>

Source: Caltrans 2023b, 2023f

<sup>a</sup> Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.

<sup>b</sup> Transportation projects are listed in Appendix B.

#### Clear Lake Hitch

Using the methods described in Section 5.1.1, impacts on Clear Lake hitch and its habitat were estimated for the transportation projects that may affect threatened and endangered fish (Appendix B). The SAMNA estimated that 1.9 acres of Clear Lake hitch habitat may be affected by 6 Caltrans SHOPP projects within the GAI (Table 5-1; Caltrans 2023b, 2023f).

#### 5.2.2. Estimated Impacts on Wetlands

Using the methods described in Section 5.1.1, impacts on wetlands were estimated for the 15 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 15 SHOPP transportation projects evaluated, 5 would result in impacts on 0.1 acre of wetland habitat within the GAI, including less than 0.1 acre of freshwater emergent wetland, 0.1 acre of freshwater forested/shrub wetland, and less than 0.1 acre of freshwater pond (Table 5-2; Caltrans 2023b, 2023g).

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects <sup>a</sup>	Freshwater Emergent Wetland (acres)	Freshwater Forested/ Shrub Wetland (acres)	Freshwater Pond (acres)	Total (acres) <sup>b</sup>
Upper Cache	18020116	2	<0.1	<0.1	<0.1	0.1
Upper Putah	18020162	3	<0.1	0.1	<0.1	0.1
Total <sup>b,c</sup>	Not applicable	5	<0.1	0.1	<0.1	0.1

Table 5-2. Summary of Estimated SHOPP Impacts on Wetlands within the GAI

Source: Caltrans 2023b, 2023g

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Totals may be different due to rounding.

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

Note the SAMNA's terrestrial habitat layers include wetland types (for example, freshwater emergent wetland and freshwater forested/shrub wetland, as shown in Table 2-3). However, wetland forecasts based on the SAMNA's wetland layer are considered more accurate than wetland habitat forecasts based on the SAMNA's terrestrial habitat layers. Therefore, the wetland estimates above are based solely on the SAMNA's wetland data layer (Caltrans 2023b, 2023g).

#### 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 15 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 15 SHOPP transportation projects evaluated, 10 would result in impacts on 2.4 acres of non-wetland waters within the GAI, including 0.3 acre of lake/pond habitat and 2.2 acres of stream/river habitat (Table 5-3; Caltrans 2023b, 2023h).

Table 5-3. Summary of Estimated SHOPP Impacts on Non-w	etland Waters within
the GAI	

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects <sup>a</sup>	Lake/Pond (acres)	Stream/River (acres)	Total (acres) <sup>b</sup>
Upper Cache	18020116	6	0.3	1.6	1.8
Upper Putah	18020162	5	<0.1	0.6	0.6
Total <sup>b,c</sup>	Not applicable	10	0.3	2.2	2.4

Source: Caltrans 2023b, 2023h

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Totals may be different due to rounding.

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

0.2

0.2

#### 5.2.1. Estimated Impacts on Vernal Pools

The SAMNA does not directly estimate vernal pool impacts, but these impacts can be estimated by proxy using the SAMNA vernal pool crustacean habitat impact forecast from the SAMNA's terrestrial layer. Available vernal pool location information is shown on Figure 2-16. Of the 15 SHOPP transportation projects evaluated, 1 would result in impacts on 0.2 acre of vernal pool fairy shrimp habitat within the GAI (Table 5-4; Caltrans 2023b).

within the GAI <sup>a,b</sup>							
Sub-basin (HUC-8)°	Sub-basin Number	Number of Transportation Projects	Vernal Pool Fairy Shrimp (acres)	Total (acres)			
Upper Cache	18020116	0	0.0	0.0			

0.2

0.2

Table 5-4. Summary of Estimated SHOPP Project Impacts on Vernal Pool Habitat within the GAI<sup>a,b</sup>

Source: Caltrans 2023b

Total

Upper Putah

<sup>a</sup> As described in Chapter 2, the SAMNA maps vernal pool habitat based on California Natural Diversity Database occurrences of vernal pool invertebrate species and a 4-mile buffer.

<sup>b</sup> See Appendix D for forecast impacts on all special-status species, including vernal pool plant special-status species.

1

1

<sup>c</sup> The SAMNA forecasts impacts for only 1 of the 2 HUC-8s within the GAI.

18020162

Not applicable

#### 5.2.2. Estimated Impacts on Riparian Habitat

The SAMNA does not directly estimate riparian impacts through its aquatic resource layers, but riparian impacts can be estimated by proxy using the SAMNA desert riparian, montane riparian, and valley foothill riparian forecast from the SAMNA's terrestrial layer. No impacts on desert riparian or valley foothill riparian habitat were forecast. Adapting the methods described in Section 5.1.1, impacts on riparian habitat were estimated for the 15 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 15 SHOPP transportation projects evaluated, 6 SHOPP transportation projects are forecast to affect 1.7 acres of riparian habitat within the GAI, all of which consists of montane riparian habitat (Table 5-5; Caltrans 2023b, 2023e).

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects <sup>a</sup>	Montane Riparian (acres)	Total (acres)
Upper Cache	18020116	1	<0.1	<0.1
Upper Putah	18020162	5	1.7	1.7
Total	Not applicable	6	1.7	1.7

 Table 5-5. Summary of Estimated SHOPP Impacts on Riparian Habitat within the

 GAI

Source: Caltrans 2023b, 2023e

<sup>a</sup> Transportation projects are listed in Appendix B.

# 5.3 Estimated Wildlife Impacts

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

Below, estimated impacts are presented for the ecoregion sections that overlap the GAI for species of mitigation need identified by Caltrans District 1, as well as for species that may co-occur within their habitats. The complete results of the SAMNA—inclusive of the 15 transportation projects planned within the GAI and listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, that may affect special-status plant and wildlife species—are provided in Appendix D, *Complete SAMNA Species Results*.

The special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern (Caltrans 2023c). Based on a search of the species-attributed vegetation layer, 70 non-fish special-status terrestrial species have the potential to occur within the GAI (Section 2.7, Appendix D; Caltrans 2023b). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 13 SHOPP transportation projects could potentially affect 48.1 acres across 16 habitat types, which could support up to 55 special-status species (Table 5-6).

Ecoregion Section	Number of Caltrans SHOPP Projects <sup>a</sup>	Number of Habitats <sup>b</sup>	Special-status Species <sup>c,d</sup>	Estimated Total Habitat Impact (acres)
Great Valley	1	2	42	0.1
Northern California Coast Ranges	10	16	46	42.3
Northern California Interior Coast Ranges	5	8	48	5.7
Total <sup>e</sup>	13	16	55	48.1

# Table 5-6. Summary of Estimated SHOPP Impacts on Special-status SpeciesHabitat within the GAI

Source: Caltrans 2023b

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Excludes urban.

<sup>c</sup> 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.

<sup>d</sup> Included in the SAMNA. See SAMNA report (Caltrans 2023c).

<sup>e</sup> Totals may not reflect numbers presented in the rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Caltrans identified species of mitigation need from the suite of special-status species anticipated to inhabit the GAI. Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated (Section 1.5). The species of mitigation need identified in Section 1.5, California red-legged frog and valley elderberry longhorn beetle, were included in the analysis, and each is discussed briefly in the subsections below.

#### 5.3.1. California Red-Legged frog

Using the methods described in Section 5.1.1, impacts on California red-legged frog were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 15 SHOPP transportation projects evaluated, 10 are forecast to affect 37.6 acres of California red-legged frog habitat within the GAI (Table 5-7; Caltrans 2023b).

Ecoregion Section	California Red- Legged Frog: Number of Caltrans SHOPP Projects <sup>a</sup>	California Red- Legged Frog: Estimated Habitat Impact (acres)	Valley Elderberry Longhorn Beetle: Number of Caltrans SHOPP Projects <sup>a</sup>	Valley Elderberry Longhorn Beetle: Estimated Habitat Impact (acres)	Total (acres)
Great Valley	1	0.1	1	0.1	0.1
Northern California Coast Ranges	7	32.0	1	0.1	32.0
Northern California Interior Coast Ranges	5	5.5	3	1.1	5.5
Total <sup>b</sup>	10	37.6	3	1.2	37.6

Table 5-7. Summary of Estimated SHOPP Impacts on Terrestri	al Species of
Mitigation Need within the GAI	

Source: Caltrans 2023b

<sup>a</sup> Transportation projects are listed in Appendix B.

<sup>b</sup> Totals may not reflect numbers presented in the rows above. Some SHOPP transportation projects cross more than one ecoregion section.

## 5.3.2. Valley Elderberry Longhorn Beetle

Using the methods described in Section 5.1.1, impacts on valley elderberry longhorn beetle were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 15 SHOPP transportation projects evaluated, 3 are forecast to affect 1.2 acres of valley elderberry longhorn beetle habitat within the GAI (Table 5-7; Caltrans 2023b).

### 5.3.3. Potential Co-benefiting Species

The species of mitigation need co-occur with other protected plant, invertebrate, amphibian, reptile, bird, and mammal species. By procuring or establishing advance mitigation credits for one or more of the species of mitigation need, Caltrans District 1 will also benefit multiple special-status species that occur and use the same habitats.

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

- an additional 40 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Great Valley Ecoregion Section (Table 5-8),
- an additional 43 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Northern California Coast Ranges Ecoregion Section (Table 5-9), and
- an additional 46 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Northern California Coast Interior Ranges Ecoregion Section (Table 5-10).

# Table 5-8. Estimated SHOPP Impacts on Species of Mitigation Need and Cooccurring Species Habitat: Great Valley Ecoregion Section

Common Name	Species Name	Status	Annual Grassland (acres)	Montane Riparian (acres)
Not applicable	Not applicable	Total	<0.1	0.1
Species of Mitigation Need	See below	See below	See below	See below
California red-legged frog	Rana draytonii	FT, SSC	<0.1	0.1
Valley elderberry longhorn beetle	Desmocerus californicus dimorphus	FT	0.0	0.1
Plants	See below	See below	See below	See below
Boggs Lake hedge- hyssop	Gratiola heterosepala	FS, SE	<0.1	0.0
Burke's goldfields	Lasthenia burkei	FE, SE	<0.1	0.0
Calistoga popcornflower	Plagiobothrys strictus	FE, ST	<0.1	0.0
Clara Hunt's milk- vetch	Astragalus claranus	FE, SE	<0.1	0.0
Few-flowered navarretia	Navarretia leucocephala ssp. pauciflora	FE, FS, ST	<0.1	0.0
Geysers panicum	Panicum acuminatum var. thermale	SE	<0.1	0.1
Indian Valley brodiaea	Brodiaea rosea	FS, SE	<0.1	0.0
Keck's checkerbloom	Sidalcea keckii	FE	<0.1	0.0
Lake County stonecrop	Sedella leiocarpa	FE, SE	<0.1	0.0
Lake County western flax	Hesperolinon didymocarpum	SE	<0.1	0.0
Loch Lomond button- celery	Eryngium constancei	FE, SE	<0.1	0.0
Many-flowered navarretia	Navarretia leucocephala ssp. plieantha	FE, SE	<0.1	0.0
Slender Orcutt grass	Orcuttia tenuis	FT, SE	<0.1	0.0
Two-fork clover	Trifolium amoenum	FE	<0.1	0.0

Common Name	Species Name	Status	Annual Grassland (acres)	Montane Riparian (acres)
Invertebrates	See below	See below	See below	See below
Vernal pool fairy shrimp	Branchinecta lynchi	FT	<0.1	0.0
Amphibians	See below	See below	See below	See below
California tiger salamander	Ambystoma californiense	FE, FT, ST	<0.1	0.0
Western spadefoot	Spea hammondii	FS, SSC	<0.1	0.0
Reptiles	See below	See below	See below	See below
Blainville's horned lizard	Phrynosoma blainvillii	FS, SSC	<0.1	0.0
Birds	See below	See below	See below	See below
Bald eagle	Haliaeetus leucocephalus	FS, SE, SFP, SFS	<0.1	0.1
Burrowing owl	Athene cunicularia	FS, SSC	<0.1	0.0
Golden eagle	Aquila chrysaetos	FS, SFS, SFP	<0.1	0.1
Grasshopper sparrow	Ammodramus savannarum	SSC	<0.1	0.0
Greater white-fronted goose	Anser albifrons	SSC	<0.1	0.0
Loggerhead shrike	Lanius Iudovicianus	SE, SSC	<0.1	0.1
Modesto song sparrow	Melospiza melodia mailliardi	SSC	<0.1	0.1
Northern harrier	Circus cyaneus	SSC	<0.1	0.1
Osprey	Pandion haliaetus	FS	<0.1	0.1
Peregrine falcon	Falco peregrinus	SFS, SFP	<0.1	0.1
Short-eared owl	Asio flammeus	SSC	<0.1	0.1
Tricolored blackbird	Agelaius tricolor	FS, ST, SSC	<0.1	0.0
Vesper sparrow	Pooecetes gramineus	SSC	<0.1	0.0
White-tailed kite	Elanus leucurus	FS, SFP	<0.1	0.0
Yellow-headed blackbird	Xanthocephalus xanthocephalus	SSC	<0.1	0.0

Common Name	Species Name	Status	Annual Grassland (acres)	Montane Riparian (acres)
Mammals	See below	See below	See below	See below
American badger	Taxidea taxus	SSC	<0.1	0.1
Fringed myotis	Myotis thysanodes	FS	<0.1	0.0
Pallid bat	Antrozous pallidus	FS, SSC	<0.1	0.1
San Joaquin pocket mouse	Perognathus inornatus	FS	<0.1	0.0
Townsend's big-eared bat	Corynorhinus townsendii	FS, SSC	<0.1	0.1
Western red bat	Lasiurus blossevillii	SSC	<0.1	0.1
Yuma myotis	Myotis yumanensis	FS	<0.1	0.1

Source: Caltrans 2023b

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

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Blue Oak- Foothill Pine (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Hardwood- Conifer (acres)	Montane Riparian (acres)	Ponderosa Pine (acres)	Valley Oak Woodland (acres)	Wet Meadow (acres)
Not applicable	Not applicable	Total	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below	See below
California red-legged frog	Rana draytonii	FT, SSC	4.8	13.0	6.9	0.1	1.2	1.9	0.2	0.6	2.0	1.2	<0.1
Valley elderberry longhorn beetle	Desmocerus californicus dimorphus	FT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
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
Boggs Lake hedge- hyssop	Gratiola heterosepala	FS, SE	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
Burke's goldfields	Lasthenia burkei	FE, SE	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calistoga popcornflower	Plagiobothrys strictus	FE, ST	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
Clara Hunt's milk- vetch	Astragalus claranus	FE, SE	4.9	0.0	0.0	0.0	5.7	2.3	0.0	0.0	0.0	0.0	0.0
Few-flowered navarretia	Navarretia leucocephala ssp. pauciflora	FE, FS, ST	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geysers panicum	Panicum acuminatum var. thermale	SE	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Indian Valley brodiaea	Brodiaea rosea	FS, SE	4.9	0.0	0.0	0.0	5.7	2.3	0.0	0.0	0.0	0.0	0.0
Keck's checkerbloom	Sidalcea keckii	FE	4.9	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0
Lake County stonecrop	Sedella leiocarpa	FE, SE	4.9	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0
Lake County western flax	Hesperolinon didymocarpum	SE	4.9	0.0	0.0	0.0	5.7	2.3	0.0	0.0	0.0	0.0	0.0
Loch Lomond button- celery	Eryngium constancei	FE, SE	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Many-flowered navarretia	Navarretia leucocephala ssp. plieantha	FE, SE	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North Coast semaphore grass	Pleuropogon hooverianus	ST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
Slender Orcutt grass	Orcuttia tenuis	FT, SE	4.9	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	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

