ADVANCE MITIGATION PROGRAM

Salton Sea Sub-basin Regional Advance Mitigation Needs Assessment

Version 1.0 – FINAL

Establishing Caltrans' Need for Advance Mitigation for the Salton Sea Sub-basin, forecast fiscal years 2023/2024 to 2032/2033

California Department of Transportation – District 11

August 2026

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LIST OF ACRONYMS

Acronym	Definition
ACE	Areas of Conservation Emphasis
ADC	Area of Deferred Certification
AMA	Advance Mitigation Account
AMP	Advance Mitigation Program
AMP Guidelines	*Advance Mitigation Program Final Formal Guidelines*
Basin Plan	water quality control plan
BEI	Bank Enabling Instrument
BLM	Bureau of Land Management
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CCC	California Coastal Commission
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_2	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
EMP	Environmental Mitigation Program
EPA	U.S. Environmental Protection Agency
ESU	evolutionarily significant unit
FESA	federal Endangered Species Act
FGC	California Fish and Game Code

FHLICC	Flat-tailed Horned Lizard Interagency Coordinating Committee
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-8	eight-digit hydrologic unit code
LUP	land use plan
Master Process Agreement	*Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program*
MCA	mitigation credit agreement
MPO	metropolitan planning organization
NCCP	natural community conservation plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
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
SANDAG	San Diego Association of Governments
SGCN	Species of Greatest Conservation Need
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 2023/24–2032/33*
SHS	State Highway System
STIP	State Transportation Improvement Program
SWAP	State Wildlife Action Plan
SWRCB	State Water Resources Control Board
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 *Salton Sea Sub-basin Regional Advance Mitigation Needs Assessment* ("RAMNA") was developed with the goal of realizing the benefits of long-range planning to help manage the risks and priorities of the California Department of Transportation ("Caltrans") Advance Mitigation Program ("AMP"). It was developed in accordance with the AMP Final Formal Guidelines ("AMP Guidelines")[1] and incorporates information and feedback received from outreach to the natural resource regulatory agencies,[2] the Federal Highway Administration, other transportation agencies, Native American tribes, interested parties, and the public. Caltrans District 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[3,4] developed through an authorized regulatory mechanism.[5] Upon delivery, the credits are expected to be both available and at hand for Caltrans and natural resource regulatory agencies to use as offsets to transportation project impacts. The actual finding, however, of a specific credit's adequacy and/or suitability to offset an impact, as well as the placement of natural resource regulatory agency compensatory mitigation conditions on transportation

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

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

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

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

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

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 projects to establish compensatory mitigation, it will aim to establish credits approved by multiple natural resource regulatory agencies. Whether purchased or established, Caltrans intends for credits to be delivered on a schedule that will revolve the AMA.

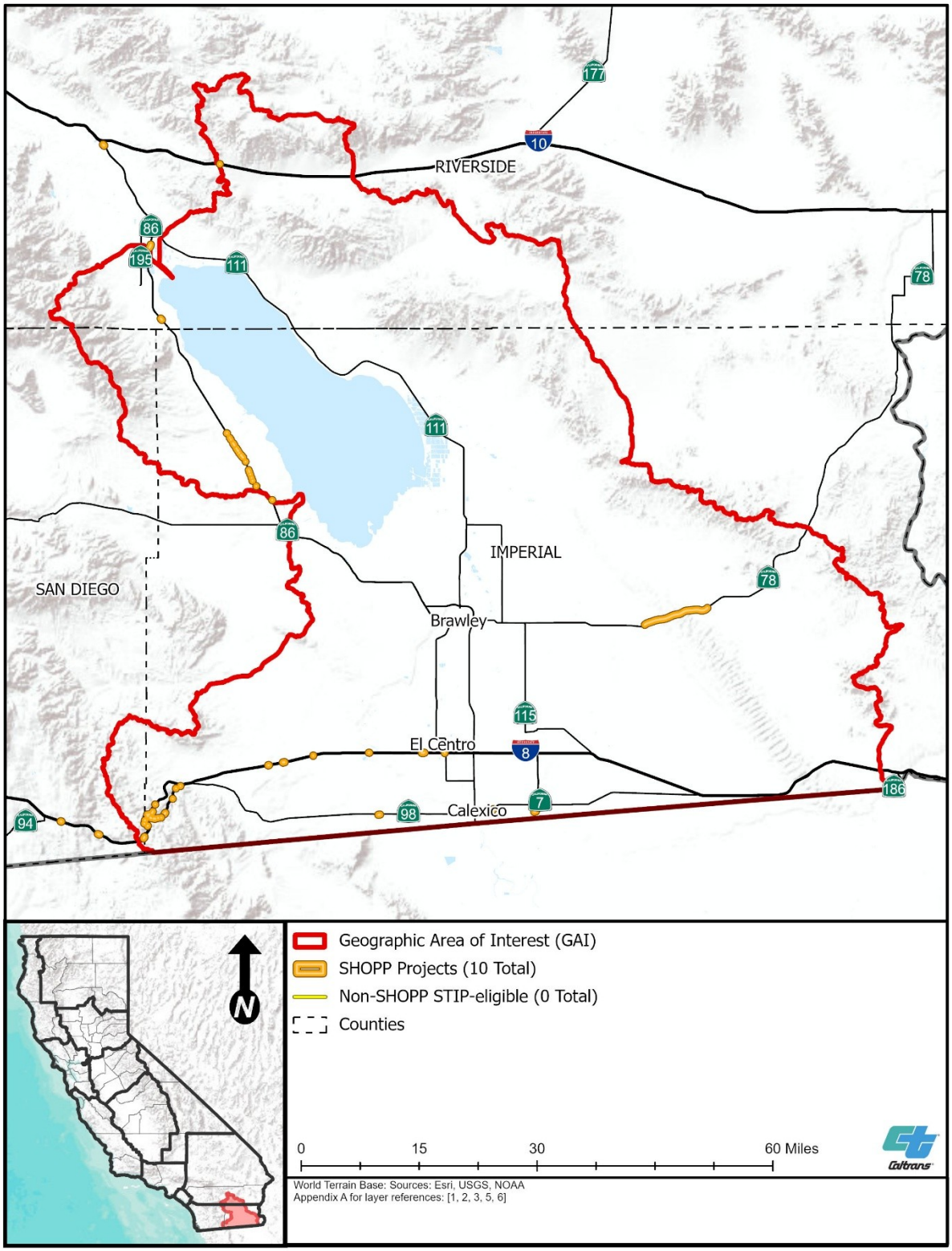
Through the RAMNA's review process, the conservation goals and objectives provided in the RAMNA were vetted with the natural resource regulatory agencies. Caltrans thinks incorporating natural resource regulatory agency goals and objectives into advance mitigation project scopes improves the chances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

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

ES.1 Geographic Area of Interest and Resource Focus

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

Figure ES-1. GAI Road Infrastructure



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

- Long-term transportation plans conceptualized in the *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2023/24—2032/33* ("SHOPP Ten-Year Book"; Caltrans 2024a). 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*[6] *Report Fourth Quarter 2024/25 Fiscal Year* ("SAMNA Report"; Caltrans 2025a). 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 Salton Sea Sub-basin (eight-digit hydrological unit code ["HUC-8"] 18100204). GAIs are established at an ecoregion or HUC-8 scale to define appropriate planning areas for mitigation implementation and anticipated use areas that align with natural resource regulatory agency practices (Caltrans 2019). Caltrans District 11 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 11 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" include the state fully protected bighorn sheep (*Ovis canadensis nelsoni*), state species of special concern burrowing owl (*Athene cunicularia*), federally endangered and state threatened desert tortoise (*Gopherus agassizii*), state species of special concern flat-tailed horned lizard (*Phrynosoma mcallii*), state fully protected ringtail (*Bassariscus astutus*), and state threatened Switak's banded gecko (*Coleonyx switaki*)

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, Environmental Setting, and its associated appendices. To develop an understanding of the GAI that is consistent with natural resource regulatory agency tools and references, geospatial data

[6] The SAMNA Reporting Tool is a geographic information system ("GIS") overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2019a).

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.

The GAI consists of approximately 2.6 million acres within the Salton Sea Sub-basin (HUC-8), which is overlapped by portions of the Colorado Desert, Mojave Desert, Sonoran Desert, and Southern California Mountains and Valleys Ecoregion sections (Table 2-1, Figure 2-1).

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 115 documents that may be relevant to advance mitigation planning and advance mitigation project delivery: 34 state and federal laws, guidelines, and regulations; 19 statewide and regional resource management plans; 26 plans and permits and other documents focused on species of mitigation need; 13 state agency, federal agency, Native American tribal, and local government land management plans; 5 water resources plans and documents; 10 county, city, and local government general plans; and 2 nongovernmental organization conservation and management documents. A summary and links to these documents can be found in Chapter 3, Relevant Plans, Policies, and Regulations.

ES.4 Existing Mitigation Opportunities

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

Chapter 4, Existing Mitigation Opportunities, presents readily available information regarding existing mitigation opportunities for the GAI. In brief, Caltrans identified one HCPs/NCCPs where Caltrans may be eligible to participate, six pending or active conservation and/or mitigation bank, no active in-lieu fee programs, no approved RCISs, and no MCAs.

Existing mitigation opportunities can also inform both regional understanding and advance mitigation project scoping because they may be expressions of resource agency

conservation goals and objectives[7] and may be suitable for concurrent transportation project mitigation.

ES.5 Estimated Impacts

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

Chapter 5, Modeled Estimated Impacts, provides transportation project impact estimates for fiscal years 2023/24 to 2032/33. In the GAI, 10 SHOPP transportation projects and no non-SHOPP STIP-eligible 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 wetlands, non-wetland waters, and riparian habitat from SHOPP transportation projects included in the SAMNA are summarized in Tables ES-1 through ES-3. 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 of mitigation need and fish species of mitigation need are summarized in Tables ES-4 and ES-5.

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

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

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

Table ES-1. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)[a]

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Total Estimated Wetlands Impacts
Salton Sea	18100204	0	0.0
Total	Not applicable	**0**	**0.0**

Source: Caltrans 2025c
[a] Transportation projects are listed in Appendix B.

Table ES-2. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)[a]

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Estimated Non-Wetland Waters Impact (acres)
Salton Sea	18100204	6	0.7
Total	Not applicable	**6**	**0.7**

Source: Caltrans 2025c
[a] Transportation projects are listed in Appendix B.

Table ES-3. Summary of Estimated SHOPP Impacts on Riparian Function in the GAI (acres)[a]

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Estimated Riparian Function Impact (acres)
Salton Sea	18100204	2	0.3
Total	Not applicable	**2**	**0.3**

Source: Caltrans 2025c
[a] Transportation projects are listed in Appendix B.

Table ES-4. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Desert Pupfish	Total
Salton Sea	18100204	3	<0.1	**<0.1**
Total	Not applicable	**3**	**<0.1**	**<0.1**

[a] Threatened and endangered fish species habitat impacts are forecast by the SAMNA Reporting Tool.
[b] Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.

Table ES-5. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need within the GAI (acres)

Ecoregion Section	Desert Bighorn Sheep Habitat: Number of Caltrans SHOPP Projects[a]	Desert Bighorn Sheep: Estimated Habitat Impact (acres)	Burrowing Owl Habitat: Number of Caltrans SHOPP Projects[a]	Burrowing Owl: Estimated Habitat Impact (acres)	Desert Tortoise Habitat: Number of Caltrans SHOPP Projects[a]	Desert Tortoise: Estimated Habitat Impact (acres)	Flat-tailed Horned Lizard Habitat: Number of Caltrans SHOPP Projects[a]	Flat-tailed Horned Lizard: Estimated Habitat Impact (acres)	Ringtail Habitat: Number of Caltrans SHOPP Projects[a]	Ringtail: Estimated Habitat Impact (acres)	Switak's Banded Gecko Habitat: Number of Caltrans SHOPP Projects[a]	Switak's Banded Gecko: Estimated Habitat Impact (acres)
Colorado Desert	1	<0.1	8	23.2	4	4.0	4	3.7	6	1.6	0	0.0
Southern California Mountains and Valleys	3	2.8	2	2.2	3	2.8	0	0.0	3	2.8	3	2.8
Total[b]	4	**2.8**	**9**	**25.4**	**7**	**6.8**	**4**	**3.7**	**8**	**4.4**	**3**	**2.8**

[a] Transportation projects are listed in Appendix B.
[b] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section.

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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 (August of fiscal year 2026/27), Caltrans is 3 years into the SHOPP Ten-Year Book planning period. Hence, for the time period under consideration, fiscal years 2023/24 to 2032/33, Caltrans District 11 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, Benefiting Transportation Project Considerations. Prior to proposing advance mitigation projects, Caltrans District 11 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

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

ES.7 Conservation Goals and Objectives

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

Wildlife Resources Goals and Objectives

When establishing wildlife resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies with the authority to approve wildlife resource-related credit establishment and with the authority to approve their application to offset transportation project-related impacts. At a broad scale, Caltrans' understanding of the wildlife resources goals and objectives presented in this RAMNA encompasses protecting, preserving, and enhancing 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 species of mitigation need in the GAI to support ecosystem functions that are essential to recovery of the species.
- Preserving, enhancing, and increasing connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations.
- Supporting resiliency of the landscape to climate change.
- Decreasing mortality and competition and protecting population health for species of mitigation need.
- Providing multi-species and multi-resource benefits.

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

Aquatic Resources Goals and Objectives

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

- Providing for no net loss to area, functions, values, and condition 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 fish species of mitigation need.
- Supporting resiliency of aquatic resources to climate change and sea-level rise.
- Providing multi-resource benefits.

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

ES.8 Authorized Activity Summary

A summary of Caltrans' need for compensatory mitigation credits in the GAI and the feasibility of each SHC § 800.6(a) authorized activity to address is provided in Chapter 9, Assessment of Authorized Activities. As pointed out in Chapter 6, Benefiting Transportation Project Considerations, given the expected timing of mitigation need, at this time (August of fiscal year 2026/27) mitigation that can be purchased or established by 2027/28 (within the next 2 years) could potentially address mitigation for impacts on aquatic resources on approximately:

- 17.9 acres of burrowing owl habitat, 3.6 acres of desert tortoise habitat, and 3.7 acres of flat-tailed horned lizard habitat in the Colorado Desert Ecoregion Section, potentially contributing to the acceleration of 3, 1, and 2 transportation projects, respectively (Table 6-2)

All or some of these needs could form the basis for Caltrans District 11 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 (August of fiscal year 2026/27), 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.

1. INTRODUCTION

California's State Highway System ("SHS") relies on long-range planning documents to guide its operation and maintenance. In this *Salton Sea Sub-basin Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 11 presents its forecast of natural resource compensatory mitigation[1] needs for the Salton Sea Sub-basin for a 10-year planning horizon. Sources used for this RAMNA are cited throughout this document, and links to geographic information system ("GIS") sources are provided in Appendix A, *GIS Sources*.

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

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

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

This document is intended to be both an internal communication tool between Caltrans' functional units[2] and an external communication tool for Caltrans to communicate with the Federal Highway Administration ("FHWA"), natural resource regulatory agencies, other transportation agencies (that is, metropolitan planning organizations ["MPOs"], regional transportation planning agencies ["RTPAs"], and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. It will be posted on the Advance Mitigation Program ("AMP") website: www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation.

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

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

1.1. AMP Overview

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

Table 1-1. Advance Mitigation Project Types[a]

Advance Mitigation Project Type	Authorization
Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved natural community conservation plan ("NCCP")[b] and/or an approved habitat conservation plan ("HCP").	SHC § 800.6(a)(2)
Caltrans purchases credits from an existing conservation bank.	SHC § 800.6(a)(1)
Caltrans purchases credits from an existing mitigation bank.	SHC § 800.6(a)(1)
Caltrans purchases credits from an existing in-lieu fee program.	SHC § 800.6(a)(1)
Caltrans purchases credits developed through a mitigation credit agreement ("MCA"), established under a California Department of Fish and Wildlife ("CDFW")-approved regional conservation investment strategy ("RCIS").[c]	SHC § 800.6(a)(3)(A)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)
Caltrans funds the implementation of conservation actions and habitat enhancement actions[c,d] to generate mitigation credits pursuant to an MCA[b] established under a CDFW-approved RCIS.[c] The scope may include Caltrans first entering into or funding the preparation of an MCA.[c] The scope may also include Caltrans first entering into or funding the preparation of an RCIS.[c]	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)

Advance Mitigation Project Type	Authorization
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation[e] of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.	SHC § 800.6(a)(3)(B)
When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan[f] pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS.[c]	SHC § 800.6(a)(4) SHC § 800.9

[a] Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.
[b] When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP.
[c] See https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[d] Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with California Fish and Game Code ("FGC") § 1850–1861.
[e] The State Water Resources Control Board ("SWRCB") and Regional Water Boards do not approve the establishment of, or accept, preservation credits as the sole or primary type of mitigation.
[f] Programmatic mitigation plans are defined in 23 U.S. Code ("USC") § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

1.1.1. AMP Guidelines

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

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

Figure 1-1. Advance Mitigation Planning Phase

Source: Caltrans (2019a)

Figure 1-2. Advance Mitigation Project Delivery Phase

Source: Caltrans (2019a)

1.1.2. Advance Mitigation Planning Phase

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

This RAMNA satisfies Step 3 (Figure 1-1; Caltrans 2019a) and provides the results of a regional assessment of Caltrans' advance mitigation needs in the Salton Sea Sub-basin.[4]

Caltrans District 11 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

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

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 11 advance mitigation project for funding (Step 5; Figure 1-1; Caltrans 2019a). Thereafter, Caltrans District 11 will use the RAMNA as a reference (Caltrans 2019a).

1.1.3. Advance Mitigation Project Delivery Phase

Steps 6 through 10 consist of the AMP's advance mitigation project delivery phase (Figure 1-2; Caltrans 2019a). Advance mitigation project delivery is undertaken after an advance mitigation project has been approved by the Caltrans Director and programmed[5] (Figure 1-2; Caltrans 2019a). This phase consists of implementing one or more of the 11 authorized advance mitigation activities (Table 1-1).

1.1.4. Program Constraints

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

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

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

- 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, U.S. Fish and Wildlife Service ("FWS") Mitigation Policy, FWS Endangered Species Act Compensatory Mitigation Policy, and 2022 National Oceanic and Atmospheric Administration ("NOAA") Mitigation Policy for Trust Resources express a preference for advance mitigation (in several forms) but also provide flexibility for off-site and out-of-kind mitigation where important aquatic resources within a watershed area have been identified as priority areas because of the importance of such resources, widespread loss of such resources, and/or the likelihood of successful execution of mitigation at priority sites.
- Advance mitigation projects should optimize their conservation benefit in such a way that the number and types of mitigation credits (or similar) are maximized.
- Advance mitigation projects, like transportation projects and conservation projects, have financial, technical, and strategic risks and require a scope, schedule, and budget.
- Advance mitigation projects to establish credits should 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 11 Transportation Infrastructure[6]

Headquartered in San Diego, Caltrans District 11 manages the SHS infrastructure and transportation planning for San Diego and Imperial Counties. Caltrans District 11 headquarters and field offices maintain and operate over 1,009 centerline miles of freeway, expressways, and conventional highways. These SHS roadways range from scenic two-lane highways to controlled-access freeways. Interstates 5, 15, and 805, and State Routes 67, 75, 79, 111, 115, 125, and 163 are major north-to-south routes. Interstate 8 and State Routes 52, 54, 56, 76, 78, 94, 98, and 905 are east-to-west routes that traverse District 11. Within the geographic area of interest ("GAI"), State Routes 86, 111, and 115 are the primary north-to-south routes and Interstate 8 and State Routes 78 and 98 are the primary east-to-west routes. The GAI also extends into a portion of Caltrans District 8 within Riverside County that includes sections of State Routes 86, 111, and 195.

[6] Adapted from https://dot.ca.gov/caltrans-near-me/district-11

Other transportation agencies that implement transportation improvements within Caltrans District 11's boundaries (MPOs, RTPAs, and other public agencies) are the Imperial County Transportation Commission, San Diego Metropolitan Transit System, North County Transit District, San Diego Association of Governments ("SANDAG"), and Southern California Association of Governments. The aforementioned transportation agencies are eligible for STIP funding.

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

1.3. Regulatory Framework Summary

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

- California Coastal Act (Public Resources Code § 30000 et seq.)
- California Endangered Species Act ("CESA") (FGC § 2050 et seq.)
- California Environmental Quality Act ("CEQA") (PRC § 21000 et seq.)
- Clean Water Act ("CWA"), Sections 401 and 404 (33 USC § 1251–1376)
- Federal Endangered Species Act of 1973 ("FESA") (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.

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[7] 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 if compensatory mitigation is required.

[7] A mitigation bank instrument is the formal, legally binding agreement between a bank sponsor and regulatory agencies that describes in detail the physical and legal characteristics of the bank, and how the bank will be established and operated (EPA 1995).

Figure 1-3. GAI Road Infrastructure

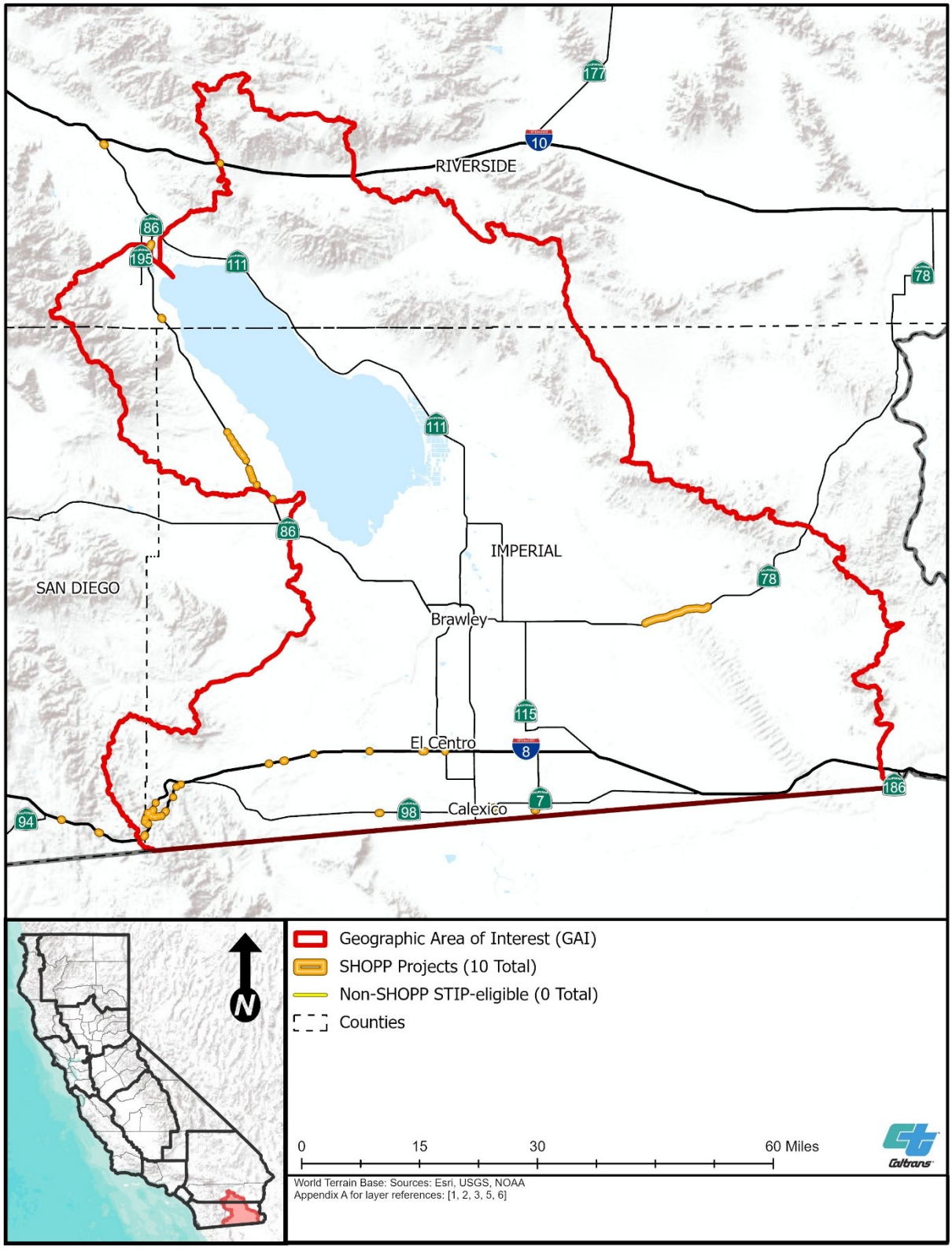


Table 1-2. Natural Resource Regulatory Agencies with Oversight over Natural Resources within the GAI

Partner	Web Address
CDFW, South Coast Region	https://wildlife.ca.gov/Regions/5
CDFW, Inland Deserts Region	https://wildlife.ca.gov/Regions/6
State Water Resources Control Board ("SWRCB")	https://www.waterboards.ca.gov/
California Regional Water Quality Control Board ("RWQCB"), Colorado River Basin	https://www.waterboards.ca.gov/coloradoriver/
U.S. Army Corps of Engineers ("Corps"), South Pacific Division, Los Angeles District	https://www.spd.usace.army.mil/
U.S. Environmental Protection Agency ("EPA"), Region 9	http://www.epa.gov/region9/
U.S. Fish and Wildlife Service ("FWS"), Carlsbad Office (Palm Springs Fish and Wildlife Office merged with Southern Nevada Fish and Wildlife Office in 2025)	https://www.fws.gov/carlsbad/

Some natural resource 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,[8] and in-lieu fee programs require an instrument. Existing policies and regulations prescribe what an instrument must contain and address, as well as the terms of use for the credits generated by the mitigation bank,

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

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. 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 2023/24–2032/33 ("SHOPP Ten-Year Book", Caltrans 2024) for fiscal years 2023 to 2033 (Caltrans 2025a).

Previous RAMNA documents were prepared with the Caltrans Statewide Advance Mitigation Needs Assessment Reporting Tool ("SAMNA Reporting Tool") 1.0 model, a geographic information system ("GIS") overlay model developed by Caltrans to support advance mitigation planning. 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. A forthcoming report from Caltrans AMP introduces the SAMNA 2.0 model. SAMNA 2.0 includes updated sources for terrestrial and aquatic resource inputs, including a statewide riparian dataset prepared for Caltrans by the San Francisco Estuary Institute. Aquatic resources have been reclassified based on spatial verification, and, in collaboration with CDFW, the model has been programmed to rapidly incorporate new species and sub-species naming and ranges. Finally, the list of transportation project activity details and their associated buffer assignments has been modified. SAMNA 2.0 results have been compiled into two datasets: vegetation and aquatic resources (wetland, non-wetland waters, and riparian). The unit of measurement for impacts is acres.

The SAMNA 2.0 transportation project activity details and buffer assignments were not finalized in time to prepare fiscal year 2025/2026 RAMNA documents. So, the forecast for this RAMNA document was performed using "SAMNA 1.5", a hybrid of the SAMNA 1.0 and 2.0 models. The SAMNA 1.5 model implements the SAMNA 2.0 terrestrial and aquatic inputs but maintains the SAMNA 1.0 activity details and buffer assignments. The subset of the Caltrans District 2 transportation projects that are planned within the GAI during the planning period covered by this RAMNA, as well as the eight-digit hydrologic unit code ("HUC" or "HUC-8"), 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 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 2026 *[report in progress]*). 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 be fully liable, therefore.

1.5. GAI and Resource Focus

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

Focusing this analysis improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Caltrans intends for any mitigation-related measures to support these environmental resources 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 sub-basin and ecoregion section, and not political boundaries, would steer advance mitigation planning toward better ecological outcomes. The 2008 Mitigation Rule specifies the HUC-8 as the basis of service areas for mitigation banks, and CDFW's State Wildlife Action Plan ("SWAP") is organized by ecoregion.

To identify a focus area, consistent with Step 2 of the advance mitigation planning process (Figure 1-1), in 2025, Caltrans District 11 subject matter specialists:

- Reviewed the entirety of Caltrans District 11's SAMNA results by HUC-8 sub-basin and ecoregion section (Caltrans 2025a; available on: www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation);
- Reviewed the SAMNA results associated potential future transportation project locations and activities anticipated for the SHOPP (Caltrans 2024);
- Reviewed non-SHOPP STIP-eligible transportation improvement plans for the next 10 years;
- Noted that advance mitigation planning for the San Diego Sub-basin was previously performed in 2023 (Caltrans 2023b);
- Observed that the portions of Caltrans District 11 located within the Salton Sea Sub-basin have forecast compensatory mitigation needs during the planning period; and
- Identified the Salton Sea Sub-basin as a location where Caltrans District 11 and other public agencies that implement transportation improvements could benefit from advance mitigation planning — hereafter called the "GAI" (Figure 1-3).

Because the Salton Sea Sub-basin forms an ecological boundary and not a political boundary, some portions of the GAI overlap Caltrans District 8. In addition to Caltrans District 11, Caltrans District 8 may choose to take the lead on an advance mitigation project that would address its needs within the GAI. The two districts may also work together.

1.5.2. Terrestrial 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 11. 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. Therefore, to further focus the planning effort, Caltrans District 11 identified species that, if compensatory mitigation credits were available, transportation project schedules could potentially benefit. These terrestrial "species of mitigation need" are bighorn sheep (*Ovis canadensis nelsoni*), burrowing owl (*Athene cunicularia*), desert tortoise (*Gopherus agassizii*), flat-tailed horned lizard (*Phrynosoma mcallii*), ringtail (*Bassariscus astutus*), and Switak's banded gecko (*Coleonyx switaki*). Bighorn sheep is a state fully protected species, and the Peninsular subspecies (*Ovis canadensis nelsoni*), which occurs in part of the GAI, is federally endangered and state threatened. Burrowing owl is a state candidate endangered species and a California species of special concern. Flat-tailed horned lizard is a California species of special concern. Ringtail is a state fully protected species. Switak's banded gecko is state threatened.

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

1.5.3. Aquatic Resources, Fish Species of Mitigation Need, and Riparian Habitat

For the purposes of this document, aquatic resources include all wetlands and non-wetland waters that may be subject to Corps, EPA, SWRCB and RWQCB ("Water Boards"), and/or CDFW regulations, as well as threatened and endangered fish that may be subject to CDFW, and/or FWS regulations. Fish species of mitigation need identified for this RAMNA include the federally and state endangered desert pupfish (*Cyprinodon macularis*). Riparian habitat is described in Section 2.16.

Compensatory mitigation needs for aquatic resources 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 11. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for these resources and have benefited from mitigation credits, when available. The Salton Sea Sub-basin (HUC-8 18100204) informs the analysis of estimated aquatic resources 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 Salton Sea Sub-basin, referred to as the GAI;
- Applies to fiscal years 2023/24 to 2032/33 (planning period) based on Fiscal Year 2024/25 Q1 Project Book data, as none of the projects with an advertised year of 2033/34 that have been included in the SHOPP Ten-Year Book (Caltrans 2024) occurs within the GAI;
- Discusses potential compensatory mitigation conditions that may be placed on future transportation projects by the seven resource and regulatory agency signatories[9] 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);

[9] Natural resource regulatory signatories are CDFW; Water Boards; Corps Los Angeles, Sacramento, and San Francisco Districts; EPA; FWS; National Marine Fisheries Service (NMFS); and California Coastal Commission ("CCC").