# Table 5-9. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Northern California Coast Ranges Ecoregion Section

# State of California DEPARTMENT OF TRANSPORTATION

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Blue Oak- Foothill Pine (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Hardwood- Conifer (acres)	Montane Riparian (acres)	Ponderosa Pine (acres)	Valley Oak Woodland (acres)	Wet Meadow (acres)
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
Foothill yellow-legged frog	Rana boylii	FCE, FCT, FS, SE, ST, SSC	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
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
Bald eagle	Haliaeetus leucocephalus	FS, SE, SFP, SFS	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Burrowing owl	Athene cunicularia	FS, SSC	1.7	0.4	0.6	0.0	4.5	0.0	0.0	0.0	0.0	0.0	<0.1
Golden eagle	Aquila chrysaetos	FS, SFS, SFP	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Grasshopper sparrow	Ammodramus savannarum	SSC	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
Least bittern	Ixobrychus exilis	SSC	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loggerhead shrike	Lanius ludovicianus	SE, SSC	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Long-eared owl	Asio otus	SSC	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Northern harrier	Circus cyaneus	SSC	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Northern spotted owl	Strix occidentalis caurina	FT, ST, SFS	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0
Olive-sided flycatcher	Contopus cooperi	SSC	0.0	0.0	6.8	0.0	5.5	2.2	0.2	0.6	2.0	0.0	0.0
Osprey	Pandion haliaetus	FS	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Peregrine falcon	Falco peregrinus	SFS, SFP	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Purple martin	Progne subis	SSC	4.9	13.1	6.9	0.3	0.0	2.3	0.2	0.6	2.0	1.2	<0.1
Spotted owl	Strix occidentalis	FT, FS, ST, SFS, SSC	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0
Tricolored blackbird	Agelaius tricolor	FS, ST, SSC	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1
Vaux's swift	Chaetura vauxi	SSC	0.0	0.0	<0.1	0.1	4.3	0.4	0.0	0.0	0.0	0.0	0.0
White-tailed kite	Elanus leucurus	FS, SFP	4.9	13.1	6.9	0.0	5.7	0.0	0.0	0.0	0.0	1.2	<0.1
Yellow warbler	Setophaga petechia	SSC	0.0	13.0	6.9	0.0	5.6	2.0	0.2	<0.1	2.0	1.2	0.0
Yellow-breasted chat	Icteria virens	SSC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0
Yellow-headed blackbird	Xanthocephalus xanthocephalus	SSC	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Blue Oak- Foothill Pine (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Hardwood- Conifer (acres)	Montane Riparian (acres)	Ponderosa Pine (acres)	Valley Oak Woodland (acres)	Wet Meadow (acres)
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
American badger	Taxidea taxus	SSC	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Fringed myotis	Myotis thysanodes	FS	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	0.0
Long-eared myotis	Myotis evotis	FS	0.0	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Pallid bat	Antrozous pallidus	FS, SSC	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Townsend's big-eared bat	Corynorhinus townsendii	FS, SSC	4.9	13.1	6.9	0.0	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Western red bat	Lasiurus blossevillii	SSC	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1
Yuma myotis	Myotis yumanensis	FS	4.9	13.1	6.9	0.3	5.7	2.3	0.2	0.6	2.0	1.2	<0.1

Source: Caltrans 2023b

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

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#### State of California DEPARTMENT OF TRANSPORTATION

# Table 5-10. Estimated SHOPP Impacts on Species of Mitigation Need and Co-occurring Species Habitat: Northern California Interior Coast Ranges Ecoregion Section

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Riparian (acres)	Valley Oak Woodland (acres)
Not applicable	Not applicable	Total	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below	See below
California red-legged frog	Rana draytonii	FT, SSC	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Valley elderberry longhorn beetle	Desmocerus californicus dimorphus	FT	0.0	0.0	0.0	0.0	0.0	1.1	0.0
Plants	See below	See below	See below	See below	See below	See below	See below	See below	See below
Boggs Lake hedge- hyssop	Gratiola heterosepala	FS, SE	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Burke's goldfields	Lasthenia burkei	FE, SE	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Calistoga popcornflower	Plagiobothrys strictus	FE, ST	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Clara Hunt's milk- vetch	Astragalus claranus	FE, SE	1.8	0.0	0.0	0.4	0.5	0.0	0.0
Few-flowered navarretia	Navarretia leucocephala ssp. pauciflora	FE, FS, ST	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Geysers panicum	Panicum acuminatum var. thermale	SE	1.8	0.0	0.0	0.0	0.0	1.1	0.0
Indian Valley brodiaea	Brodiaea rosea	FS, SE	1.8	0.0	0.0	0.4	0.5	0.0	0.0
Keck's checkerbloom	Sidalcea keckii	FE	1.8	0.0	0.0	0.0	0.5	0.0	0.0

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Riparian (acres)	Valley Oak Woodland (acres)
Lake County stonecrop	Sedella leiocarpa	FE, SE	1.8	0.0	0.0	0.0	0.5	0.0	0.0
Lake County western flax	Hesperolinon didymocarpum	SE	1.8	0.0	0.0	0.4	0.5	0.0	0.0
Loch Lomond button- celery	Eryngium constancei	FE, SE	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Many-flowered navarretia	Navarretia leucocephala ssp. plieantha	FE, SE	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Slender Orcutt grass	Orcuttia tenuis	FT, SE	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Two-fork clover	Trifolium amoenum	FE	1.8	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
California tiger salamander	Ambystoma californiense	FE, FT, ST	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Foothill yellow-legged frog	Rana boylii	FCE, FCT, FS, SE, ST, SSC	1.8	1.7	0.0	0.4	0.5	1.1	<0.1
Western spadefoot	Spea hammondii	FS, SSC	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below	See below
Blainville's horned lizard	Phrynosoma blainvillii	FS, SSC	0.2	0.0	0.0	0.0	0.0	0.0	0.0

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Riparian (acres)	Valley Oak Woodland (acres)
Birds	See below	See below	See below	See below	See below	See below	See below	See below	See below
Bald eagle	Haliaeetus leucocephalus	FS, SE, SFP, SFS	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Burrowing owl	Athene cunicularia	FS, SSC	1.8	1.7	0.0	0.4	0.0	0.0	<0.1
Golden eagle	Aquila chrysaetos	FS, SFS, SFP	1.8	1.7	0.0	0.4	0.5	1.1	<0.1
Grasshopper sparrow	Ammodramus savannarum	SSC	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Greater white-fronted goose	Anser albifrons	SSC	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Loggerhead shrike	Lanius ludovicianus	SE, SSC	1.8	1.7	0.0	0.4	0.5	1.1	<0.1
Long-eared owl	Asio otus	SSC	0.1	0.0	0.0	0.1	0.0	0.6	0.0
Modesto song sparrow	Melospiza melodia mailliardi	SSC	0.2	0.0	0.0	0.0	0.0	0.2	0.0
Northern harrier	Circus cyaneus	SSC	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Osprey	Pandion haliaetus	FS	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Peregrine falcon	Falco peregrinus	SFS, SFP	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Short-eared owl	Asio flammeus	SSC	0.4	0.2	0.0	0.0	0.0	1.1	<0.1
Tricolored blackbird	Agelaius tricolor	FS, ST, SSC	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Vaux's swift	Chaetura vauxi	SSC	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Vesper sparrow	Pooecetes gramineus	SSC	0.2	0.0	0.0	0.0	0.0	0.0	0.0
White-tailed kite	Elanus leucurus	FS, SFP	1.8	1.7	0.0	0.4	0.0	0.0	<0.1

Common Name	Species Name	Status	Annual Grassland (acres)	Blue Oak Woodland (acres)	Lacustrine (acres)	Mixed Chaparral (acres)	Montane Hardwood (acres)	Montane Riparian (acres)	Valley Oak Woodland (acres)
Yellow warbler	Setophaga petechia	SSC	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Yellow-breasted chat	Icteria virens	SSC	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Yellow-headed blackbird	Xanthocephalus xanthocephalus	SSC	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Mammals	See below	See below	See below	See below	See below	See below	See below	See below	See below
American badger	Taxidea taxus	SSC	1.8	1.7	0.0	0.4	0.5	1.1	<0.1
Fringed myotis	Myotis thysanodes	FS	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Long-eared myotis	Myotis evotis	FS	0.0	1.7	0.1	0.4	0.5	1.1	<0.1
Pallid bat	Antrozous pallidus	FS, SSC	1.8	1.7	0.0	0.4	0.5	1.1	<0.1
San Joaquin pocket mouse	Perognathus inornatus	FS	1.6	1.7	0.0	0.3	0.0	0.0	<0.1
Townsend's big-eared bat	Corynorhinus townsendii	FS, SSC	1.8	1.7	0.0	0.4	0.5	1.1	<0.1
Western red bat	Lasiurus blossevillii	SSC	1.8	1.7	0.1	0.4	0.5	1.1	<0.1
Yuma myotis	Myotis yumanensis	FS	1.8	1.7	0.1	0.4	0.5	1.1	<0.1

Source: Caltrans 2023b

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

# 6. BENEFITING TRANSPORTATION PROJECT CONSIDERATIONS

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

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

# 6.1 Why Timing is Important

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

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



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

Key: CTC = California Transportation Commission

The date when a Caltrans potential transportation project is expected to be Ready to List<sup>1</sup> is an appropriate estimate for identifying when a Caltrans advance mitigation project will need to deliver compensatory mitigation to a potential benefiting transportation project. Approved credits must be in-hand before their offset value, with natural resource regulatory agency approval, may be applied to a transportation project.

# 6.2 Patterns of Estimated Potential Impacts

Given that the planning horizon for this assessment covers the 2021/22 through 2030/31 fiscal years, and that some of the transportation projects may have already gone to bid, it is necessary to consider which transportation projects:

- would need to acquire compensatory mitigation before the AMP can deliver and, therefore, 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; and
- would need compensatory mitigation later in time and, if so, whether time exists to establish new compensatory mitigation.

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

- As shown in Tables 6-1 and 6-2 and on Figures 6-2 and 6-3, when the SHOPP transportation projects identified previously have their aquatic resource impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:
  - Compensatory mitigation needs within the Upper Cache Sub-basin are focused on fish habitat and non-wetland waters impacts in fiscal years 2021/22, 2025/26, and 2030/31, with minor impacts to wetlands and riparian habitat in fiscal years 2025/26 and 2030/31.
  - Compensatory mitigation needs within the Upper Putah Sub-basin are focused on riparian habitat with the largest impacts in fiscal years 2028/29 and 2029/30, with lesser impacts on riparian habitat in fiscal year 2023/24; non-wetland waters in fiscal years 2023/24, 2025/26, 2028/29, and 2029/30; and vernal pools in fiscal year 2029/30.
- As shown in Tables 6-3 through 6-5 and on Figures 6-4 through 6-6, when the SHOPP transportation projects identified previously have their forecast species of

<sup>&</sup>lt;sup>1</sup> 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.

mitigation need impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:

- Compensatory mitigation needs within the Great Valley Ecoregion Section are focused on California red-legged frog and valley elderberry longhorn beetle in fiscal year 2029/30.
- Compensatory mitigation needs within the Northern California Coast Ranges Ecoregion Section are focused on California red-legged frog in fiscal years 2025/26, 2029/30, and 2030/31, with minor impacts to California red-legged frog in fiscal years 2021/22 and 2028/29 and to valley elderberry longhorn beetle in fiscal year 2028/29.
- Compensatory mitigation needs within the Northern California Interior Coast Ranges Ecoregion Section are focused on California red-legged frog in fiscal year 2025/26, with lesser impacts to California red-legged frog in fiscal years 2023/24, 2028/29, 2029/30, and 2030/31 and to valley elderberry longhorn beetle in fiscal years 2023/24, 2028/29, and 2029/30.

Spatially, these transportation projects are distributed throughout the GAI (Figure 6-7).

Table 6-1. Upper Cache Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery	/
Year	

Expected Advertisement Year	Fish: Number of Transpor- tation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transpor- tation Projects	Wetland: Estimated Potential Impacts (acres)	Non- wetland waters: Number of Transpor- tation Projects	Non- wetland waters: Estimated Potential Impacts (acres)	Riparian: Number of Transpor- tation Projects	Riparian: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transpor- tation Projects	Vernal Pool: Estimated Potential Impacts (acres)
2021/22	3	0.5	0	0.0	3	0.5	0	0.0	0	0.0
2022/23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2023/24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	2	0.4	1	<0.1	2	0.4	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2029/30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2030/31	1	1.0	1	<0.1	1	0.9	1	<0.1	0	0.0
Total <sup>a</sup>	6	1.9	2	0.1	6	1.8	1	<0.1	0	0.0

<sup>a</sup> Totals may be different due to rounding.



Figure 6-2. Upper Cache Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

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Expected Advertisement Year	Fish: Number of Transpor- tation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transpor- tation Projects	Wetland: Estimated Potential Impacts (acres)	Non- wetland waters: Number of Transpor- tation Projects	Non- wetland waters: Estimated Potential Impacts (acres)	Riparian: Number of Transpor- tation Projects	Riparian: Estimated Potential Impacts (acres)	Vernal Pool: Number of Transpor- tation Projects	Vernal Pool: Estimated Potential Impacts (acres)
2021/22	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2022/23	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2023/24	0	0.0	1	<0.1	1	0.2	1	0.3	0	0.0
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	1	<0.1	1	<0.1	1	0.7	0	0.0
2029/30	0	0.0	1	<0.1	2	0.2	3	0.8	1	0.2
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total <sup>a</sup>	0	0.0	3	0.1	5	0.6	5	1.7	1	0.2

 Table 6-2. Upper Putah Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery

 Year

<sup>a</sup> Totals may be different due to rounding.



Figure 6-3. Upper Putah Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year
Expected Advertisement Year	California Red-legged Frog Habitat: Number of Transpor- tation Projects	California Red-legged Frog Habitat: Estimated Potential Impacts (acres)	Valley Elderberry Longhorn Beetle Habitat: Number of Transpor- tation Projects	Valley Elderberry Longhorn Beetle Habitat: Estimated Potential Impacts (acres)
2021/22	0	0.0	0	0.0
2022/23	0	0.0	0	0.0
2023/24	0	0.0	0	0.0
2024/25	0	0.0	0	0.0
2025/26	0	0.0	0	0.0
2026/27	0	0.0	0	0.0
2027/28	0	0.0	0	0.0
2028/29	0	0.0	0	0.0
2029/30	1	0.1	1	0.1
2030/31	0	0.0	0	0.0
Total <sup>a</sup>	1	0.1	1	0.1

 Table 6-3. Great Valley Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need, by

 Transportation Project Delivery Year

<sup>a</sup> Totals may be different due to rounding.



# Figure 6-4. Great Valley Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need, by Transportation Project Delivery Year

Expected Advertisement Year	California Red-legged Frog Habitat: Number of Transpor- tation Projects	California Red-legged Frog Habitat: Estimated Potential Impacts (acres)	Valley Elderberry Longhorn Beetle Habitat: Number of Transpor- tation Projects	Valley Elderberry Longhorn Beetle Habitat: Estimated Potential Impacts (acres)
2021/22	1	<0.1	0	0.0
2022/23	0	0.0	0	0.0
2023/24	0	0.0	0	0.0
2024/25	0	0.0	0	0.0
2025/26	2	28.5	0	0.0
2026/27	0	0.0	0	0.0
2027/28	0	0.0	0	0.0
2028/29	1	0.1	1	0.1
2029/30	2	1.3	0	0.0
2030/31	1	2.2	0	0.0
Total <sup>a</sup>	7	32.0	1	0.1

 Table 6-4. Northern California Coast Ranges Ecoregion Section: Estimated Impacts on Species of Mitigation

 Need, by Transportation Project Delivery Year

<sup>a</sup> Totals may be different due to rounding.



Figure 6-5. Northern California Coast Ranges Ecoregion Section: Estimated Impacts on Species of Mitigation Need, by Transportation Project Delivery Year

Note: The 2025/26 maximum is 28.5 acres.