- Focuses on wildlife habitats and aquatic resources that have a high probability of requiring transportation project-related compensatory mitigation in the GAI and planning period;
- Documents Caltrans' forecast of potential wildlife and aquatic resource[10] compensatory mitigation needs for the GAI and planning period, as reported by the SAMNA (Caltrans 2025b, 2025c);
- Identifies information that will be important to Caltrans when scoping any of the AMP's authorized activities in the GAI, in accordance with SHC § 800.6(a), including documenting the existing compensatory mitigation supply;
- Incorporates information and feedback received from outreach to the natural resource regulatory agencies, FHWA, MPOs, RTPAs, other public agencies that implement transportation projects, Native American tribes, interested parties, and the public; and
- Analyzes Caltrans' options to meet its compensatory mitigation needs in the GAI through the AMP's authorized activities.

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

1.7. Coordination History

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

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

Caltrans is authorized to provide AMA-funded mitigation credits to MPOs, RTPAs, and other public agencies that implement transportation projects, upon reimbursement, for their use to satisfy STIP-funded transportation project mitigation. Transportation projects eligible for STIP funding may increase the potential demand for compensatory mitigation in an area. Caltrans District 11 has regularly scheduled meetings with agencies including SANDAG, Imperial County Transportation Commission, Metropolitan Transportation System, North County Transit District, and Southern California Association of

[10] *Aquatic resources* is defined in Section 1.5.3.

Governments. At this time (August 2026), no STIP transportation projects in their planning phase and located within the GAI were identified for the planning period.

1.7.2. RAMNA Review

The AMP Guidelines (Caltrans 2019a) state:

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

In April 2026, Caltrans distributed this RAMNA for review by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Table 1-3 lists the commenters and the date of their communication. All comments received were considered, addressed, and incorporated into the document, as appropriate.

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

Commenter	Date of Comment(s)
CDFW[a]	July 23, 2026
FWS	June 24, 2026
SWB	June 26, 2026
EPA	July 6, 2026
Corps, Los Angeles District	June 30, 2026

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

1.7.3. Interagency Meeting and Coordination

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

Table 1-4. Interagency Meetings

Meeting Participants	Meeting Date
Caltrans, CDFW	June 29, 2026

1.8. Document Organization

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

Table 1-5. Document Organization

Chapter	Title	Content
Chapter 1	Introduction	This chapter introduces the RAMNA, placing it in the context of the AMP Guidelines, transportation network, and regulatory framework.
Chapter 2	Environmental Setting	This chapter describes the GAI analyzed in the RAMNA. It relies on geospatial data from the SAMNA Reporting Tool and other readily available information.
Chapter 3	Relevant Plans, Policies, and Regulations	This chapter briefly describes laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI 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	Title	Content
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.
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 – Aquatic Resource Locations

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 species, critical habitat, connectivity, sub-basins, hydrology, flood hazard areas, water quality, wild and scenic rivers, aquatic resources,[1] 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 the vegetation and other geospatial data layers developed for the SAMNA Reporting Tool (Caltrans 2025a). Sources used for this assessment are cited throughout the chapter, and links to GIS sources are provided in Appendix A, *GIS Sources*.

On each figure, Caltrans has provided the general location of planned SHOPP transportation projects that, during the 10-year planning period addressed by this document, natural resource regulatory agencies may condition with compensatory mitigation.[2] The GAI's road infrastructure is described in Chapter 1, *Introduction*, and additional information about planned transportation projects is provided in 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 2.6 million acres within the Salton Sea Sub-basin (HUC-8), which is overlapped by portions of the Colorado Desert, Mojave Desert, Sonoran Desert, and Southern California Mountains and Valleys 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). Each ecoregion section is part of a larger province (McNab et al. 2007; Table 2-1).

[1] For the purposes of advance mitigation planning, aquatic resources consist of wetlands and non-wetland waters that may be subject to Corps, EPA, Water Boards, and/or CDFW regulations, as well as special-status fish that may be subject to management by CDFW, FWS, and/or NMFS regulations.
[2] Since no STIP-eligible transportation projects are anticipated, no STIP-eligible transportation projects are mapped.

Figure 2-1. Ecoregion Sections in the GAI

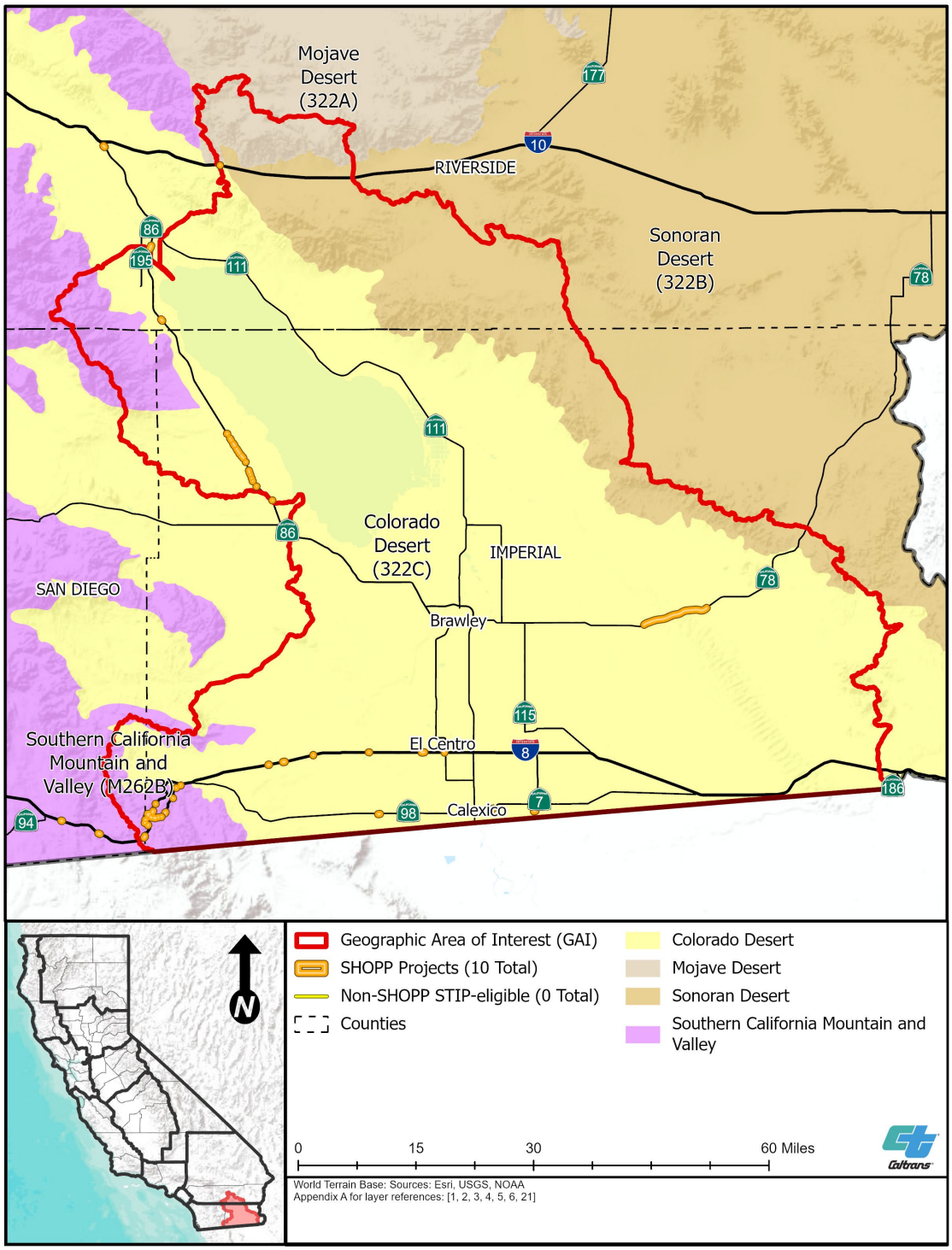


Table 2-1. Ecoregion Sections in the GAI

Ecoregion Section	Province[a]	Acreage[b]	Ecoregion Section as Percentage of GAI
Colorado Desert	Tropical/Subtropical Desert	2,026,059	78.6
Mojave Desert	Tropical/Subtropical Desert	55,212	2.1
Sonoran Desert	Tropical/Subtropical Desert	368,768	14.3
Southern California Mountains and Valleys	California Coastal Range Open Woodland – Shrub – Coniferous Forest – Meadow	129,109	5.0
Total		**2,579,148**	**100%**

Source: Caltrans 2025a
[a] McNab et al. 2007
[b] Numbers were rounded to the nearest whole number.

2.2. Land Ownership

The GAI spans parts of San Diego, Imperial, and Riverside Counties (Figure 1-3). Federal lands account for most of the land within the GAI (56.2 percent), are administered and managed by U.S. Department of the Interior's Bureau of Land Management ("BLM"), Bureau of Reclamation, FWS, and National Park Service ("NPS"), and include U.S. military bases (Table 2-2, Figure 2-2). NPS land includes Joshua Tree National Park. Privately owned and managed lands account for 32.6 percent of land within the GAI. State lands, which account for 5.1 percent of land within the GAI, include lands owned and managed by the California Department of Parks and Recreation, CDFW, Caltrans, California State Lands Commission, and other State entities. Counties, cities, and special districts own or govern 4.3 percent of land within the GAI. Native American tribes own or manage approximately 1 percent of land within the GAI. Lands managed by nonprofit conservancies and land trusts account for 0.8 percent of the GAI (Table 2-2, Figure 2-2).

Figure 2-2. Land Ownership in the GAI

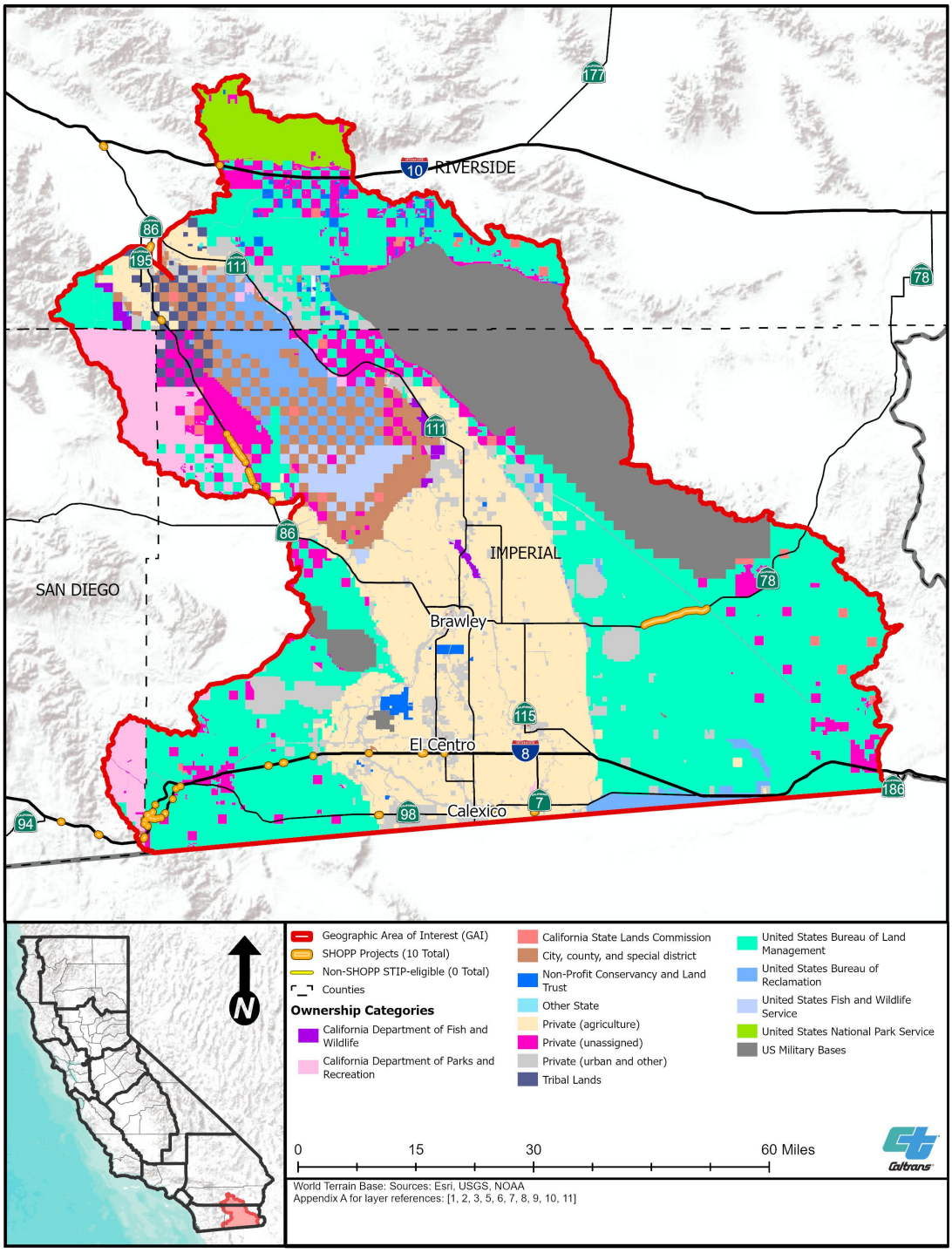


Table 2-2. Land Ownership

Land Owner or Land Use	Number of Parcels	Total Acreage per Agency/Owner[a]	Ownership as Percentage of GAI
BLM	2,152	905,588	35.0
Private (agriculture)	2,454	498,514	19.3
U.S. military bases	4	364,864	14.1
Private (urban and other)	513	178,564	6.9
Private (unassigned)	6	164,728	6.4
City, county, and special district	432	110,755	4.3
California Department of Parks and Recreation	247	103,300	4.0
Bureau of Reclamation	124	94,699	3.7
NPS	157	56,866	2.2
FWS	62	32,487	1.3
Native American tribe	2	26,997	1.0
Nonprofit conservancy and land trust	276	19,559	0.8
California State Lands Commission	48	17,063	0.7
CDFW	24	10,360	0.4
Caltrans	7	524	<0.1
Other state lands	1	39	<0.1
Total[b, c]	**6,509**	**2,584,910**	**100%**

Sources: Bureau of Indian Affairs; California Protected Areas Database; California Conservation Easement Database; Caltrans 2025a; U.S. Census Bureau; U.S. Department of Agriculture (USDA); and California Department of Technology for land parcels
[a] Numbers were rounded to the nearest whole number.
[b] Totals may be different due to rounding.
[c] The GAI total includes the water areas, whereas the ecoregion section GAI total does not.

2.2.1. Protected Lands

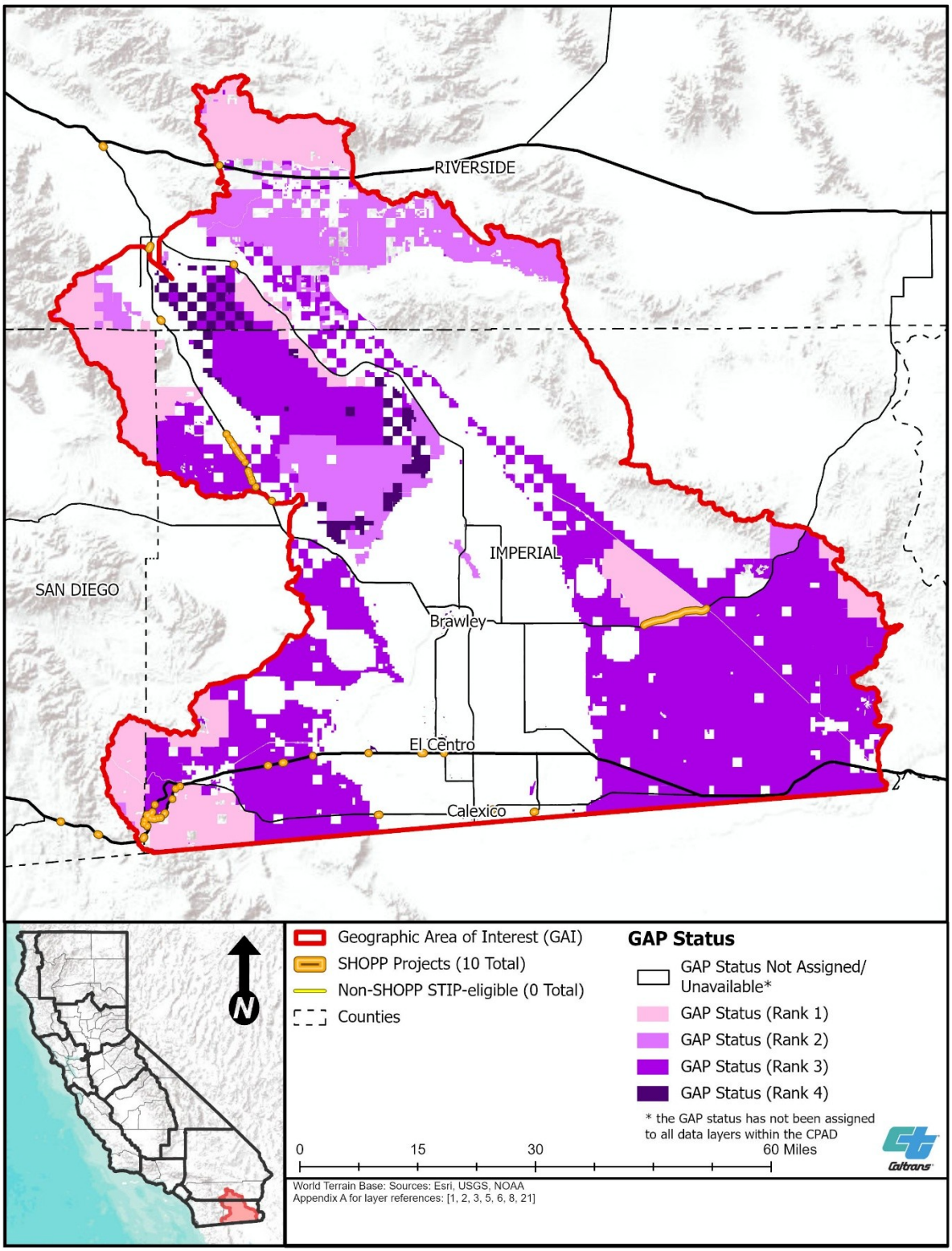
The California Protected Areas Database, developed by GreenInfo Network, provides an inventory of lands that are owned in fee or protected for open space purposes throughout California by more than 1,000 public agencies and nonprofit organizations. These protected lands are managed for the preservation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

In the California Protected Areas Database, lands are assigned U.S. Geological Survey ("USGS") Gap Analysis Program ("GAP") status ranks that define the degree of protection

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

Not all California Protected Areas Database lands have GAP status ranks, and some may be out of date. Nevertheless, available protected lands and their associated GAP status ranks are indicated on Figure 2-3. As Figure 2-3 shows, most of the planned SHOPP transportation projects are in areas with no GAP status or a GAP status of 1 or 3.

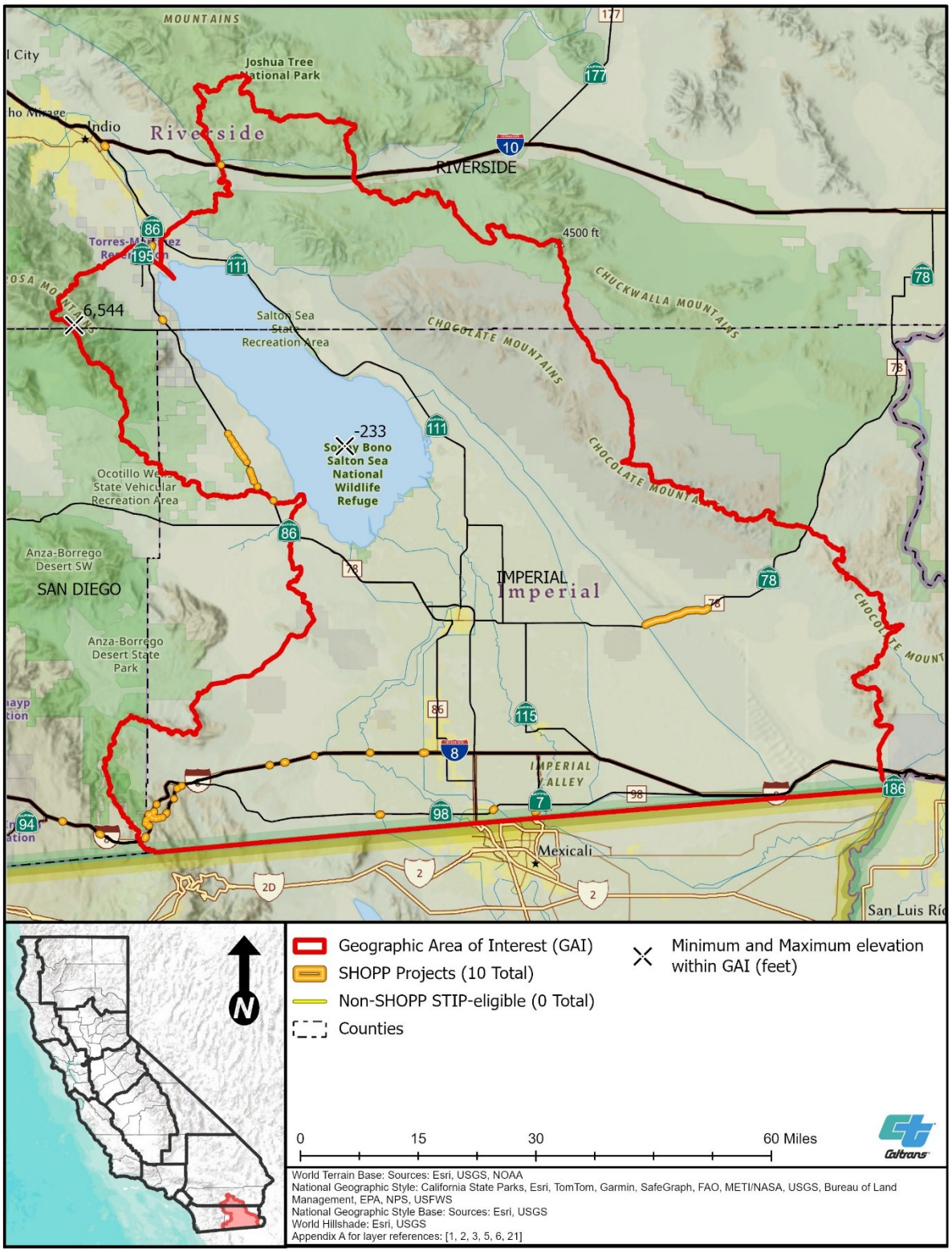
Figure 2-3. Protected Lands



2.3. Topography

The Salton Sea Sub-basin, which defines the GAI, is located in San Diego, Riverside, and Imperial Counties. It is bounded on the west by the Santa Rosa Mountains and Anza-Borrego Desert, on the north by the Cottonwood Mountains, and on the east by the Chocolate Mountains and Chuckwalla Mountains (Figure 2-4). The Salton Sea Sub-basin is characterized by flat lands and fertile soils throughout most of the region; however, low dissecting hills are present to the southwest of the GAI as well as sand dunes to the southwest and the southeast. The northwest-trending San Andreas Fault Zone and the San Jacinto Fault cut through the Salton Sea Sub-basin. The elevation in the Salton Sea Sub-basin ranges from below sea level to 6,544 feet above mean sea level at Rabbit Peak (Figure 2-4).

Figure 2-4. Topography



2.4. Climate

The GAI is characterized by a dry climate with hot summers and mild winters (Colorado River Basin RWQCB 2024). Summer temperatures can reach over 120 degrees Fahrenheit, while winter temperatures can be below freezing. Mean annual precipitation in the area, which falls primarily as rain, ranges from 3.2 inches in El Centro to 3.6 inches in the valleys (Colorado River Basin RWQCB 2024).

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

From 2017 through 2019, Caltrans performed a statewide climate change vulnerability assessment for the SHS (Caltrans 2019b). The analysis provided in *Caltrans Climate Change Vulnerability Assessments: District 11 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—(1) representative concentration pathway 2.6, which assumes that global annual greenhouse gas emissions will peak in the next few years, then begin to decline substantially; (2) representative concentration pathway 4.5, which assumes that emissions will peak around 2040 and then begin to decline; and (3) 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 extended periods of higher temperatures in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of drought, wildfires, and landslides over the three time periods analyzed in the technical report (Caltrans 2019b).

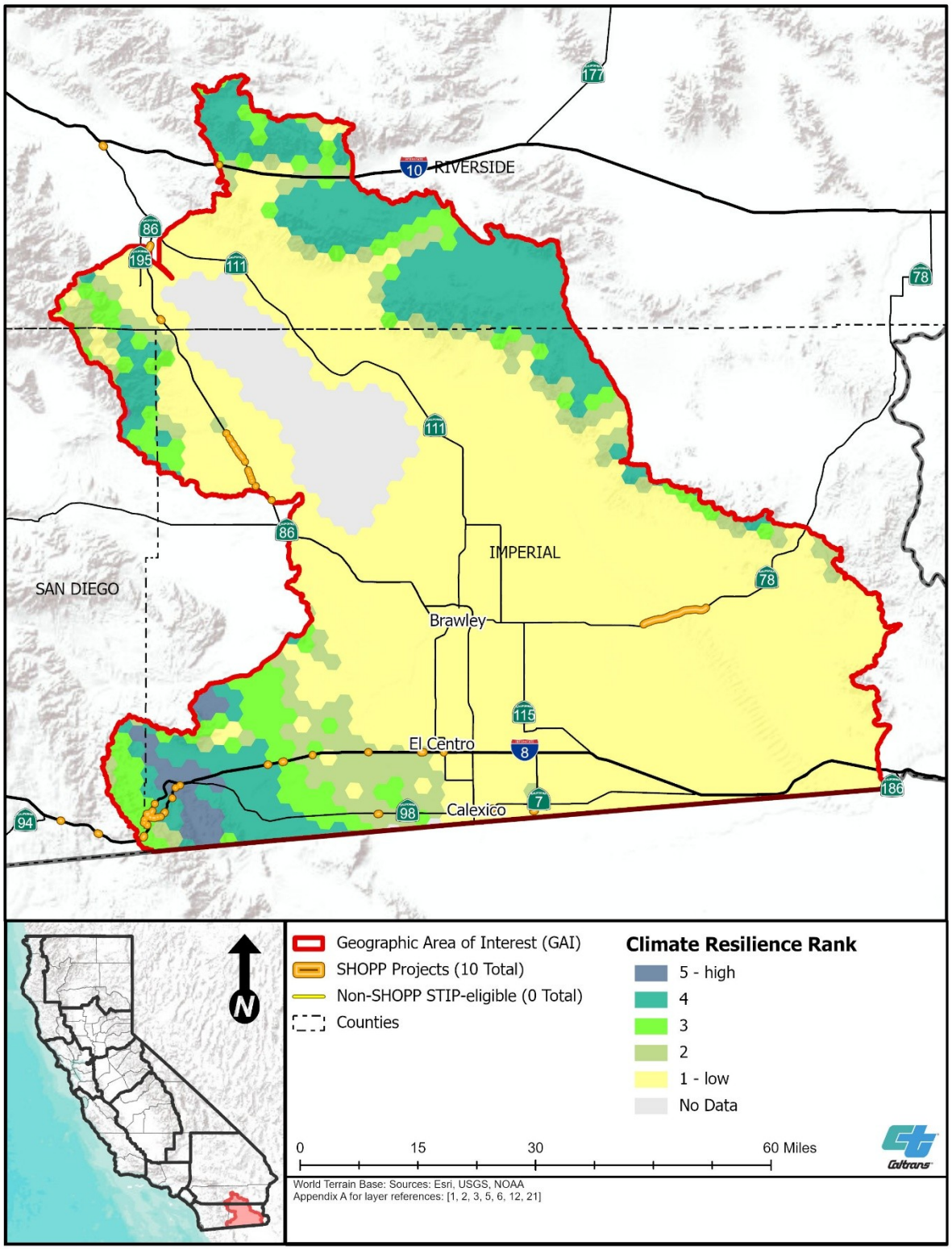
2.4.2. Climate Resiliency

A climate change-resilient natural community area is a terrestrial location expected to remain stable in the face of climate change (CDFW 2018). The predicted resilience of the GAI to effects resulting from climate change was acquired from CDFW's Areas of Conservation Emphasis ("ACE," version 3) terrestrial climate change resilience dataset. This dataset consists of the modeled probability that a given terrestrial location may function as a plant or wildlife refugium from climate change, meaning that it would be relatively buffered from the effects of climate change, conditions would likely remain suitable for plants and wildlife currently residing in the area, and ecological functions would be more likely to remain intact. The ACE dataset combines climate refugia model results from eight future climate scenarios based on different combinations of global

climate models, emissions scenarios, and time horizons. The eight scenarios assessed included (1) two potential future climates—a hotter and drier future, and a warmer and wetter future; (2) two future carbon dioxide ("CO_2") scenarios—one with no reductions in CO_2 emissions; and one with a peak in 2040 followed by a significant decline in CO_2 emissions; and (3) two 29-year time intervals—2040 to 2069 and 2070 to 2099. Terrestrial locations were assigned climate resilience ranks ranging from 1 (low resilience, or low probability that the terrestrial location will contain climate refugia) to 5 (high resilience, or high probability that the terrestrial location will contain climate refugia) (CDFW 2018).

Resiliency is an important consideration when establishing compensatory mitigation. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018) is presented in Figure 2-5. Higher resilience is clearly shown in the southwestern corner of the GAI along the border of Mexico, in the northwestern part of the GAI in the Santa Rosa Mountains, and in the northeastern part of the GAI in the Chuckwalla and Chocolate Mountains (Figure 2-5). Resilience in these areas ranges from 3 to 5. Resilience within the remainder of the GAI ranges from 1 to 2.

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 2025b). Based on these data, shrub-dominated habitats account for the largest habitat type, encompassing over 50 percent of the GAI, with desert scrub the most common. Developed and non-vegetated habitat types (barren areas) combined account for 36.95 percent of the GAI, with barren and irrigated hayfield the most common. Aquatic habitats account for 9.29 percent of the GAI, with lacustrine the most common. Tree-dominated habitats account for 2.31 percent of the GAI, with desert riparian the most common (Table 2-3, Appendix C). Land cover is generally shown on Figure 2-6.