Expected Advertisement Year	California Red-legged Frog Habitat: Number of Transpor- tation Projects	California Red-legged Frog Habitat: Estimated Potential Impacts (acres)	Valley Elderberry Longhorn Beetle Habitat: Number of Transpor- tation Projects	Valley Elderberry Longhorn Beetle Habitat: Estimated Potential Impacts (acres)
2021/22	0	0.0	0	0.0
2022/23	0	0.0	0	0.0
2023/24	1	0.6	1	0.3
2024/25	0	0.0	0	0.0
2025/26	1	3.2	0	0.0
2026/27	0	0.0	0	0.0
2027/28	0	0.0	0	0.0
2028/29	1	1.1	1	0.6
2029/30	1	0.4	1	0.2
2030/31	1	0.3	0	0.0
Total <sup>a</sup>	5	5.5	3	1.1

 Table 6-5. Northern California Interior Coast Ranges Ecoregion Section: Estimated Impacts on Species of

 Mitigation Need, by Transportation Project Delivery Year

<sup>a</sup> Totals may be different due to rounding.



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



#### Figure 6-7. Location of SHOPP Estimated Impacts, by Transportation Project Delivery Year

Note: SHOPP transportation projects are listed in Appendix B.

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[\_\_\_\_] Counties

#### State of California DEPARTMENT OF TRANSPORTATION

Sources: Esri, USGS, NOAA, USGS

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#### State of California DEPARTMENT OF TRANSPORTATION

## 6.3 Acceleration Priorities

At the time of an advance mitigation project proposal, Caltrans' transportation project sequence prioritization will reflect the updated information provided in the most current SHOPP Ten-Year Book, and will be based on meeting the Caltrans District's needs and performance targets while financially balancing the Caltrans District's and AMA accounts.

- As shown in Tables 6-1 and 6-2 and on Figures 6-2 and 6-3, which are based on Quarter 4 of the Ten-Year Book, most impacts on aquatic resources within the GAI are concentrated in fiscal years 2021/22 and 2028/29 through 2029/30, with lesser impacts in fiscal years 2023/24 and 2025/26, and no impacts during the remainder of the 10-year planning period evaluated in the SAMNA.
- As shown in Tables 6-3 through 6-5 and on Figures 6-4 through 6-6, which are based on Quarter 4 of the Ten-Year Book, most impacts on terrestrial species of mitigation need within the GAI are concentrated in fiscal year 2025/26, with lesser impacts in fiscal years 2021/22, 2023/24, and 2028/29 through 2030/31.
- Most of the projects that are anticipated to advertise in the 2023/24 fiscal year or prior have already required specific project mitigation when they obtained their permits in the 2022/23 fiscal year (July 1, 2022, to June 30, 2023) (Figure 6-7).

Therefore, most transportation projects that could benefit from an advance mitigation project initiated post-RAMNA would need to be advertised in the 2024/25 or subsequent fiscal years.

Caltrans District 1's transportation project priorities are expressed in the 2021 SHS Management Plan, which identifies transportation projects that generally fall in the middle and end of the 10-year assessment period. These priorities can change, however. Transportation planning is dynamic and since the 2021/22 to 2030/31 (Quarter 4) SHOPP Ten-Year Book was published, delivery schedules associated with many transportation projects may have changed. Prior to proposing advance mitigation projects, Caltrans District 1 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

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## 7. WILDLIFE RESOURCES CONSERVATION GOALS AND OBJECTIVES

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

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' goals and objectives, thus contributing to an improved environmental outcome within the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives, and how they could be applied to advance mitigation projects undertaken within 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.<sup>1</sup> Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

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

## 7.1 Approach

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

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

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

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

The result 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 within 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 threatened and endangered fish species, separately in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

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

Agency <sup>a</sup>	Summary
CDFW	CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Title 14 of the California Code of Regulations, and Public Resources Code § 21000, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values. CDFW issues permits and agreements to project proponents under its authorities, including incidental take permits and consistency determinations under the CESA, Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. NCCP permits can authorize the take of fully protected species.
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(2)(b) of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate. In May 2023, FWS issued a Mitigation Policy that builds upon the guidance in the 1981 Mitigation Policy for recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife, and a FESA Compensatory Mitigation Policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA.
	Conservation banking can assist federal and non-federal participants in the Section 7 and Section 10 process. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Section 7 and Section 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on site and/or off site. Purchasing credits in

conservation banks is one method of protecting habitat on site or off site.

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

<sup>a</sup> In addition to the agencies listed above, the RWQCBs may exert jurisdiction over species to the extent that wildlife habitat; rare, threatened, or endangered species; warm freshwater habitat; cold freshwater habitat; or spawning, reproduction, and/or early development beneficial uses exist and would be affected by a project.

## 7.3 Species of Mitigation Need

An overview of wildlife resources is provided in Chapter 2, *Environmental Setting*. As described in Section 1.5, species of mitigation need were selected to focus the planning effort and to improve the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable during the planning period. To this end, the terrestrial species of mitigation need identified for the GAI are California red-legged frog and valley elderberry longhorn beetle. These species are 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 5,200 feet above mean sea level (FWS 2002). Eight Recovery Units were established by the recovery plan. The GAI falls mostly within the North Coast Range Foothills and Western Sacramento River Valley Recovery Unit, but also includes a small portion of the North Coast and North San Francisco Bay Recovery Unit in parts of Napa and northwestern Solano Counties (FWS 2002).

California red-legged frog habitat consists of the following components: aquatic breeding habitat, non-breeding aquatic habitat, upland habitat, and dispersal habitat. Aquatic breeding habitat includes natural or artificial, ephemeral or permanent standing bodies of freshwater, slow-moving streams, or pools within streams that can sustain all the aquatic life stages of the species. 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 2010; Hayes and Jennings 1988). It is also critical that aquatic breeding habitat for the species be free of predatory bullfrogs, or at least provide sufficient vegetative cover as protection from predation. Ephemeral aquatic features often prove to be better breeding habitat for California red-legged frogs because the drying period helps to prevent establishment of bullfrog populations.

Non-breeding aquatic 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 cover and space needed for foraging and dispersal to other breeding habitats, and they are particularly important during drought periods (Alvarez 2004; FWS 2010).

Upland habitat consists of areas where California red-legged frogs can seek shelter, such as under boulders, rocks, animal burrows, fallen logs, and agricultural debris such as watering troughs and haystacks (FWS 2010; Jennings and Hayes 1994). Upland habitats are also important because they buffer aquatic habitats from degradation and provide space for foraging, sheltering, and avoiding predation (FWS 2010).

Dispersal habitats are the least clearly defined component of California red-legged frog habitat but are nevertheless very important to the survival of the species. They are migration corridors that allow the frogs to disperse overland to and from breeding sites, sometimes as far as 1.5 miles apart. Dispersal habitat can take many forms. A riparian woodland corridor between aquatic breeding habitat and upland refugia provides a more obvious dispersal opportunity; however, within some areas, California red-legged frogs may make use of pastures, row crop fields, or other less natural habitats for dispersal.

#### 7.3.2. Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle is a federally threatened insect species that is endemic to California, occurring in much of the Central Valley from southern Shasta County to northern Fresno County, including the valley floor and lower foothills up to approximately 500 feet above mean sea level (FWS 2017b).

Valley elderberry longhorn beetles are entirely dependent on their host plant, elderberry (*Sambucus* spp.), upon which they spend their entire life cycle, most of it developing within the pith of the elderberry stems. Adults are only active on the surface of the shrubs for a 1- to 3-week window between March and July, typically coinciding with the elderberry blooming period (FWS 2017b). During this time, they mate; the females lay their eggs on the leaves of the shrub; and then when the larvae hatch, they bore into an elderberry stem where they feed and pupate—a process that can take as long as 2 years (Talley et al. 2006). When pupation is complete, the adult beetle emerges from an exit hole it had previously created in the stem. These exit holes are the most readily observed evidence of the presence of the species.

Valley elderberry longhorn beetles most often occupy elderberry shrubs within riparian woodland habitats, although they are sometimes found in elderberry shrubs that are not

associated with riparian corridors in habitats such as valley oak woodland and annual grassland (FWS 2017b).

## 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 habitats 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 within the GAI. 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 within 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 Ne	ed Conservation within the GAI
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Document	Reference	Areas of Important Habitat
Special-status Taxa Documents	See below	See below
California Red-legged Frog (Rana draytonii) 5-Year Review: Summary and Evaluation	FWS 2022	Shows the current and historical range of California red-legged frog in the State of California. The current range of the species is shown to overlap the GAI in Napa, northern Solano, and southern Lake Counties.
Recovery Plan for the California Red-legged Frog (Rana aurora draytonii)	FWS 2002	Identifies California red-legged frog Recovery Units and their respective Core Areas. The GAI falls mostly within the North Coast Range Foothills and Western Sacramento River Valley Recovery Unit, but also includes a small portion of the North Coast and North San Francisco Bay Recovery Unit.
Revised Designation of Critical Habitat for the California Red-legged Frog	FWS 2010	Identifies critical habitat for California red-legged frog.
Revised Recovery Plan for Valley Elderberry Longhorn Beetle	FWS 2019	Identifies valley elderberry longhorn beetle Management Units. Parts of the GAI fall within the Putah Creek Management Unit.
Valley Elderberry Longhorn Beetle 5-Year Review	FWS 2023b	Identifies the range and status of the species within the GAI.
Conservation and Land Management Documents	See below	See below
Nationwide Rivers Inventory	NPS 2017	Listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic Rivers System. A segment of Cache Creek situated entirely within the GAI is listed in this inventory.
Measures to Reduce Road Impacts on Amphibians and Reptiles in California	Langton and Clevenger 2020	Technical guidelines for the planning, design, and evaluation of wildlife passages, barriers, and their associated measures that facilitate the safe movement of amphibians and reptiles across roads. Describes how to increase the effectiveness of established designs and recommends ways to design for particular species groups in different California landscapes for wildlife passages on roadways including, but not limited to, new or existing highways, highway expansion projects, and culvert retrofitting and reconstruction projects.

Reference	Areas of Important Habitat
CDFW 2022a	Summarizes the first major update to the 2020 priority barrier dataset. In 2022, CDFW reviewed and re-evaluated each 2020 wildlife barrier segment, updated the list of priority wildlife barriers within each region, identified additional wildlife barriers across the state, and identified the two top priority barriers within each region. The GAI is situated within CDFW Regions 2 and 3. Priority barriers to habitat connectivity within the GAI include Highway 16 Cache Creek to Highway 20, the Highway 20 junction with Highway 16, Highway 20 Cache Creek, and Highway 53, all just east of Clear Lake in Colusa and Lake Counties.
CDFW 2015	CDFW's plan for protection of species of greatest conservation need, in addition to habitats and other wildlife in California. The GAI is situated mostly within the North Coast and Klamath SWAP geographic province, and slightly overlaps the Central Valley and Sierra Nevada SWAP geographic province:
	<ul> <li>In the North Coast and Klamath Province, California red-legged frog is considered a Species of Greatest Conservation Need.</li> <li>In the Central Valley and Sierra Nevada Province, valley elderberry longhorn beetle is considered a Species of Greatest Conservation Need.</li> </ul>
	The SWAP defines a broad target of increasing the acreage of specific vegetation types and habitats available to focal species by 5 percent over their 2015 levels by 2025.
Yolo Habitat Conservancy 2018	Conservation plan providing FESA permits and associated mitigation for infrastructure and development activities throughout Yolo County since its implementation in 2019. Coordinates mitigation to maximize benefits to species, as well as conserve habitat above and beyond required mitigation for 12 covered species, including valley elderberry longhorn beetle.
	Includes goals to generally:
	<ul> <li>restore or create up to 956 acres of wetland and riparian habitats,</li> <li>restore 88 acres of freshwater emergent wetland,</li> <li>restore or create 236 acres of lacustrine/riverine habitat, and</li> <li>enhance 600 acres of lacustrine/riverine habitat.</li> </ul>
	Includes goals to specifically:
	<ul> <li>restore 608 acres of valley foothill riparian habitat along the Cache Creek and Putah Creek corridors, and</li> <li>enhance 1,600 acres of valley foothill riparian habitat, primarily in planning units 7 and 9.</li> </ul>
	Planning units in this HCP/NCCP within the GAI include 1, 2, 4, 6, 7, 10, 11, and 19.
	Reference CDFW 2022a CDFW 2015

Document	Reference	Areas of Important Habitat
County and City General Plans	See below	See below
Colusa County General Plan	Colusa County 2020	General plan for Colusa County. Requires a buffer of indeterminate amount between development and riparian corridors, wetlands, and special-status species. Contains a land use designation of resource conservation.
Lake County General Plan	Lake County 2008	General plan for Lake County. This plan has a land use designation of resource conservation. It requires a buffer of indeterminate amount between development and significant watercourses, riparian vegetation, and wetlands.
Napa County General Plan	Napa County 2014	General plan for Napa County. Requires setbacks of indeterminate amount from streams and buffers around riparian areas, ecologically sensitive areas, and habitat supporting special-status species.
Solano County General Plan	Solano County 2015	General plan for Solano County. Contains a land use designation of natural resource that contains marshlands and wetland habitats. Requires the following riparian buffers: for parcels more than 2 acres in size, a minimum 150-foot development setback shall be provided, for parcels of 0.5–2.0 acres, a minimum 50-foot setback shall be provided, and for parcels less than 0.5 acre a minimum 20-foot setback shall be provided.
2030 Countywide General Plan – County of Yolo	Yolo County 2018	General plan for Yolo County. Requires a buffer of indeterminate amount to protect the habitat value and biological function of oak woodlands, grasslands, riparian areas, vernal pools, and wetland habitats. Contains a land use designation for riverbed and riparian areas.
City of Clearlake 2040 General Plan Update	City of Clearlake 2014	General plan for the City of Clearlake. Requires a buffer of indeterminate amount around sensitive resources, including floodplains, wetlands, and riparian buffer areas along stream channels. Contains a land use designation for Open Space.
City of Davis General Plan	City of Davis 2007	General plan for the City of Davis. Requires a buffer of indeterminate amount around oak woodland, riparian woodland and scrub vegetation, drainages, vernal pools and swales, other wetlands, native grassland, special-status species populations, and elderberry shrubs. Contains a land use designation for Open Space.
General Plan Update 2035 City of Woodland General Plan	City of Woodland 2017	General plan for the City of Woodland. Requires a buffer of indeterminate amount around alkali sinks, freshwater wetlands, freshwater marsh, riparian forest, and drainages. This plan calls out Willow Slough and Cache Creek as important aquatic features outside of, and adjacent to, the planning area of the document. Contains a land use designation for Open Space for Conservation.

## 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 *California Red-legged Frog 5-Year Review: Summary and Evaluation* (FWS 2022), *Recovery Plan for the California Red-legged Frog* (FWS 2002), and *Revised Recovery Plan for Valley Elderberry Longhorn Beetle* (FWS 2019) 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 its range (FWS 2002, 2019, 2022). 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 whether the species of mitigation need could benefit from in-kind compensatory mitigation purchased or established through an advance mitigation project.

#### 7.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, and habitat invasion by nonnative species have led to the loss and degradation of existing habitat for both 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.

Roads and highways hinder the movement of California red-legged frogs and are considered permanent physical barriers leading to increased habitat fragmentation and isolation of populations (FWS 2002). Roads near aquatic habitats may lead to increased erosion, sedimentation, and contaminant-laden runoff, negatively affecting amphibian populations, including California red-legged frog (FWS 2002). Artificial light pollution from urban and roadway illumination can affect wildlife by causing spatial disorientation; disruption in circadian rhythms; and alteration to natural foraging, breeding, and migration activity, which can negatively affect populations (Bliss-Ketchum et al. 2016). Roads near aquatic habitats that are poorly constructed or inadequately maintained may lead to increased erosion, sedimentation, and petrochemical runoff, negatively affecting amphibian populations including California red-legged frog. Culverts under roads may provide some connectivity for various species, both native and invasive, but if not constructed properly they also can impede dispersal and trap some species such as California red-legged frog. In some instances, ditches that form downstream of culverts may result in deep scoured pools that can support predatory fish and frogs or exhibit

temporary habitat attributes where premature drying is a threat (Langton and Clevenger 2020).

Conversion of riparian areas and isolation of remaining habitat patches are considered to be significant ongoing threats to valley elderberry longhorn beetle. Because the species has limited dispersal capabilities, roads and highways are believed to be major barriers constraining the species' ability to move between areas of suitable habitat (FWS 2019).

#### 7.5.2. Invasive Species

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

Introduced fish and bullfrogs are known to predate California red-legged frogs (FWS 2002). Invasive plant species such as giant reed and English ivy may alter the structure of native riparian habitat and decrease available surface water for California red-legged frog (FWS 2002).

Valley elderberry longhorn beetles may be negatively affected by Argentine ants, a widespread invasive species, which have been documented predating the beetle's eggs and larvae. Argentine ants are known to occur within several areas occupied by valley elderberry longhorn beetles (FWS 2019). Impacts from invasive plant species are largely unknown, although the increasing prevalence of nonnative plants in California ecosystems is expected to have negative impacts on native elderberry populations, which are the beetle's obligate host plants (FWS 2014).

#### 7.5.1. Disease and Predation

California red-legged frogs may be affected by chytridiomycosis, a disease caused by a fungal pathogen called chytrid. Although the effects of chytrid on California red-legged frogs are not well understood, it is known to have caused mass mortality and population declines in other amphibian species (FWS 2002). Disease is not thought to be a significant threat to valley elderberry longhorn beetles.

Predation is considered a major threat to the species of mitigation need within the GAI. As noted above, California red-legged frogs are susceptible to predation from invasive species, including bullfrogs, crayfish, and nonnative fish (FWS 2002). Valley elderberry longhorn beetles face predation risks from invasive Argentine ants, which may prey on eggs and larvae (FWS 2019).

#### 7.5.2. Climate Change, Drought, and Wildfire

Section 2.4 provided a brief overview of the GAI's climate and available planning-level predictions for climate change within the region. In the next 30 years, the climate is expected to continue to change. Predicted climate change effects consist of projected extended periods of higher temperatures during summer, large fluctuations in

precipitation—with dry years becoming drier and wet years becoming wetter—and an increased risk of drought, wildfires, and landslides (Caltrans 2019b).

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. Shorter hydroperiods in aquatic habitats during droughts have the potential to prevent successful reproduction by not allowing sufficient time for larval metamorphosis. Local extirpations could occur if extended periods of drought prevent successful reproduction for several sequential years. 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, which are better adapted to drought conditions (FWS 2002).

Potential impacts on valley elderberry longhorn beetles from climate change are difficult to predict and quantify. However, available models broadly indicate that climate change will have negative effects on available habitat for the species throughout its range (FWS 2014).

Terrestrial connectivity within the GAI, including large remaining blocks of intact habitat or natural landscape, is shown on Figure 2-9. 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. Figure 2-5 depicts the terrestrial climate change resilience rank from the ACE dataset (CDFW 2018a). Climate resilience is lower within the southern portions of the GAI in southern Lake and Napa Counties, and along the Central Valley portions of Cache and Putah Creeks in Yolo and Solano Counties, with most of those areas having a rank between 1 and 3. It is in these locations where impacts from climate change are expected to be the most severe within the GAI. Projected resilience is greater within the northern portion of the GAI in Colusa and northern Lake Counties, with most of that area having a rank between 3 and 5.

#### 7.5.3. Contaminants

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 2002).

While the specific effects of contaminants on valley elderberry longhorn beetles have not been well-studied, it is likely that they are susceptible to impacts from drift of broad-spectrum pesticides near habitats that they are occupying (FWS 2014). Areas where pesticides are in use may also function as dispersal barriers if they are located between patches of suitable elderberry shrub habitat (FWS 2019).

## 7.6 Multi-species Benefits

While the terrestrial species of mitigation need identified for this GAI are California redlegged frog and valley elderberry longhorn beetle, several other special-status species share habitat with this species, including foothill yellow-legged frog, tricolored blackbird (*Agelaius tricolor*), and yellow-breasted chat (*Icteria virens*), which may be addressed under CDFW's Lake and Streambed Alteration Agreement program.

Advance mitigation planning provides Caltrans an opportunity to prioritize multi-species and multi-resource benefits through acquisition, protection, restoration, and/or enhancement of habitat that provides the most multi-species benefits within the GAI. Figure 7-1 illustrates the regional terrestrial biodiversity within 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 projects, while other portions of the SHS within the GAI with SHOPP projects show low biodiversity. Habitats are mapped in Appendix C, *Land Cover Types*, and the special-status species that may occur in these habitats are provided in Appendix D, *Complete SAMNA Species Results*.

The installation of culvert escape ramps and fence jump-outs to facilitate safe movement across and away from highways would also benefit numerous terrestrial wildlife species. Advance mitigation purchased or established to address anticipated impacts on fish species of mitigation need (addressed in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*) may also provide mitigation to compensate for impacts on other special-status species that use aquatic habitats for at least part of their life cycle. 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 within the GAI.



Figure 7-1. Terrestrial Biodiversity within 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 within the GAI. Each conservation goal is supported by one or more conservation objectives and is meant to further guide Caltrans District 1 toward scoping advance mitigation projects to achieve the desired result specified by the goal. Project-specific objectives will be developed for advance mitigation projects in the future, during their project delivery phase in accordance with an instrument, MCA, or other project-specific agreement (Figure 1-2). Project-specific advance mitigation project objectives will be specific, measurable, achievable, relevant, and time-bound.

At the broad scale, these wildlife goals and objectives encompass large-scale ecological processes, environmental gradients, biological diversity, and regional wildlife linkages. These goals and objectives prioritize regional conservation that preserves intact habitat and provides habitat linkages and connectivity. Sub-objectives are included for each objective to guide Caltrans advance mitigation and project scoping toward those authorized actions that would create the greatest functional lift<sup>2</sup> or conservation benefit for the species of mitigation need within the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to the species of mitigation need.<sup>3</sup> Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives are generally presented in order from general to more specific. They are not presented in order of importance.

<sup>&</sup>lt;sup>2</sup> For the purposes of this document, "functional lift" means the difference between an existing degraded condition and a restored or enhanced condition.

<sup>&</sup>lt;sup>3</sup> In accordance with both law and Caltrans policy, standard best management practices are followed on all Caltrans transportation projects. Therefore, 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 <sup>a</sup>	Alignment with Conservation and
Goal WILD-1: Conserve and expand habitat for species of mitigation need within the GAI to support ecosystem functions that are essential to recovery of the species.	See below	See below	See below
Objective WILD-1.1: Acquire, protect, restore, and/or enhance habitat of sufficient quantity to offset estimated impacts on species of mitigation need within the GAI in advance of transportation project impacts.	<ul> <li>Sub-Objective WILD-1.1.1: Identify habitat for species of mitigation need within 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.</li> <li>Sub-Objective WILD-1.1.2: Prioritize key areas, such as designated critical habitat, movement corridors, and buffer zones.</li> <li>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.</li> <li>Sub-Objective WILD-1.1.4: Prioritize land acquisition and/or protection that supports key populations.<sup>o</sup></li> <li>Sub-Objective WILD-1.1.5: Prioritize acquisition, protection, and/or enhancement of SWAP (CDFW 2015) conservation targets: American Southwest riparian forest and woodland, California grassland and flowerfields, California foothill and valley forests and woodlands, freshwater marsh, north coastal and montane riparian forest and woodland, and Pacific Northwest conifer forest (Figure 7-2) that coincide with the species of mitigation need range, as well as other locally or regionally important habitat types.</li> <li>Sub-Objective WILD-1.1.6: Create, enhance, or restore breeding habitat within protected areas where it is limited.<sup>o</sup></li> </ul>	<ul> <li>California red- legged frog</li> <li>Valley elderberry longhorn beetle</li> </ul>	<ul> <li>SWAP (CDFW 2015) and compart Yolo County HCP/NCCP (Yolo Ha California Red-legged Frog (Rana (FWS 2022)</li> <li>Recovery Plan for the California R Revised Designation of Critical Ha</li> <li>Revised Recovery Plan for Valley</li> <li>Valley Elderberry Longhorn Beetle</li> <li>Colusa County General Plan (Colust Colusa County General Plan (Lake C</li> <li>Napa County General Plan (Napa</li> <li>Solano County General Plan (Solation)</li> <li>2030 Countywide General Plan –</li> <li>City of Clearlake 2040 General Plan</li> <li>City of Davis General Plan (City of General Plan Update 2035 City of</li> </ul>

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Objective	Sub-Objective	Affected Species <sup>a</sup>	Alignment with Conservation and
Goal WILD-2: Preserve, enhance, and increase connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations.	See below	See below	See below
<b>Objective WILD- 2.1:</b> Acquire, protect, restore, and/or enhance movement corridors within the GAI in advance of transportation project impacts.	<ul> <li>Sub-Objective WILD-2.1.1: Identify movement corridors for the species of mitigation need within the GAI and acquire, protect, restore, and/or enhance corridors such that the greatest functional lift for the species of mitigation need is provided.</li> <li>Sub-Objective WILD-2.1.2: Prioritize habitat within key linkage areas, between habitat areas, and/or areas that provide a buffer to key or existing corridors.<sup>o</sup></li> <li>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.<sup>o</sup></li> </ul>	<ul> <li>California red- legged frog</li> <li>Valley elderberry longhorn beetle</li> </ul>	<ul> <li>SWAP (CDFW 2015) and compare Yolo County HCP/NCCP (Yolo Hat Restoring California's Wildlife Con California Red-legged Frog (Rana (FWS 2022)</li> <li>Recovery Plan for the California F Revised Designation of Critical Hat Revised Recovery Plan for Valley Valley Elderberry Longhorn Beeth Colusa County General Plan (Col Lake County General Plan (Lake Napa County General Plan (Napa Solano County General Plan (Sol 2030 Countywide General Plan – City of Clearlake 2040 General Plan City of Davis General Plan (City of General Plan Update 2035 City of</li> </ul>
Goal WILD-3: Support resiliency of the landscape to climate change.	See below	See below	See below
<b>Objective WILD-3.1:</b> Acquire, protect, restore, and/or enhance habitat that supports resilience to climate change within the GAI in advance of transportation project impacts.	<ul> <li>Sub-Objective WILD-3.1.1: Identify, acquire, protect, restore, and/or enhance habitat critical to climate resilience for the species of mitigation need within the GAI (Figure 2-5).</li> <li>Sub-Objective WILD-3.1.2: Prioritize management of invasive species within key areas, such as movement corridors, that may be exacerbated by climate change and that would provide functional lift for the species of mitigation need.</li> </ul>	<ul> <li>California red- legged frog</li> <li>Valley elderberry longhorn beetle</li> </ul>	<ul> <li>SWAP (CDFW 2015) and compare Yolo County HCP/NCCP (Yolo Hat California Red-legged Frog (Rana (FWS 2022)</li> <li>Revised Recovery Plan for Valley</li> <li>Napa County General Plan (Napa Solano County General Plan (Sol 2030 Countywide General Plan –</li> <li>General Plan Update 2035 City of</li> </ul>

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y Elderberry Longhorn Beetle (FWS 2019) a County 2014) olano County 2015) - County of Yolo (Yolo County 2018) of Woodland General Plan (City of Woodland 2017)

Objective	Sub-Objective	Affected Species <sup>a</sup>	Alignment with Conservation and
Goal WILD-4: Decrease mortality and competition, and protect population health for species of mitigation need.	See below	See below	See below
<b>Objective WILD-4.1:</b> Reduce impacts of invasive species on populations of species of mitigation need within the GAI in advance of transportation project impacts.	Sub-Objective WILD-4.1.1: Reduce invasive species within key habitat locations and/or within 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 its habitat. Sub-Objective WILD-4.1.2: Prioritize restoration of native plant species within key areas, such as critical habitat, movement corridors, and buffer zones.	<ul> <li>California red- legged frog</li> <li>Valley elderberry longhorn beetle</li> </ul>	<ul> <li>SWAP (CDFW 2015) and compa Yolo County HCP/NCCP (Yolo Hat Restoring California's Wildlife Con California Red-legged Frog (Rana (FWS 2022)</li> <li>Recovery Plan for the California Hat Revised Designation of Critical Hat Revised Recovery Plan for Valley</li> <li>Valley Elderberry Longhorn Beetl</li> <li>Colusa County General Plan (Col Lake County General Plan (Lake Napa County General Plan (Lake Napa County General Plan (Sol 2030 Countywide General Plan – City of Clearlake 2040 General Plan</li> <li>City of Davis General Plan (City of General Plan Update 2035 City of</li> </ul>
<b>Objective WILD-4.2:</b> Reduce impacts from nonnative predators within the GAI in advance of transportation project impacts.	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.	<ul> <li>California red- legged frog</li> </ul>	<ul> <li>SWAP (CDFW 2015) and comparent Yolo County HCP/NCCP (Yolo Hard)</li> <li>California Red-legged Frog (Rana (FWS 2022))</li> <li>Recovery Plan for the California Hard, Colusa County General Plan (Colusa County General Plan (Colusa County General Plan (Lake Napa County General Plan (Napa Solano County General Plan (Sol 2030 Countywide General Plan – City of Clearlake 2040 General Plan (City of General Plan (City of General Plan (City of General Plan (City of General Plan Update 2035 City of Clearlake 2045 City of City City City City of City of City City City City City City City City</li></ul>
<b>Objective WILD-4.3:</b> Reduce road- associated mortality within the GAI in advance of transportation project impacts.	<b>Sub-Objective WILD-4.3.1:</b> Identify locations to develop safe SHS wildlife crossing areas within the GAI and direct the species of mitigation need to such crossing areas.	<ul> <li>California red- legged frog</li> </ul>	<ul> <li>SWAP (CDFW 2015) and compare Measures to Reduce Road Impace and Clevenger 2020)</li> <li>Restoring California's Wildlife Cont California Red-legged Frog (Rana (FWS 2022)</li> <li>Recovery Plan for the California F Revised Designation of Critical Hardson</li> </ul>

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Objective	Sub-Objective	Affected Species <sup>a</sup>	Alignment with Conservation and
Goal WILD-5: <i>Provide multi-species and multi-resource benefits.</i>	See below	See below	See below
<b>Objective WILD-5.1</b> : Acquire, protect, restore, and/or enhance habitat that provides multi-species benefits within the GAI in advance of transportation project impacts.	<ul> <li>Sub-Objective WILD-5.1.1: Prioritize mitigation to provide benefits for special-status species that may co-occur with the species of mitigation need and that will provide functional lift to other special-status species within the GAI.</li> <li>Sub-Objective WILD-5.1.2: Identify SHS right-of-way areas where enhancement efforts may benefit species of mitigation need.</li> <li>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 red-legged frog.</li> </ul>	<ul> <li>California red- legged frog</li> <li>Valley elderberry longhorn beetle</li> </ul>	<ul> <li>SWAP (CDFW 2015) and compart Yolo County HCP/NCCP (Yolo Hat California Red-legged Frog (Rana (FWS 2022)</li> <li>Recovery Plan for the California Revised Designation of Critical Hat Revised Recovery Plan for Valley Valley Elderberry Longhorn Beetle</li> <li>Colusa County General Plan (Colu Lake County General Plan (Lake On Napa County General Plan (Napa Solano County General Plan (Napa Solano County General Plan (Sola 2030 Countywide General Plan – City of Clearlake 2040 General Plan</li> <li>City of Davis General Plan (City of General Plan Update 2035 City of</li> </ul>

<sup>a</sup> This column includes species of mitigation need that could benefit from these objectives.

<sup>b</sup> More information on these plans is provided in Chapter 3, *Relevant Plans, Policies, and Regulations*, and Chapter 4, *Existing Mitigation Opportunities*.

<sup>c</sup> As identified in recovery plans and other pertinent documents (see Table 7-2).