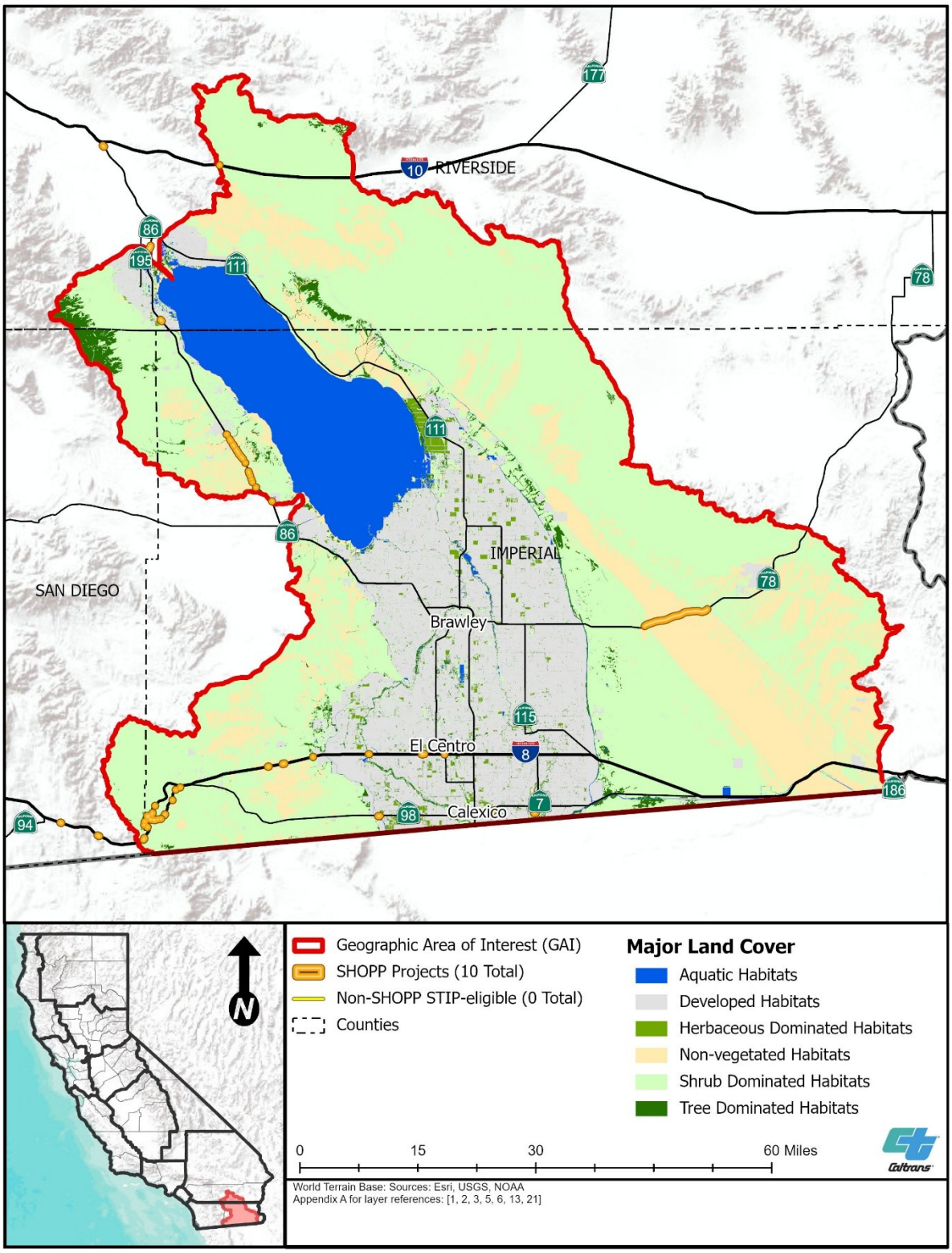
Table 2-3. Land Cover Types

CWHR Habitat Type	Acres[a]	Cover as Percentage of GAI[b]
Tree-dominated Habitats	**59,879**	**2.31**
Desert Riparian	42,382	1.64
Juniper	8,315	0.32
Montane Riparian	3	<0.01
Palm Oasis	295	0.01
Pinyon-Juniper	8,866	0.34
Valley Foothill Riparian	18	<0.01
Shrub-dominated Habitats	**1,290,707**	**50.03**
Alkali Desert Scrub	62,650	2.43
Bitterbrush	9	<0.01
Coastal Scrub	24	<0.01
Desert Scrub	1,099,590	42.63
Desert Scrub; Desert Wash	3,175	0.12
Desert Succulent Shrub	1,532	0.06
Desert Wash	112,305	4.35
Mixed Chaparral	11,411	0.44
Sagebrush	11	<0.01

CWHR Habitat Type	Acres[a]	Cover as Percentage of GAI[b]
Herbaceous-dominated Habitats	**35,258**	**1.37**
Annual Grassland	1,783	0.07
Fresh Emergent Wetland	6,596	0.26
Pasture	26,737	1.04
Perennial Grassland	1	<0.01
Saline Emergent Wetland	141	<0.01
Aquatic Habitats	**239,874**	**9.29**
Lacustrine	238,319	9.24
Riverine	1,298	0.05
Riverine; Lacustrine	257	<0.01
Developed Habitats	**543,064**	**21.05**
Barren Cropland	4,324	0.17
Cropland	47,173	1.83
Deciduous Orchard	1,001	0.04
Deciduous Orchard; Vineyard	5,997	0.23
Dryland Grain Crops	49,908	1.94
Evergreen Orchard	37,750	1.46
Irrigated Grain Crops	26,109	1.01
Irrigated Hayfield	194,222	7.53
Irrigated Row and Field Crops	86,344	3.35
Orchard-Vineyard	2,931	0.11
Urban	83,621	3.24
Vineyard	3,684	0.14
Non-vegetated Habitats	**410,111**	**15.90**
Barren	410,111	15.90
Total[c]	**2,579,148**	**100%**

Source: Caltrans 2025b
[a] Numbers were rounded to the nearest whole number.
[b] Numbers were rounded to the hundredths.
[c] Totals may be different due rounding.

Figure 2-6. Major Land Cover[a]



[a] 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 (National Wildlife Federation n.d.). Invasive species may affect native species, including special-status species, by directly competing for resources, preying on native species, introducing or spreading diseases, reducing the complexity and biodiversity of ecosystems, altering soil chemistry and water availability, and increasing wildfire potential (CDFW 2023a; 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 also maintains a list of noxious weeds for California (USDA Natural Resources Conservation Service 2026). 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 2026b).

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 California SWAP or the Cal-IPC inventory include, but are not limited to, giant reed (*Arundo donax*), Australian saltbush (*Atriplex semibaccata*), Saharan mustard (*Brassica tournefortii*), ripgut brome (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), yellow starthistle (*Centaurea solstitialis*), pampas grass (*Cortaderia selloana*), red-stemmed filaree (*Erodium cicutarium*), hydrilla (*Hydrilla verticillata*), parrotfeather (*Myriophyllum aquaticum*), Eurasian watermilfoil (*Myriophyllum spicatum*), curly dock (*Rumex crispus*), Russian thistle (*Salsola tragus*), Arabian schismus (*Schismus arabicus*), London rocket (*Sisymbrium irio*), tamarisk (*Tamarix* ssp.), and puncturevine (*Tribulus terrestris*) (Cal-IPC 2026a; Cal-IPC 2026b; CDFW 2025b).

Nonnative animals that are/may be present within the GAI and can negatively affect aquatic species include American bullfrogs (*Lithobates catesbiana*), western mosquitofish (*Gambusia affinis*), red swamp crayfish (*Procambarous clarkii*), sailfin molly (*Poecilia latipinna*), cichlid species (*Oreochromis* ssp.; *Tilapia* spp.), and red-rim melania (*Melanoides tuberculata*) (CDFW 2025b).

Nonnative animals that are/may be present within the GAI and that can negatively affect terrestrial wildlife through competition, predation, or parasitism include brown-headed cowbirds (*Molothrus ater*). Invasive animal species that are/may be associated with urban areas include feral burros (*Equis africanus asinus*) and feral horses (*Equis ferus caballus*) (CDFW 2025b).

2.7. Special-status 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 2.15.4.

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 2019), the Jepson Herbarium's floristic province layer, CDFW's RareFind 5 database (CDFW 2026), and other information (Caltrans 2025b and amendments; 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, 110 non-fish special-status species have the potential to occur within the GAI.

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 2018). 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

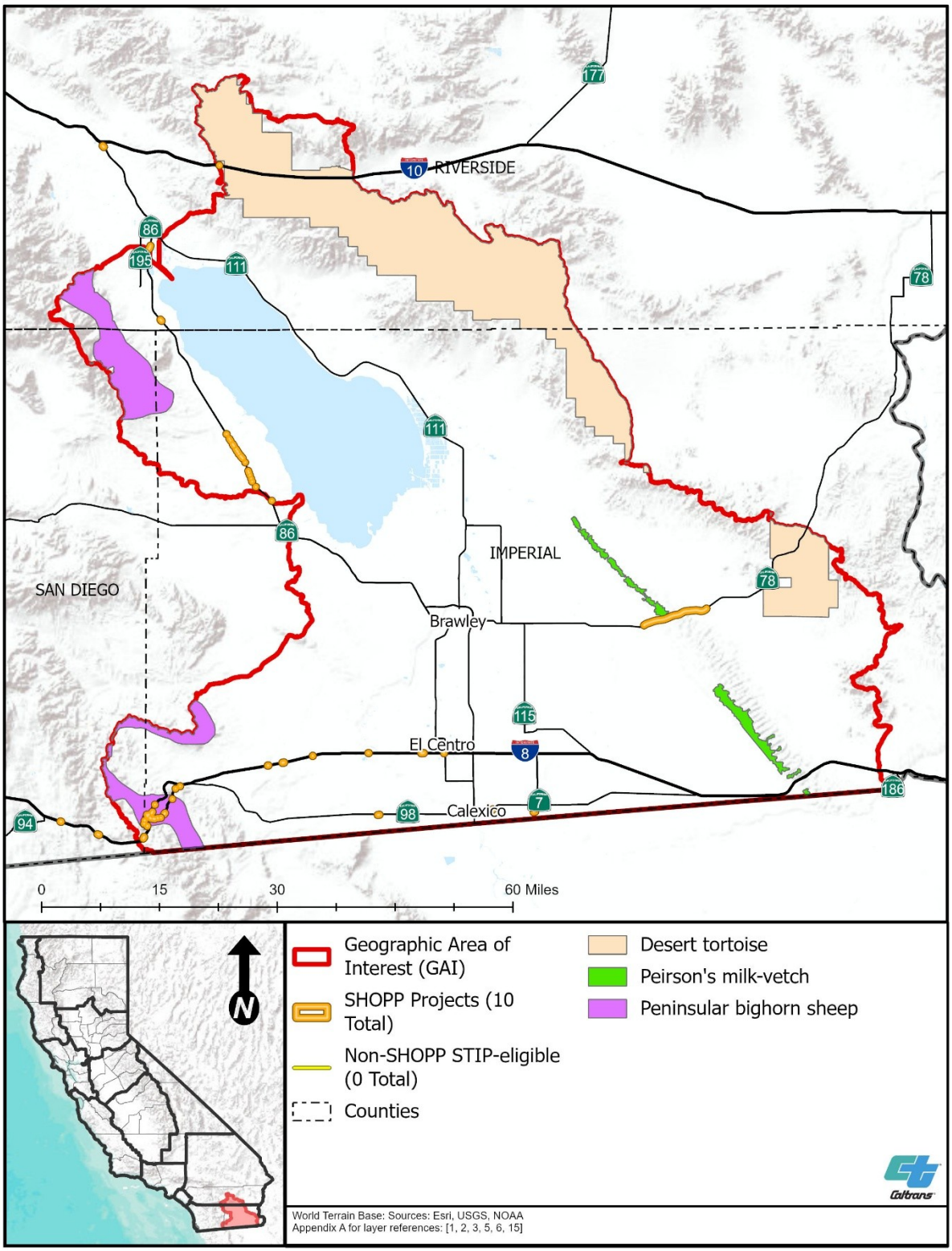
FWS regulates impacts on critical habitat under the FESA. The FESA (16 USC § 1531–1544) defines critical habitat for a threatened or endangered species as (i) "specific areas within the geographical area occupied by the species at the time it is listed … on which are found those physical or biological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

The GAI includes federally designated final critical habitat for three species (FWS 2025a):

- Desert tortoise (*Gopherus agassizii)*
- Peirson's milk-vetch (*Astragalus magdalenae)*
- Peninsular bighorn sheep (*Ovis canadensis nelsoni*)

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

Figure 2-7. Federally Designated Critical Habitat



2.9. Connectivity

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

2.9.1. Wildlife Movement

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

California Essential Habitat Connectivity

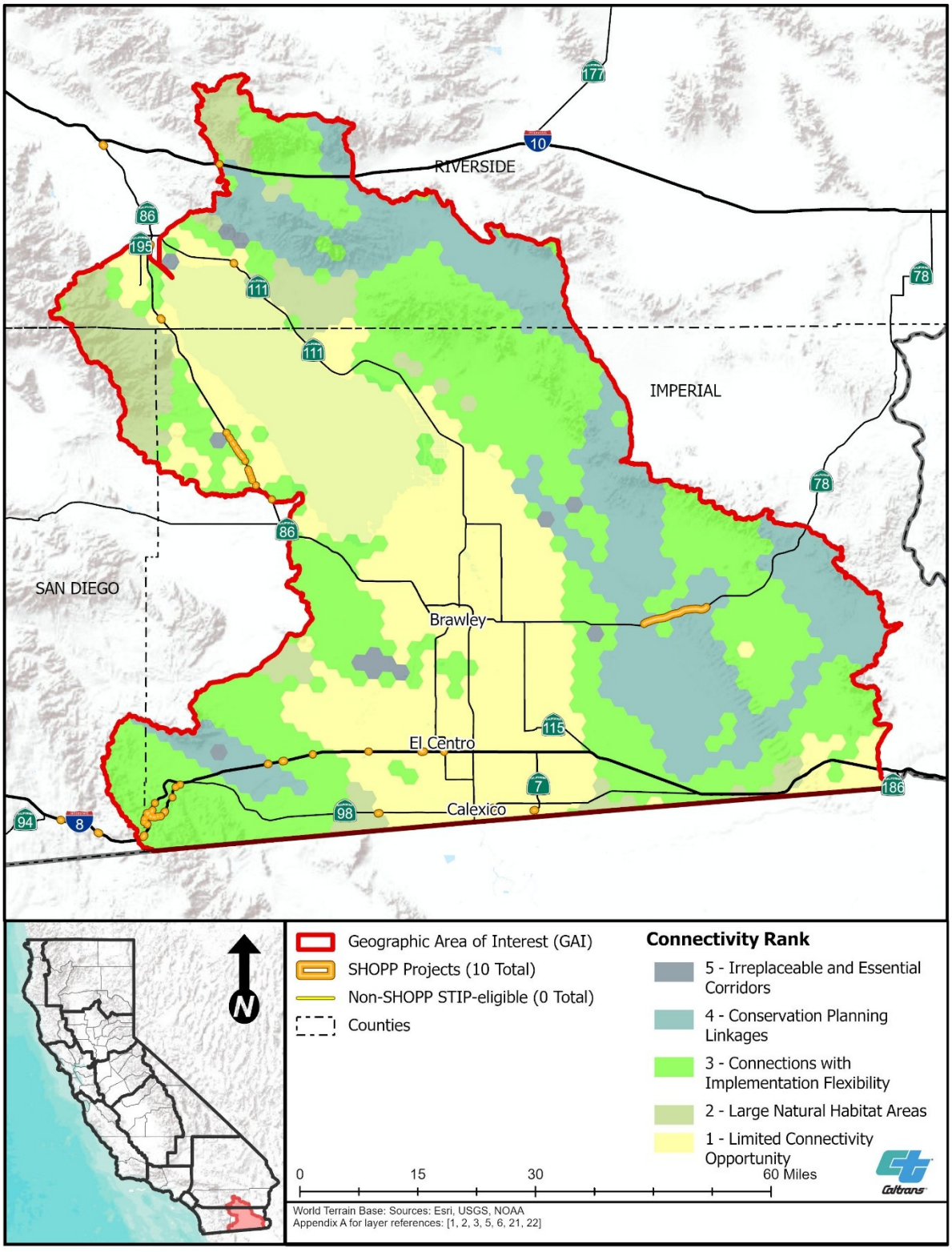
The CEHC Project, a statewide assessment commissioned by CDFW and Caltrans, identified large remaining blocks of intact habitat or natural landscape that support native biodiversity and modeled linkages or essential connectivity areas between them that need to be maintained, particularly as corridors for wildlife (CDFW 2024a; 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 2-8). It also incorporates species-specific, fine-scale linkage information developed at a regional scale, where available, and includes areas not evaluated by the CEHC Project. Connectivity ranks in the terrestrial connectivity dataset were assigned as follows:

- Rank 5 (irreplaceable and essential corridors) – includes channelized areas and priority species movement corridors.
- Rank 4 (conservation planning linkages) – habitat connectivity linkages mapped in the CEHC, and fine-scale regional connectivity studies that are based on species-specific models and represent the best connections between core natural areas.
- 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 2-8. 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 in areas with a connectivity rank of 1, 3, or 4 (Figure 2-8).

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 2022b). 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 in 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 2022b).

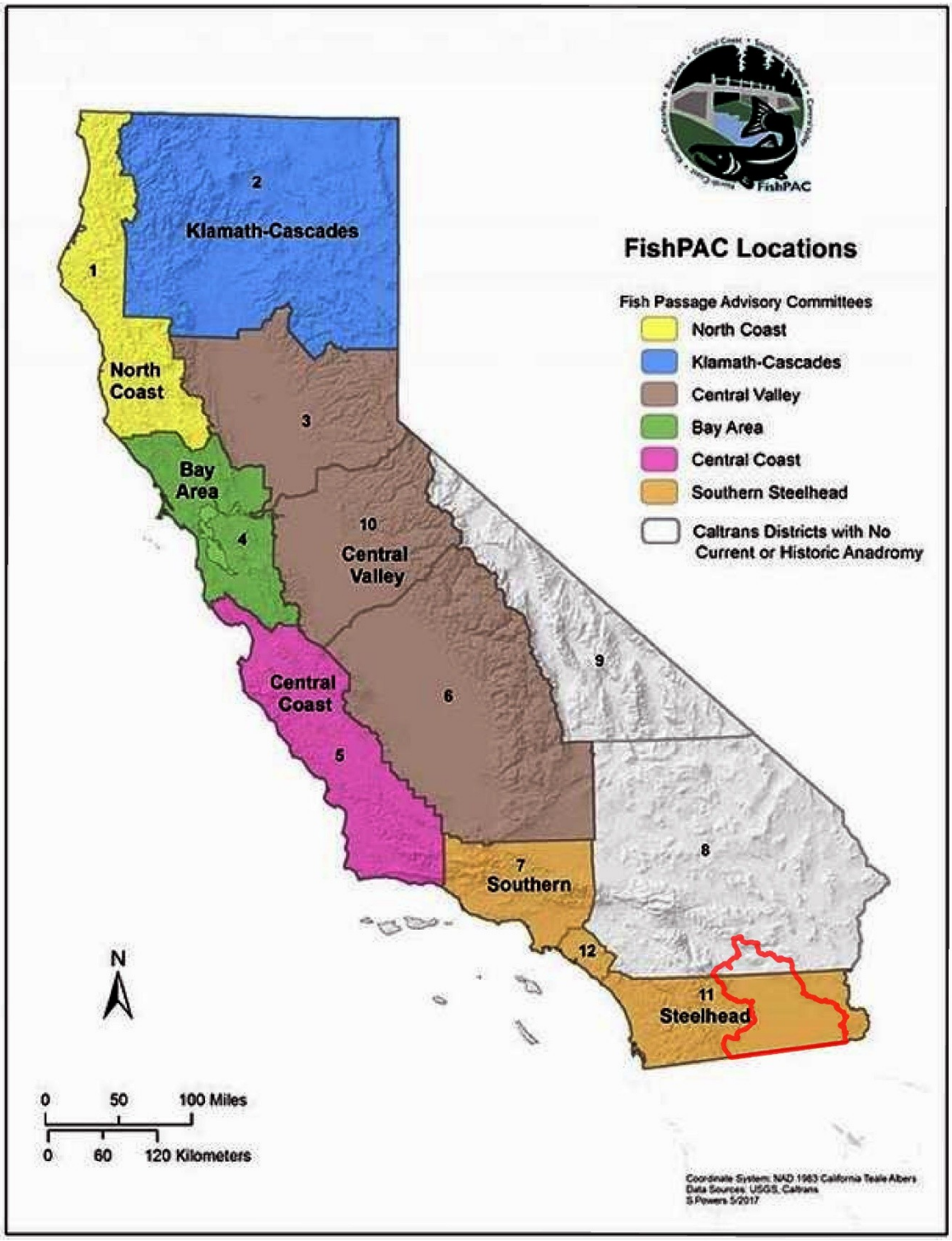
One priority wildlife movement barrier on the SHS was identified within the GAI: Interstate 8 west of El Centro, with bighorn sheep the target species for movement (CDFW 2022b).

2.9.2. Fish Passage

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

Figure 2-9 depicts the six California Fish Passage Advisory Committee ("FishPAC") locations throughout the state. The FishPAC is a partnership between Caltrans, CalTrout, CCC, CDFW, FWS, NMFS, Pacific States Marine Fisheries Commission, and other local fish passage advocates. The FishPACs share science and data related to known fish barriers and prioritize SHS locations based on high-value habitat recovery. Neither salmon nor steelhead were identified as having the potential to occur in the GAI (refer to Section 2.15.4. The most recently available list of fish passage priorities is available on the Caltrans Legislative Affairs website, with the most recent report at https://dot.ca.gov/programs/legislative-affairs/reports.

Figure 2-9. California Fish Passage Advisory Committee Locations



2.10. Sub-basins

The Watershed Boundary Dataset maps the areal extent of surface water drainage in the United States. It consists of a hierarchical system of nesting hydrologic units of various scales, each with an assigned HUC[3] that is georeferenced to USGS topographic maps (USGS 2023). Each HUC classification consists of 2 to 12 digits. For example, six-digit HUCs, or "HUC-6s," map to the basin level; 8-digit HUCs, or "HUC-8s," map to the sub-basin level; and 12-digit HUCs, or "HUC-12s," map to the sub-watershed level.

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins; therefore, information in this RAMNA is also presented by HUC-8 (Caltrans 2025a; USGS 2023). However, the California Department of Water Resources and Water Boards do not necessarily use HUC-8 codes (California Department of Water Resources 2019). 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.

Table 2-4 provides a crosswalk between the HUC-8 and HU classifications systems for each HUC-8 in the GAI. The GAI includes the entirety of the Salton Sea Sub-basin, loosely corresponding to the Amos-Ogilby, Anza Borrego, Chuckwalla, Clark, Colorado, Davies, East Salton, Hayfield, Imperial, Salton Sea, West Salton, Whitewater, and Yuma HUs. Figure 2-10 shows the sub-basin and state-level HUs within the GAI.

[3] Hydrologic unit code, or "HUC," is defined in Section 1.4.

Figure 2-10. HUC-8 Sub-basins and HUs

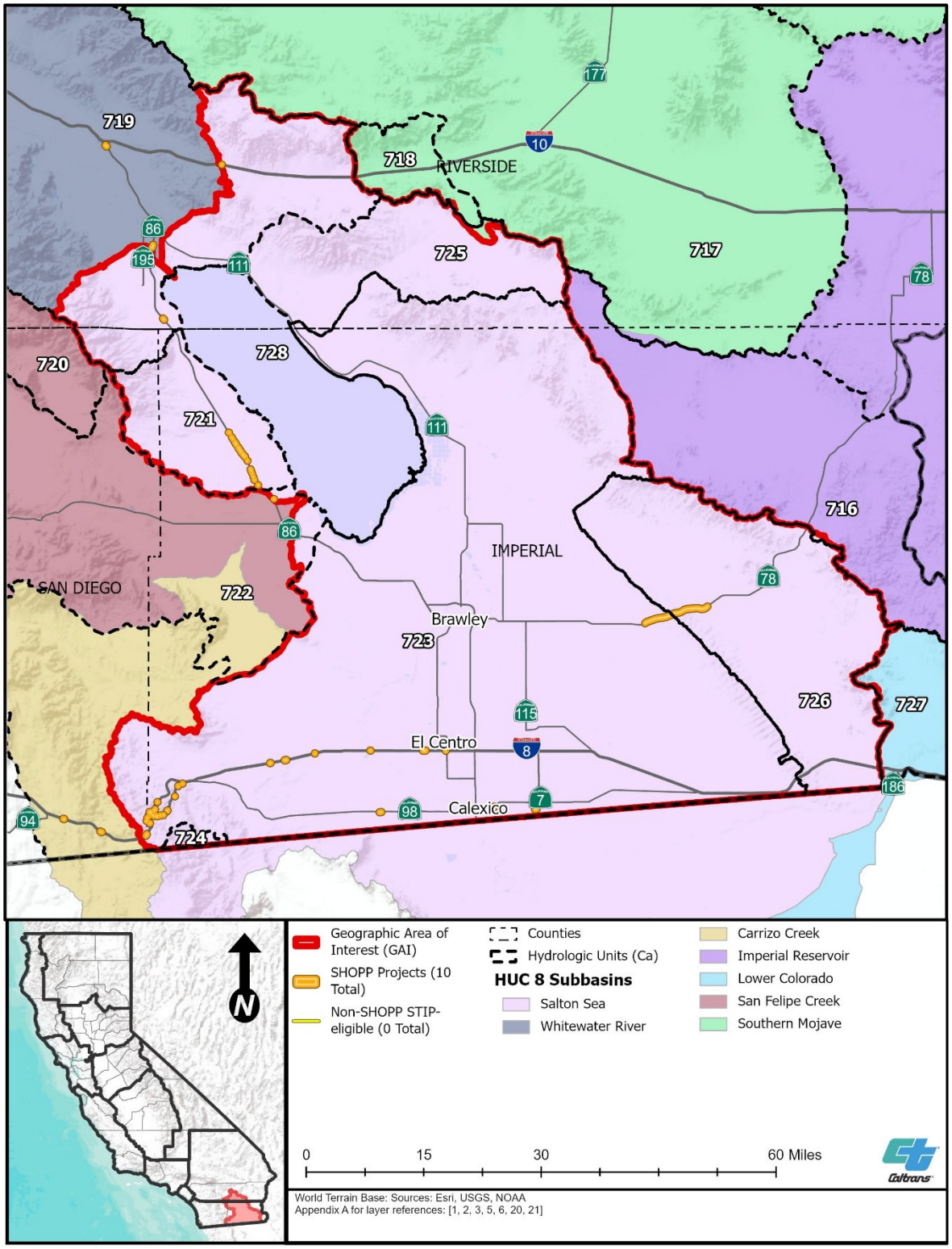


Table 2-4. Crosswalk of HUC-8 Sub-basins with HUs in the GAI

HUC-8 #	HUC-8 Name	HUC-8 Acreage[a]	HU #	HU Name[b]	HU Acreage[a]
18100204	Salton Sea	885,304	726	Amos-Ogilby	357,549
18100204	Salton Sea	885,304	722	Anza Borrego	15,894
18100204	Salton Sea	885,304	723	Anza Borrego	132
18100204	Salton Sea	885,304	717	Chuckwalla	195
18100204	Salton Sea	885,304	720	Clark	40
18100204	Salton Sea	885,304	716	Colorado	1,062
18100204	Salton Sea	885,304	724	Davies	7,075
18100204	Salton Sea	885,304	725	East Salton	182,525
18100204	Salton Sea	885,304	718	Hayfield	174
18100204	Salton Sea	885,304	723	Imperial	1,451,488
18100204	Salton Sea	885,304	728	Salton Sea	222,857
18100204	Salton Sea	885,304	721	West Salton	119,275
18100204	Salton Sea	885,304	719	Whitewater	225,915
18100204	Salton Sea	885,304	727	Yuma	505

[a] Numbers were rounded to the nearest whole number and include the area within each sub-basin outside the GAI.
[b] HU names were extracted from Water Boards data layers.

2.11. Hydrology

The Salton Sea Sub-basin of the GAI drains an area of approximately 2,584,708 acres (4,039 square miles) (Table 2-5; Figure 2-10). This sub-basin includes 791 rivers and streams that traverse 3,506 miles within the Colorado River Basin RWQCB boundaries (Table 2-5). Descriptions of these HUs, which may include water features outside the GAI, are provided below.

Table 2-5. Sub-basins

Sub-basin Name	Sub-basin Code (HUC-8)	Drainage Area (acres)[a]	Rivers and Streams (count)	Total Reach Length (miles)[a]
Salton Sea	18100204	2,584,708	791	3,506
Not applicable	**Total**	**2,584,708**	**791**	**3,506**

Source: California Department of Water Resources 2019
[a] Numbers were rounded to the nearest whole number.

Amos-Ogilby HU. The Amos-Ogilby HU is primarily associated with seasonal washes that drain from the Chocolate Mountains into the Coachella Canal at the base of the mountains. This HU is largely encompassed by Pilot Knob Mesa.

Anza Borrego HU. The Anza Borrego HU is primarily associated with desert springs. Perennial flow includes reaches of the Coyote and San Felipe Creeks, which drain to the Salton Sea (Colorado River Basin RWQCB 2024). The part of the Anza Borrego HU that lies within the Salton Sea Sub-basin includes portions of the Ocotillo Lower Felipe, Agua Caliente, and Jacumba hydrologic areas.

Chuckwalla HU. The Chuckwalla HU is primarily associated with the Colorado River Aqueduct that flows between the Chuckwalla Mountains and the Little San Bernadino Mountains to transport water from the Colorado River to urban areas in Riverside County. The part of the Chuckwalla HU that lies within the Salton Sea Sub-basin includes portions of the Ford, Palen, and Pinto hydrologic areas.

Clark HU. The Clark HU is associated with several washes that drain into San Felipe Creek. It is situated in Clark Valley within the Santa Rosa Mountains.

Colorado HU. The Colorado HU is primarily associated with the Colorado River, stretching south from Little Picacho Wilderness to Vidal Valley in the north. This HU includes several small lakes adjacent to the Colorado River, which supply flows to the various seasonal washes of Amos-Ogilby HU. The part of the Colorado HU that lies within the Salton Sea Sub-basin includes a portion of the Midway Well hydrologic area.

Davies HU. The Davies HU includes the Tumco Wash, a seasonal wash that drains into the Westside Main Canal. This HU is largely encompassed by the Jacumba Wilderness Area and the Yuha Desert.

East Salton HU. The East Salton HU is primarily associated with Salt Creek and Coachella Canal. Salt Creek drains into the Salton Sea from the Chuckwalla Mountains to the east.

Hayfield HU. The Hayfield HU is located in the Hayfield Planning, which lies primarily in Riverside County and covers approximately 1,860 square miles. The Hayfield Planning Area is a desert, with barren mountains and valleys and with dry lake beds at the lower elevations. The Hayfield HU is bordered by the Chuckwalla HU to the north and east, the Whitewater HU to the west, the East Salton HU to the south.

Imperial HU. The Imperial HU is located in the Imperial Valley Planning Area, which has the flat, fertile Imperial Valley as its central feature. The Imperial HU shared a border with Mexico to the south, the Anza Borrego and Davies HUs to the west, the Salton Sea and East Salton HU to the north, and the Colorado and Amos-Ogilby HUs to the east. The part of the Imperial HU that lies within the Salton Sea Sub-basin includes portions of the Brawley and Coyote Wells hydrologic areas.

Salton Sea HU. The Salton Sea HU consists entirely of the Salton Sea, a terminal saline lake. The lake is primarily replenished by agricultural drainage, with occasional inflows from storm runoff (Colorado River Basin RWQCB 2024). The northern area of the Salton Sea HU is in Riverside County and the southern area in Imperial County.

West Salton HU. The West Salton HU is primarily associated with seasonal washes that drain from the Santa Rosa Mountains into Salton Sea.

Whitewater HU. The Whitewater HU is primarily associated with the Whitewater River, which Salton Sea drains in to. The part of the Whitewater HU that lies within the Salton Sea Sub-basin includes a portion of the Coachella hydrologic area.

Yuma HU. The Yuma HU is primarily associated with the All American Canal and Picacho Wash. The Colorado River flows on the border of Yuma HU and Colorado HU, supplying water to the All American Canal.

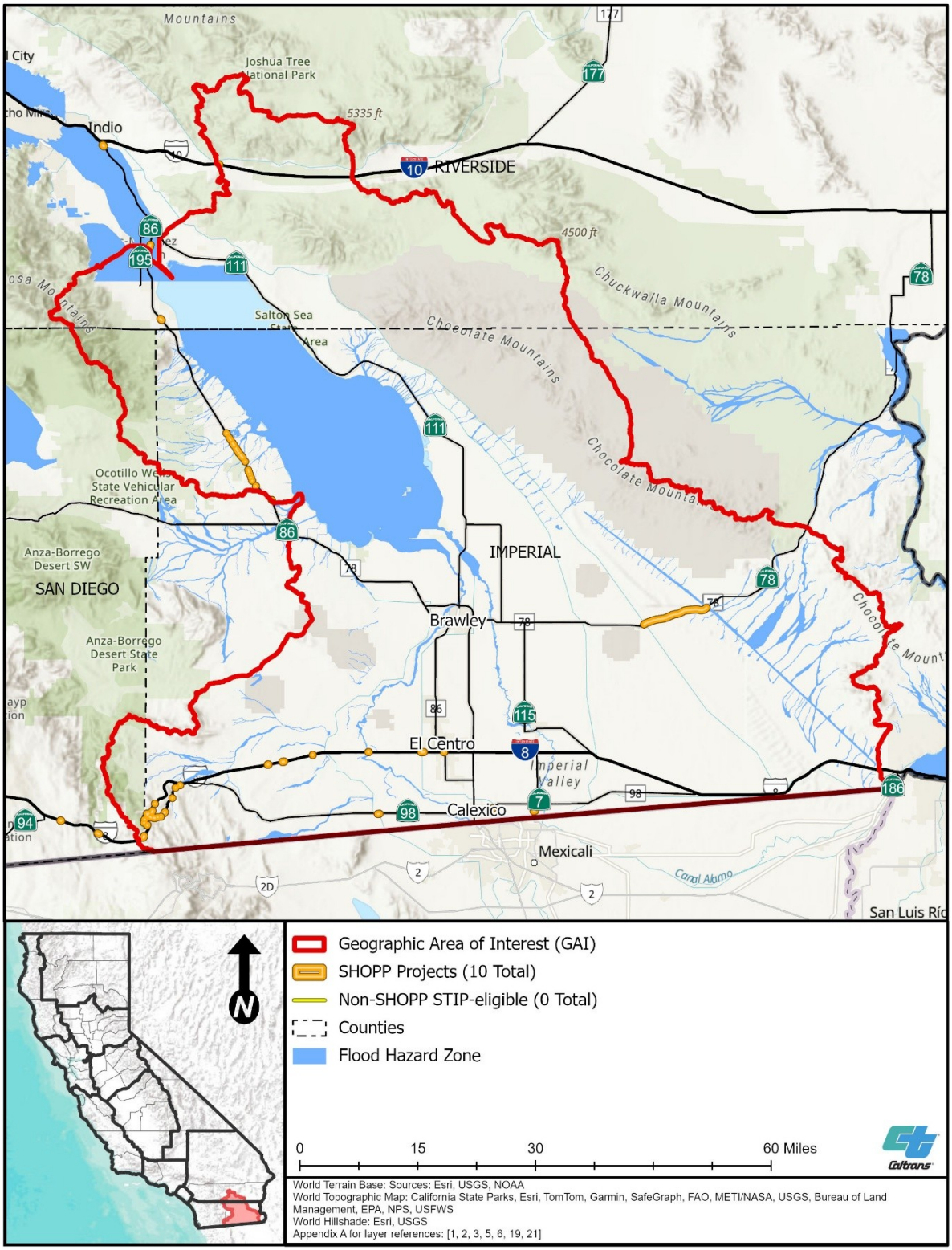
2.12. Flood Hazard Areas

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 2020). 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 2-11. Water bodies associated with the majority of flood hazard risk in the GAI include the Salton Sea, New River, Alamo River, Coachella Canal, San Felipe Wash, and Ninemile Wash. This information is important for scoping advance mitigation and transportation projects undertaken within the GAI, which will need to comply with Executive Order 11988.

Figure 2-11. Flood Hazard Areas



2.13. Water Quality

Water quality objectives for surface waters and groundwater within the GAI are provided in the Colorado River Basin Plan that covers the GAI (water quality control plan, or "Basin Plan") (Colorado River Basin RWQCB 2024). 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[4] for surface waters and groundwater are also identified in the Basin Plan (Colorado River Basin RWQCB 2024). If it cannot be avoided, a water body's beneficial uses may be affected by the construction, operation, and maintenance of highways and bridges. Impacts on wildlife and aquatic resources can be adverse or beneficial. An example of an adverse impact would be the introduction of a variety of pollutants, including sediments, heavy metals, hydrocarbons, and toxic substances (EPA 2005). An example of a beneficial impact would be repairs or retrofit that improve permeability or flow. Therefore, this RAMNA considers beneficial uses identified for water bodies 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).

Through habitat and other improvements, advance mitigation projects have the potential to contribute to compliance with the CWA Section 303(d) List of Total Maximum Daily Load Priority Schedule. For example, culvert replacement projects that increase flow and capacity would also reduce scour and improve sediment transport, resulting in improved channel function and flow and improved water quality.

The CWA Section 303(d) list of impaired waters includes six water bodies within the GAI, which are listed in Table 2-7 (SWRCB 2024). This RAMNA considers a water body's CWA Section 303(d) impairment designation as relevant to the RAMNA when it indicates a water body's loss of a relevant aquatic resource-related beneficial use (Table 2-6). The sources of these impairments include dieldrin, nutrients, sedimentation/siltation, dichlorodiphenyltrichloroethane (DDT), and toxaphene. The Water Boards may need to consult with CDFW or other natural resource regulatory agencies to determine whether a beneficial use may be affected by a water quality-related decision.

[4] RWQCBs may have region-specific definitions of beneficial uses or beneficial uses with no statewide equivalent. These definitions can be consulted in the latest document version, entitled "bu_definitions," at: https://www.waterboards.ca.gov/about_us/performance_report_1314/plan_assess/docs/.

Table 2-6. Beneficial Uses

Beneficial Use	Relevant to RAMNA?[a]
Agricultural Supply	No
Aquaculture	Yes
Cold Freshwater Habitat	Yes
Freshwater Replenishment	Yes
Groundwater Recharge	Yes
Hydropower Generation	No
Industrial Service Supply	No
Municipal and Domestic Supply	Yes
Non-Contact Water Recreation	Yes
Preservation of Rare, Threatened, or Endangered Species	Yes
Warm Freshwater Habitat	Yes
Water Contact Recreation	No
Wildlife Habitat	Yes

Sources: Colorado River Basin RWQCB 2024
[a] Beneficial uses are relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP's objective to protect natural resources through transportation project mitigation.

Table 2-7. Impaired Waters in the GAI

Sub-basin	Impaired Water	Primary Impairment	TMDL Status	Relevant to RAMNA?[a]
Salton Sea	Weist Lake	Dieldrin	Required, not established yet	Yes
Salton Sea	Salton Sea	Nutrients	Required, not established yet	Yes
Salton Sea	Alamo River	Sedimentation/ Siltation	Being addressed with EPA approved TMDL	Yes
Salton Sea	New River (Imperial County)	Nutrients	Required, not established yet	Yes
Salton Sea	All American Canal	DDT	Required, not established yet	Yes
Salton Sea	Imperial Valley Drains	Toxaphene	Required, not established yet	Yes
Salton Sea	Coachella Valley Storm Water Channel	Disulfoton	Required, not established yet	Yes

Source: SWRCB 2024
[a] Total Maximum Daily Loads (TMDLs) relevant to the RAMNA reflect impaired aquatic resource-related beneficial uses.

2.14. 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 2026; Water Education Foundation 2026). Rivers designated under the Wild and Scenic Rivers Act are classified as wild, scenic, or recreational. Wild river areas include rivers or sections of rivers that are free of impoundments, inaccessible except by trail, and have unpolluted waters. Scenic river areas include rivers or sections of rivers that are free of impoundments, have relatively undeveloped shorelines, and are accessible in some places by roads. Recreational river areas include rivers or sections of rivers that are readily accessible by road or railroad, have some development along shorelines, and may have impoundments or diversions.

No nationally or state-designated wild and scenic rivers are found within the GAI (National Wild and Scenic Rivers System 2026; Omnibus Public Land Management Act of 2009).

2.15. Aquatic Resources

A high-level view of major aquatic resources within the GAI is provided on Figure 2-12, and detailed maps of aquatic resources are provided in Appendix E, *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 managed by CDFW, FWS, or NMFS. Riparian habitat is discussed separately in Section 2.16.

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 waters of the state (as defined under the Porter-Cologne Water Quality Control Act), including WOTUS, 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[5]; use material from any river, stream, or lake; and deposit or dispose of material into any river, stream, or lake.

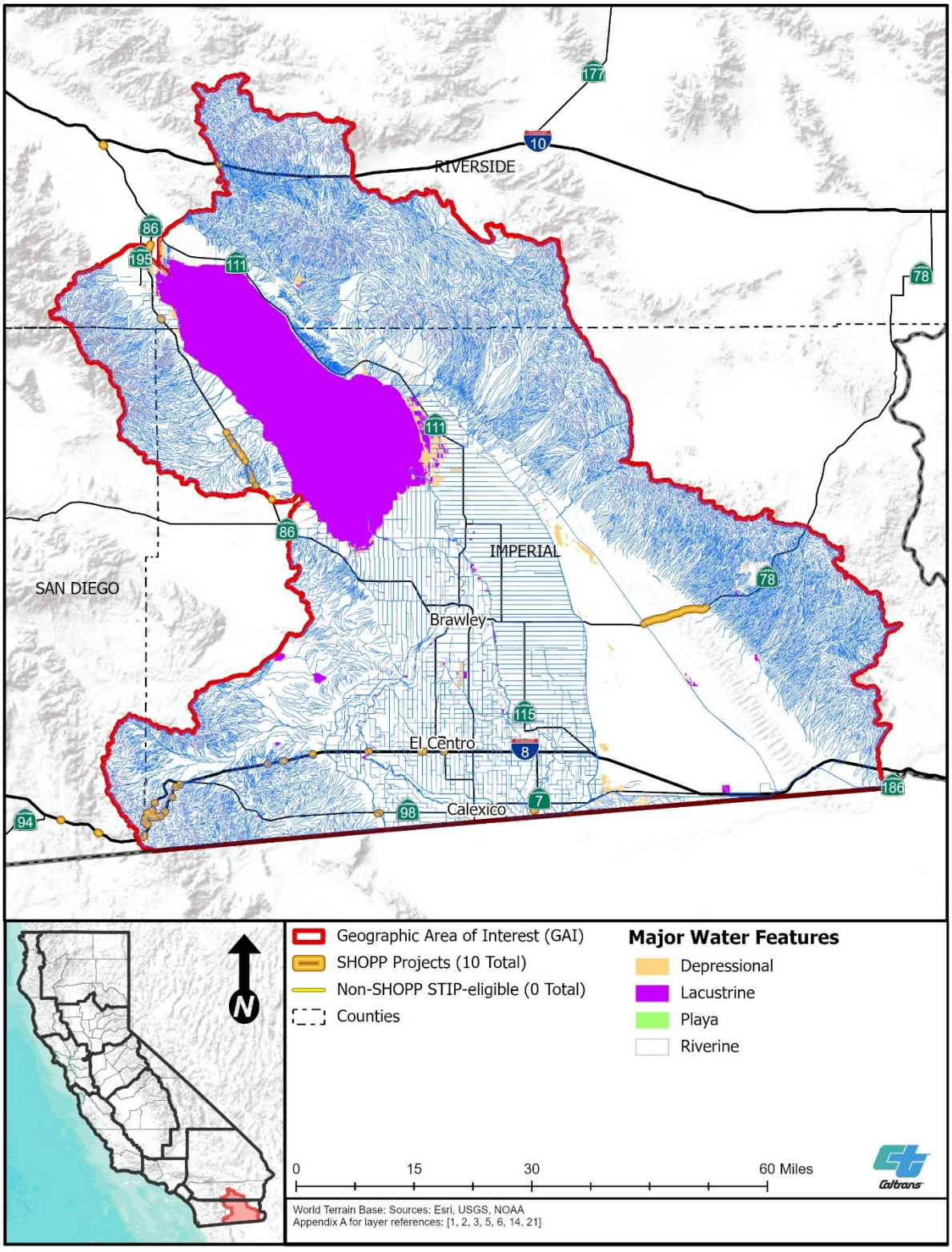
[5] Rivers, streams, and lakes include ephemeral, intermittent, and perennial watercourses.

2.15.1. Historical Context

Historically, Salton Trough and Lake Cahuilla existed in the basin due to west flows from the Colorado River that periodically flooded the region. Lake Cahuilla was created four separate times from sediment deposition near the Gulf of Mexico. In 1905, the Gila River of Arizona flooded the Colorado River, causing the failure and breach of the Imperial Valley irrigation system of that time and the creation of the Salton Sea. Over time, the Salton Sea has had elevational changes dependent on evaporation and agricultural run-off waste (Alaama 2024).

Over the past century, Imperial Valley has been heavily modified to support agricultural irrigation systems and operations, as well as various canals for industrial and urban water supply, throughout the region. The proportion of inflows due to agriculture runoff and irrigation has increased the number of pesticides and heavy metals in the water, causing impacts to both aquatic and terrestrial wildlife. Reduced flows overall, paired with increased evaporation rates, have contributed to a salinity increase of Salton Sea, further impacting aquatic and terrestrial wildlife (California Natural Resources Agency 2024).

Figure 2-12. Aquatic Resource Features and Major Stream Systems[a]



[a] For greater detail, see Appendix E.

2.15.2. Wetlands

Wetland resources information for the GAI was extracted from the SAMNA Reporting Tool. The SAMNA Aquatic/Riparian Geospatial Data is composed of data from two special San Francisco Estuary Institute projects, the Caltrans-CARI v2.0 and Caltrans CARIv2.0 RipZET – Statewide Riparian Estimate, which were released in April 2025.

Aquatic resource types outlined here follow the *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013). The SAMNA Reporting Tool wetlands data layer is separate from the land cover types discussed previously in Section 2.5; therefore, total acreages of wetland land cover types presented in Table 2-3 may not align with those presented in Table 2-8 (Caltrans 2025c).

Table 2-8. Wetland and Non-wetland Water Types in the GAI

Type	Salton Sea (acres[a]) 18100204
Depressional Perennial Natural Emergent	17.0
Depressional Perennial Natural Non-vegetated	51.2
Depressional Natural Seasonal Emergent	2,271.5
Depressional Natural Seasonal Non-vegetated	652.9
Depressional Natural Shrub-Scrub	343.1
Depressional Perennial Natural Emergent	337.0
Depressional Perennial Natural Non-vegetated	177.6
Depressional Perennial Natural Shrub-Scrub	154.3
Depressional Perennial Unnatural Emergent	814.6
Depressional Perennial Unnatural Non-vegetated	4,140.2
Depressional Perennial Unnatural Shrub-Scrub	2.8
Depressional Perennial Unnatural Vegetated	5.3
Depressional Seasonal Natural Forested	11.4
Depressional Seasonal Natural Shrub-Scrub	7,826.1
Depressional Seasonal Unnatural Emergent	1,023.2
Depressional Seasonal Unnatural Forested	3.3
Depressional Seasonal Unnatural Shrub-Scrub	294.3
Depressional Unnatural Emergent	9.5
Depressional Unnatural Non-vegetated	434.5
Depressional Unnatural Seasonal Non-vegetated	3,399.5
Depressional Unnatural Vegetated	2.7

Type	Salton Sea (acres[a]) 18100204
Lacustrine Natural Non-vegetated	238,677.9
Lacustrine Natural Vegetated	48.6
Lacustrine Unnatural	82.9
Lacustrine Unnatural Non-vegetated	5,170.9
Playa Natural Non-vegetated	13.2
Riverine Natural	70,628.4
Riverine Natural Emergent	629.1
Riverine Natural Forested	5.1
Riverine Natural Non-vegetated	10,528.7
Riverine Natural Shrub-Scrub	2,084.0
Riverine Unnatural	4,206.5
Riverine Unnatural Emergent	38.1
Riverine Unnatural Non-vegetated	3,016.6
Riverine Unnatural Shrub-Scrub	46.5
Total[b]	**357,148**

Sources: Caltrans 2025c
[a] Rounded to the nearest tenth.
[b] Rounded to the nearest whole number. Numbers may not sum due to rounding.

2.15.3. Non-wetland Waters

Other, non-wetland water resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the USGS National Hydrography Dataset (Table 2-8, Appendix E; Caltrans 2025c). 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 2.5; therefore, total acreages of water land cover types presented in Table 2-3 may not align with those presented in Table 2-8 (Caltrans 2025c).

2.15.4. Threatened and Endangered Fish Species

Special-status terrestrial species with the potential to occur within the GAI are discussed in Section 2.7. 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 2025c, 2023c).

Based on a search of the fish habitat layer, one federally and state listed endangered fish species has the potential to occur within the GAI: desert pupfish (*Cyprinodon macularius*).

The GAI does not include FWS- or NMFS-designated final critical habitat for this fish species.

Although it is the best information currently available, the SAMNA Reporting Tool's fish species list is uncertain (Caltrans 2025c). 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.

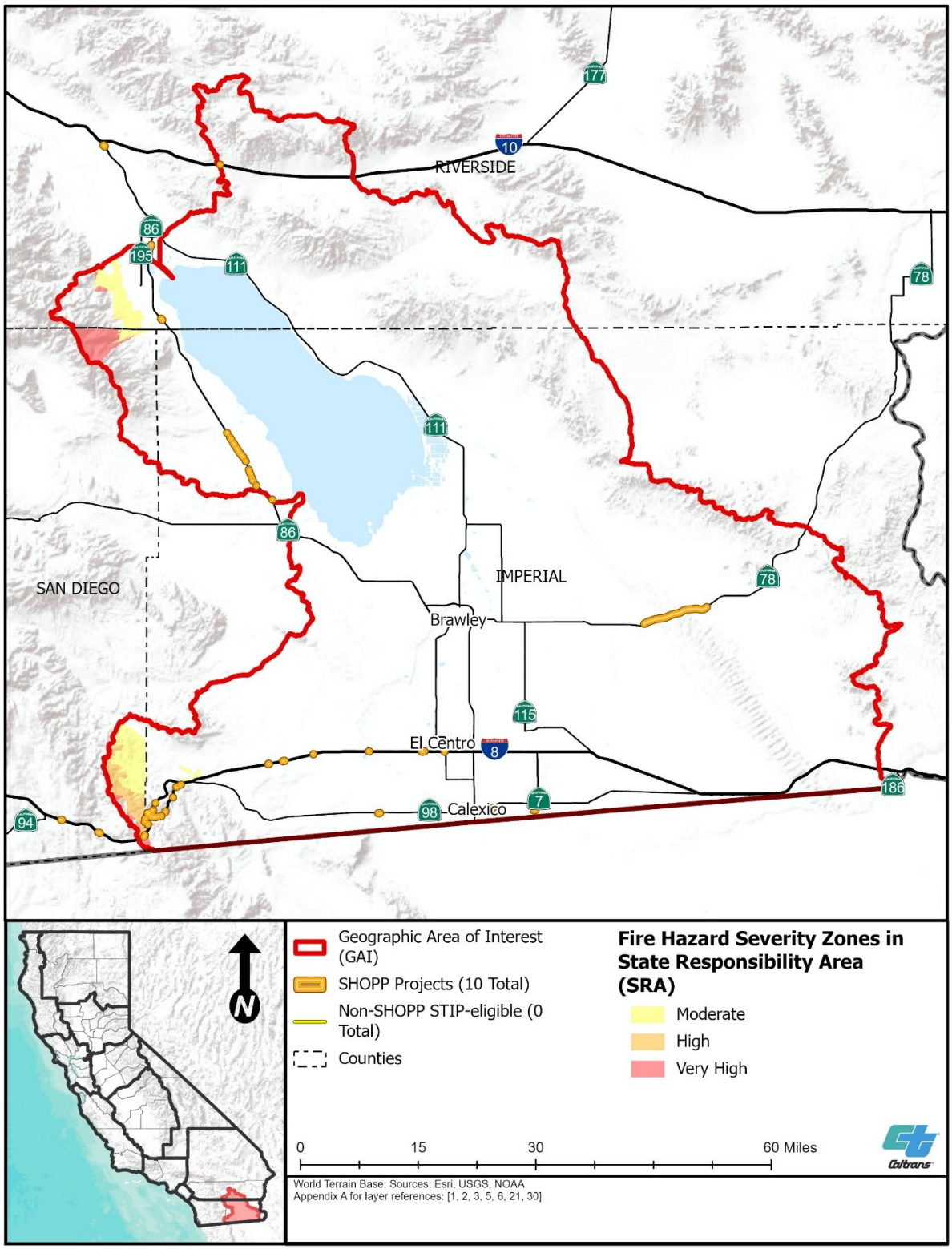
2.16. Riparian Habitat

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

2.17. 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 2-13). 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 2-13, moderate to very high fire hazard severity zones in the GAI occur in the northwestern and southwestern parts of the GAI at higher elevations. 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 2-13. Fire Hazard Severity Zones



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3. RELEVANT PLANS, POLICIES, AND REGULATIONS

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

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

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

3.1. Relationship to Goals and Objectives

As stated in Chapter 1, *Introduction*, the GAI for this RAMNA was selected by Caltrans District 11 based on the SAMNA results and other information. Caltrans District 11 specifically identified compensatory mitigation for burrowing owl, flat tailed horned lizard, Switak's banded gecko, desert tortoise, bighorn sheep, ringtail, desert pupfish, 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 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: ▪ Provide an annual list of fish passage priorities for the SHS to the legislature ▪ Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds ▪ Submit assessments to the Fish Passage Assessment Database ▪ Construct all new transportation projects in a way that does not pose or create a barrier to fish passage Caltrans collaborates with the FishPAC to identify passage priority locations for the SHS. The FishPAC is a partnership between CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.	https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=156.&lawCode=SHC	1/1/2006 (effective date)
California Fish and Game Commission Wetlands Resources Policy	Updated periodically	No	California Fish and Game Commission's policy seeks to provide for the protection, preservation, restoration, enhancement, and expansion of wetland habitat in California.	https://fgc.ca.gov/About/Policies/Miscellaneous#Wetlands	8/18/2005 (last amended)
California Water Boards 2010 Update to Strategic Plan 2008–2012	Final	No	This is an update to the strategic plan from the Water Boards. Goals include implementing strategies to fully support beneficial uses for all water bodies listed in the 2006 report, improve and protect groundwater quality, increase sustainable local water supplies available for meeting beneficial uses by 1,725,000 acre-feet per year, comprehensively address water quality protection and restoration, improve transparency and accountability within the Water Boards, enhance consistency across the Water Boards, and ensure that the Water Boards have access to information and expertise.	https://www.waterboards.ca.gov/water_issues/hot_topics/strategic_plan/	6/01/2010 (last updated)
2022 Fish Passage Annual Legislative Report	Updated periodically	No	This report identifies priority fish passage barriers on the SHS. Priorities are determined through FishPAC collaboration and are based on: ▪ Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed; ▪ Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species; and ▪ Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts. Subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans.	https://dot.ca.gov/programs/legislative-affairs/reports	10/01/2022 (last updated)
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	This is the Governor of California's directive for a no net loss policy on the quantity, quality, and permanence of wetland acreages and values.	https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wrapp2008/executive_order_w59_93.pdf	8/23/1993

Title	Status	Spatial Data	Reference Purpose	Link	Date
Fish and Game Code § 1955	Updated periodically (by California legislature)	No	Section 1955 of the Fish and Game Code identifies the impacts of climate change and land use planning on California wildlife habitat connectivity and migratory corridors. Section 1955 states that habitat connectivity is essential for continued survival of California species, and so the Legislature intends to expand programs identified in Section 1797 (mitigation and conservation banking) and Section 1850 (advance mitigation planning) of the Fish and Game Code.	https://california.public.law/codes/fish_and_game_code_section_1955	1/1/2022 (effective date)
Native Plant Protection Act	Final	No	Enacted in 1977, this 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_displayText.xhtml?division=2.&chapter=10.&lawCode=FGC	1/1/1977
Porter-Cologne Water Quality Control Act	Updated periodically (by California legislature)	No	This law 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	1/1/2026 (last amended)
State Board Resolution No. 68-16	Final	No	This resolution provides the 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, this document creates a State of California wetland definition, framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state.	https://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html	4/6/2021 (last revised)
Streambed Alteration Program FGC § 1602	Updated periodically (by California legislature)	No	Implemented by CDFW, this program regulates activities that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In general terms, CDFW jurisdiction extends to top-of-bank 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://california.public.law/codes/fish_and_game_code_section_1602	7/12/2021 (last amended)
Water Quality Control Plan for the Colorado River Basin Region	Updated periodically	Yes	Implemented by Colorado River Basin RWQCB, this plan establishes general and site-specific water quality standards and objectives in the Colorado River Basin.	https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/	8/20/2024 (last updated)
Federal Laws, Guidelines, and Regulations	See below	See below	See below	See below	See below
2008 Final Compensatory Mitigation Rule	Final	No	This is the 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	This is EPA and SWRCB's listing of regulated impaired water bodies.	https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2024-integrated-report.html	2/06/2024 (last updated)
40 CFR § 131.12 California Antidegradation Policy	Final	No	The SWRCB implemented this policy. Required by federal law, the Antidegradation Policy applies to the disposal of waste to high-quality surface water and groundwater.	https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-131/subpart-B/section-131.12	8/21/2015 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Corps Regulatory Guidance Letter 18-01	Final	No	This is the 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/collection/p16021coll9/id/1473	9/25/2018
Current Implementation of Waters of the United States	Updated periodically	No	This is EPA's website on the implementation and definition of WOTUS, based on the most current agency rulemaking and legal decisions.	https://www.epa.gov/wotus/current-implementation-waters-united-states	11/17/2025 (last updated as currently proposed)
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	This regulation, implemented by EPA and SWRCB, regulates discharge of pollutants into WOTUS.	https://www.law.cornell.edu/uscode/text/33/1341	12/27/1977 (last amended)
CWA § 402 National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit	Updated periodically (by Congress)	No	Implemented by EPA and SWRCB, this permit regulates discharge of stormwater from municipal sources that are a conveyance or system of conveyances and are: ▪ Owned by a state, city, town, village, or other public entity that discharges to WOTUS; ▪ Designed or used to collect or convey stormwater (for example, storm drains, pipes, ditches); ▪ Not a combined sewer; and ▪ Not part of a sewage treatment plant, or publicly owned treatment works.	https://www.epa.gov/npdes/stormwater-discharges-municipal-sources	6/7/2023 (last amended)
CWA § 404	Updated periodically (by Congress)	No	This regulation, implemented by EPA and the Corps, regulates discharge of dredge or fill material into WOTUS.	https://uscode.house.gov/view.xhtml?hl=false&edition=prelim&req=granuleid%3AUSC-2024-title33-section1344&f=treesort&num=0#amendment-note	2/4/1987 (last amended)
Definition of "Waters of the United States"	Updated periodically	No	On November 17, 2025, the EPA and the Department of the Army announced the proposed rule "Updated Definition of Waters of the United States". This proposal implements the Supreme Court's decision in the case of *Sackett v. Environmental Protection Agency*.	https://www.epa.gov/wotus/updated-definition-waters-united-states	11/17/2025 (last amended)
Executive Order 11990, Protection of Wetlands	Final	No	This order 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	This Act 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	This provides the 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	1/12/2015 (last amended)
FWS Mitigation Policy	Final	No	FWS' policy builds upon the guidance in the 1981 Mitigation Policy for FWS recommendations and requirements for mitigating adverse impacts of land and water developments on fish and wildlife.	https://www.fws.gov/policy-library/A1501fw2	2/13/2026 (last amended)
FWS Endangered Species Act Compensatory Mitigation Policy	Final	No	FWS' policy 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 ESA.	https://www.fws.gov/policy-library/a1501fw3	2/13/2026 (last amended)
National Wetlands Mitigation Action Plan	Final	No	EPA and Corps' comprehensive, interagency document provides guidance on 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

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NOAA Mitigation Policy for Trust Resources	Final	No	NOAA's comprehensive national policy on mitigation outlines principles it will use to guide decisions about mitigation as it implements its programs and assists public agencies, tribes, and project proponents to avoid, minimize, and compensate for adverse impacts on natural resources under NOAA management or jurisdiction.	https://www.noaa.gov/organization/administration/noaa-administrative-orders-chapter-216-program-management/nao-216-123-noaa-mitigation-policy-for-trust-resources	7/22/2022
Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change	Updated periodically	No	FWS' document addresses adaptation, mitigation, and engagement strategies to achieve goals and objectives of minimizing the impact of climate change on fish and wildlife by applying science in managing species and habitats, reducing levels of greenhouse gases, and collaborating with other organizations to determine solutions to challenges and threats to fish and wildlife conservation posed by climate change.	https://pipap.sprep.org/content/strategic-plan-responding-accelerating-climate-change	9/01/2010
Section 10 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	This Act 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 waterbody. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable WOTUS.	https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899	7/26/1947 (last amended)
Section 14 of the Rivers and Harbors Appropriation Act of 1899	Updated periodically (by Congress)	No	This Act is also known as 33 USC Section 408 or, more simply, Section 408. Implemented by the Corps, this Act regulates the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States.	https://www.law.cornell.edu/uscode/text/33/408a#a	10/23/2018 (last amended)
Wild and Scenic Rivers Act	Final	Yes	This Act preserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. All federal agencies must seek to avoid or mitigate actions that would adversely affect National River Inventory river segments.	https://www.law.cornell.edu/uscode/text/16/chapter-28	12/19/2014 (last amended)
Statewide and Regional Resource Planning Documents	See below	See below	See below	See below	See below
A Climate Change Vulnerability Assessment of California's Terrestrial Vegetation	Final	Yes	CDFW's document assesses the climate vulnerability of terrestrial vegetation.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116208&inline	1/1/2016
A Strategy for California @ 50 Million – Supporting California's Climate Change Goals	Final	Yes	This 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	This CDFW effort analyzes 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	12/18/2025 (last updated)
California Biodiversity Initiative	Final	No	This is a CNRA, California Department of Food and Agriculture, and Governor's Office of Planning and Research high-level planning document. It provides a road map to secure California's biodiversity future.	https://californiabiodiversityinitiative.org/pdf/california-biodiversity-action-plan.pdf	9/1/2018
California Essential Habitat Connectivity Project	Final	Yes	This CDFW and Caltrans assessment identifies 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	9/2024
California Water Action Plan 2016 Update	Final	No	This plan calls for action to restore key mountain meadow habitat, manage headwaters, restore coastal watersheds, and enhance water flows in streams statewide.	http://resources.ca.gov/docs/california_water_action_plan/Final_California_Water_Action_Plan.pdf	1/1/2016
California Watershed Assessment Manual Volume I	Final	No	This assessment provides guidance for conducting a watershed assessment in California.	https://www.epa.gov/system/files/documents/2022-02/caliwam.pdf	8/1/2004

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Caltrans Adaptation Priorities Report: District 11	Final	No	Caltrans initiated a major agency-wide effort to adapt its infrastructure so that it can withstand future conditions. The effort began by determining which assets are most likely to be adversely affected by climate change in each Caltrans District.	https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2020-adaption-priorities-reports/d11-adaptation-priorities-report-2020-a11y.pdf	10/2020
Caltrans Climate Change Vulnerability Assessment: District 11 Technical Report	Final	No	This is Caltrans' assessment of climate change vulnerabilities for the District.	https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2019-climate-change-vulnerability-assessments/ada-remediated/d11-technical-report-a11y.pdf	10/1/2019
Conservation and Mitigation Banking	Active web page	No	This is CDFW's main public webpage describing the process for creating and using mitigation banks.	https://wildlife.ca.gov/Conservation/Planning/Banking	Ongoing
Roadkill, a Preventable Natural Disaster	Final	Yes	This is University of California, Davis's Road Ecology Center report on the ecological and financial cost of vehicle collisions with wildlife throughout the state, broken down by different regions in the state.	https://roadecology.ucdavis.edu/sites/g/files/dgvnsk8611/files/files/CROS-CHIPs_Hotspots_2024_fin.pdf	6/15/2024
Large Mammal-Vehicle Collision Hot Spot Analyses, California, USA	Final	Yes	Western Transportation Institute's report documents 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
Regional Conservation Investment Strategies	Updated periodically	Yes	CDFW's central location for RCISs that are approved, in draft review, or in development in California. No RCISs occur within the GAI.	https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation/RCIS	10/16/2025 (most recent document)
Restoring California's Wildlife Connectivity 2022: 2022 Priority Wildlife Connectivity Project Locations by Region	Final	Yes	This document provides CDFW's priority wildlife movement barriers across the state. This document is focused on large wild mammal game species; however, some priorities would benefit special-status species such as bighorn sheep.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=204648&inline	12/1/2022
Safeguarding California Plan: 2018 Update	Final	No	This is CNRA's conservation plan. It 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 (10-year intervals)	Yes	This is CDFW's plan for protection of species of greatest conservation need, in addition to habitats and other wildlife in California. It includes habitat targets of anthropogenically created aquatic features and ciénegas and specifically named desert pupfish as a Species of Greatest Conservation Need (SGCN) associated with these features. Springs and spring brooks are also listed as target aquatic habitats. The strategies associated with these targets include objectives to: • Reintroduce established self-sustaining and genetically viable populations of native aquatic SGCN species and reproduce one generation in the wild; and • Remove invasive or problematic species from historical native fish habitat.	https://wildlife.ca.gov/SWAP	10/1/2025 (last updated)