#### Management Plans<sup>b</sup>

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Red-legged Frog (Rana aurora draytonii) (FWS 2002) labitat for the California Red-legged Frog (FWS 2010) y Elderberry Longhorn Beetle (FWS 2019) le 5-Year Review (FWS 2023b) lusa County 2020) County 2008) a County 2008) a County 2014) lano County 2015) - County of Yolo (Yolo County 2018) Plan Update (City of Clearlake 2014) of Davis 2007) of Woodland General Plan (City of Woodland 2017)





## 7.8 Summary

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

- habitat loss, fragmentation, and degradation;
- invasive species;
- disease and predation;
- climate change, drought, and wildfire; and
- contaminants.

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

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

- Goals WILD-1 and WILD-2 seek to conserve and expand 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 habitats within the GAI. By increasing connectivity for species of mitigation need, Caltrans anticipates that co-occurring species will realize these same benefits. These goals and objectives were selected to address habitat loss, fragmentation, and degradation and to address impacts from climate change, drought, and wildfire. Further, Caltrans anticipates that actions completed through restoration, enhancement, and/or preservation may also provide opportunities to address invasive species.
- **Goal WILD-3** seeks to support climate resiliency for species of mitigation need habitat within the GAI. The primary objectives are to reduce the effects of climate change on sensitive species by increasing the protection and functionality of land that is identified as crucial for climate resiliency, including corridors that allow these species to migrate from areas of low climate resilience into areas with higher resilience and addressing the climate change in general, these goals and objectives address habitat loss, fragmentation, 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. This objective addresses issues related to habitat loss, fragmentation, and degradation, and threats from invasive species.

• **Goal WILD-5** seeks to guide advance mitigation scoping to prioritize multi-species and multi-resource benefits to maximize ecological benefits within the GAI. Advance mitigation provides the opportunity to maximize Caltrans' benefit to conservation within 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.

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 habitats or corridors into advance mitigation scopes and address important threats within 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, non-wetland waters, and riparian habitat from Caltrans transportation projects within the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including restoration, enhancement, and preservation, and to provide an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' conservation goals and objectives, and to contribute to an improved environmental outcome 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 within the GAI to offset forecast impacts from SHOPP transportation projects.

The goals and objectives developed in this chapter are intended to guide advance mitigation scoping decisions toward those choices that will provide for the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such advance mitigation projects undertaken by Caltrans should contribute to aquatic resource and riparian habitat restoration and enhancement, and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.<sup>1</sup> Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

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

## 8.1 Approach

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

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

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

- First, in Section 8.2, Caltrans identifies natural resource regulatory agencies with the authority to condition transportation projects with aquatic resource-related and riparian habitat compensatory mitigation within the GAI.
- Then, in Section 8.3, Caltrans summarizes information for the wetland, nonwetland waters, and fish species addressed by the assessment.
- Next, in Sections 8.4, 8.5, and 8.6, for aquatic resources, Caltrans 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, for which there is a transportation nexus;
  - opportunities to enhance conservation benefits through advance mitigation projects; and
  - opportunities to provide co-benefits, where possible, to water quality, groundwater recharge, and species that require aquatic habitats
- Last, Caltrans analyzes the aforementioned information in relation to the transportation-related activities that could potentially affect aquatic resources and riparian habitats, and the potential range of compensatory mitigation that could satisfy a transportation project condition associated with the activities.

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

#### 8.2 Natural Resource Regulatory Agencies with Aquatic Resources Oversight

Table 8-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered within the GAI with aquatic resource-related compensatory mitigation. Terrestrial special-status wildlife species are known to use streams, wetlands, and other aquatic resources that are regulated by federal and state agencies specific to those habitat types. This RAMNA identifies goals and objectives for terrestrial species separately in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*.
Table 8-1. Natural Reso	urce Regulatory A	gencies with the	Authority to Approve
Aquatic Resource Com	pensatory Mitigati	on Credits (or Va	lues)

Agency	Summary
CDFW	CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. California law (FGC § 1602) also requires an entity to notify CDFW prior to commencing any activity that may substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW issues agreements to project proponents under its authorities, including Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. Under the CESA, CDFW also has authority to issue Incidental Take Permits for state-listed species and Consistency Determinations for state and federally listed species. Additionally, CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Division 1 of Title 14 of the California Code of Regulations, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values.
Corps	It is the mission of the Corps' Regulatory Program (33 CFR Part 230 and Parts 320– 332) to protect the nation's aquatic resources and navigation capacity while allowing reasonable development through fair, flexible, and balanced permit decisions. The Corps is responsible for administering laws for the protection and preservation of aquatic resources pursuant to Section 10 of the Rivers and Harbors Act of 1899 and CWA Section 404. Pursuant to the Rivers and Harbors Act, all work or structures in, over, or under navigable WOTUS require Corps authorization. The Corps authorizes, under CWA Section 404, the discharge of dredged or fill material into WOTUS, including wetlands. When the Corps' civil works projects are proposed to be used or altered by another entity, CWA Section 408 permission (33 USC 408 or Section 14 of the Rivers and Harbors Act of 1899, as amended) must be obtained in addition to the CWA Section 404 authorization. According to the 2008 mitigation rule, in general it is the preference of the Corps to use the following order of priority for mitigation: mitigation bank, in-lieu fee program, permittee responsible mitigation, and out of kind/off-site permittee responsible mitigation, but the preference may change based on what is environmentally preferable.
EPA	EPA has authority under the CWA (33 USC § 11251–1357) to restore and maintain the chemical, physical, and biological integrity of the nation's waters. EPA and the Corps jointly implement the CWA Section 404 program, which regulates discharge of dredge or fill material into WOTUS. Federal authorizations also need to be reviewed for compliance with CWA Section 401. EPA has been delegated the responsibility of implementing CWA Section 401 for projects on tribal land, unless EPA has delegated 401 authority to a recognized tribe.

Agency	Summary
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS does not, however, have jurisdiction over anadromous fish. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section $10(a)(2)(b)$ of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section $7(a)(1)$ of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section $7(a)(2)$ consultation on their proposed actions to partially fulfill this Congressional mandate.
	Conservation banking can assist federal and non-federal participants in the Section 7 and Section 10 process. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Section 7 and Section 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on site and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on site or off site.
SWRCB and RWQCB	The Porter-Cologne Act governs water quality regulation in California and gives the Water Boards the authority to condition projects, through waste discharge requirements, to protect water quality and the beneficial uses of waters of the state, as identified in Basin Plans. Basin Plans, adopted by the RWQCBs, incorporate the beneficial use designation of surface waters of the state and must consider (among other uses) the use and value of water for protection and propagation of fish, shellfish, and wildlife. The Water Boards have been delegated the responsibility of implementing CWA Section 401, which regulates the discharge of pollutants, such as dredged and fill material, into WOTUS. The Water Boards may determine that compensatory mitigation is necessary to offset unavoidable impacts on aquatic resources. Compensatory mitigation can be achieved through purchase of credits as outlined in the <i>State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State</i> (SWRCB, adopted 2019). Projects that occur in one region are regulated by that regional board, whereas projects that cross regions (or have statewide significance) are regulated by SWRCB.

## 8.3 Aquatic Resources

An overview of aquatic resources was provided in Chapter 2, *Environmental Setting*, and is summarized below.

### 8.3.1. Wetlands and Non-wetland Waters

The GAI conforms to the Upper Cache and Upper Putah HUC-8 boundaries. Within the GAI, major stream systems include Cache, Putah, and Stony Creeks (Central Valley RWQCB 2019). Additionally, there are hundreds of named and unnamed tributaries, most of which flow into these rivers. Flow into these systems originates from rainfall and snowfall in the Coast Range Mountains (Figure 2-4).

Aquatic habitat types with the potential to occur within the GAI are mapped in Appendix F, *Aquatic Resource Locations*. Based on the SAMNA Reporting Tool's wetlands and waters layer, the GAI has a total of 87,377 acres of aquatic habitat, consisting of 26 wetland and non-wetland waters habitats listed in Table 2-7 (Caltrans 2023f, 2023g). Five beneficial uses that support the preservation and enhancement of wildlife habitat and aquatic resources within 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 2-5.

### 8.3.2. Riparian Habitat

Riparian habitat is discussed in Section 2.17. Because no detailed riparian GIS layer is currently available, riparian habitat information was excerpted from the SAMNA's vegetation layer. The riparian habitats identified within the GAI are foothill riparian, desert riparian, and valley foothill riparian (Table 2-3).

### 8.3.3. Threatened and Endangered Fish Species of Mitigation Need

Threatened and endangered fish species are identified in Section 2.16.2, and their SAMNA results are provided in Section 5.2.1. Caltrans has selected Clear Lake hitch as a species of mitigation need for this RAMNA. It is expected that additional fish species would benefit from activities identified in this document.

### Clear Lake Hitch

Clear Lake hitch is a state threatened species and has no status under the FESA. This subspecies of fish is in the freshwater minnow family Cyprinidae and is restricted to the Clear Lake watershed in Lake County, California. Clear Lake is located approximately 100 miles north of San Francisco in the Coast Ranges and experiences hot, dry summers and cool, wet winters, with most precipitation occurring from November to March. The lake is fed by numerous tributaries, most of which are ephemeral and low gradient as they drain into the lake. For most of the year, Clear Lake hitch are only found within their lacustrine environment. However, between February and May, a portion of the overall reproductive population begin to migrate into the surrounding tributaries to spawn. Spawning activities include one to five males pursuing a gravid female to fertilize her freshly extruded eggs, which are deposited on fine- to medium-sized gravel within the tributary stream. Fertilized eggs develop and hatch within 7 to 10 days, fry are freeswimming after another 7 to 10 days, and young migrate to the lake at about a month old before the streams dry up. Juvenile hitch are found within the nearshore habitat of the lake, where they depend on submerged aquatic vegetation for cover and prey. Juvenile hitch move from the nearshore portion of the lake into open water in early to late fall. Evidence indicates that Clear Lake hitch do not require tributary streams with gravel to spawn but can also spawn successfully in different portions of the lake that lack a gravel substrate (that is, along the shore, at the mouths of tributaries, and Rodman Slough). Clear Lake hitch has two distinct, reproducing populations within the Clear Lake watershed: one in Clear Lake and its associated tributaries; and the other in Thurston Lake and its associated tributary, Thurston Creek (FWS 2020).

# 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. 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 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 within the GAI with

 Aquatic Resource Goals and Objectives, by HUC-8

Upper Cache Sub-basin HUC-8 18020116	Upper Putah Sub-basin HUC-8 18020162
<ul> <li>Adobe Creek</li> <li>Cache Creek</li> <li>Clear Lake</li> </ul>	<ul><li>Putah Creek</li><li>Stony Creek</li></ul>
<ul><li>Clover Creek</li><li>Kelsey Creek</li></ul>	
<ul> <li>Middle Creek</li> <li>Molesworth Creek</li> <li>Rodman Slough</li> </ul>	
<ul> <li>Scotts Creek</li> <li>Willow Slough</li> </ul>	

Note: Although multiple features called Middle Creek occur within the GAI, the plans in Table 8-3 refer to the creeks in the Upper Cache HUC-8.

Document	Reference	Information Identified
Policies, Procedures, Guidelines, and Water Quality Plans	See below	See below
2008 Final Compensatory Mitigation Rule	73 Federal Register 19593	Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on-site and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS. Recognizes that consolidating mitigation may be environmentally preferable for linear projects (because advance or at least concurrent compensatory mitigation is environmentally preferable but not always possible to achieve) (Preamble and 33 Section 332.3).
2020 Fish Passage Annual Legislative Report	Caltrans 2021b	<ul> <li>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:</li> <li>Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed</li> <li>Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species</li> <li>Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts</li> <li>Subject matter experts include CDFW, NMFS, FWS, CalTrout, Pacific States Marine Fisheries</li> </ul>
303(d) List of Impaired Water Bodies	SWRCB 2021	Commission, and other local fish passage advocates. 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, 16 waterbodies are listed as impaired within the GAI (Table 2-6). Of the 16, 5 have an established TMDL.
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."

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

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 <i>National Wetlands Mitigation Action Plan</i> were incorporated into the 2008 Final Compensatory Mitigation Rule, which was updated in 2015 and includes the no net loss policy.
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	SWRCB 2019	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 Valley Region	Central Valley RWQCB 2019	Identifies water quality objectives and beneficial uses for the Sacramento River Basin and the San Joaquin River Basin.
Species and Habitat Recovery Plans	See below	See below
<i>Commitments to Save</i> <i>Clear Lake Hitch</i>	CDFW 2023c	Identifies goals to evaluate and eliminate barriers that can prevent Clear Lake hitch from using the tributaries to Clear Lake. A goal includes the removal of the Main Street barrier along Kelsey Creek in coordination with Lake County and the Big Valley Band of Pomo Indians.
Conservation Strategy for the Clear Lake Hitch	CDFW 2022b	Identifies goals to improve habitat conditions for the species by conducting restoration in Kelsey, Scotts, and Middle Creeks as well as conducting general wetland restoration around the shore of Clear Lake.

Document	Reference	Information Identified
Recovery Plan for Vernal Pool Ecosystems of	FWS 2005	Regions within the GAI covered by the plan are the Lake-Napa region, containing the Berryessa, Boggs Lake-Clear Lake, Dry Lake, Jordan Park, and Long Valley core areas, as well as the Solano- Colusa region, which does not contain a core area within the GAI.
California and Southern Oregon		Listed species for recovery that use aquatic habitat within these core areas include Loch Lomond button-celery ( <i>Eryngium constancei</i> ), Contra Costa goldfields ( <i>Lasthenia conjugens</i> ), few-flowered navarretia ( <i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> ), vernal pool fairy shrimp, many-flowered navarretia ( <i>Navarretia leucocephala</i> ssp. <i>plienantha</i> ), slender Orcutt grass, Lake County sedella ( <i>Sedella leiocarpa</i> ), and Boggs Lake hedge-hyssop ( <i>Gratiola heterosepala</i> ). Legenere ( <i>Legenere limosa</i> ) and small pincushion navarretia ( <i>Navarretia myersii</i> ssp. <i>deminuta</i> ) are also expected to benefit from this plan.
Special Status Assessment for the Clear Lake Hitch (Lavinia exilicauda chi) Version 1.0	FWS 2020	Document identifies two reproducing populations within the GAI, Clear Lake and its tributaries as well as Thurston Lake and its tributary Thurston Creek.
Conservation and Land Management Documents	See below	See below
Anderson Marsh State Historic Park General Plan	California State Parks 1988	Includes a general goal to restore habitats in the park and a specific goal to restore Molesworth Creek.
Cache Creek Resources Management Plan for Lower Cache Creek	Yolo County 2022	Plan goals include the eradication of priority nonnative species, including those that infest riparian systems such as edible fig, tamarisk, tree-of-heaven, giant reed, Himalayan blackberry, perennial pepperweed, and yellow flag iris as well as conducting restoration in general within the plan area.
Clear Lake Integrated	Lake County	Plan goals include:
Watershed Management Plan	2010	<ul> <li>Elimination of whorled hydrilla from the lake</li> <li>Restoration of the lake shoreline</li> <li>Restoration of stream channel hydrology and conducting erosion repair in habitats that feed into the lake (at Kelsey Creek below the Main Street Bridge in Kelseyville, the Middle Creek confluence with the east and west forks of the creek downstream to the town of Upper Lake, Scotts Creek at the confluence of the main channel and the south fork, and the Eight Mile Valley portion of the upper portion of the Scotts Creek watershed)</li> </ul>

Document	Reference	Information Identified
Ecological/ Restoration Implementation Plan	USFS 2013	Within the Mendocino National Forest, includes a general goal to restore water resources and watershed health.
General Plan Update 2035 City of Woodland General Plan	City of Woodland 2017	This plan calls out Willow Slough and Cache Creek as important aquatic features outside, and adjacent to, the planning area of the document.
Hopland Band of Pomo Indians Wetlands Program Plan	Hopland Band of Pomo Indians 2011	Includes a general goal to restore riparian wetland, vernal pool, and seep meadow habitat on the Hopland Band of Pomo Reservation.
Impacts of Climate Change on the Big Valley Band of Pomo Indians	Big Valley Band of Pomo Indians 2022	Identifies Adobe and Kelsey Creeks as essential spawning habitat for Clear Lake hitch, and identifies Uruguayan primrose willow and creeping water primrose as two invasive species that are negatively impacting habitat around Clear Lake's shoreline.
Lake County Land	Lake County	Identifies several priorities, including:
Trust Conservation Priority Plan	Land Trust 2019	<ul> <li>Restoration of a parcel with wetland habitat between Manning Creek and Rumsey Slough</li> <li>Conducting water quality improvements to Middle, Scotts, and Clover Creeks to remediate excess phosphorus and sediment into Rodman Slough and Clear Lake</li> <li>Restoration of Rodman Slough</li> <li>Restoration of the mouth of Molesworth Creek</li> </ul>
Solano Subbasin Groundwater Sustainability Plan	Solano County Water Agency 2021	Includes a goal to conduct multipurpose benefit projects, which would include improving groundwater resources for environmental uses such as shorebird habitat improvement.
SWAP	CDFW 2015	Aquatic species targets for the Northern California Interior Coast Ranges portion of the North Coast and Klamath Province include vernal pool tadpole shrimp and Conservancy fairy shrimp ( <i>Branchinecta conservatio</i> ). Other species that use aquatic habitat that are also included as targets are California tiger salamander ( <i>Ambystoma californiense</i> ), California newt ( <i>Taricha torosa</i> ), western spadefoot toad ( <i>Spea hammondii</i> ), California red-legged frog, western pond turtle ( <i>Actinemys marmorata</i> ), American badger ( <i>Taxidea taxus</i> ), river otter ( <i>Lontra canadensis</i> ), yellow warbler ( <i>Setophaga petechia</i> ), and tricolored blackbird ( <i>Agelaius tricolor</i> ). Aquatic habitat targets include montane riparian forest and woodland, freshwater marsh, and wet meadow.