Title	Status	Spatial Data	Reference Purpose	Link	Date
SWAP Transportation Companion Plan	Final	Yes	This is CDFW's companion document to SWAP that provides a plan for the protection of species specific to transportation project planning.	https://swap.wildlife.ca.gov/conservation-tools/#companion-plans	12/1/2016
SWAP Water Management Companion Plan	Final	Yes	This is CDFW's companion document to SWAP that recommends water management practices throughout the state of California.	https://swap.wildlife.ca.gov/conservation-tools/#companion-plans	10/1/2025
Wildlife Connectivity Advance Mitigation Guidelines	Final	No	The Wildlife Connectivity Advance Mitigation Guidelines (Guidelines) create incentives for improving habitat connectivity that will protect and enhance movement and migration for California's most threatened species. The Guidelines are applicable to the Conservation and Mitigation Banking Program and MCAs, as part of the RCIS Program [FGC, § 1955, subdivision (f)].	https://wildlife.ca.gov/Conservation/Planning/Connectivity	9/1/2024
Special-Status Taxa[a] Documents	See below	See below	See below	See below	See below
Revised Recovery Plan for the Mojave Desert Tortoise	Final	No	This is FWS' recovery plan for the Mojave desert tortoise. The Colorado Desert recovery unit is within the GAI. Recovery objectives of the plan include: ▪ Maintain self-sustaining populations within each recovery unit ▪ Maintain well-distributed populations throughout each recovery unit ▪ Ensure that habitat within each recovery unit is protected and managed to support long-term viability of populations	https://www.fws.gov/media/2011-revised-recovery-plan-mojave-desert-tortoise	5/6/2011
Mojave Desert Tortoise (*Gopherus agassizii)* 5-Year Review: Summary and Evaluation	Updated periodically	No	This is FWS' most recent 5-year formal review for the Mojave desert tortoise.	https://www.fws.gov/media/2022-mojave-desert-tortoise-five-year-review	5/20/2022 (last updated)
Determination of Critical Habitat for the Mojave Population of the Desert Tortoise	Final	Yes	This is FWS' designation of critical habitat for the Mojave desert tortoise.	https://www.fws.gov/species-publication-action/etwp-determination-critical-habitat-mojave-population-desert-tortoise	2/8/1994
Mojave Desert Tortoise Biological Opinions	Updated periodically	No	This is FWS' list of 209 biological onions that have been issued for the Mojave desert tortoise; of these, 21 were for projects within the GAI.	https://reports.ecosphere.fws.gov/FWSPublicReports/Reports/Index?reportname=BiologicalOpinionReport	6/17/2025 (latest document)
Desert Tortoise Monitoring Handbook	Updated periodically	No	This is FWS' current protocol for monitoring desert tortoise populations.	https://www.fws.gov/media/2024-mojave-desert-tortoise-monitoring-handbook	8/5/2024 (last updated)
Incidental Take Permits for Desert Tortoise	Updated periodically	No	This is CDFW's list of incidental take permits issued for desert tortoise from its publicly available document search website. There are 96 documents in the search.	https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Permitting	10/21/2025 (latest document)
Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California	Final		This is FWS' recovery plan for peninsular bighorn sheep. The Carrizo Canyon/Tierra Blanca Mountains/Coyote Mountains recovery region occurs within the GAI. The recovery objective is to protect and maintain sufficient individuals and habitat in the Peninsular Ranges to eventually delist the species.	https://www.fws.gov/node/68063	10/25/2000
Peninsular Bighorn Sheep 5-Year Review	Updated periodically	Yes	This is FWS' most recent formal review of peninsular bighorn sheep condition. The Carrizo Canyon/Tierra Blanca Mountains/Coyote Mountains recovery region occurs within the GAI.	https://www.fws.gov/node/263661	8/30/2021 (last updated)
Designation of Critical Habitat for Peninsular Bighorn Sheep and Determination of a Distinct Population Segment of Desert Bighorn Sheep	Final	Yes	This is FWS' designation of critical habitat for peninsular bighorn sheep and the DPS, which occurs within the GAI.	https://www.fws.gov/species-publication-action/designation-critical-habitat-peninsular-bighorn-sheep-and-0	4/14/2009
Peninsular Bighorn Sheep Biological Opinions	Updated periodically	No	This is FWS' list of seven biological opinions that have been issued for the Peninsular bighorn sheep, all of which were for projects within the GAI.	https://reports.ecosphere.fws.gov/FWSPublicReports/Reports/Index?reportname=BiologicalOpinionReport	8/1/2021 (last updated)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Petition Evaluation for Western Burrowing Owl (*Athene cunicularia hypugaea*)	Final	No	This is CDFW's evaluation of the petition to list western burrowing owl under the California Endangered Species Act. CDFW concluded that the listing may be warranted. The evaluation estimates that, as of 2023, there are approximately 4,000 owls within the GAI.	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=225154&inline	8/1/2024
Staff Report on Burrowing Owl Mitigation	Final	No	This is CDFW's plan to reverse burrowing owl population decline with the goals of: ▪ Incorporating conservation strategies into NCCPs and HCPs ▪ Developing and implementing a statewide conservation strategy; and ▪ Developing more rigorous survey methods, improving impact assessments, and developing clear avoidance and minimization measures	https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline=true	3/7/2012
Incidental Take Permits for Western Burrowing Owl	Updated periodically	No	This is CDFW's list of incidental take permits issued for the western burrowing owl from its publicly available document search website. There are 28 documents in the search.	https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Permitting	9/12/2025 (latest document)
Withdrawal of Proposed Rule to List the Flat-Tailed Horned Lizard as Threatened	Final	No	This is FWS' determination that the flat-tailed horned lizard should not be listed as threatened under the ESA, as was proposed in 1993.	https://www.fws.gov/species-publication-action/withdrawal-proposed-rule-list-flat-tailed-horned-lizard-threatened-0	5/15/2011
Flat-Tailed Horned Lizard Rangewide Management Strategy	Updated periodically	No	This is CDFW's management plan for flat-tailed horned lizard. The Yuha Desert and West Mesa management areas occur within the GAI. The management objectives include: • Manage sufficient habitat to maintain self-sustaining populations • Maintain a "long-term stable" or increasing population • Support research that promotes conservation • Limit loss of habitat and impacts to populations • Encourage and assist Mexico in development and implementation of a conservation program	https://www.mcasyuma.marines.mil/Portals/152/Staff%20and%20Agencies/Range%20Natural%20and%20Cultural%20Resources/FTHL%20Rangewide%20Management%20Strategy%20-%20Final%202003.pdf?ver=DvgxPN8sMxCWoJj807Q7IA%3D%3D	5/1/2003 (last updated)
Flat-Tailed Horned Lizard (*Phrynosoma mcallii*)	Final	Yes	This is CDFW's species account of the flat-tailed horned lizard. It emphasizes management considerations of restoring degraded habitats, removing invasive species, and replanting native species for open habitat.	https://wildlife.ca.gov/Conservation/SSC/Amphibians-Reptiles	1/01/2016
Status Review of the Flat-Tailed Horned Lizard	Final	No	This is CDFW's most recent status review of flat-tailed horned lizard.	Not Available	9/30/2016
Survey Protocol for the Barefoot Banded Gecko (currently known as Switak's Banded Gecko)	Final	No	This is CDFW's survey protocol for detecting the presence of Switak's banded gecko, formerly known as the barefoot banded gecko.	https://wildlife.ca.gov/Conservation/Survey-Protocols#377281283-reptiles	8/1/2011
Status of the Ringtail in California	Final	No	This is CDFW's report on the status of ringtail in California. The report focuses on the previous reports of trapping throughout various counties.	Not Available	6/1/1980
Desert Pupfish Recovery Plan	Final	No	This is FWS' recovery plan for desert pupfish. The recovery criteria pertinent to the GAI that must be achieved before downlisting can occur are: • naturally occurring populations in the United States and Mexico are secure, which includes a Management Unit in Salton Sink, CA that overlaps with the GAI; • populations are re-established and secure within probable historic range; • protocol for exchange of genetic material among re-established populations is established and implemented; and • population and genetic monitoring plans are written and implemented	https://ecos.fws.gov/ecp/species/7003	12/08/1993

Title	Status	Spatial Data	Reference Purpose	Link	Date
Desert Pupfish Amendment 1	Final	No	This is FWS' amendment to the final recovery plan for desert pupfish, which establishes delisting criteria. The recovery criteria pertinent to the GAI that must be achieved before delisting can occur are: • populations of the seven Management Units are reestablished and secure within historical range of the species, at least two of which must be in a large riverine system; • a population that meets all other requirements to qualify at a Tier 2 population must persist for a minimum of 20 years; and • the specified total number of populations must be achieved and continuously maintained for 20 years	https://ecos.fws.gov/ecp/species/7003	9/26/2019
Desert Pupfish (*Cyprinodon macularius*) 5-Year Review: Summary and Evaluation	Updated periodically	No	This is FWS' most recent 5-year formal review of the species' condition.	https://ecos.fws.gov/ecp/species/7003	9/30/2010 (latest document)
Determination of Endangered Status and Critical Habitat for Desert Pupfish	Final	Yes	This is FWS' endangered status determination for the desert pupfish, as well as critical habitat determination. The designated critical habitat does not fall within the GAI.	https://ecos.fws.gov/ecp/species/7003	3/31/1986
Desert Pupfish Biological Opinions	Updated periodically	No	This is FWS' list of two biological opinions that have been issued for the desert pupfish, both of which were for projects within the GAI.	https://reports.ecosphere.fws.gov/FWSPublicReports/Reports/Index?reportname=BiologicalOpinionReport	11/20/2020 (most recent document)
Five-Year Species Review of Desert Pupfish (*Cyprinodon macularius*)	Updated periodically (5-year intervals)	Yes	This is CDFW's most recent 5-year formal review of the species' condition.	https://wildlife.ca.gov/Conservation/CESA/Five-Year-Reviews#602894086-fish-and-aquatic-invertebrates	12/01/2021 (last updated)
Desert Pupfish Incidental Take Permits	Updated periodically	No	This is CDFW's list of incidental take permits issued for the desert pupfish from its publicly available document search website. There is one document in the search.	https://nrm.dfg.ca.gov/documentsContextDocs.aspx?cat=CESA-Permitting	9/25/2023 (latest document)
State Land Management Plans	See below	See below	See below	See below	See below
General Planning Handbook for California State Parks	Final	Yes	This is California State Parks' guidelines for general plan development, which require an inventory of known natural resources and general guidelines to comply with federal and state laws. State Park entities with specific management goals pertinent to Chapters 7 and 8 of this RAMNA are listed below.	http://www.parks.ca.gov/pages/21299/files/planning_handbook_april_2010.pdf	4/1/2010
Anza Borrego Desert State Park General Plan	Final	Yes	This is the management plan for Anza Borrego State Park. Although the majority of the park occurs outside the GAI, regions of the park overlap with the GAI near Mortero Palms. It includes goals to: • Restore sustainable and ecologically functional watersheds and groundwater basins throughout the region; • Implement effective methods of control and eradication of invasive species; and • Enhance the movement and dispersal of native plants and animals and the regional ecosystems.	https://www.parks.ca.gov/?page_id=21299	2/11/2005

Title	Status	Spatial Data	Reference Purpose	Link	Date
Final Heber Dunes SVRA General Plan	Final	Yes	The management plan for Heber Dunes State Vehicular Recreation Area includes goals to: • Establish areas for adaptive management where known populations of special-status plants and wildlife occur; • Minimize disturbance of natural resources and enhance existing natural resources including creosote scrub and saltbush scrub in Resource Management Zones, located in the southern part of the GAI between Heber Dunes Rd and State Highway 7; • Enhance creosote scrub habitat and other natural resources with trail closures, weed control, and vehicle barriers; and • Implement weed control measures to encourage recovery of degraded native habitats.	https://ohv.parks.ca.gov/?page_id=25642	12/01/2011
Heber Dunes State Vehicular Recreation Area 2022 Wildlife Habitat Protection Plan	Updated periodically	Yes	The California State Parks' Wildlife Habitat Protection Plan for the Heber Dunes SVRA includes goals to: • Remove five acres of saltcedar from Heber Dunes SVRA; and • Manage spread of invasive species.	https://ohv.parks.ca.gov/?page_id=25642	9/01/2022 (last updated)
FWS Land Management Plans	See below	See below	See below	See below	See below
Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan	Final	Yes	The Comprehensive Conservation Plan for Sonny Bono National Wildlife Refuge Complex includes objectives to: • Manage remnant native desert scrub habitat, tree rows, and riparian areas to support resident wildlife species; • Restore, enhance, and adaptively manage habitat functions that support fish and bird life in and around the Salton Sea; • Annually produce wetland plants such as watergrass (*Echinochloa crus-galli*), swamp timothy (*Crypsis schoenoides*), and alkali bulrush (*Scirpus robustus*) on 700 acres of seasonally flooded managed ponds; and • Manage approximately 110 acres of existing permanent, unvegetated, brackish open water areas and maintain at least 10 unvegetated islands of various sizes within these permanent open water areas.	https://www.federalregister.gov/documents/2014/09/18/2014-22272/sonny-bono-salton-sea-national-wildlife-refuge-complex-final-comprehensive-conservation-plan-and	3/06/2014
U.S. Military Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	No Management Plans or similar documents are publicly available for the Military Lands in the GAI.	Not applicable	Not applicable
Native American Tribal Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	Torres-Martinez Desert Cahuilla and Quechan Tribe of the Fort Yuma reservations occur within the GAI; however, they do not have publicly available land management plans.	Not applicable	Not applicable
USFS Land Management Plans	See below	See below	See below	See below	See below
Not applicable	Not applicable	Not applicable	No USFS lands occur within the GAI.	Not applicable	Not applicable

Title	Status	Spatial Data	Reference Purpose	Link	Date
BLM Land Management Plans	See below	See below	See below	See below	See below
El Centro Field Office East San Diego County Resource Management Plan and Record of Decision	Final	Yes	This is the Resource Management Plan for the East San Diego County Planning Area. A small portion of the planning area overlaps with the GAI in the southwest and northwest areas. The RMP includes goals and objectives to: • Enhance stream bank and channel condition; • Improve water quality in accordance with state and federal standards; • Enhance a mosaic of native plant communities in upland and riparian areas; • Restore unproductive or non-functioning upland and riparian sites to desired plant communities that are functioning properly; • Restore intrinsic biological integrity and value for all native plant communities; • Restore and enhance native species in upland and riparian communities through rehabilitative measures and/or invasive species management; • Remove tamarisk (*Tamarix* spp.) and other non-native invasive plant species, including from the springs and seeps within Peninsular bighorn sheep critical habitat; • Provide suitable habitat capable of maintaining stable or increasing trends in abundance to help keep species from becoming federally listed; • Restore native wildlife species habitat distribution and occurrence; • Restore or enhance nesting and foraging habitat for raptors; and • Enhance and restore terrestrial and riparian habitats for the survival and recovery of species listed under the ESA and to prevent proposed or candidate species from becoming listed as endangered or threatened under the ESA.	https://eplanning.blm.gov/Project-Home/?id=47b6ea95-a7f2-f011-8406-001dd802fdea	10/31/2008
El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan	Final	Yes	The Management Plan for the Imperial Sand Dunes Recreation Area includes goals and objectives to: • Enhance the natural condition and hydrology of washes; • Reduce or prevent water quality degradation and improve water quality in accordance with state and federal standards; • Restore and enhance native plant communities through rehabilitative measures and/or invasive species management; • Remove tamarisk and other non-native invasive plant species; • Implement protection and restoration measures such as signage, invasive weeds treatment, and native plant seed collection for priority plant species; • Restore native wildlife species habitat distribution and occurrence and improve availability of suitable habitats and habitat linkages; • Restore or enhance nesting and foraging habitat for raptors; • Restore and enhance habitats for the survival and recovery of species listed under the Endangered Species Act and to prevent proposed or candidate species from becoming listed as endangered or threatened under the Endangered Species Act; • Restore degraded habitats to promote reproductive success and survival of special-status wildlife and pollinator success and survival for Pierson's milk vetch; and • Improve habitat for the Mojave population of the desert tortoise.	https://eplanning.blm.gov/Project-Home/?id=45b6ea95-a7f2-f011-8406-001dd802fdea	6/30/2013
NPS Land Management Plans	See below	See below	See below	See below	See below
Nationwide Rivers Inventory	Final	No	This is a listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic River System. No national river segments occur within the GAI.	https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm	11/15/2024 (last updated)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Joshua Tree General Management Plan, Development Plans, and Environmental Impact Statement	Final	Yes	This is NPS' General Management Plan for Joshua Tree National Park.	https://www.nps.gov/jotr/learn/management/index.htm	8/7/1995
Local Government Land Management Plans	See below	See below	See below	See below	See below
Final Salton Sea Long-Range Plan	Final	No	The goal of the Long-Range Plan is to protect or improve air quality, water quality, and wildlife habitat to prevent or reduce health and environmental consequences anticipated from the long-term recession of the Salton Sea shoreline. The Long-Range Plan presents restoration concepts based on a review of existing reports and environmental documents, as well as a community outreach process.	https://saltonsea.ca.gov/wp-content/uploads/2025/06/Salton-Sea-Long-Range-Plan-2024-Exec-Sum_508_WCAG.pdf	April 22, 2024
Salton Sea Management Plan Phase I: 10-Year Plan	Draft	No	Phase I of the Salton Sea Management Plan identifies a path to expedite construction of habitat and to suppress dust on areas of playa that have been, or will be, exposed at the Salton Sea by 2028. Phase I is designed to address playa exposure by developing habitat or dust suppression projects on exposed playa. The location of habitat projects will be determined primarily based on site logistics such as water availability, soil suitability, and compatibility within the overall habitat landscape. If the primary objectives are met, location of habitat will be further informed by emissivity potential of the playa.	https://saltonsea.ca.gov/wp-content/uploads/2026/03/SSMP-Phase-1-10-Year-Plan_508.pdf	8/2018 (updated periodically)
TransNet Environmental Mitigation Program	Final	Yes	This is SANDAG's mitigation program for transportation projects in San Diego County. It includes a memorandum of agreement between SANDAG, Caltrans, CDFW, and FWS.	https://www.keepsandiegomoving.com/EMP-Group/EMP-docs.aspx	3/19/2008 (date of memorandum of agreement)
Water Resources Plans and Documents	See below	See below	See below	See below	See below
2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan	Final	Yes	Coachella Valley's IRWM & SRP includes goals and objectives to: • Improve groundwater quality; • Improve surface water quality by maintaining integrity of agricultural drainage systems and reducing pollution in stormwater runoff; • Restore permanent water sources for desert pupfish habitat; and • Restore permanent water sources for riparian habitat.	https://www.cvrwmg.org/irwm/irwm-plan/	12/01/2020 (amended)
Imperial Integrated Regional Water Management Plan	Final	Yes	The Imperial Region IRWM includes goals and objectives to: • Improve the quality of incoming Colorado River water; • Improve quality of groundwater resources in the Imperial Region; and • Enhance aquatic ecosystems and wildlife habitat consistent with municipal, commercial, industrial, and agricultural uses.	https://imperialirwmp.org/document-library-2/final-imperial-irwmp-volumes-1-2/	10/01/2012
Imperial Irrigation District 2021 Water Conservation Plan	Updated periodically	Yes	This is Imperial Irrigation District's water conservation plan that includes general objectives for managing water quality in the Imperial Irrigation District area.	https://www.iid.com/water/water-supply/water-plans/water-conservation-plan	10/01/2021 (last updated)
Water Quality Control Plan for the Colorado River Basin Region	Updated periodically (3-year intervals)	Yes	The Water Quality Control Plan for the Colorado River Basin Region includes general objectives related to water quality, as well as specific goals to: • Reduce the present level of salinity in the Salton Sea and stabilize it to 35,000 milligrams per liter; and • Minimize the quantities of contaminants reaching any groundwater basin by establishing management practices for major discharges to land.	https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/	8/20/2024 (last amended)

Title	Status	Spatial Data	Reference Purpose	Link	Date
Groundwater Sustainability Plans	Not applicable	Not applicable	There are no current GSPs submitted for Groundwater Sustainability Areas within the GAI.	Not applicable	Not applicable
County General Plans	See below	See below	See below	See below	See below
Imperial County General Plan	Updated periodically	Yes	This is the general plan for the County of Imperial. It includes goals to: • Designate critical habitats for special-status species; • Develop management programs for flat tailed horned lizard, burrowing owl, and desert pupfish; • Identify and restore sensitive vegetation and wildlife resources; • Improve water quality and quantity for all water bodies in Imperial County; and • Develop programs to restore desert pupfish and other special-status species associated with Salton Sea.	https://www.icpds.com/planning/land-use-documents/general-plan	3/8/2016 (last updated)
County of Riverside General Plan	Updated periodically	Yes	This is the general plan for the County of Riverside. It includes a land use designation for open space natural resource protection and conservation.	https://planning.rctlma.org/riverside-county-general-plan	6/25/2024 (last updated)
County of San Diego General Plan	Updated periodically	Yes	The general plan for San Diego County includes a land use designation for open space conservation and objectives to: • Minimize impacts within established preserves when the construction of infrastructure is unavoidable; • Enhance natural wildlife habitat outside of preserves as development occurs according to the land use designation; • Minimize the loss of natural habitat through site design; • Enhance wetlands surrounding development; and • Encourage the removal of invasive species to restore natural drainage systems, habitats, and natural hydrologic regimes of watercourses.	https://www.sandiegocounty.gov/pds/generalplan.html	8/1/2011 (last updated)
City General Plans	See below	See below	See below	See below	See below
City of Brawley Final General Plan 2030	Updated periodically	Yes	The general plan for the City of Brawley includes a land use designation for open space and goals to: • Ensure that future development near the New River does not adversely impact riparian habitat; and • Improve surface water quality, as well as water quality of the New River.	https://www.brawley-ca.gov/departments/development-services/planning/long-range-planning	9/1/2008 (last updated)
City of Brawley General Plan Amendments	Final	No	These are amendments to the City of Brawley Final General Plan 2030.	https://www.brawley-ca.gov/departments/development-services/planning/long-range-planning	11/01/2019
Sustainable Communities Planning Grant City of Calexico	Draft	Yes	This is the general plan for City of Calexico. It includes a land use designation for open space and a goal to restore water quality of the New River.	https://www.calexico.ca.gov/index.asp?SEC=254C9C81-D449-44C7-B581-0B8070E31FF1	7/1/2025 (last updated)
City of El Centro Final General Plan	Updated periodically	Yes	The general plan for City of El Centro includes a land use designation for open space and objectives to: • Reclaim polluted water bodies, including the New and Alamo Rivers; and • Create and/or enhance non-native grassland habitat.	https://www.cityofelcentro.org/1185/Planning-Documents	3/1/2022 (last updated)

Title	Status	Spatial Data	Reference Purpose	Link	Date
City of Holtville General Plan Administrative Draft General Plan Update	Updated periodically	Yes	The general plan for the City of Holtville includes a land use designation for open space and goals to: • Enhance the Alamo River; and • Complete a 31-acre wetland complex on the Alamo River on unincorporated land owned by the City.	https://www.holtville.ca.gov/building-planning/building-and-planning/planning/	6/1/2017 (last updated)
City of Imperial General Plan	Updated periodically	Yes	This is the City of Imperial General Plan. It includes a land use designation for open space.	https://www.imperial.ca.gov/198/General-Plan	12/1/2021 (last updated)
City of Westmorland General Plan	Updated periodically	Yes	This is the general plan for the City of Westmorland. It includes a land use designation for open space.	https://www.cityofwestmorland.net/general-plan/	9/1/2024 (last updated)
Other Conservation and Management Documents	See below	See below	See below	See below	See below
California EcoAtlas	Updated periodically (nearly daily)	Yes	This statewide database tracks the extent and condition of wetlands in California and is managed by the San Francisco Estuary Institute.	https://www.ecoatlas.org/	Updated nearly daily
Demonstrating the California Wetland Status and Trends Program: A Probabilistic Approach for Estimating Statewide Aquatic Resource Extent, Distribution and Change Over Time	Final	No	The Southern California Coastal Water Research Project's report describes a pilot study that is tracking wetland conditions statewide.	https://www.sccwrp.org/publications/	4/1/2015

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

4. EXISTING MITIGATION OPPORTUNITIES

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

4.1. Other Advance Mitigation Initiatives

Two other transportation project-related advance mitigation initiatives may apply to the GAI.

4.1.1. SANDAG Environmental Mitigation Program

This program would only be applicable to one project within the GAI that is within San Diego County (Figure 1-3). Through the Environmental Mitigation Program ("EMP"), SANDAG protects, preserves, and restores native habitats to offset the disturbance caused by regional and local transportation projects. The EMP is funded by TransNet, a regional transportation-designated half-cent sales tax administered by SANDAG. These funds can be used on TransNet-eligible SHOPP and STIP-eligible projects as identified in the *2050 Regional Transportation Plan* (SANDAG 2011) and are tied to mitigation requirements. The EMP program allows SANDAG to purchase land in advance of transportation project impacts; it also informs transportation project mitigation planning. SANDAG coordinates with local, state, and federal agencies and nonprofit groups through the Regional Habitat Conservation Taskforce (formerly "EMP Working Group") to acquire, manage, and monitor land.

4.1.2. SHOPP Advance Mitigation Credits

The 2016 SHOPP, with California Transportation Commission approval, released the first funds used to program Caltrans advance mitigation projects in several Caltrans Districts. The projects were programmed against the $40 million reserve created in the 2016 SHOPP for advance mitigation project delivery. Thirteen (13) pilot advance mitigation projects were programmed in the SHOPP, and their delivery is underway. However, none is located within District 11.

4.2. HCPs and NCCPs

HCPs[1] and NCCPs[2] define covered activities that consist of specific projects and actions that may have adverse effects on covered species and natural communities. FWS and/or CDFW estimate adverse effects associated with the covered activities and issue incidental take permits. Once the HCP, NCCP, or HCP/NCCP is adopted and the incidental take permits are issued, signatories and participating special entities, where

[1] Pursuant to Section 10 of the FESA or consultations under Section 7 of the FESA.
[2] Pursuant to FGC § 2835.

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 providing early documentation of compliance with the California Endangered Species Act ("CESA") and federal Endangered Species Act ("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 HCP/NCCP within the GAI that applies to transportation-related activities, Caltrans may be able to use to meet its compensatory mitigation needs, and may offer Caltrans the opportunity to participate in pre-transfer mitigation purchases, as authorized in SHC § 800.6(a)(2):

- Coachella Valley Multiple Species HCP/NCCP

Figure 4-1 depicts the location of the Coachella Valley HCP/NCCP. Table 4-1 summarizes the signatories, date of the plan, plan area, participating transportation agency, covered species, and covered natural communities. Caltrans is a participating transportation agency under the Coachella Valley Multiple Species HCP/NCCP, and has obligations identified in the Implementing Agreement regarding land acquisition and other requirements for permittees and plan participants. Multiple project-specific HCPs within the GAI were not included in Table 4-1 because they were determined to not be a viable mitigation option for Caltrans. For example, the HCPs 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. One prominent planning document within the region, the San Diego Gas & Electric Subregional HCP/NCCP, was omitted for these reasons. In addition, when Caltrans and/or RTPAs are not signatories or participating special entities in the HCP/NCCP listed in Table 4-1, their participation and coverage under the HCP/NCCP is at the discretion of the implementing entity/plan manager.

Figure 4-1. HCPs and NCCPs

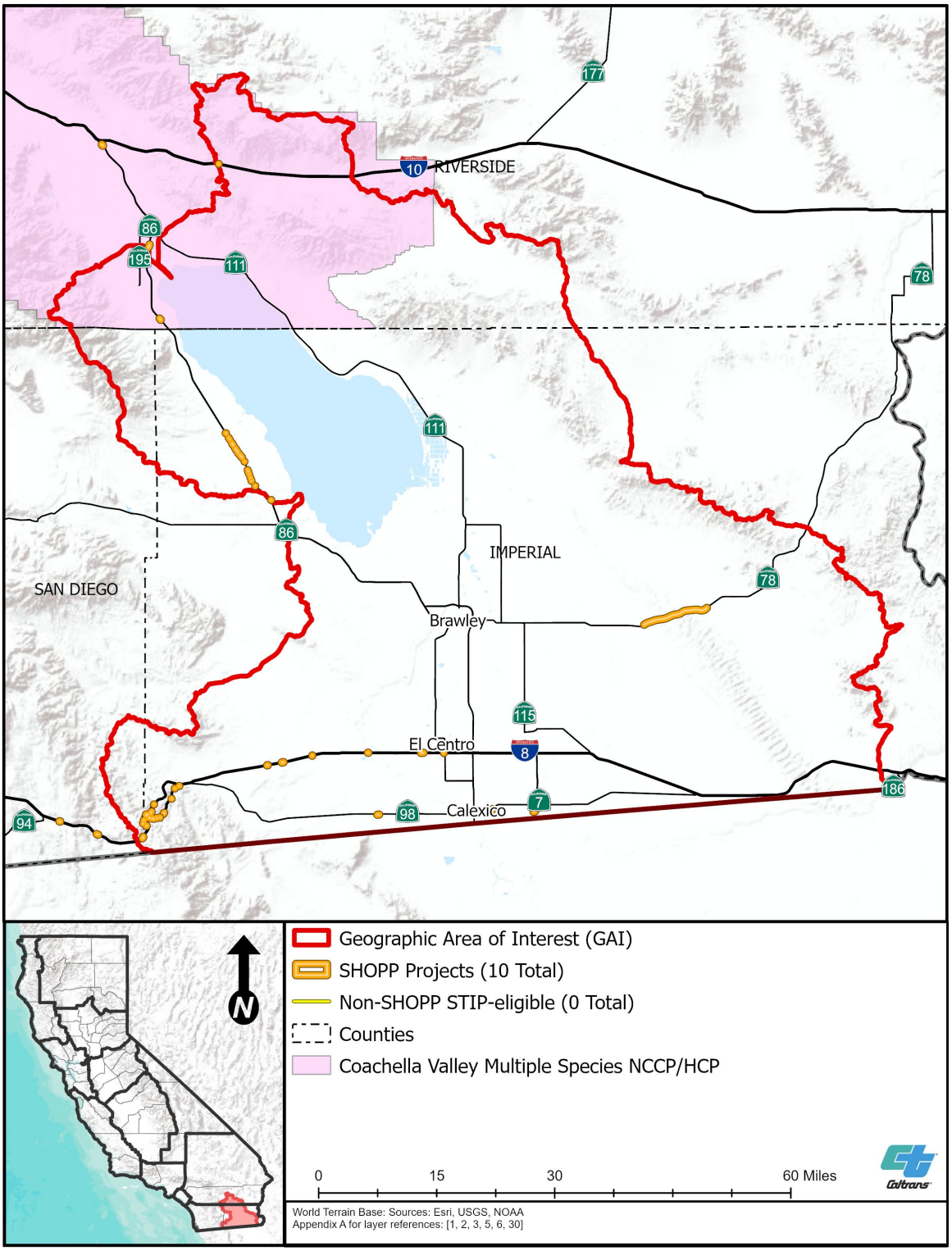


Table 4-1. Overview of HCPs and NCCPs within the GAI[a,b]

Name	Signatories[b]	Date	Area (acres)	Participating Transportation Agencies	Covered Species	Covered Natural Communities
Coachella Valley Multiple Species HCP/NCCP	FWS, CDFW	2008	1.1 million	Caltrans	Desert pupfish (*Cyprinodon macularius*), desert tortoise (*Gopherus agassizii*), flat-tailed horned lizard (*Phrynosoma mcallii*), burrowing owl (*Athene cunicularia*), bighorn sheep (*Ovis canadensis*), plus 17 other wildlife and 5 plant species	27 natural communities included in plan

[a] Up-to-date information on HCPs and NCCPs can be found at the following websites:
https://ecos.fws.gov/ecp/report/conservation-plans-region-summary?region=8&type=HCP
https://wildlife.ca.gov/conservation/planning/nccp
[b] 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 have 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 six active or pending conservation banks and no mitigation banks with service areas that overlap all or part of the GAI. Information on the agency approvals and types of credits available are provided in Table 4-2.