Document	Reference	Information Identified
Ukiah Resource Management Plan	BLM 2006	Includes a goal to restore riparian and wetland areas by eradicating nonnative vegetation on 272 miles of streams and restoring the Cache Creek floodplain.
Yolo HCP/NCCP	Yolo Habitat	Includes goals to generally:
	Conservancy 2018	<ul> <li>restore or create up to 956 acres of wetland and riparian habitats,</li> <li>restore 88 acres of freshwater emergent wetland,</li> <li>restore or create 236 acres of lacustrine/riverine habitat, and</li> <li>enhance 600 acres of lacustrine/riverine habitat.</li> </ul>
		Includes goals to specifically:
		<ul> <li>restore 608 acres of valley foothill riparian habitat along the Cache Creek and Putah Creek corridors, and</li> <li>enhance 1,600 acres of valley foothill riparian habitat primarily in planning units 7 and 9.</li> </ul>
		Planning units in this HCP/NCCP within the GAI include 1, 2, 4, 6, 7, 10, 11, and 19. Species that use aquatic habitat that would benefit from this plan include palmate-bracted bird's beak ( <i>Cordylanthus palmatus</i> ), California tiger salamander, western pond turtle, giant garter snake ( <i>Thamnophis gigas</i> ), western yellow-billed cuckoo ( <i>Coccyzus americanus occidentalis</i> ), least Bell's vireo ( <i>Vireo bellii pusillus</i> ), and tricolored blackbird.

# 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<sup>2</sup> or indirectly from negative impacts of pressures (e.g., habitat fragmentation)" (CDFW 2015). The Corps defines human stressors as human-caused sources of disturbance in an ecosystem, such as roads, urban areas, and agricultural lands (Corps 2015).

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

### 8.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, barriers, and habitat invasion by nonnative species have led to the loss and degradation of aquatic resources. Additionally, the expansion of roads and urbanization have resulted in habitat fragmentation, and a decrease in connectivity between habitats that support different life stages and have contributed to nonpoint source pollution from chemicals and toxins. Roads have also affected local hydrological conditions by changing sheet flow and altering water movement in drainages (CDFW 2015, 2016). Within the GAI, urbanization and development are minimal and primarily limited to the easternmost areas of the GAI in Yolo County as well as along part of State Routes 16, 29, and 53 (Figure 2-7).

Loss of spawning habitat has been identified as one of the key stressors to Clear Lake hitch. This is due to past watershed modifications that have blocked access to or altered the flow regime of tributary streams, which reduces early life stage survival, reproductive success, and the likelihood of recruitment; the loss of wetland/tule habitat that juveniles require for rearing also reduces early life stage survival and the likelihood of recruitment (FWS 2020).

### 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

<sup>&</sup>lt;sup>2</sup> Direct effects occur at the time of construction and indirect effects are reasonably certain to occur, but later in time.

of biodiversity, degradation of habitats, alteration of native genetic diversity, shifting of wetland type, disruption of aquatic and terrestrial connectivity, and further threats to already endangered or threatened natural resources (FWS 2012). Invasive plant species that affect riparian systems within the GAI include edible fig, eggleaf spurge, Japanese knotweed, giant reed, Himalayan blackberry, pampas grass, Russian olive, scarlet sesban, tamarisk, pennyroyal, Klamath peppergrass, and tree-of-heaven (Cal-IPC 2023; CDFW 2015). Invasive wildlife species that affect riparian systems within the GAI include New Zealand mud snails, yellow perch, brown and brook trout, Sacramento pikeminnow, and American bullfrog (CDFW 2015). Mississippi silversides in Clear Lake's nearshore areas competes with Clear Lake hitch for food and poses a predation threat on larvae (FWS 2020).

### 8.5.3. Altered Hydrology, Geomorphology, and Water Quality

Water quality and hydrology can be directly altered by physical barriers such as culverts, dams (including cofferdams), dikes, trash racks, bridges, roads, canals, and other humanmade infrastructure, which can have effects both upstream and downstream by truncating connectivity, altering sediment transport processes, altering natural flow regimes, and changing water surface elevations, adding to the downstream loss of habitat. Stable geomorphology and sediment transport are critical to maintaining healthy streams so that degradation and aggradation do not destroy habitats in the stream, riparian, and wetland habitats downstream. The loss of wetlands can result in increased flooding and decreased water quality in downstream tributaries. Water diversions, in-channel construction, riparian vegetation reduction, agriculture, alteration of streambed and banks, components of timber management, and point and nonpoint source pollution have affected the aquatic ecosystem by altering historical flooding regimes, erosion, and deposition of sediments that maintain floodplains (CDFW 2015). Water quality and quantity are important factors influencing survival for Clear Lake hitch at all life stages, reproductive success, and recruitment, and are important for connectivity between spawning habitat and Clear Lake (FWS 2020).

### 8.5.4. Climate Change and Drought

Section 2.4 provided a brief overview of the GAI's climate and available planning-level predictions for climate change for the region. In the next 30 years, the climate is expected to change. Expected changes include greater minimum, average, and maximum temperature changes over time, more frequent drought periods, heavier intermittent rainfall, a decline in snowpack, increased drought stress on soils, and an increased risk of wildfire (Grantham 2018). Other expected changes include increased chances of landslides and storm surges (Caltrans 2019b). The lower permeability of roads can exacerbate the risks associated with flooding and erosion. Climate change is expected to amplify the pattern of wet, high-river flows in winter and dry, low-river flows in summer, which could contribute to water quality degradation through increased sedimentation and elevation of temperature in summer months attributable to lower-than-average flows (Grantham 2018). Because the timing of precipitation is projected to change, in some

years the number of tributaries available to Clear Lake hitch over the spawning season could be reduced (FWS 2020).

### 8.5.5. Wildfire Risk

Vegetation can be altered by large-scale wildfire effects by altering microclimatic regimes; increasing runoff and river discharge; and enhancing erosion and sediment inputs, transport, and deposition. Roads can exacerbate the risks associated with runoff and shifting sedimentation levels. 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 (CDFW 2015). Increased fire due to climate change could increase the amount of erosion occurring in tributary streams, further decreasing water quality within the lake, negatively impacting Clear Lake hitch (FWS 2020).

## 8.6 Multi-resource Benefits

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

- Figure 8-1 illustrates the regional aquatic biodiversity within the GAI, as provided by CDFW's ACE GIS dataset. According to these data, aquatic diversity within the GAI is primarily high to moderate.
- 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, complexity, and connectivity of riparian habitat will provide additional shaded riverine aquatic habitat within the GAI that can benefit fish species such as Clear Lake tule perch (*Hysterocarpus traskii pomo*) and Sacramento perch (*Archoplites interruptus*) as well as other species that use aquatic habitat such as Boggs Lake hedge-hyssop (*Gratiola heterosepala*).
- Enhancing and/or restoring the aquatic resources of the GAI is expected to support or contribute to beneficial uses of wetland and non-wetland waters of the GAI. For example, enhancement and/or restoration of wetlands adjacent to wildlife habitat would likely improve wildlife habitat water quality. Further, enhancement and/or restoration of wetlands adjacent to GAI waters could sequester contaminants in waters identified as 303(d) impaired and/or with an established TMDL.





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

# 8.7 Advance Mitigation Conservation Goals and Objectives

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

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

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

Table 8-4. Advance Mitigation Conservation Goals and	d Objectives for Aquatic Resources
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Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-1: No net loss to area, functions, values, and condition of wetland and non-wetland water resources.	See below	See below
<b>Objective AR-1.1:</b> Improve quality and function of wetland and non- wetland water resources.	<ul> <li>Sub-Objective AR-1.1.1: Enhance and/or rehabilitate wetland and non-wetland water resources such that the greatest functional lift to the aquatic resource is provided, including by consolidating compensatory mitigation consistent with Executive Order W-59-93.</li> <li>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, and other land management plans identified in Table 8-3.</li> <li>Sub-Objective AR-1.1.3: Prioritize enhancement and/or restoration of riparian vegetation within the GAI, particularly the Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks and other named and unnamed tributaries, many of which are listed in Table 8-2.</li> <li>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 and increase basin-wide value of resources.</li> </ul>	<ul> <li>2008 Final Compensatory Mitigation Rule (73 Fede 303(d) List of Impaired Water Bodies (SWRCB 202</li> <li>Big Valley Band of Pomo Indians (Big Valley Band California Wetlands Conservation Policy (Executive Ecological Restoration Implementation Plan (USFS General Plan Update 2035 City of Woodland Gene</li> <li>Hopland Band of Pomo Indians Wetlands Program</li> <li>Lake County Land Trust Conservation Priority Plan</li> <li>National Wetlands Mitigation Action Plan (EPA and Regional Compensatory Mitigation and Monitoring</li> <li>State Wetland Definition and Procedures for Disch (SWRCB 2019)</li> <li>Ukiah Resource Management Plan (BLM 2006)</li> <li>SWAP (CDFW 2015)</li> <li>Water Quality Control Plan for the North Coast Regional Compensatory Plan for the North Coast Regional Complexity Control Plan for the North Coast Regional Complexity Plan for the North Coast</li></ul>
<b>Objective AR-1.2:</b> Avoid a net loss of aquatic resource acreage by establishing aquatic resources.	<ul> <li>Sub-Objective AR-1.2.1: Establish and/or reestablish wetland and non-wetland waters, particularly in key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, and other land management plans identified in Table 8-3.</li> <li>Sub-Objective AR-1.2.2: Establish and/or reestablish riparian vegetation in the HUC-8s of the GAI, particularly in Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks and in other named and unnamed streams, many of which are listed in Table 8-2.</li> </ul>	Same references as listed with Objective AR-1.1.

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egion (North Coast RWQCB 2018)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
Goal AR-2: Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters.	See below	See below
<b>Objective AR-2.1:</b> Restore and/or enhance water quality.	<ul> <li>Sub-Objective AR-2.1.1: In coordination with the RWQCB, restore and/or enhance wetland and non-wetland waters with RWQCB biology-related beneficial use designations such as cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; warm freshwater habitat; and wildlife habitat.</li> <li>Sub-Objective AR-2.1.2: In coordination with natural resource regulatory agencies, address aggradation, erosion, nutrients, contaminants, sedimentation, and temperatures in the HUC-8s identified in Table 8-2.</li> <li>Sub-Objective AR-2.1.3: In coordination with the RWQCB, implement restoration and enhancement actions that address water quality for aquatic resources.</li> <li>Sub-Objective AR-2.1.4: Restore or create riparian floodplain habitat, adjacent wetlands, and adjacent non-wetland aquatic features to enhance water quality in tributaries and downstream systems.</li> <li>Sub-Objective AR-2.1.5: Rehabilitate and/or enhance small streams and sections of larger streams by removing nonnative plant species that degrade stream water quality, such as edible fig, giant reed, Himalayan blackberry, pampas grass, Russian olive, tamarisk, pennyroyal, peppergrass, and tree-of-heaven.</li> <li>Sub-Objective AR-2.1.6: Improve stream temperatures by increasing shaded riverine aquatic habitat in Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks for fish and other aquatic life.</li> </ul>	<ul> <li>2008 Final Compensatory Mitigation Rule (73 Fede 303(d) List of Impaired Water Bodies (SWRCB 202</li> <li>California Wetlands Conservation Policy (Executive Ecological Restoration Implementation Plan (USFS</li> <li>Lake County Land Trust Conservation Priority Plan</li> <li>National Wetlands Mitigation Action Plan (EPA and Regional Compensatory Mitigation and Monitoring State Wetland Definition and Procedures for Discha (SWRCB 2019)</li> <li>SWAP (CDFW 2015)</li> <li>Ukiah Resource Management Plan (BLM 2006)</li> <li>Water Quality Control Plan for the North Coast Reg</li> </ul>
<b>Objective AR-2.2:</b> Improve surface water hydrology.	<ul> <li>Sub-Objective AR-2.2.1: Restore and/or enhance natural hydrologic regimes, natural sediment transport, and geomorphic processes.</li> <li>Sub-Objective AR-2.2.2: Reconnect severed aquatic systems and improve connectivity in aquatic and riparian systems, with particular focus on reconnecting higher watershed areas with lower watershed areas, such as reconnecting tributaries to Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks.</li> <li>Sub-Objective AR-2.2.3: Reestablish hydrologic regimes or drainage patterns for better function of depressional, freshwater, vernal pool, lake, riverine, and slope natural habitats.</li> </ul>	Same references as listed with Objective AR-2.1.
<b>Objective AR-2.3:</b> Improve water storage and groundwater recharge.	<ul> <li>Sub-Objective AR-2.3.1: Promote restoration of stream and riparian areas' natural functions to provide water storage and release.</li> <li>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.</li> <li>Sub-Objective AR-2.3.3: Create or restore wetlands adjacent to streams to enhance groundwater-surface water dynamics in tributaries.</li> </ul>	Same references as listed with Objective AR-2.1.

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gion (North Coast RWQCB 2018)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3	
Goal AR-3: Restore and/or enhance and expand habitat for fish species of mitigation need.	See below	See below	
<b>Objective AR-3.1:</b> Restore and/or enhance habitat.	<ul> <li>Sub-Objective AR-3.1.1: Implement habitat restoration and enhancement actions that reduce pressures and stressors on Clear Lake hitch, such as restoring and reconnecting spawning habitat, removing invasive species that compete with Clear Lake hitch, and improving water quality.</li> <li>Sub-Objective AR-3.1.2: Consult with CDFW to remove barriers to Clearlake hitch passage</li> </ul>	<ul> <li>Big Valley Band of Pomo Indians (Big Valley Band</li> <li>Commitments to Save Clear Lake Hitch (CDFW 2</li> <li>Conservation Strategy for the Clear Lake Hitch (C</li> <li>Personal Communication (CDFW 2024)</li> </ul>	
	at one or more of the following locations: Kelsey Creek Fish Ladder Project at Main St. Bridge, Schindler Creek Barrier at Highway 20, Adobe Creek Culvert Removal at Bell Hill Road, and Scotts Creek near Blue Lake off Highway 20.		
	<b>Sub-Objective AR-3.1.3:</b> Consult with CDFW to implement recommended actions to improve conditions for Clear Lake hitch, including removing nonnative vegetation from: Scotts Creek near Blue Lake off Highway 20, Clover Creek at Highway 20, Thompson Creek at Soda Bay Road, and McGaugh Slough at Soda Bay Road.		
Goal AR-4: Support resiliency of aquatic resources to climate change.	See below	See below	
<b>Objective AR-4.1:</b> Reduce impacts from climate change.	<b>Sub-Objective AR-4.1.1:</b> Enhance and/or restore aquatic resource function and value within areas of lower climate resilience, such as the southern portion of the GAI, to reduce climate change effects on aquatic resources.	<ul> <li>Big Valley Band of Pomo Indians (Big Valley Bat</li> <li>California Wetlands Conservation Policy (Execu</li> <li>Clear Lake Integrated Watershed Management</li> <li>Conservation Strategy for the Clear Lake Hitch (Execution Strategy for the Clear Lake Hitch)</li> </ul>	
	<b>Sub-Objective AR-4.1.2:</b> Prioritize enhancement and/or restoration that will increase resilience to climate change, such as aquatic features with hydrologic connections to the Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks, such that the potential for aquatic resource migration increases.	<ul> <li>Ecological Restoration Implementation Plan (US</li> <li>General Plan Update 2035 City of Woodland Ge</li> <li>Lake County Land Trust Conservation Priority Pl</li> <li>National Wetlands Mitigation Action Plan (EPA a</li> <li>SWAP (CDFW 2015)</li> <li>Ukiah Resource Management Plan (BLM 2006)</li> <li>Water Quality Control Plan for the Central Valley</li> </ul>	
	<b>Sub-Objective AR-4.1.3:</b> Prioritize riparian areas of the HUC-8s identified in Table 8-2, and implement improvements that involve enhancement and/or restoration to improve freshwater quantity and quality, floodplain connectivity, and instream cover continuity.		
	<b>Sub-Objective AR-4.1.4:</b> Enhance, rehabilitate, establish, and/or reestablish aquatic habitats by using native species such as willows ( <i>Salix</i> spp.), cattails ( <i>Typha</i> spp.), rushes ( <i>Juncus</i> spp.), and bulrushes ( <i>Schoenoplectus</i> spp.) to reduce the effects of climate change.		
	<b>Sub-Objective AR-4.1.5:</b> Reduce adverse instream flooding effects by restoring affected headwater and tributary hydrological functions for Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks.		
	<b>Sub-Objective AR-4.1.6:</b> Prioritize habitat establishment and reestablishment within areas that can also reduce risk in floodprone systems, in particular areas along Cache, Kelsey, Middle, Putah, Scott, and Stony Creeks.		

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d of Pomo Indians 2022) ve Order W-59-93) lan (Lake County 2010) DFW 2022b) S 2013) eral Plan (City of Woodland 2017) n (Lake County Land Trust 2019) d Corps 2002)

Region (Central Valley RWQCB 2019)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-3
<b>Objective AR-4.2:</b> Improve aquatic habitat resiliency.	<ul> <li>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.</li> <li>Sub-Objective AR-4.2.2: Prioritize management of invasive species that occur within large, contiguous areas in aquatic habitats, such as floodplains.</li> <li>Sub-Objective AR-4.2.3: Enhance and/or restore small (that is, low order) tributaries/streams that discharge into larger waterbodies such as Cache, Kelsey, Middle, Putah, Scotts, and Stony Creeks.</li> </ul>	Same references as listed with Objective AR-4.1.
Goal AR-5: Provide multi- resource benefits.	See below	See below
<b>Objective AR-5.1:</b> Maximize mitigation opportunities for multiple environmental benefits.	<b>Sub-Objective AR-5.1.1:</b> 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.	<ul> <li>Hopland Band of Pomo Indians Wetlands Program</li> <li>Recovery Plan for Vernal Pool Ecosystems of Calif</li> <li>Solano Subbasin Groundwater Sustainability Plan</li> <li>SWAP (CDFW 2015)</li> </ul>
	<b>Sub-Objective AR-5.1.2:</b> Enhance and/or restore habitats for other aquatic species such as vernal pool crustaceans and plants, fish species included in Section 2.16.2, and species included in Appendix D that could benefit from aquatic habitat enhancement and/or restoration.	
	<b>Sub-Objective AR-5.1.3:</b> Address additional RWQCB beneficial use designations, such as recreation (for example, bird watching), through enhancement, rehabilitation, establishment, and/or reestablishment actions.	

*n Plan* (Hopland Band of Pomo Indians 2011) *lifornia and Southern Oregon* (FWS 2005) (Solano County Water Agency 2021)

## 8.8 Summary

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

- habitat loss, fragmentation, and degradation;
- invasive species;
- altered hydrology, geomorphology, and water quality;
- climate change and drought; and
- wildfire risk.

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

Regional conservation goals and objectives provide a framework for scoping mitigation credit establishment that would likely successfully offset future transportation project impacts on aquatic resources by creating functional lift or conservation benefits, and by mitigating the pressures and stressors on aquatic resources within 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 within the GAI. The primary objectives associated with this goal are to improve existing wetland and non-wetland water resources and create new ones. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality; habitat loss, fragmentation, and degradation; invasive species; and wildfire risk.
- Goal AR-2 seeks to restore and maintain the chemical, physical, and biological integrity of waters. The primary objectives associated with this goal are to 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, geomorphology, and water quality.
- Goal AR-3 seeks to direct advance mitigation planning toward Clear Lake Hitch, the fish species of mitigation concern. The objectives are designed to restore and/or enhance habitat for Clear Lake hitch 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 within the GAI. The primary objectives are to reduce impacts on aquatic resources from climate change and improve aquatic habitat climate resiliency. The sub-objectives were

selected to address the following pressures and stressors: climate change and drought; invasive species; and wildfire risk.

• **Goal AR-5** seeks to guide advance mitigation project scoping to prioritize multiresource 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 within the GAI, including benefits to upland terrestrial habitat. Goal AR-5 was developed to include conservation for multiple resources while seeking to address in-kind transportation projects' effects on aquatic resources.

Each of the goals and objectives have sub-objectives intended to further guide advance mitigation project scoping toward resource and regulatory agencies' regional conservation goals and objectives. These sub-objectives will prompt Caltrans to incorporate multiple benefits into advance mitigation project scopes and address important threats within 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 1 will nominate advance mitigation projects to the Caltrans Director and request funding approval (see Step 4 on Figure 1-1; Figure 6-1; Caltrans 2019a). Each advance mitigation project nominated to the Director will consist of a scope, schedule, and cost for an SHC § 800.6(a)-authorized activity. With respect to scope, in this chapter, Caltrans analyzes the information previously presented 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 1 with scoping of SHC § 800.6(a)-authorized activities to be considered further for potential funding by the AMA (see Step 4 of Figure 1-1 and Section 9.4).

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

# 9.1 Overview of Advance Mitigation Project Scope Development

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

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

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

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

#### Advance mitigation project scopes must:

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

Benefit multiple transportation projects' delivery schedules

Deliver mitigation anticipated to be needed to fulfill the mitigation requirements of transportation improvements<sup>a</sup>

Be consistent with natural resource regulatory agency(ies) 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, mitigationrelated agreements, advance mitigation project-specific agreements<sup>b,c</sup>, and contracts with qualified third parties<sup>d</sup>

Address overlapping mitigation requirements

Implement the state's competitive proposal and bidding processes<sup>d</sup>

Strategically exercise the AMA

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

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

<sup>d</sup> Procedures for Caltrans to enter in contracts with third parties are available at: <u>http://ppmoe.dot.ca.gov/des/oe/contractor-info.html</u>.

<sup>&</sup>lt;sup>a</sup> California Constitution, Article XIX, § 2, subdivision (a)

<sup>&</sup>lt;sup>b</sup> 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.

# Table 9-2. Summary of Conservation-related Advance Mitigation Project ScopeGoals and Objectives

#### Advance mitigation project scopes will strive to:

Benefit multiple wildlife species and aquatic resources

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

Benefit regional biodiversity

Contribute to landscape climate change resiliency

Contribute to landscape connectivity

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

Mitigate effects of stressors on wildlife species and aquatic resources

Restore and rehabilitate wildlife habitat and aquatic resources

## 9.2 Benefiting Transportation Project Needs Summary

The proximity of planned SHOPP transportation projects to natural resources is shown on figures throughout this document; non-SHOPP STIP-eligible projects were not identified for the planning period, and so are not shown. Estimated transportation project mitigation needs within the GAI for fiscal years 2021/22 to 2030/31 are presented in Chapter 5, *Modeled Estimated Impacts*, and the timing of the needs is analyzed in Chapter 6, *Benefiting Transportation Project Considerations*. For the time interval under consideration, 2021/22 to 2030/31, Caltrans District 1 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 to the end of the planning period. Given the expected timing of mitigation need, at this time (March of fiscal year 2023/24), mitigation that can be purchased or established by 2025/26 (within the next 2 years) could potentially address mitigation for impacts on aquatic resources within the following sub-basins:

- Upper Cache Sub-basin:
  - 1.4 acres of fish habitat, 0.1 acre of wetland, 1.3 acres of non-wetland waters, and <0.1 acre of riparian habitat impacts, potentially contributing to the acceleration of 3, 2, 3, and 1 transportation projects, respectively (Table 6-1)
- Upper Putah Sub-basin:
  - 0.1 acre of wetland, 0.6 acre of non-wetland waters, 1.7 acres of riparian habitat, and 0.2 acre of vernal pool habitat impacts, potentially contributing to the acceleration of 3, 5, 5, and 1 transportation projects, respectively (Table 6-2)

Additionally, mitigation that can be purchased or established by 2024/25 (within the next 2 years) for terrestrial resources could potentially address mitigation for impacts on terrestrial species of mitigation need within the following ecoregions:

- Great Valley Ecoregion Section:
  - 0.1 acre of California red-legged frog habitat and 0.1 acre of valley elderberry longhorn beetle habitat impacts, potentially contributing to the acceleration of 1 and 1 transportation projects, respectively (Table 6-3)
- Northern California Coast Ranges Ecoregion Section:
  - 32 acres of California red-legged frog habitat and 0.1 acre of valley elderberry longhorn beetle habitat impacts, potentially contributing to the acceleration of 7 and 1 transportation projects, respectively (Table 6-4)
- Northern California Interior Coast Ranges Ecoregion Section:
  - 5.5 acres of California red-legged frog habitat and 1.1 acres of valley elderberry longhorn beetle habitat impacts, potentially contributing to the acceleration of 5 and 3 transportation projects, respectively (Table 6-5)

All or some of these needs could form the basis for Caltrans District 1 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 11 SHC § 800.6(a)-authorized advance mitigation project type 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 within the GAI. Others are not currently feasible because a regulatory and administrative pathway is not available. Others have potential but may not be feasible to implement on a schedule to contribute to accelerated transportation project delivery. Further, the activity authorized by SHC § 800.6(a)(4) is only feasible if SHC § 800.6(a)(1)–(3) options are not feasible. Results of the feasibility analysis are summarized in the subsections below and in Table 9-4 (wildlife resources) and Table 9-5 (aquatic resources) later in this chapter.

<b>o i i</b>		
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 <sup>b</sup> 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

## Table 9-3. Advance Mitigation Project Types<sup>a</sup>

Advance Mitigation Project Type	Authorization	Section
Caltrans purchases credits developed through an MCA, established under a CDFW-approved RCIS. <sup>c</sup>	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 <sup>c,d</sup> to generate mitigation credits pursuant to an MCA <sup>b</sup> established under a CDFW-approved RCIS. <sup>c</sup> The scope may include Caltrans first entering into or funding the preparation of an MCA. <sup>c</sup> The scope may also include Caltrans first entering into or funding the preparation of an RCIS. <sup>c</sup>	SHC § 800.6(a)(3), SHC § 800.6(a)(3)(A)	9.3.9
Caltrans acquires, restores, manages, monitors, enhances, and preserves <sup>e</sup> 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 <sup>f</sup> pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS. <sup>c</sup>	SHC § 800.6(a)(4), SHC § 800.9	9.3.11

<sup>a</sup> Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.

<sup>b</sup> 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.

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

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

<sup>e</sup> SWRCB and the RWQCBs do not typically approve establishment of or accept preservation credits.

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

### 9.3.1. HCP and/or NCCP Fees

HCPs and NCCPs are discussed in Section 4.2. HCPs and NCCPs are species-focused and are aligned with and plan for natural resource protection. HCPs, including multiple species HCPs, and NCCPs provide for incidental take under the FESA and CESA, respectively. FWS is the signatory agency to HCPs. CDFW is the signatory agency to NCCPs. Caltrans identified one HCP/NCCP with a plan area that overlaps the GAI—the Yolo County HCP/NCCP— and that includes transportation-related projects (Table 4-2, Figure 4-1).

**Feasibility**. This authorized activity may be feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years,<sup>1</sup> at which point the credits or values would be available to transportation projects.

### 9.3.2. Conservation Bank Credit Purchase

Conservation banks are discussed in Section 4.3. Conservation banks are speciesfocused, and each bank's alignment with natural resource protection is documented through its BEI. Within the GAI, CDFW is a signatory to five conservation banks, two of which offer credits for California red-legged frog (Table 4-3). FWS is a signatory to 11 conservation banks, 4 of which offer credits for California red-legged frog (Table 4-3). CDFW and FWS are cosignatories for five of the conservation banks.

Conservation bank service areas are shown in Appendix G, *Conservation and Mitigation Bank Service Areas*, and the anticipated transportation project impact forecast on species of mitigation need is presented by year on Figures 6-4 through 6-6. When placed sideby-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 2024/25, when the credits might contribute to transportation project acceleration.

**Feasibility**. This authorized activity may be feasible. Caltrans District 1 may be able to address some of its California red-legged frog mitigation needs through credits purchased from conservation banks within the GAI. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. The Caltrans District will need to approach each bank to confirm the availability of credits and pre-transfer credit purchase terms. Pre-transfer credits purchased through an advance mitigation project might, with FWS approval, be applied to meet future FWS permit conditions on transportation projects. For existing banks, when the BEI does not allow for pre-transfer credit purchases, a BEI amendment would be required, and additional time for amending the bank instrument should be considered. In 2021, the Interagency Project Delivery Team finalized new bank templates that incorporate pre-transfer purchase terms; additional Caltrans-specific terms would also need to be negotiated with bank sponsors. The decision to amend a BEI is at the discretion of the bank sponsor.

### 9.3.3. Mitigation Bank Credit Purchase

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

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<sup>&</sup>lt;sup>1</sup> Caltrans contracting processes and agency interactions are incorporated into this time estimate.

documented through its BEI. Seven mitigation banks occur within the GAI, six of which provide wetland and non-wetland waters credits, including three that provide riparian habitat credits. The Corps is a signatory on all mitigation banks within the GAI (Table 4-3; Appendix G).

**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 Caltrans District will need to approach each bank to confirm the availability of credits and pre-transfer credit purchase terms. For example, in 2021, the Interagency Project Delivery Team finalized new bank templates that incorporate pre-transfer purchase terms. Bullock Bend Mitigation Bank and Colusa Basin Mitigation Bank have amended their BEIs to include pre-transfer credit sales; however, others are in progress or have not amended their BEIs. To purchase pre-transfer credits from existing banks that have not amended their instrument, a BEI amendment would be needed, and additional time for amending the bank instrument should be considered. The decision to amend a BEI is at the discretion of the bank sponsor.

### 9.3.4. In-lieu Fee Credit Purchase

In-lieu fee programs are discussed in Section 4.4.<sup>2</sup> 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. It offers permittees an in-lieu fee option to satisfy its compensatory mitigation obligations as determined by the applicable regulatory agencies for impacts on aquatic resources authorized under the CWA, Rivers and Harbors Act, FESA, Porter-Cologne Water Quality Control Act, and other applicable laws. Once enough money is received by an in-lieu fee program, it implements wetland, stream, or threatened or endangered species habitat restoration, creation, enhancement, or preservation activities in a watershed or other defined area.<sup>3</sup> The in-lieu fee program's alignment with natural resource protection is documented through its enabling instrument and will be incorporated into future biological opinions on transportation projects.