Several of these conservation 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 4-2. Figures 4-2 through 4-6 show conservation bank service areas that are publicly available within the GAI.

Table 4-2. Overview of Conservation and Mitigation Banks within the GAI[a]

Name	Year Approved	Current Status	Signatories[b]	Bank Location (County)[c]	Instrument Includes Pre-transfer Credit Sales?	Area (acres)	Credit Types
Black Mountain Conservation Bank	2018	Active – credits available	CDFW	San Bernardino	No	1,940	Desert tortoise, Mohave ground squirrel, Waters of the State
Fenner Valley Desert Tortoise Conservation Bank	2015	Pending	CDFW	San Bernardino	No	7,500	At this time (August 2026), Fenner Valley Desert Tortoise Conservation Bank has not met the criteria to be fully established and does not have credits for sale
Mojave Desert Tortoise Umbrella Conservation Bank	2020	Active – credits available	FWS, CDFW	San Bernardino	No	4,700	Desert tortoise (Western Mojave and Colorado River Recovery Units), Mohave ground squirrel, burrowing owl, and streams (Mojave River Watershed and Colorado River Basin only)
Puzzle Creek Conservation Bank	2024	Active – credits available	CDFW	Los Angeles	Yes	324	Western Joshua tree, Waters of the State
Rancho San Diego (Caltrans)	1996	Active – credits available	FWS	San Diego	No	1,832	California coastal gnatcatcher, least Bell's vireo, coastal sage scrub, disturbed/ruderal, marsh riparian floodplain, native (perennial) grassland, oak woodland, riparian woodland, southern mixed chaparral. Bank is jointly owned by Caltrans, County of San Diego, and SANDAG.
Smoketree Valley Conservation Bank	2025	Active – credits available	FWS, CDFW	Imperial	Yes	640	Desert tortoise, Waters of the State (Stream), Waters of the State (Desert Dry Wash)

[a] Up-to-date information on approved conservation and mitigation banks, including available credits, can be found at the following websites: https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks

https://ribits.ops.usace.army.mil/ords/f?p=107:2::::::
https://ecos.fws.gov/ecp/report/conservation-plans-region-summary?region=8&type=HCP

[b] All 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).

[c] Bank service area boundaries may extend well outside of the county where the bank itself is located. See Appendix J.

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

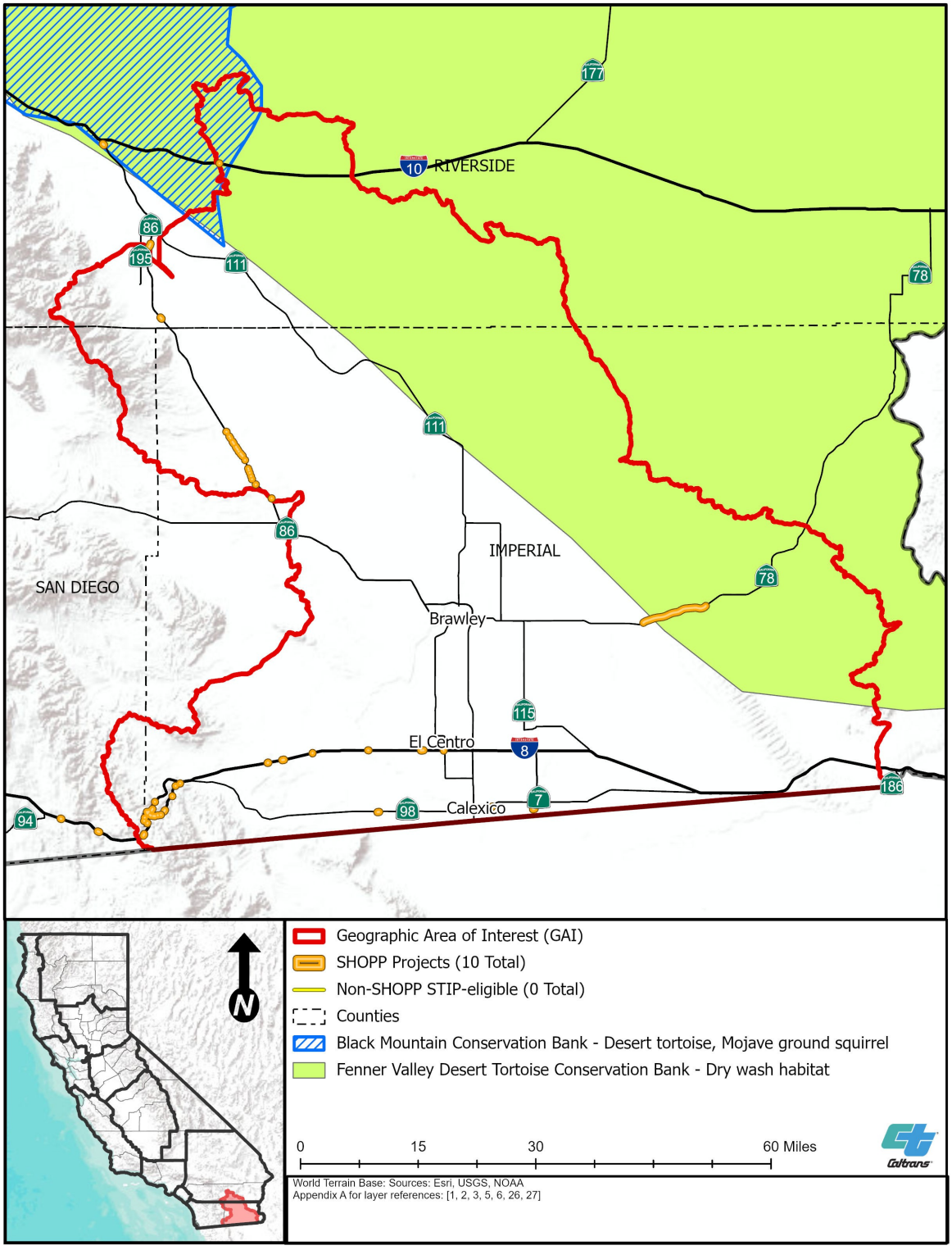


Figure 4-3. Conservation Bank Service Areas – Part 2

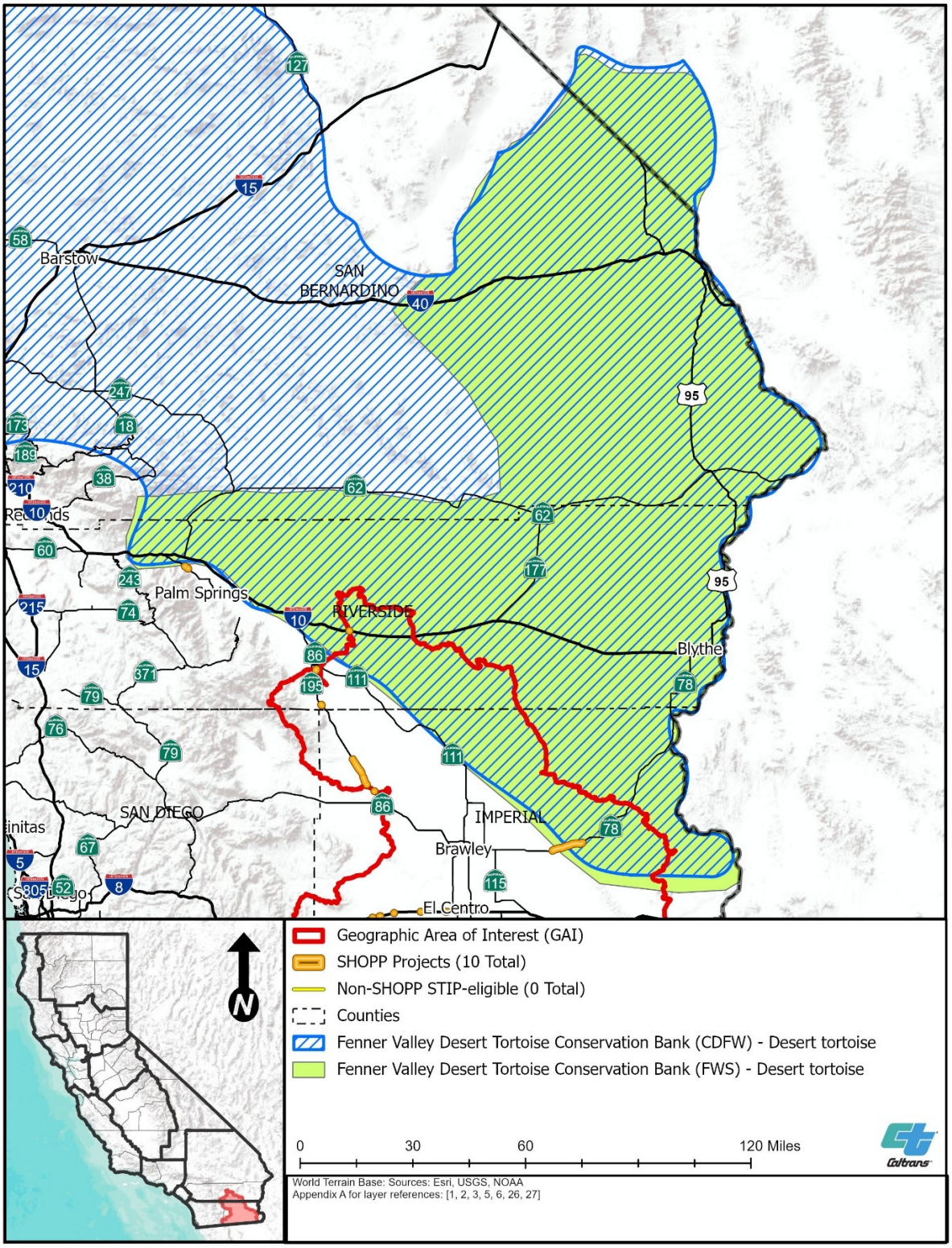


Figure 4-4. Conservation Bank Service Areas – Part 3

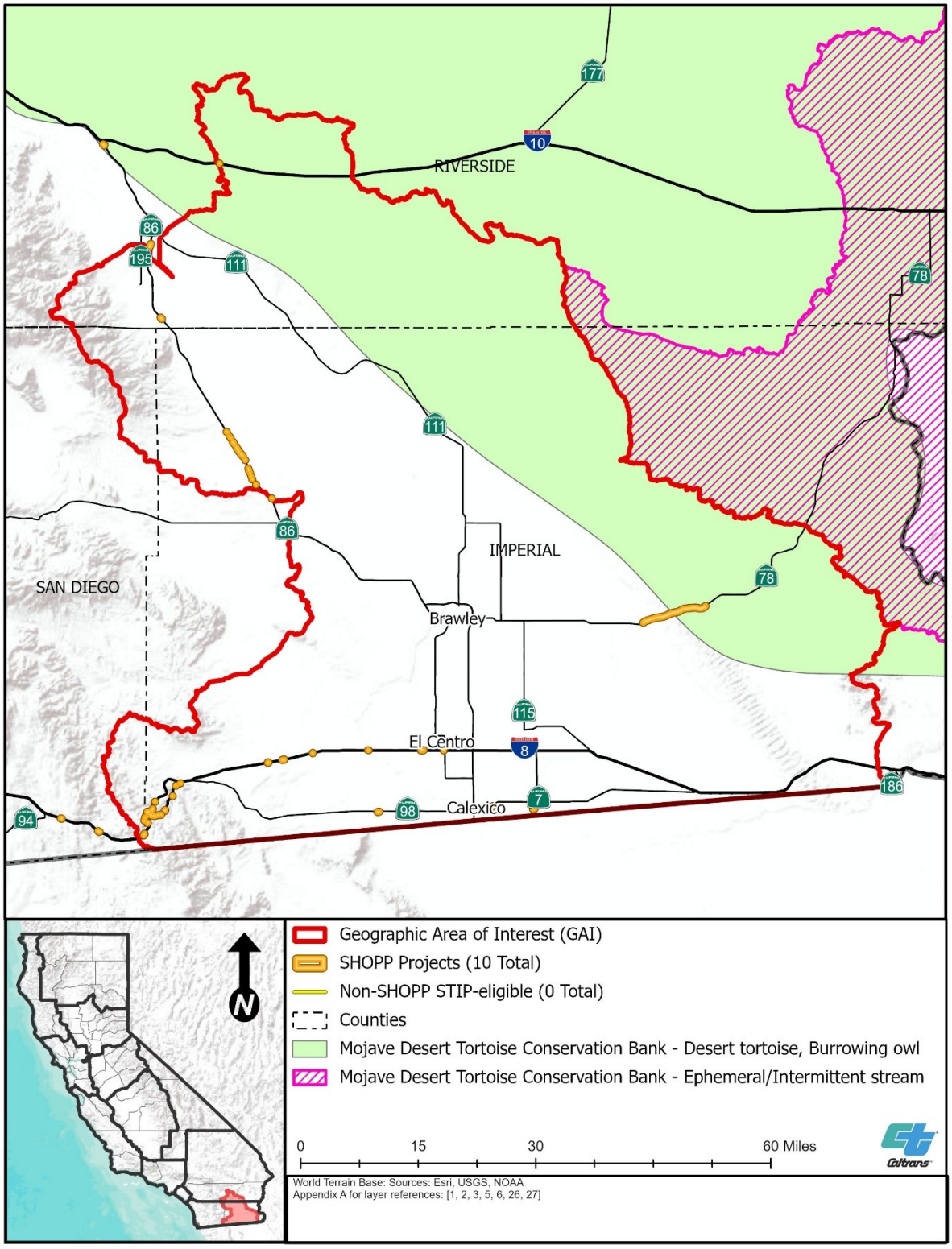


Figure 4-5. Conservation Bank Service Areas – Part 4

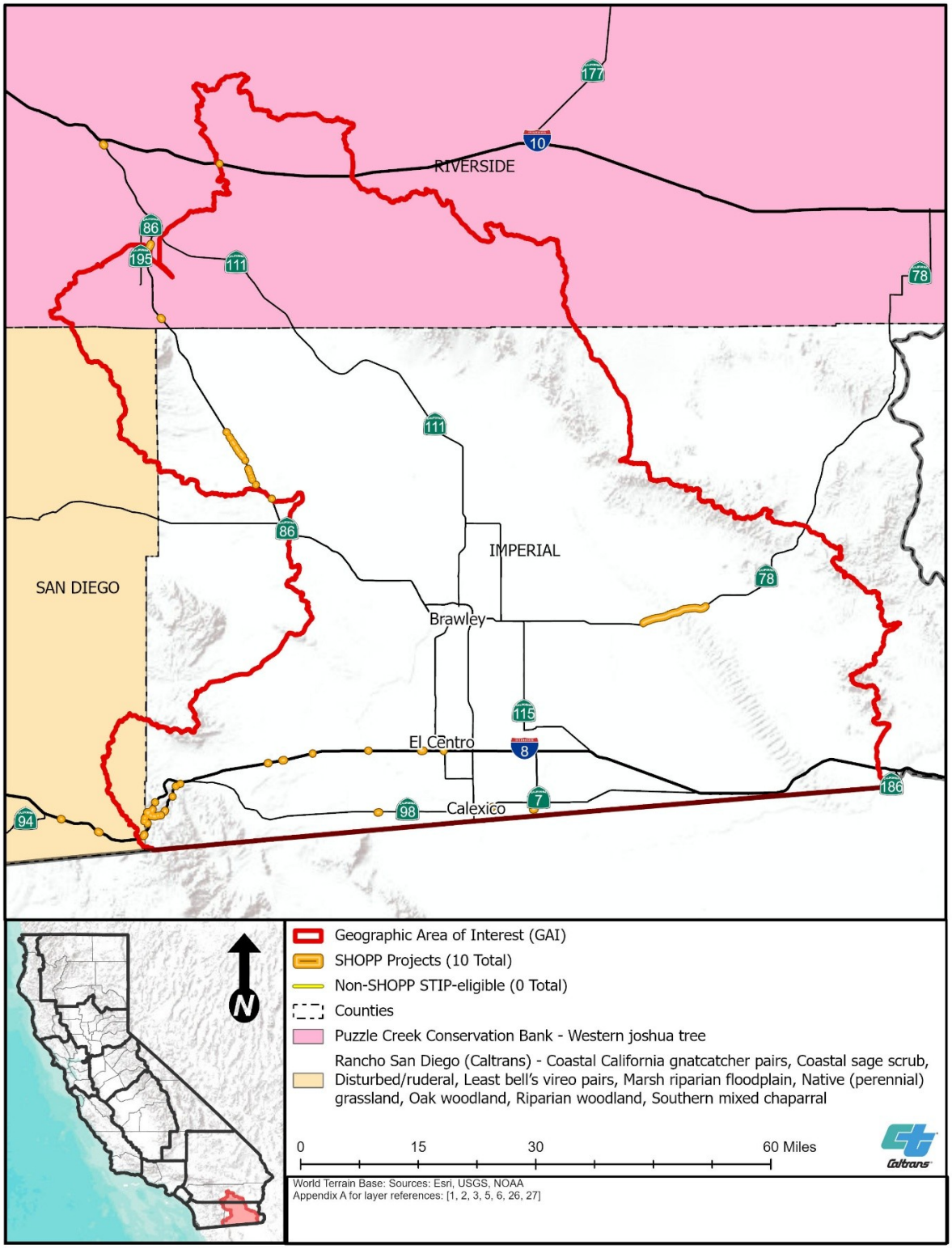
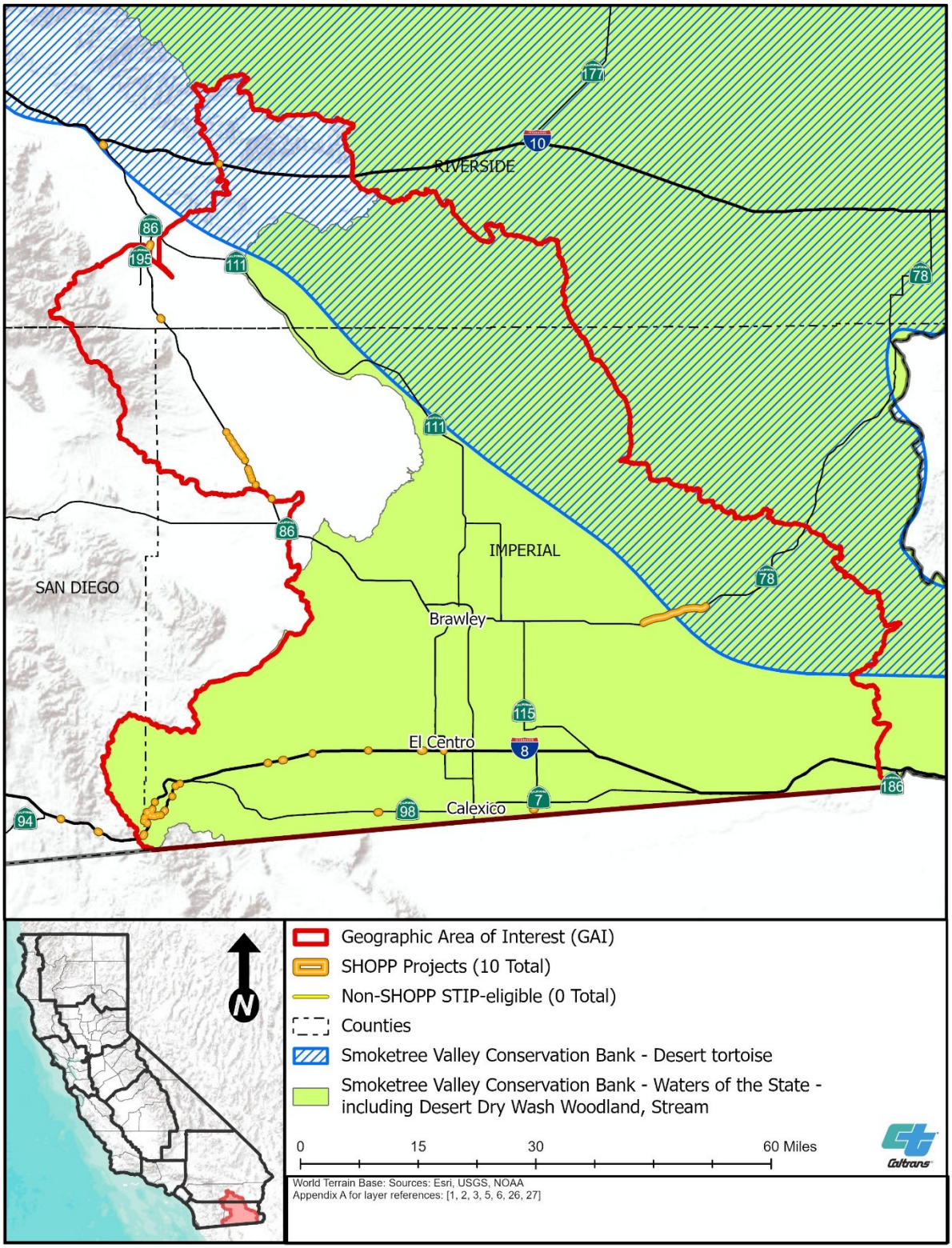


Figure 4-6. Conservation Bank Service Areas – Part 5



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.

No in-lieu fee programs are currently established 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 in their areas, including investments performed for compensatory mitigation. To promote the conservation quality of compensatory mitigation investments, the RCIS Program provides an advance mitigation tool that can be applied to resources subject to regulations implemented by CDFW. MCAs are developed when and where an RCIS is approved by CDFW and contains the elements described in FGC § 1856(b). Then, with respect to the SHS, a useful MCA would create credits that may be used as compensatory mitigation to offset impacts identified under CESA and the Lake and Streambed Alteration Program.

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

Caltrans did not identify any active or pending RCISs with service areas that overlap the GAI. Because MCAs are issued once a RCIS has been approved, there are also currently no MCAs within this GAI.

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, CDFW is authorized to recognize CESA and Lake and Streambed Alteration credits through a BEI or MCA developed under an RCIS for construction made separate and distinct from a specific transportation project. CDFW has drafted Wildlife Connectivity Advance Mitigation Guidelines (CDFW 2024c) that are intended to assist with the process. Connectivity information for the GAI is summarized in Section 2.9.

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5. MODELED ESTIMATED IMPACTS

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

In the sections below, Caltrans:

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

Because Caltrans District 11 chose to focus the analysis on aquatic resources (Section 1.5.3), the results presented below are organized by the Salton Sea HUC-8 Sub-basin within Caltrans District 11, which also defines 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:

- SHOPP transportation project needs are forecast quantitatively through the SAMNA model developed for the AMP.
- STIP-eligible needs are assessed qualitatively, through Caltrans District 11, 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. 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 2023/24 to 2032/33 (Quarter 1) (Caltrans 2024). The intent of the SHOPP Ten-Year Book is to raise awareness of planned future transportation projects, and detailed transportation project information is not provided. The SHOPP Ten-Year Book includes 10 SHOPP transportation projects within the GAI that are currently in the planning and conceptual phases, 7 of which are located in Caltrans District 11 (Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*). The general locations of all 10 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 2025a). The SAMNA model, its foundation, and assumptions are described in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2026 [report in progress]), 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 that may or may not receive STIP funding, such as STIP-eligible transportation projects. Additionally, the STIP is currently receiving very little funding in favor of the "fix-it-first" philosophy of the Road Repair and Accountability Act of 2017, although there is a backlog of transportation projects that potentially need these funds.

To address the dynamic nature of the non-SHOPP STIP-eligible list, it was necessary to identify transportation projects that will be (1) reasonably certain to occur in the same 10-year timeframe 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[1] regional transportation plan, with a Ready to List[2] year identified as occurring in the 10-year planning horizon. From this evaluation, there are no planned STIP-eligible transportation projects identified within the GAI for fiscal years 2023/24 to 2032/33 that could possibly benefit from AMA-funded advance mitigation projects.

Non-SHOPP STIP-eligible Potential Impacts

Because no planned STIP-eligible transportation projects were identified within the GAI for fiscal years 2023/24 to 2032/33, 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 Salton Sea HUC-8 Sub-basin that makes up the GAI. Aquatic resources impacts are categorized as potential impacts on threatened and endangered fish, wetlands, and non-wetland waters. Riparian habitat is also discussed. Refer to Appendix E, *Aquatic Resource Locations*, for maps depicting the location and extent of wetlands and non-wetland waters within the GAI. Riparian habitat was identified by using California Statewide Resource Inventory (CARI), a statewide riparian area dataset.

5.2.1. Estimated Impacts on Threatened and Endangered Fish Habitat

Using the methods described in Section 5.1.1, impacts on aquatic species of mitigation need habitat were estimated for the 10 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 10 SHOPP transportation projects evaluated, 3 are forecast to affect less than 0.1 acre of aquatic species of mitigation need habitat (Table 5-1; Caltrans 202c5).

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

Table 5-1. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)[a,b]

Sub-basin (HUC-8)	Sub-basin Number	Number of Transportation Projects	Desert Pupfish	Total
Salton Sea	18100204	3	<0.1	**<0.1**
Total	Not applicable	**3**	**<0.1**	**<0.1**

[a] Threatened and endangered fish species habitat impacts are forecast by the SAMNA Reporting Tool.
[b] Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.

Desert Pupfish

Using the methods described in Section 5.1.1, impacts on desert pupfish and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). The SAMNA estimated that less than 0.1 acre of desert pupfish habitat may be affected by 3 Caltrans SHOPP projects within the GAI (Table 5-1; Caltrans 2025c).

5.2.2. Estimated Impacts on Aquatic Resources

Using the methods described in Section 5.1.1, impacts on wetlands and non-wetland waters were estimated for the 10 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period.*

Of the 10 SHOPP transportation projects evaluated, none is forecast to affect wetlands; 6 are forecast to affect 0.7 acre of non-wetland waters; and 2 are forecast to affect 0.3 acre of riparian habitat within the GAI (Table 5-2; Caltrans 2025c).

Table 5-2. Summary of Estimated SHOPP Impacts on Aquatic Resources in the GAI (acres)

Sub-basin (HUC-8)	Sub-basin Number	Wetlands: Number of Caltrans SHOPP Projects	Estimated Wetlands Impact (acres)	Non-Wetland Waters: Number of Caltrans SHOPP Projects	Estimated Non-Wetland Waters Impact (acres)	Riparian Function: Number of Caltrans SHOPP Projects	Estimated Riparian Function Impact (acres)
Salton Sea	18100204	0	0.0	6	0.7	2	0.3

5.3. Estimated Plant and Wildlife Impacts

The quantitative results presented in this document are estimates, pursuant to the SAMNA model. Specific plant and 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 within the GAI for species of mitigation need identified by Caltrans District 11, as well as for species that may co-occur in their habitats. The complete results of the SAMNA—inclusive of the 10 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. Based on a search of the species-attributed vegetation layer, 56 special-status terrestrial species and 1 threatened or endangered fish species have the potential to occur within the GAI (Sections 2.7 and 2.15.4; Appendix D; Caltrans 2025a). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 10 SHOPP transportation projects could potentially affect 12 habitat types, which could support up to 56 special-status species within 2 of the ecoregion sections within the GAI (Table 5-3).

Table 5-3. Summary of Estimated SHOPP Impacts on Special-status Species Habitat within the GAI

Ecoregion Section	Number of Caltrans SHOPP Projects[a]	Number of Habitats[b]	Number of Special-status Species[c, d]	Estimated Total Habitat Impact (acres)[b]
Colorado Desert	8	12	41	23.9
Southern California Mountains and Valleys	3	2	33	4.0
Total[e]	**10**	**12**	**56**	**27.8**

[a] Transportation projects are listed in Appendix B.
[b] Excludes urban areas.
[c] 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.
[d] Included in the SAMNA. See SAMNA Report (Caltrans 2025a).
[e] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Caltrans identified species of mitigation need from the suite of special-status species anticipated to inhabit the GAI. Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated (Section 1.5). The terrestrial species of mitigation need identified in Section 1.5—desert bighorn sheep, burrowing owl,

desert tortoise, flat-tailed horned lizard, ringtail, and Switak's banded gecko—were included in the analysis, and each is discussed briefly in the subsections below.

5.3.1. Desert Bighorn Sheep

Using the methods described in Section 5.1.1, impacts on desert bighorn sheep and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 10 SHOPP transportation projects evaluated, 4 are forecast to affect less than 2.8 acres of desert bighorn sheep habitat within the GAI (Table 5-4; Caltrans 2025b).

5.3.2. Burrowing Owl

Using the methods described in Section 5.1.1, impacts on burrowing owl and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 10 SHOPP transportation projects evaluated, 9 are forecast to affect 25.4 acres of burrowing owl habitat within the GAI (Table 5-4; Caltrans 2025b).

5.3.3. Desert Tortoise

Using the methods described in Section 5.1.1, impacts on desert tortoise and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 10 SHOPP transportation projects evaluated, 7 are forecast to affect 6.8 acres of desert tortoise habitat within the GAI (Table 5-4; Caltrans 2025b).

5.3.4. Flat-Tailed Horned Lizard

Using the methods described in Section 5.1.1, impacts on flat-tailed horned lizard and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 10 SHOPP transportation projects evaluated, 4 are forecast to affect 3.7 acres of flat-tailed horned lizard habitat within the GAI (Table 5-4; Caltrans 2025b).

5.3.5. Ringtail

Using the methods described in Section 5.1.1, impacts on ringtail and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 10 SHOPP transportation projects evaluated, 8 are forecast to affect 4.4 acres of ringtail habitat within the GAI (Table 5-4; Caltrans 2025b).

5.3.6. Switak's Banded Gecko

Using the methods described in Section 5.1.1, impacts on Switak's banded gecko and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Of the 10 SHOPP transportation projects evaluated, 3 are forecast to affect 2.8 acres of Switak's banded gecko habitat within the GAI (Table 5-4; Caltrans 2025b).