One active in-lieu fee program with a service area overlaps the GAI—the NFWF Sacramento District California In-lieu Fee Program—and it includes pre-transfer credit purchases. Four service areas (one aquatic resource and three vernal pool service areas) overlap the GAI (Table 4-4; Figure 4-2). The Sacramento District California In-lieu Fee Program's instrument has been amended to include pre-transfer credit purchases.

**Feasibility**. This authorized activity is feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected

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

<sup>&</sup>lt;sup>3</sup> <u>https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pdf/banking\_faq.pdf</u>

to take 1 to 3 years, at which point the credits or values would be available to transportation projects. Pre-permit credits purchased from the NFWF Sacramento District California In-lieu Fee Program through an advance mitigation project might, with natural resource agency approval, be incorporated into future conditions on transportation projects.

### 9.3.5. MCA Credit Purchase

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. CDFW released RCIS program guidelines, including guidance for the creation of MCAs (CDFW 2023b)<sup>4</sup>. The Yolo RCIS/LCP includes the elements specified in FGC 1856(b) that are required in an RCIS in order for MCAs to be created. However, no MCA credits are currently available for purchase, and Caltrans is unaware of any MCAs under development.

**Feasibility**. At this time (March of fiscal year 2023/24), this authorized activity is not feasible because no MCA credits are available for purchase within the GAI.

### 9.3.6. Conservation Bank Establishment

Instructions and guidance for establishing conservation banks are available from CDFW<sup>5</sup> and FWS.<sup>6</sup> Conservation banks are species-focused, and each bank's alignment with natural resource protection will be documented through its BEI. CDFW, FWS, and NMFS are potential signatories, and circumstances may also exist in which the Corps and/or SWRCB would participate.

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

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

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

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

<sup>&</sup>lt;sup>4</sup> <u>https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation</u>

<sup>&</sup>lt;sup>6</sup> <u>https://www.fws.gov/media/directors-memo-guidance-establishment-use-and-operation-conservation-banks</u>

resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans' understanding that a conservation bank that addresses the following goals would be consistent with CDFW and FWS goals:

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

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

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

## 9.3.7. Mitigation Bank Establishment

Instructions and guidance for establishing mitigation banks are available from the Corps<sup>7</sup> and CDFW.<sup>8</sup> At a minimum, mitigation bank establishment project scopes will refer to and rely on GAI information provided in:

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

To support future transportation project permits, Caltrans would prioritize wetlands and waters credit establishment under the Corps' jurisdiction (wetlands and WOTUS) and

<sup>&</sup>lt;sup>7</sup> <u>https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/mitig\_info/</u>

<sup>&</sup>lt;sup>8</sup> <u>https://wildlife.ca.gov/Conservation/Planning/Banking/Templates</u>

RWQCB's jurisdiction (waters of the state), as well as riparian credit establishment under CDFW's Lake and Streambed Alteration Program.

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

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

- Ensure no net loss to area, functions, values, and condition of WOTUS and waters of the state to ensure no overall net loss and long-term net gain in the quantity, quality, 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<sup>9</sup> (AR-1)
- Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters (AR-2)
- Restore and/or enhance and expand habitat for Clear Lake hitch, a threatened and endangered fish species (AR-3)
- Support resiliency of aquatic resources to climate change (AR-4)
- Provide multi-resource benefits (AR-5)

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

**Feasibility**. This authorized activity may be feasible. As discussed above, instructions and guidance for establishing mitigation banks are available from the Corps and CDFW; therefore, 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.

<sup>&</sup>lt;sup>9</sup> Preservation alone is not recognized by the Corps or RWQCB as providing no net loss.

### 9.3.8. In-lieu Fee Program Establishment

In-lieu fee programs are wetlands, waters, and/or wildlife oriented, and their alignment with natural resource protection will be documented through its enabling instrument. Instructions and guidance for establishing in-lieu fee programs are available from the federal agencies.<sup>10</sup> With respect to wildlife, similar to 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 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, Wildlife Resources Conservation Goals and Objectives
- Chapter 8, Aquatic Resources Conservation Goals and Objectives
- Appendix F, Aquatic Resource Locations

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

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

### 9.3.9. MCA Credit or Value Establishment

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

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<sup>&</sup>lt;sup>10</sup> <u>https://www.spl.usace.army.mil/Missions/Regulatory/Mitigation/</u>

RCIS and the MCA itself (CDFW 2023b). RCIS development is also an SHC § 800.6(a)authorized advance mitigation project deliverable.

At this time, Caltrans cannot be an MCA sponsor<sup>11</sup>. Therefore, Caltrans envisions that credits or values created through an MCA and funded through the AMA could be established under two scenarios:

- Caltrans funds the performance of conservation actions and habitat enhancement actions as needed to generate mitigation credits pursuant to an MCA, in which a third party is the MCA sponsor. The MCA sponsor, CDFW, and landowner would be signatories to the MCA. This scenario assumes an existing RCIS anticipates the requirements and needs for MCA credits to apply to transportation projects.
- Caltrans funds the preparation of an RCIS that anticipates transportation project requirements and needs for MCA credits prior to funding the preparation of an MCA by a third-party who is the MCA sponsor, as in the scenario above.<sup>12</sup>

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<sup>13</sup>, and CDFW would be the signatory. Caltrans may also request other natural resource regulatory agencies to be signatories to the MCA or may request project-specific interagency agreements with other natural resource regulatory agencies whose jurisdiction overlaps with CDFW's.<sup>14</sup> 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 (March of fiscal year 2023/24), RCIS program guidelines, which include guidance for the creation of MCAs, are available (CDFW 2023b).<sup>15</sup> The recent completion of the Yolo RCIS/LCP may provide an opportunity for Caltrans to fund an MCA, through a third-party sponsor. Once an MCA has been approved by CDFW, mitigation credits created through the agreement would be available to be applied to Caltrans transportation projects.

<sup>15</sup> <u>https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation</u>

<sup>&</sup>lt;sup>11</sup> CDFW's legislation requires that MCA securities take the form of a letter of credit or cash per FGC § 1856 subdivision (g)(17), which includes and references all of FGC § 1798.5 subdivision (a)(2). Caltrans cannot provide a letter of credit or cash per the prohibition against pledging the credit of the state, based on Article XVI of the California Constitution, section 6, and Government Code section 16305.3. This conflict to establish security funds will need to be resolved before Caltrans can perform the role of MCA sponsor.

<sup>&</sup>lt;sup>12</sup> 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.

<sup>&</sup>lt;sup>13</sup> Caltrans is the Lead Agency under CEQA; CDFW's permitting authority does not include conditioning transportation projects under CEQA (Section 7).

<sup>&</sup>lt;sup>14</sup> Parallel evaluations are undertaken when, for the same environmental enhancement/action, two or more agencies must employ different mechanisms to approve the credits.

However, at this time, timelines and specifics related to the MCAs are uncertain, and scoping and delivering an advance mitigation project within the AMP's timeline needs is unlikely. Caltrans will stay involved to understand the MCA credit or establishment process; however, given the nature of the AMP's revolving account, which sustains itself through transportation project reimbursements, Caltrans has determined that it cannot commit AMA funds until the creation process can predictably deliver credits on a schedule.

### Wildlife Crossing and Aquatic Corridor Enhancements

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

The AMP is authorized to fund the creation of credits through conservation banks [SHC § 800.6(a)] and MCAs created pursuant to a CDFW-approved RCIS [SHC § 800.6(b)]. FGC § 1957(a) provides a means by which the AMP could potentially fund credit establishment or creation through fish and wildlife connectivity projects. Caltrans will reassess wildlife crossing and aquatic corridor enhancements related to feasibility with respect to the AMA expenditures and mitigation needs covered in this RAMNA once CDFW's guidelines for 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 (March of fiscal year 2023/24), this authorized activity is not feasible. A supportive regulatory and administrative pathway for a natural resource regulatory agency to recognize credits or values outside of existing advance mitigation mechanisms, such as the procedures to establish banks, does not exist. Without an existing regulatory pathway, the time to establish credits or values for this advance RAMNA – District 1

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.

### 9.3.11. Mitigation in Accordance with a Programmatic Mitigation Plan

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

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

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

**Feasibility**. At this time (March of fiscal year 2023/24), a number of the authorized activities listed in Table 9-3 appear to be feasible (see Tables 9-4 and 9-5). This suggests that addressing a Caltrans SAMNA-estimated need will not require another approach in accordance with SHC § 800.6(a)(4). At this time, management of the AMA does not need to consider limiting any advance mitigation project type to 25 percent of the fund.

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists within the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete <sup>a</sup>
Pay NCCP and/or HCP fees⁵	Yes	Yes, one HCP/NCCP within the GAI that applies to transportation	No, FWS is not authorized to participate	1 to 3 years
Purchase conservation bank credits	Yes, may require instrument amendment	Yes, four FWS or CDFW and FWS-approved banks within the GAI with California red-legged frog credits	No, FWS-only. California red- legged frog is federally listed.	1 to 3 years
Purchase in-lieu fee credits	Yes	No, one Corps in-lieu fee program, but none for FWS; CDFW is not authorized to participate in in-lieu fee programs	Not available	Not available
Purchase MCA credits	Yes	No, one approved RCIS with a service area that overlaps the GAI but no approved MCAs available	Not available	Not available
Establish conservation bank	Yes	Yes, CDFW, FWS, and NMFS	Yes, with CDFW, FWS, and NMFS	2 to 6 years
Establish in-lieu fee program	Yes	Yes, with FWS and NMFS	Yes, with FWS, and NMFS; potential to align with Corps in-lieu fee program	2 to 6 years
Establish MCA credits or values <sup>c</sup>	Yes, one CDFW- approved RCIS with a service area that overlaps the GAI; MCA creation guidelines available	Yes, one approved RCIS with a service area that overlaps the GAI, but MCA would need to be established	Maybe, CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired; potential for parallel evaluations with other natural resource regulatory agencies	Not available

# Table 9-4. Wildlife Resources Credit Options and Feasibility, March 2024

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists within the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete <sup>a</sup>
Establish RCIS and MCA <sup>c</sup>	Yes, one CDFW- approved RCIS with a service area that overlaps the GAI; RCIS and MCA creation guidelines available	Yes, one approved RCIS with a service area that overlaps the GAI, but MCA would need to be established	Maybe, CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired; potential for parallel evaluations with other natural resource regulatory agencies	Not available
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

<sup>a</sup> Caltrans contracting processes and agency interactions are incorporated into this time estimate.
 <sup>b</sup> 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.
 <sup>c</sup> Either Caltrans or a third party would be the signatory with CDFW.
Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists within the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete <sup>a</sup>
Purchase mitigation bank credits	Yes, may require instrument amendment	Yes, seven Corps banks	Yes, Corps, CDFW, EPA, FWS, NMFS, and RWQCB	1 to 3 years
Purchase in-lieu fee credits	Yes, instrument amended; does not require instrument amendment	Yes; one Corps in-lieu fee program	Yes, Corps, EPA, NMFS, and RWQCB	1 to 3 years
Purchase MCA credits	Yes	No, one approved RCIS with a service area that overlaps the GAI, but no approved MCAs available	Not available	Not available
Establish mitigation bank	Yes	Yes, Corps, EPA, CDFW, FWS, and NMFS	Yes, RWQCB, Corps, EPA, CDFW, FWS, and NMFS	2 to 6 years
Establish in-lieu fee program	Yes	Yes, for Corps, EPA, FWS, and NMFS	Maybe, Corps, FWS, NMFS, EPA, and RWQCB	2 to 6 years
Establish MCA credits or values <sup>b</sup>	Yes, one CDFW- approved RCIS with a service area that overlaps the GAI; MCA creation guidelines available	Yes, one approved RCIS with a service area that overlaps the GAI, but MCA would need to be established	Maybe, CDFW program– CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired; potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available

## Table 9-5. Aquatic Resources Credit Options and Feasibility, March 2024

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists within the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete <sup>a</sup>
Establish RCIS and MCA <sup>♭</sup>	Yes, one CDFW- approved RCIS with a service area that overlaps the GAI; RCIS and MCA creation guidelines available	Yes, one approved RCIS with a service area that overlaps the GAI, but MCA would need to be established	Maybe, CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired; potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available
Establish mitigation that meets an RCIS objective	No	Not available	Not available	Not available
Establish mitigation in accordance with a programmatic mitigation plan	Maybe	Maybe	Not available	Not available

<sup>a</sup> Caltrans contracting processes and agency interactions are incorporated into this time estimate. <sup>b</sup> Either Caltrans or a third party would be the signatory with CDFW.

## 9.3.12. Discussion

Caltrans modeled its compensatory mitigation needs within the GAI for fiscal years 2021/22 to 2030/31 (Chapter 5, *Modeled Estimated Impacts*) and evaluated its needs in light of when transportation projects might need the mitigation (Chapter 6, *Benefiting Transportation Project Considerations*, and Section 9.2). Summarized in Tables 9-4 and 9-5, Caltrans identified several 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 (Sections 9.3.6 through 9.3.11).

Based on its evaluation, Caltrans found that, at this time (March of fiscal year 2023/24), a few authorized activities are feasible, and, under several scenarios, advance mitigation project scopes could cover multiple resources and address overlapping natural resource regulatory agency jurisdictions (see Section 9.2). For example, state waters/streams and riparian habitat could be addressed through the same credit purchase or by establishing a single credit establishment project. Under some conditions, establishing new mitigation credits through existing mechanisms may also be possible.

## 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 1 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 1 will also consider based on its localized knowledge of delivering mitigation within its region. For example, Caltrans may prioritize advance mitigation projects that reduce risk in implementation and long-term management by eliciting others to be bank or in-lieu fee sponsors.

As described in the introduction to this chapter and in Section 9.1, to inform the advance mitigation project scope, Caltrans District 1 will use information in the RAMNA. Each scope will consider mitigation needs; the timing of mitigation needs; conservation data and plans; input from natural resource regulatory agencies, interested parties, and tribes; feasibility; timing; and other financial, strategic, and technical risks associated with transportation project delivery and conservation actions. Advance mitigation project scopes will also employ, as appropriate, existing applicable state and federal standards

and instruments, mitigation-related agreements, advance mitigation project-specific agreements, and contracts with qualified third parties.

Caltrans District 1 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 1 will commit to delivering the advance mitigation project within the scope, schedule, and budget communicated with nomination materials. At that point, Caltrans District 1 will initiate project delivery (see Steps 6 through 10 on Figure 1-2; Caltrans 2023b). Advance mitigation project delivery includes engaging stakeholders, analyzing project alternatives, coordinating with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third parties and/or credit sponsors, and developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement(s). Additionally:

- Stakeholder engagement will be conducted in accordance with each advance mitigation project's communication plan, and be consistent with the applicable and appropriate requirements of existing applicable state and federal standards and instruments.
- When required by the advance mitigation project type, site selection may be performed by or under contract to Caltrans through a competitive bid process, and may include existing mitigation providers—for example, banks, NCCPs, MCAs, and the identification of new acquisitions. When a competitive bid process is used, sites are subject to what bid respondents put forward in their proposals. Site selection should be consistent with appropriate conservation goals and objectives, and Chapter 7, *Wildlife Resources Conservation Goals and Objectives*.
- When appropriate for the advance mitigation project type, it may be necessary to identify the steps required to meet the goal of satisfying overlapping jurisdictional mitigation requirements.
- Instruments and advance mitigation project-specific interagency agreements will specify the terms of use of the credits, including the service areas. Service areas will be defined based on feedback from the natural resource regulatory agencies. It is intended for the ecological units used for this RAMNA to lead to ecologically based advance mitigation project scopes and service areas; Caltrans uses HUC-8 sub-basins to be consistent with the 2008 Mitigation Rule and ecoregions to be consistent with the SWAP.

As with all credits and values established through advance mitigation processes, the credits' suitability for application to a specific transportation project is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

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