Table 5-4. Summary of Estimated SHOPP Impacts on Terrestrial Species of Mitigation Need in the GAI

Ecoregion Section	Desert Bighorn Sheep Habitat: Number of Caltrans SHOPP Projects[a]	Desert Bighorn Sheep: Estimated Habitat Impact (acres)	Burrowing Owl Habitat: Number of Caltrans SHOPP Projects[a]	Burrowing Owl: Estimated Habitat Impact (acres)	Desert Tortoise Habitat: Number of Caltrans SHOPP Projects[a]	Desert Tortoise: Estimated Habitat Impact (acres)	Flat-tailed Horned Lizard Habitat: Number of Caltrans SHOPP Projects[a]	Flat-tailed Horned Lizard: Estimated Habitat Impact (acres)	Ringtail Habitat: Number of Caltrans SHOPP Projects[a]	Ringtail: Estimated Habitat Impact (acres)	Switak's Banded Gecko Habitat: Number of Caltrans SHOPP Projects[a]	Switak's Banded Gecko: Estimated Habitat Impact (acres)
Colorado Desert	1	<0.1	8	23.2	4	4.0	4	3.7	6	1.6	0	0.0
Southern California Mountains and Valleys	3	2.8	2	2.2	3	2.8	0	0.0	3	2.8	3	2.8
Total[b]	4	**2.8**	**9**	**25.4**	**7**	**6.8**	**4**	**3.7**	**8**	**4.4**	**3**	**2.8**

[a] Transportation projects are listed in Appendix B.
[b] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section.

5.3.7. 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 11 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 32 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Colorado Desert Ecoregion Section (Table 5-5), and
- an additional 28 special-status terrestrial species that potentially use the same habitats as the species of mitigation need in the Southern California Mountains and Valleys Ecoregion Section (Table 5-6).

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

Common Name	Species Name	Status	Akali Desert	Barren	Desert Riparian	Desert Scrub	Desert Wash	Pasture
Not applicable	Not applicable	**Total**	**<0.1**	**0.5**	**1.0**	**2.9**	**0.6**	**0.3**
Species of Mitigation Need	See below	See below	See below	See below	See below	See below	See below	See below
desert bighorn sheep	*Ovis canadensis nelsoni*	FS, SFP	0.0	0.0	0.0	0.0	<0.1	0.0
burrowing owl	*Athene cunicularia*	FS, SSC	<0.1	0.5	1.0	2.9	0.6	0.3
desert tortoise	*Gopherus agassizii*	FE, ST	0.0	0.4	0.4	2.6	0.6	0.0
Flat-tailed horned lizard	*Phrynosoma mcallii*	FS, SSC	<0.1	0.5	0.0	2.6	0.6	0.0
ringtail	*Bassariscus astutus*	SFP	<0.1	0.1	0.0	1.2	0.2	0.0
Switak's banded gecko	*Coleonyx switaki*	ST, FS	0.0	0.0	0.0	0.0	0.0	0.0
Plants	See below	See below	See below	See below	See below	See below	See below	See below
Peirson's milk-vetch	*Astragalus magdalenae* var. *peirsonii*	FT, SE	0.0	0.0	0.0	2.6	0.0	0.0
Wiggins' croton	*Croton wigginsii*	SR, FS	0.0	0.0	0.0	2.9	0.0	0.0
Borrego bedstraw	*Galium angustifolium* ssp. *Borregoense*	SR, FS	0.0	0.0	0.0	2.9	0.0	0.0
Algodones Dunes sunflower	*Helianthus niveus* ssp. *Tephrodes*	SE, FS	0.0	0.0	0.0	2.9	0.0	0.0

Common Name	Species Name	Status	Akali Desert	Barren	Desert Riparian	Desert Scrub	Desert Wash	Pasture
Amphibians	See below	See below	See below	See below	See below	See below	See below	See below
Couch's spadefoot	*Scaphiopus couchii*	FS, SSC	0.0	0.3	0.0	1.2	0.2	0.0
Reptiles	See below	See below	See below	See below	See below	See below	See below	See below
Red diamond rattlesnake	*Crotalus ruber*	FS, SSC	0.0	<0.1	0.0	<0.1	<0.1	0.0
Colorado Desert fringe-toed lizard	*Uma notata*	FS	<0.1	0.5	0.6	2.9	0.6	0.0
Birds	See below	See below	See below	See below	See below	See below	See below	See below
long-eared owl	*Asio otus*	SSC	0.0	0.0	0.0	2.6	0.0	0.0
least bittern	*Botaurus exilis*	SSC	0.0	0.0	1.0	0.0	0.0	0.0
northern harrier	*Circus hudsonius*	SSC	<0.1	0.5	1.0	2.9	0.6	0.0
white-tailed kite	*Elanus leucurus*	FS, SFP	<0.1	0.0	0.0	0.3	0.0	0.0
willow flycatcher	*Empidonax traillii*	SE, FS	0.0	0.0	1.0	0.0	0.0	0.0
southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	0.0	0.0	0.4	0.0	0.0	0.0
yellow-breasted chat	*Icteria virens*	SSC	0.0	0.0	0.6	0.0	0.0	0.0
loggerhead shrike	*Lanius ludovicianus*	SSC	<0.1	0.5	1.0	2.9	0.6	0.0
Gila woodpecker	*Melanerpes uropygiallis*	SE, FS	0.0	0.0	0.6	0.0	0.0	0.0
American white pelican	*Pelecanus erythrorhynchos*	SSC	0.0	0.1	0.0	0.0	0.0	0.0

Common Name	Species Name	Status	Akali Desert	Barren	Desert Riparian	Desert Scrub	Desert Wash	Pasture
Crissal thrasher	*Toxostoma crissale*	FS, SSC	0.0	0.0	1.0	0.0	0.6	0.0
yellow-headed blackbird	*Xanthocephalus xanthocephalus*	SSC	0.0	0.0	0.0	0.0	0.0	0.3
Mammals	See below	See below	See below	See below	See below	See below	See below	See below
pallid bat	*Antrozous pallidus*	FS, SSC	<0.1	0.5	1.0	2.9	0.6	0.3
Townsend's big-eared bat	*Corynorhinus townsendii*	FS, SSC	<0.1	0.5	1.0	2.9	0.6	0.3
spotted bat	*Euderma maculatum*	FS, SSC	<0.1	0.0	1.0	2.9	0.6	0.0
western mastiff bat	*Eumops perotis californicus*	FS, SSC	<0.1	0.5	1.0	2.9	0.6	0.3
western yellow bat	*Lasiurus xanthinus*	SSC	0.0	0.0	1.0	0.0	0.6	0.0
California leaf-nosed bat	*Macrotus californicus*	FS, SSC	<0.1	0.5	1.0	2.9	0.6	0.0
pocketed free-tailed bat	*Nyctinomops femorsaccus*	SSC	<0.1	0.5	1.0	2.9	0.6	0.0
big free-tailed bat	*Nyctinomops macrotis*	SSC	0.0	0.0	0.0	2.9	0.0	0.0
southern grasshopper mouse	*Onychomys torridus ramona*	SSC	0.0	0.0	0.0	<0.1	<0.1	0.0
Palm Springs pocket mouse	*Pergnathus longimembris bangsi*	FS, SSC	0.0	0.0	0.0	<0.1	<0.1	0.0
Yuma hispid cotton rat	*Sigmodon hispidus eremicus*	SSC	<0.1	0.0	0.0	0.3	0.0	0.3

Common Name	Species Name	Status	Akali Desert	Barren	Desert Riparian	Desert Scrub	Desert Wash	Pasture
American badger	*Taxidea taxus*	SSC	<0.1	0.5	1.0	2.9	0.6	0.3
Palm Springs round-tailed ground squirrel	*Xerospermophilus tereticaudus chlorus*	FS, SSC	0.0	0.0	0.0	<0.1	<0.1	0.0

Source: Caltrans 2025a
Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive), FT = federal threatened, SE = state endangered, SCE = state candidate endangered, SFP = state fully protected, SR = state rare, SSC = species of special concern (CDFW), ST = state threatened

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

Common Name	Species Name	Status	Barren	Desert Scrub
Not applicable	Not applicable	**Total**	**0.8**	**0.6**
Species of Mitigation Need	See below	See below	See below	See below
burrowing owl	*Athene cunicularia*	FS, SSC	0.1	1.5
desert tortoise	*Gopherus agassizii*	FE, ST	0.1	2.8
Switak's banded gecko	*Coleonyx switaki*	ST, FS	0.0	2.8
Flat-tailed horned lizard	*Phrynosoma mcallii*	FS, SSC	0.0	0.0
desert bighorn sheep[a]	*Ovis canadensis nelsoni*	FS, SFP	0.0	2.8
ringtail	*Bassariscus astutus*	SFP	0.1	2.8
Plants	See below	See below	See below	See below
Dunn's mariposa lily	*Calochortus dunnii*	SR, FS	0.0	1.5
Wiggins' croton	*Croton wigginsii*	SR, FS	0.0	1.2
Mojave tarplant	*Deinandra mohavensis*	SE, FS	0.0	1.5
Borrego bedstraw	*Galium angustifolium* ssp. *Borregoense*	SR, FS	0.0	1.2
Algodones Dunes sunflower	*Helianthus niveus* ssp. *Tephrodes*	SE, FS	0.0	1.2
Dehesa nolina	*Nolina interrata*	SE, FS	0.0	1.5
Gander's ragwort	*Packera ganderi*	SR, FS	0.0	1.5
small-leaved rose	*Rosa multiflora*	SE	0.0	1.5
Invertebrates	See below	See below	See below	See below
Quino checkerspot butterfly	*Euphydryas editha quino*	FE	0.0	2.8
Reptiles	See below	See below	See below	See below
southern California legless lizard	*Anniella stebbinsi*	FS, SSC	0.1	2.8
California glossy snake	*Arizona elegans occidentalis*	SSC	0.0	2.8
San Diego banded gecko	*Coleonyx variegatus abbotti*	SSC	0.1	2.8
red diamond rattlesnake	*Crotalus ruber*	FS, SSC	0.1	2.8
Birds	See below	See below	See below	See below

Common Name	Species Name	Status	Barren	Desert Scrub
golden eagle	*Aquila chrysaetos*	FS, SFP	0.1	2.8
long-eared owl	*Asio otus*	SSC	0.0	2.8
loggerhead shrike	*Lanius ludovicianus*	SSC	0.1	2.8
Mammals	See below	See below	See below	See below
pallid bat	*Antrozous pallidus*	FS, SSC	0.1	2.8
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	None	0.0	2.8
Townsend's big-eared bat	*Corynorhinus townsendii*	FS, SSC	0.1	2.8
spotted bat	*Euderma maculatum*	FS, SSC	0.0	2.8
western mastiff bat	*Eumops perotis californicus*	FS, SSC	0.1	2.8
California leaf-nosed bat	*Macrotus californicus*	FS, SSC	0.1	2.8
pocketed free-tailed bat	*Nyctinomops femorsaccus*	SSC	0.1	2.8
big free-tailed bat	*Nyctinomops macrotis*	SSC	0.0	2.8
southern grasshopper mouse	*Onychomys torridus ramona*	SSC	0.0	2.8
Palm Springs pocket mouse	*Pergnathus longimembris bangsi*	FS, SSC	0.0	0.3
Jacumba pocket mouse	*Perognathus longimembris internationalis*	SSC	0.0	2.2
American badger	*Taxidea taxus*	SSC	0.1	2.8

Source: Caltrans 2025a
Notes: FE = federal endangered, FS = federal sensitive (USFS and/or BLM sensitive), SE = state endangered, SCE = state candidate endangered, SFP = state fully protected, SR = state rare, SSC = species of special concern (CDFW), ST = state threatened

[a] Desert bighorn sheep also includes the distinct population segment of peninsular bighorn sheep in the Southern California Mountains and Valleys Ecoregion Section.

6. BENEFITING TRANSPORTATION PROJECT CONSIDERATIONS

Benefiting transportation projects have delivery schedules that would likely benefit from advance mitigation credits. For advance mitigation planning to guide advance mitigation project scoping, potentially benefiting transportation projects are identified in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. 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.

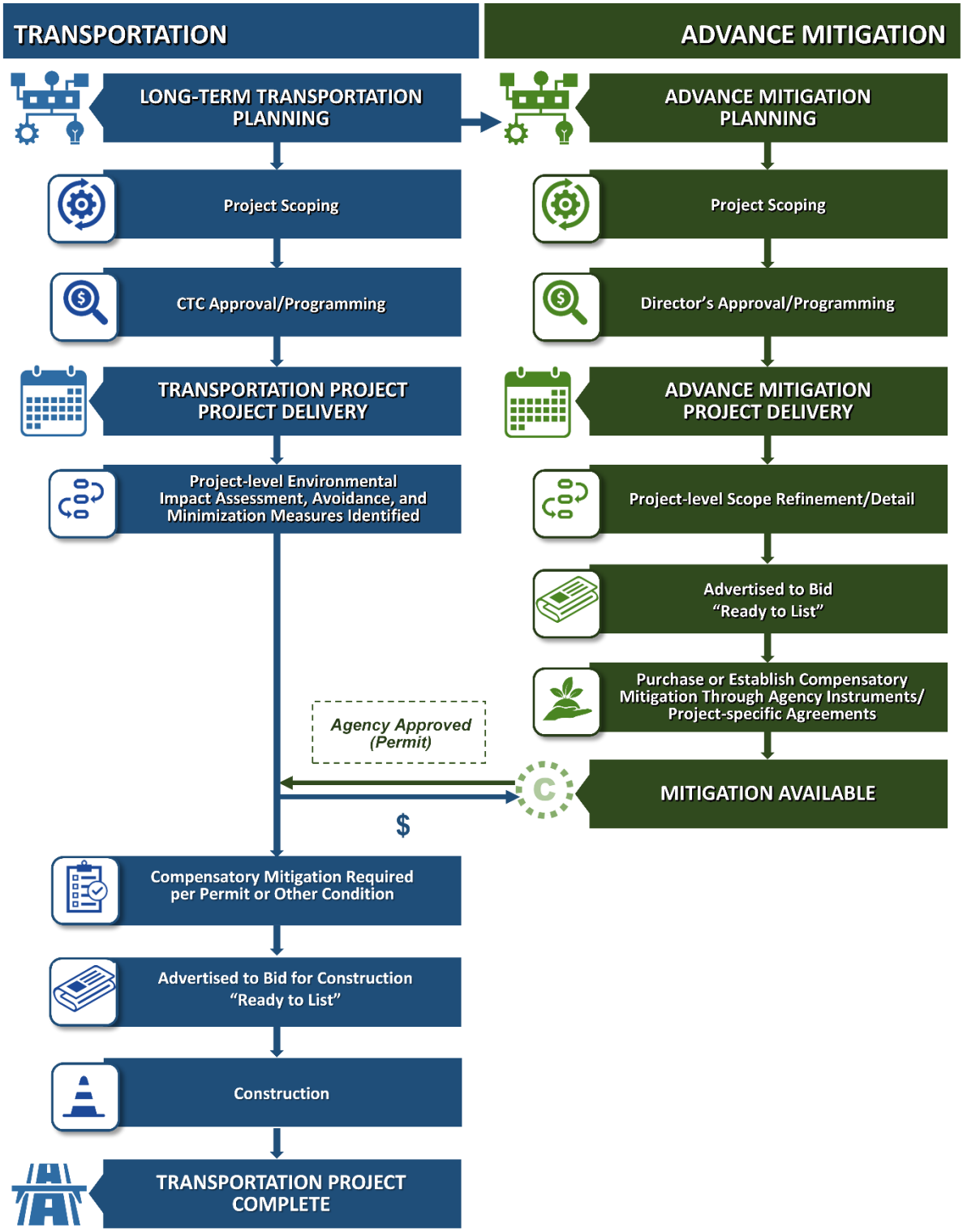
In this chapter, Caltrans summarizes the scheduling considerations and constraints of potential benefiting transportation projects in order to inform advance mitigation project schedules. A timeframe for the forecast advance mitigation needs is provided and analyzed. The potentially benefiting transportation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

6.1. Why Timing Is Important

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

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

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



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

6.2. Patterns of Estimated Potential Impacts

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

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

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

- As shown in Table 6-1 and on Figure 6-2, when the SHOPP transportation projects identified previously have their aquatic resource impacts examined relative to their expected advertising date, the compensatory mitigation needs for non-wetland waters and riparian habitat are primarily focused on fiscal year 2029/30, with smaller needs for threatened and endangered fish habitat and non-wetland waters in fiscal years 2028/29, 2030/31, 2031/32, and 2032/33. There are no anticipated impacts to wetlands.
- As shown in Tables 6-2 and 6-3 and on Figures 6-3 and 6-4, when the SHOPP transportation projects identified previously have their forecast terrestrial species of mitigation need impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:
  - Compensatory mitigation needs within the Colorado Desert Ecoregion Section are concentrated on burrowing owl, desert tortoise, and flat-tailed horned lizard in fiscal year 2026/27; lesser impacts to burrowing owl and ringtail in fiscal year 2029/30 and to burrowing owl, ringtail, and desert

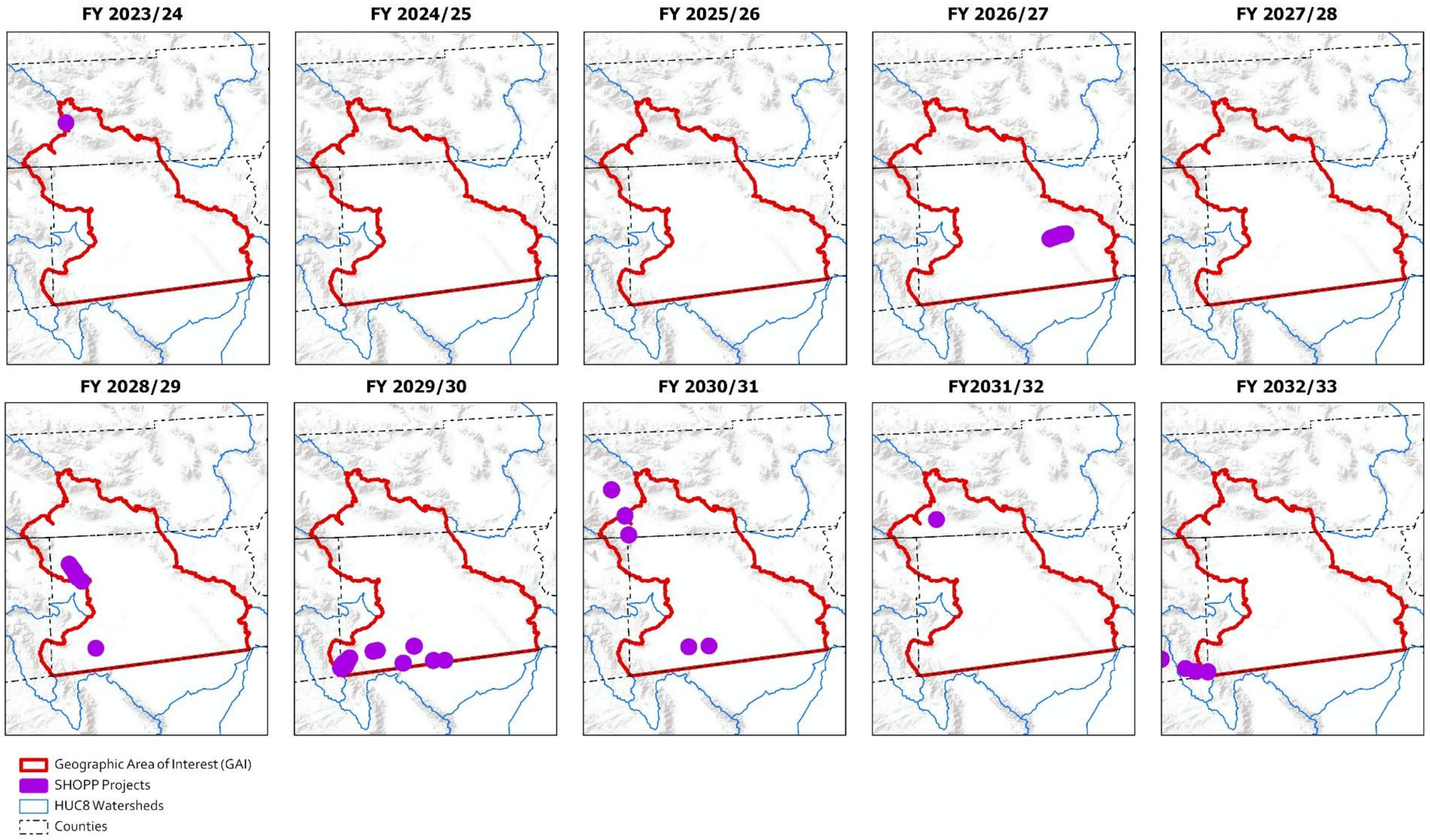
[1] Ready to List is a named milestone within the Caltrans project delivery process. It is the point when a complete package is ready for contractors to bid on and a transportation project has been approved to be advertised to bid for construction.

tortoise in fiscal year 2030/31; and minor impacts to burrowing owl, ringtail, and flat tailed horned lizard in fiscal year 2028/29, to flat-tailed horned lizard in fiscal year 2029/30, and to burrowing owl, desert tortoise, flat-tailed horned lizard, and ringtail in fiscal year 2031/32 (Table 6-2; Figure 6-3).

- Compensatory mitigation needs within the Southern California Mountains and Valleys Ecoregion Section are concentrated on burrowing owl, bighorn sheep, desert tortoise, ringtail, and Switak's banded gecko in fiscal year 2029/30, with lesser impacts to desert tortoise, bighorn sheep, ringtail, and Switak's banded gecko in fiscal year 2032/33 (Table 6-3; Figure 6-4).

Spatially, these transportation projects are distributed primarily in the northern, western, and southern parts of the GAI (Figure 6-5).

Figure 6-5. Location of SHOPP Estimated Impacts, by Transportation Project Delivery Year



Sources: Esri, USGS, NOAA, USGS

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Table 6-1. Salton Sea Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year

Expected Advertisement Year	Fish: Number of Transportation Projects	Fish: Estimated Potential Impacts (acres)	Wetland: Number of Transportation Projects	Wetland: Estimated Potential Impacts (acres)[a]	Non-Wetland Waters: Number of Transportation Projects	Non-Wetland Waters: Estimated Potential Impacts (acres)[a]	Riparian: Number of Transportation Projects	Riparian: Estimated Potential Impacts (acres)[a]
2024/25	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	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
2028/29	1	<0.1	0	0.0	1	0.1	0	0.0
2029/30	0	0.0	0	0.0	2	0.6	2	0.3
2030/31	1	<0.1	0	0.0	1	<0.1	0	0.0
2031/32	1	<0.1	0	0.0	1	<0.1	0	0.0
2032/33	0	0.0	0	0.0	1	<0.1	0	0.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0
Total[a]	**3**	**<0.1**	**0**	**0.0**	**6**	**0.7**	**2**	**0.3**

[a] Total may be different due to rounding.

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

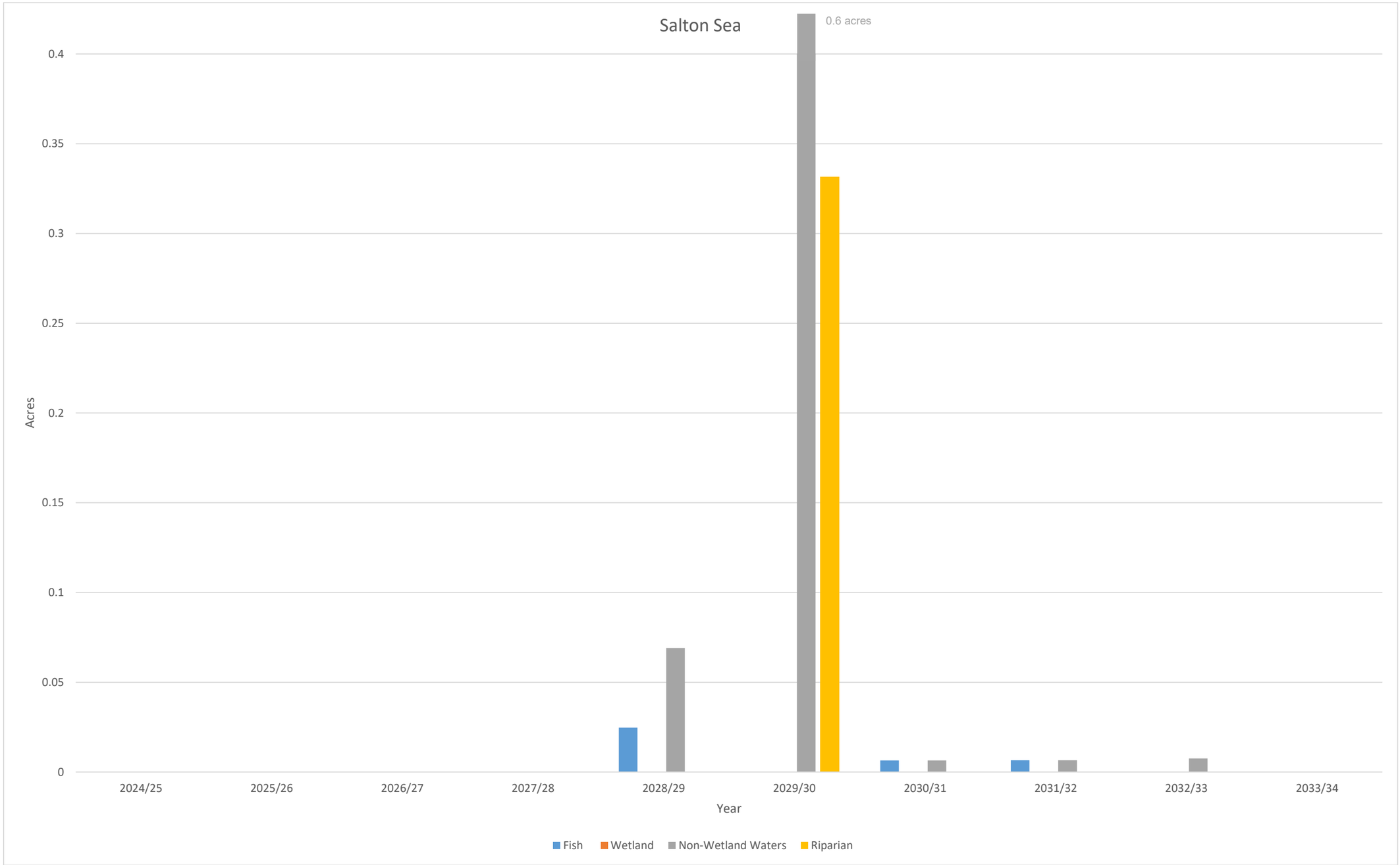


Table 6-2. Colorado Desert Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Bighorn Sheep: Number of Transportation Projects	Bighorn Sheep: Estimated Potential Impacts (acres)[a]	Burrowing Owl: Number of Transportation Projects	Burrowing Owl: Estimated Potential Impacts (acres)[a]	Desert Tortoise: Number of Transportation Projects	Desert Tortoise: Estimated Potential Impacts (acres)[a]	Flat-tailed Horned Lizard: Number of Transportation Projects	Flat-tailed Horned Lizard: Estimated Potential Impacts (acres)[a]	Ringtail: Number of Transportation Projects	Ringtail: Estimated Potential Impacts (acres)[a]	Switak's Banded Gecko: Number of Transportation Projects	Switak's Banded Gecko: Estimated Potential Impacts (acres)[a]
2023/24	1	<0.1	1	0.1	1	<0.1	0	0.0	1	<0.1	0	0.0
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	1	15.4	1	3.6	1	3.6	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	2	2.5	0	0.0	1	0.2	1	0.2	0	0.0
2029/30	0	0.0	1	3.6	0	0.0	1	<0.1	1	1.0	0	0.0
2030/31	0	0.0	2	1.2	1	0.4	0	0.0	2	0.4	0	0.0
2031/32	0	0.0	1	0.5	1	<0.1	1	<0.1	1	<0.1	0	0.0
2032/33	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total[a]	**1**	**<0.1**	**8**	**23.2**	**4**	**4.0**	**4**	**3.7**	**6**	**1.6**	**0**	**0.0**

[a] Total may be different due to rounding.

Figure 6-3. Colorado Desert Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

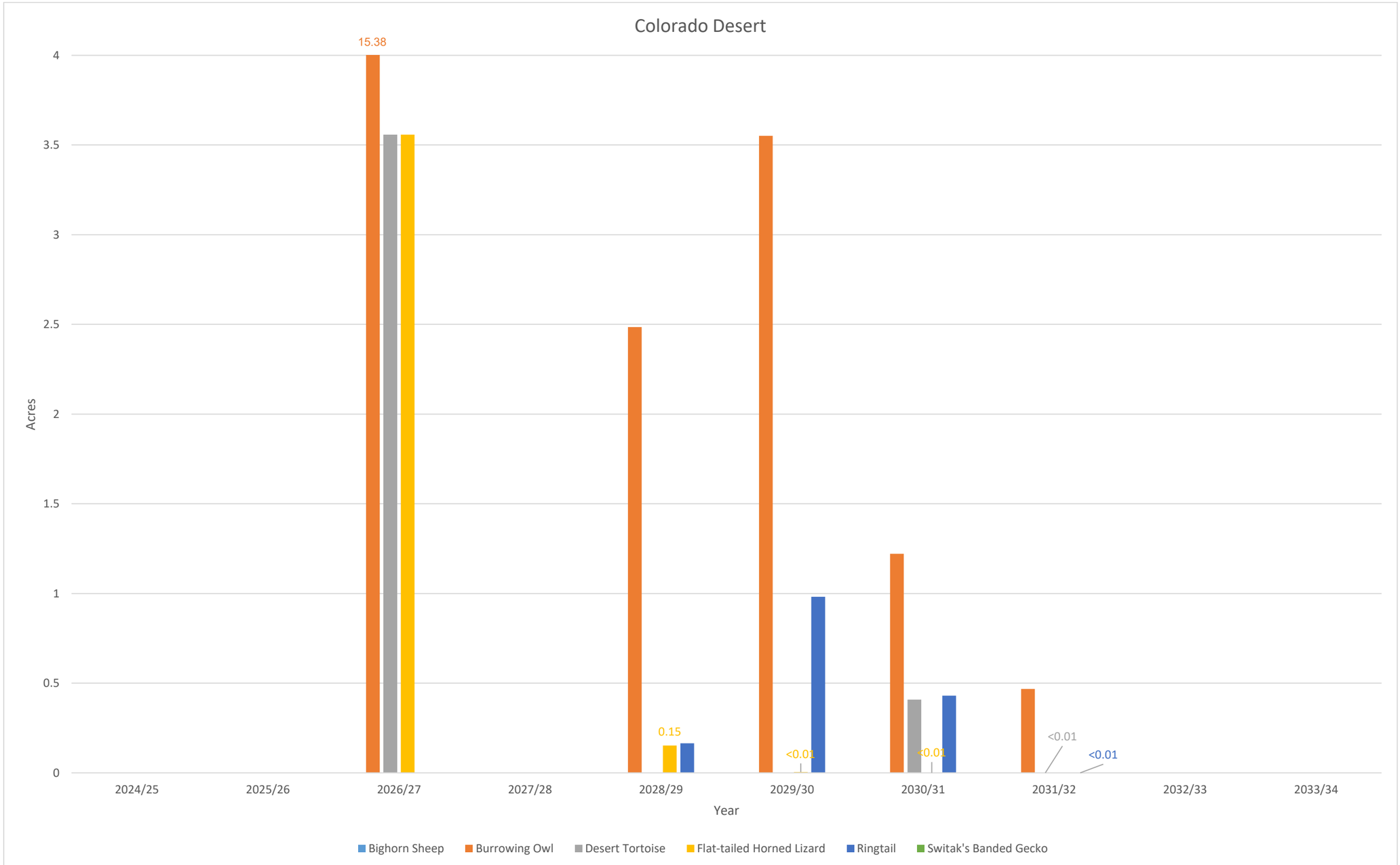
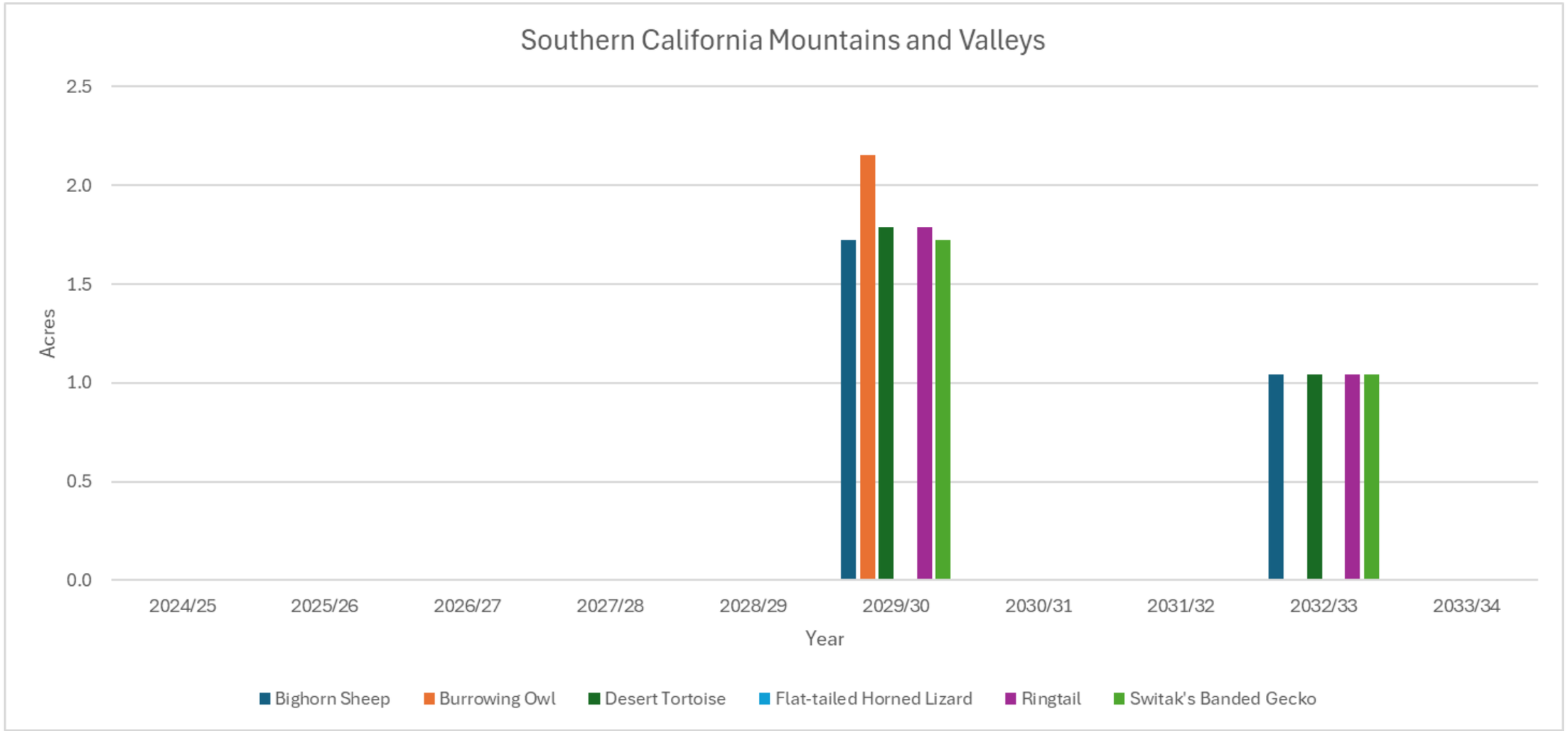


Table 6-3. Southern California Mountains and Valleys Ecoregion Section: Estimated Impacts on Terrestrial Species of Mitigation Need within the GAI, by Transportation Project Delivery Year

Expected Advertisement Year	Bighorn Sheep[a]: Number of Transportation Projects	Bighorn Sheep: Estimated Potential Impacts (acres)[b]	Burrowing Owl: Number of Transportation Projects	Burrowing Owl: Estimated Potential Impacts (acres)[b]	Desert Tortoise: Number of Transportation Projects	Desert Tortoise: Estimated Potential Impacts (acres)[b]	Flat-tailed Horned Lizard: Number of Transportation Projects	Flat-tailed Horned Lizard: Estimated Potential Impacts (acres)[b]	Ringtail: Number of Transportation Projects	Ringtail: Estimated Potential Impacts (acres)[b]	Switak's Banded Gecko: Number of Transportation Projects	Switak's Banded Gecko: Estimated Potential Impacts (acres)[b]
2023/24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2024/25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2025/26	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2026/27	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2027/28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2028/29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2029/30	2	1.7	2	2.2	2	1.8	0	0.0	2	1.8	2	1.7
2030/31	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2031/32	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2032/33	1	1.0	0	0.0	1	1.0	0	0.0	1	1.0	1	1.0
2033/34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total[b]	**3**	**2.8**	**2**	**2.2**	**3**	**2.8**	**0**	**0.0**	**3**	**2.8**	**3**	**2.8**

[a] Bighorn sheep includes the distinct population segment of Peninsular bighorn sheep subspecies (*Ovis canadensis nelsoni*), which occurs in part of the GAI, and is federally endangered and state threatened
[b] Total may be different due to rounding.

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



6.3. Acceleration Priorities

Caltrans District 11's transportation project priorities are expressed in the State Highway System Management Plan, which identifies transportation projects that generally fall in the second 5 years of the 10-year project portfolio (Caltrans 2023a). These priorities can change, however. Transportation planning is dynamic, and delivery schedules associated with many transportation projects provided in the 2023/2024 to 2032/2033 (Quarter 1) SHOPP Ten-Year Book, which informed this RAMNA, may change. Prior to proposing advance mitigation projects, Caltrans District 11 will consult the most recent State Highway System 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 purchased and/or 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 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 natural resource protection and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.[1] Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

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

7.1. Approach

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

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

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

- 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 six 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 there is a potential transportation nexus
  - Opportunities to enhance the conservation benefits through advance mitigation projects
  - Opportunities to benefit other special-status and native plant and 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 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[a]	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 CESA, Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. NCCP permits can authorize the take of fully protected species.
FWS	FWS has jurisdiction over a broad range of fish and wildlife resources. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the FESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(1)(b) of the FESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the FESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate. In May 2023, FWS issued a Mitigation Policy that builds upon the guidance in the 1981 Mitigation Policy for recommendations and requirements on mitigating adverse impacts of land and water developments on fish and wildlife, and a FESA Compensatory Mitigation Policy that adopts mitigation principles established in the FWS Mitigation Policy, establishes compensatory mitigation standards, and provides guidance for the application of compensatory mitigation through implementation of the FESA. Conservation banking can assist federal and non-federal participants in the Sections 7 and 10 processes. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Sections 7 and 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on or off site.

[a] In addition to the agencies listed above, the RWQCBs may exert jurisdiction over species to the extent that aquaculture; cold freshwater habitat; freshwater replenishment; groundwater recharge; preservation of rare, threatened, or endangered species; warm freshwater habitat; or wildlife habitat beneficial uses exist and would be affected by a project.

7.3. Species of Mitigation Need

An overview of wildlife resources is provided in Chapter 2, *Environmental Setting*. As described in Section 1.5, species of mitigation need were selected to focus the planning effort and to improve the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable during the planning period. To this end, the terrestrial species of mitigation need identified for the GAI are desert bighorn

sheep, burrowing owl, desert tortoise, flat-tailed horned lizard, ringtail, and Switak's banded gecko. These species are briefly described below.

7.3.1. Desert Bighorn Sheep

Desert bighorn sheep is a state fully protected mammal species which is found in mountain ranges across the western United States and Canada. In California, they are distributed along the eastern slope of the Sierra Nevada Mountains from as far north as Mono County south to Inyo and Tulare counties, across the Transverse and Peninsular ranges, and in various high ranges across the Mojave Desert. The Peninsular subspecies (*O. c. cremnobates*), which occurs south of Interstate 10 at San Gorgonio Pass and west of the Salton Sea, is listed as federally endangered and state threatened (CDFW 2025c).

Desert bighorn sheep occupy a range of arid montane habitats including alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian. They prefer open areas of low-growing vegetation for feeding, with close proximity to steep, rugged terrain for escape, lambing, and bedding, and with an adequate source of water and travel routes linking these areas. Rutting occurs in November and December in northern populations, but may be yearlong for desert bighorns, peaking in August and September. Lambing season is mid-April to early June. Desert bighorns may give birth at any time, but most births occur from January to April (Hopkins 1990).

7.3.2. Burrowing Owl

Burrowing owl is a state candidate endangered bird species and a California species of special concern which takes over and occupies burrows formerly used by fossorial mammals such as California ground squirrels (*Otospermophilus beecheyi*) and American badgers (*Taxidea taxus*). The species ranges across much of North and South America from southern Canada to Tierra del Fuego and includes 16 known subspecies. The western subspecies (*A. c. hypugaea*) ranges across the western United States and Canadian prairie, with birds that nest in the northern part of the range migrating south for the winter, and resident populations present year-round from California to Texas and into Mexico (Shuford and Gardali 2008).

Burrowing owls are crepuscular (most active at dawn and dusk), though they can become more nocturnal in the non-breeding season. They live in grasslands, shrublands and deserts, but also occur in human-altered landscapes like agricultural lands, airports, and golf courses where, in addition to occupying small mammal burrows, they often make use of artificial structures, such as pipes and culverts for nesting and roosting. Burrowing owls need areas of short vegetation over which they hover-forage for insects and small rodents (CDFW 2024b). Burrowing owls often nest in small colonies. Their clutch sizes range from 4 to 12 eggs, with successful nests fledging 6 to 9 juveniles. They nest from February through August in California, though they will breed during the winter months in the Imperial Valley (Shuford and Gardali 2008). Breeding may start in mid-January, and young may still be dependent on adults into early October.

7.3.3. Desert Tortoise

Desert tortoise is a federally threatened and state endangered species that is widely distributed in the Mohave, Sonoran, and Colorado deserts from below sea level to 7,220 feet above mean sea level. They are most common in desert scrub, desert wash, and Joshua tree habitats, but occur in almost every desert habitat except those on the most precipitous slopes (Marlow 2000b).

Desert tortoises have high domed shells that can grow up to 15 inches in length, large elephantine rear feet, and stocky forelimbs covered with large conical scales. They spend most of the year underground in burrows, the entrances to which have a distinctive crescent shape. Their feeding and activity period is very short and mostly restricted to spring (April to June), when the plants they feed on such as grass, cacti, herbs, flowers, and legumes are in bloom. (Nafis 2026b). Mating begins shortly after the tortoises become active in late March or early April. Eggs are laid in early summer (late May to July). Clutches range from 2 to 9 eggs and take 3 to 4 months to hatch (Marlow 2000b).

7.3.4. Flat-tailed Horned Lizard

Flat-tailed horned lizard is a California species of special concern with a very limited range. It is restricted to areas of fine sand and sparse vegetation in desert washes and desert flats. Its small range includes the Colorado Desert from the Coachella Valley south through the Imperial Valley and west into the Anza-Borrego desert, south to extreme southwestern Arizona, northeastern Baja California, and northwestern Sonora. Its elevational range extends from below sea level to about 600 feet above mean sea level (Marlow 2000a).

Flat-tailed horned lizards grow to 3.5 inches in length with a flat, wide, oval-shaped body and enlarged pointed scales on the upper body and tail. They are ant specialists, with those from the harvester ant group being their most common food item, although other arthropods are occasionally eaten. Most adults apparently hibernate in the winter, but juveniles may remain active all year. Most adults emerge in April, but some have been observed emerging in February and March. Mating takes place in April and May with females laying clutches of 3 to 10 eggs in May and June. Flat-tailed horned lizards do not aestivate in summer, but they will retreat into shallow burrows or rapidly shuffle from side to side to burrow into the sand in order to avoid extreme heat and cold (Nafis 2026a).

7.3.5. Ringtail

Ringtail is a state fully protected nocturnal mammal species which occurs in various riparian habitats, and brush stands of most forest and shrub habitats, at low to middle elevations. Ringtails range across much of the western United States and south through much of Mexico. In California, they are seemingly absent from the Modoc Plateau, San Joaquin Valley, and portions of the Mojave Desert, while known populations are most concentrated in the northern Coast Range mountains, Cascade and Sierra Nevada foothills, central coast, and the Transverse and Peninsular ranges (Ahlborn 2005).

Ringtails are members of the raccoon family. They typically grow 24 to 32 inches long with their long black-and-white banded tail making up half that length. Ringtails are primarily carnivorous, foraging for small mammals (such as mice, woodrats, and small rabbits), birds, reptiles, eggs, and invertebrates on the ground, among rocks, in trees, and usually near water. Suitable habitat for ringtails consists of a mixture of forest and shrubland in close association with rocky areas or riparian habitats. They den in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests. They produce one litter per year, with 1 to 5 young born in May and June (Ahlborn 2005).

7.3.6. Switak's Banded Gecko

Switak's banded gecko, also known as the barefoot banded gecko, is a state threatened reptile species that is not well-known as it is nocturnal and dwells in rocky canyons, making it difficult to study. The species is known to occur on the eastern side of the northern half of the Baja California peninsula, ranging north into far eastern San Diego and far western Imperial counties (Marlow 1990).

Switak's banded geckos grow to 3.5 inches in length, with soft skin, slender toes, and a tail that is narrow at the base. Their patterning is highly variable depending on their habitat, with some individuals light gray, brown, or beige, and others bright reddish or yellow, but always with spotting or freckling all over the body and light and dark bands on the tail. Secretive and nocturnal, Switak's banded geckos hide in deep crevices during the day. They are most active in fairly cool ambient temperatures during periods of increased humidity, typically spring through fall, hibernating through the winter. The breeding season is thought to last from mid-May through late July, with females laying one or two eggs, and eggs hatching in late summer to early fall (Nafis 2026c).

7.4. Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect existing populations and habitat, and include acquiring, protecting, restoring, and/or enhancing habitat and linkages. Several conservation and land management plans listed in Table 3-1, relevant to the species of mitigation need, identify key habitats or designate specific lands or areas to protect for conservation of the species of mitigation need 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 Need Conservation within the GAI

Document	Reference	Areas of Important Habitat
Special-status Species and Sensitive Habitat Documents	See below	See below
*Mojave Desert Tortoise (*Gopherus agassizii*) 5-Year Review: Summary and Evaluation*	FWS 2022	Identifies 5 Recovery Units (RU), which include 17 Tortoise Conservation Areas (TCA). One RU and three TCAs are within the GAI, including: ▪ Colorado Desert RU ▪ Chocolate Mountains Aerial Gunnery Range TCA ▪ Chuckwalla TCA ▪ Joshua Tree TCA
Determination of Critical Habitat for the Mojave Population of the Desert Tortoise	FWS 1994	FWS' designation of critical habitat for Mojave desert tortoise. The Chuckwalla Critical Habitat Unit is within the GAI.
Revised Recovery Plan for the Mojave Desert Tortoise	FWS 2011	Identifies general recovery goals to secure lands and habitat, connect functional habitat, restore desert tortoise habitat, restrict off-highway vehicle events in desert tortoise habitat, eradicate invasive plants, revegetate degraded areas with high-value native plants, and remove toxicants such as those from mining operations.
Peninsular Bighorn Sheep 5-Year Review	FWS 2021	Identifies 9 Recovery Regions, three of which overlap with the GAI. These Recovery Regions include: ▪ Carrizo Canyon/Tierra Blanca Mountains/Coyote Mountains Area ▪ Southern Santa Rosa Mountains ▪ Vallecito Mountains
Designation of Critical Habitat for Peninsular Bighorn Sheep and Determination of a Distinct Population Segment of Desert Bighorn Sheep	FWS 2009	FWS' designation of critical habitat for the Peninsular bighorn sheep. Critical Habitat Units 2A and 3 are within the GAI.

Document	Reference	Areas of Important Habitat
Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California	FWS 2000	Identifies general recovery goals to secure bighorn sheep habitat, restore habitat quality (removing exotic and invasive vegetation such as tamarisk and fountain grass (*Pennisetum setaceum*), reducing wild horse populations, and implementing a fire management plan for bighorn sheep habitat), re-establish connectivity throughout all habitat, and reduce or eliminate direct or indirect human impacts.
Flat-tailed Horned Lizard Rangewide Management Strategy	FHLICC 2003	FHLICCs management strategy, adopted by CDFW, for flat-tailed horned lizard. Identifies five Management Areas (MA) and one Research Area. The following Areas overlap with the GAI: ▪ East Mesa MA ▪ Ocotillo Wells Research Area ▪ West Mesa MA ▪ Yuma Desert MA Includes general objectives to secure sufficient habitat to maintain self-sustaining flat-tailed horned lizard in the above MAs and to limit the loss of habitat and effects on flat-tailed horned lizard populations through the application of effective mitigation and compensation.
Staff Report on Burrowing Owl Mitigation	California Department of Fish and Game 2012	Includes general goals for mitigation, including increasing the geographic distribution of burrowing owls into the formerly occupied historical range, restoring self-sustaining ecosystems or natural communities which can support burrowing owls at a landscape scale, minimizing or preventing unnatural causes of burrowing owl population declines, and restoring natural dynamics of burrowing owl populations including movement and genetic exchange among populations.
Conservation and Land Management Documents	See below	See below
Anza Borrego Desert State Park General Plan	California Department of Parks and Recreation 2005	Includes policies of implementing methods of control and eradication of non-native invasive species and enhancing movement and dispersal of native plants and wildlife and the regional ecosystems.
California Essential Habitat Connectivity Project	Spencer et al. 2010	Identifies Natural Landscape Blocks and Essential Connectivity Areas in a set of defined ecoregions. The GAI overlaps with the Colorado Desert Ecoregion Section.
City of Brawley Final General Plan 2030	City of Brawley 2008	Includes policies to ensure future development near the New River does not impact riparian habitat.

Document	Reference	Areas of Important Habitat
City of El Centro Final General Plan	City of El Centro 2022	Includes policies to create or enhance native annual grassland through the removal of non-natives.
Conservation Management Plan for Bighorn Sheep in California	CDFW 2025c	Includes general goals to enhance and restore connectivity and genetic diversity, restore and manage habitat and water availability to support sustainable desert bighorn subpopulations, and develop and enhance communication and collaboration with Tribes, stakeholders, agencies, and researchers.
County of San Diego General Plan	San Diego County 2011	Includes policies to enhance natural wildlife habitat outside of preserves as development occurs according to the land use designation and to minimize the loss of natural habitat through site design.
El Centro Field Office East San Diego County Resource Management Plan and Record of Decision	BLM 2008	BLM's management plan for East San Diego County that includes policies to restore terrestrial upland and riparian habitats, restore native plant communities, and eradicate non-native invasive species.
El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan	BLM 2013	BLM's management plan for Imperial Sand Dunes Recreation Area that includes policies to restore and enhance native plant communities, restore habitat linkages, and restore native wildlife species habitats.
Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan	Coachella Valley Association of Governments 2007	Includes general goals to restore sustainable populations of Covered Species in Core Habitat areas, incorporate a range of environmental gradients and high habitat diversity to provide for shifting species' distributions, provide for population fluctuation, provide opportunities for dispersal and resultant genetic and demographic exchange among populations, control threats including invasive species, OHV use, and edge effects, and restore and/or enhance degraded native habitats.
Final Heber Dunes State Vehicular Recreation Area (SVRA) General Plan	California Department of Parks and Recreation 2011	Includes policies to establish areas for adaptive management where known populations of special-status wildlife species occur and to enhance existing creosote scrub and saltbush scrub habitats.
Imperial County General Plan	Imperial County 2016	Includes policies to develop management plans for flat-tailed horned lizard and burrowing owl as well as to designate critical habitat for special-status species.

Document	Reference	Areas of Important Habitat
Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan	FWS 2014	Includes policies to manage native desert scrub habitat and riparian areas.
SWAP	CDFW 2025b	The GAI lies within four ecoregion sections: the Colorado Desert, Mojave Desert, Sonoran Desert, and Southern California Mountains and Valleys Ecoregion Sections. The SWAP identifies freshwater marsh, California grassland and flowerfields, coastal dune and bluff scrub, shadscale-saltbush scrub, Mojave and Sonoran desert scrub, sparsely vegetated desert dune, desert wash woodland and scrub, and American southwest riparian forest and woodland as priority conservation target habitats in these ecoregion sections.

[a] Desert bighorn sheep also includes the distinct population segment of peninsular bighorn sheep in the Southern California Mountains and Valleys Ecoregion Section for the purposes of this RAMNA.

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 their habitat. According to the SWAP (CDFW 2025b), 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 2025b). The *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), *Flat-tailed Horned Lizard Rangewide Management Strategy* (FTHLICC 2003), *Mojave Desert Tortoise 5-year Review Summary and Evaluation* (FWS 2022), and *The Conservation and Management Plan for Bighorn Sheep in California* (CDFW 2025c) refer to these pressures and stressors as threats. The life history accounts of ringtail and Switak's banded gecko briefly reference pressures and stressors such as predation (Marlow 1990; Ahlborn 2005).

The plans included in Table 7-2 identify multiple pressures and stressors contributing to the decline of the species of mitigation need within their ranges (California Department of Fish and Game 2012; Flat-tailed Horned Lizard Interagency Coordinating Committee 2003; FWS 1994, 2000, 2009, 2011, 2021, 2022). These pressures and stressors were evaluated in relation to the types of effects that could result from, or be worsened by, transportation projects funded through SHOPP and whether the species of mitigation need could benefit from in-kind compensatory mitigation purchased or established through an advance mitigation project.

7.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, and habitat invasion by nonnative species have led to the loss and degradation of existing habitat for the species of mitigation need. Additionally, roads and urbanization have resulted in habitat fragmentation and a decrease in connectivity between habitats that support species of mitigation need populations, as well as increased mortality of wildlife species from vehicle strikes.

Habitat loss and fragmentation of desert scrub and dune habitat due to urban and agricultural development are considered significant threats to all of the species of mitigation need. Draws from groundwater basins within the GAI are threats to riparian areas and seeps, and new water demand from rapid urbanization has reduced the options for groundwater recharge (CDFW 2025b).

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.

A number of invasive plant species, such as Saharan mustard, Arabian schismus, and tamarisk may degrade habitat quality for desert tortoise and burrowing owl, as well as increase the fuel and continuity of fuels that facilitate higher frequency and temperature of fires in the region (CDFW 2025b).

Russian thistle (*Salsola kali*), Saharan mustard, stinknet (*Oncosiphon pilulifer*), and non-native annual grasses stabilize sand dunes or block sand movement, degrading the fragile habitat of the flat-tailed horned lizard (CDFW 2025b).

Feral burros and horses of the Mojave, Sonoran, and Colorado Deserts compete with desert bighorn sheep for forage and drinking water access, as well as increasing sediment runoff into riparian areas and springs (CDFW 2025b).

7.5.3. Disease and Predation

Disease and predation rates can be affected by habitat loss, fragmentation, and degradation described in Section 7.5.1. Disease risk is present through transmission of pathogens from domestic goats and domestic sheep to the desert bighorn sheep populations (CDFW 2025c). The deadliest disease that affects wild desert bighorn sheep populations is pneumonia, caused by *Bibersteinia*, *Mannheimia*, and *Mycoplasma* bacteria. Desert bighorn sheep do not have the immunity to fight against *Mycoplasma*, so respiratory diseases caused by this bacterium are often catastrophic to herds (Western Ecological Research Center 2017). A major threat to wild desert tortoise populations is respiratory tract disease, a highly infectious disease caused by *Mycoplasma* bacteria. While death is uncommon, this disease is highly transmissible between individuals and can cause severe respiratory symptoms that can lead to a higher risk of predation (FWS 2019). There is little to no publicly available information regarding disease in Switak's banded gecko and ringtail populations.

Desert bighorn sheep are primarily subject to predation by mountain lions (*Puma concolor*); however, desert canids, bobcats (*Lynx rufus*), and golden eagles (*Aquila chrysaetos*) have been known to hunt desert bighorn sheep (Western Ecological Research Center 2017). Juvenile desert tortoises are subject to a high rate of predation from desert canids, as well as corvids and American badgers (*Taxidea taxus*), because their shells are not fully hardened until five years of age (Kelly et al. 2021). Adult tortoises, while rarely subject to predation, are most often hunted by coyotes (Kelly et al. 2021). Burrowing owl predators include American badgers, coyotes, snakes, bobcats, and several raptor species, and ravens are known to predate chicks (Klute et al. 2003). Round-tailed ground squirrels (*Spermophilus tereticaudus*) and loggerhead shrikes (*Lanius ludovicianus*) are the major predators of flat-tailed horned lizards, accounting for a majority of the deaths of lizards being tracked via radio telemetry transmitter in areas overlapping within the GAI (FHLICC 2003). Ringtail are hypothesized to be predated by bobcats, raccoons, foxes, and large owl species (Ahlborn 2005). Little to no information is publicly available regarding predation in Switak's banded gecko populations.

7.5.4. Climate Change, Drought, and Wildfire

Section 2.4 provides 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 change. Predicted climate change effects consist of projected extended periods of higher temperatures in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of drought, wildfires, and landslides (Caltrans 2019b).

The lower permeability of roads can exacerbate the risks associated with flooding and erosion. Terrestrial connectivity within the GAI is depicted on Figure 2-12, which shows large blocks of conservation planning linkages and linkages with implantation flexibility; however, approximately half of the GAI encompasses areas of limited connectivity opportunity. 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 of the wildlife species toward more suitable habitat as the climate changes and by providing protection for the ecological processes that support key habitats. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018) is presented on Figure 2-7. Resilience is highest within the northeastern and southwestern parts of the GAI in the Chuckwalla and Chocolate Mountains and the Jacumba Wilderness Area. Resilience within these areas ranges from 3 to 5. Resilience within the remainder of the GAI ranges from 1 to 2.

Climate change is expected to bring with it an increased risk of wildfires (Caltrans 2019b), which could be extremely detrimental to burrowing owl and desert tortoise, which occupy desert scrub communities. Drought can have mixed effects on different bird species, decreasing nesting success in many cases while improving it in other cases depending on specific microhabitat conditions. However, the increased duration and severity of drought driven by climate change that is predicted for California is expected to have a severely negative long-term impact on wildlife populations.

7.5.5. Contaminants

Pollutants have been associated with roads and industrial activity. Petroleum products from roadside runoff, pesticides, herbicides, mineral fertilizers, industrial chemicals, and airborne pollutants are known to have negative effects on wildlife. Burrowing owl populations have been negatively affected by DDE, the degradation product of DDT, causing egg shell thinning and estrogenic effects (Klute et al. 2003). Anti-coagulant rodenticides have been known to cause increased mortality in burrowing owls due to secondary exposure. Despite the lack of studies examining the effects of insecticides on burrowing owl populations, available evidence indicates that anti-cholinesterase insecticides can negatively impact populations, resulting in reductions in brood size and nesting success (Klute et al. 2003).

Insecticide use on agricultural fields adjacent to flat-tailed horned lizards indirectly affects lizard populations, resulting in the mortality of harvester ant colonies, the main food source for the flat-tailed horned lizard (FHLICC 2003).

Little to no information is publicly available regarding contaminant impacts on Switak's banded gecko and ringtail populations.

7.6. Multi-species Benefits

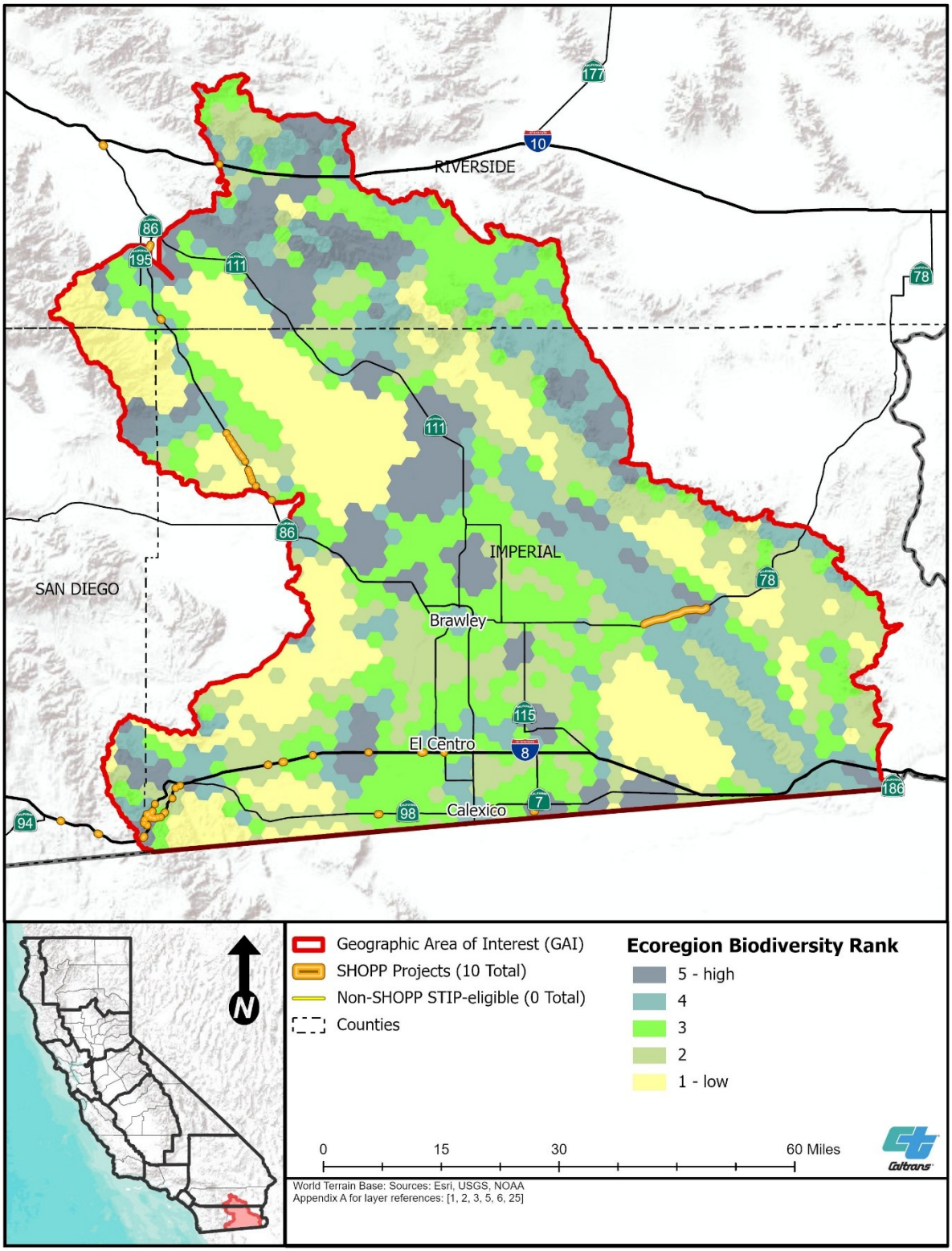
While the wildlife species of mitigation need identified for this GAI are desert bighorn sheep, burrowing owl, desert tortoise, flat-tailed horned lizard, ringtail, and Switak's banded gecko, several other special-status species share habitat with these species, which may be addressed under CDFW's Lake and Streambed Alteration Agreement program. These species include, but are not limited to:

- red diamond rattlesnake (*Crotalus ruber*)
- golden eagle (*Aquila chrysaetos*)
- pallid bat (*Antrozous pallidus*)

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

Advance mitigation planning provides Caltrans an opportunity to prioritize multi-species and multi-resource benefits through acquisition, protection, restoration, and/or enhancement of habitat that provides the most multi-species benefits 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 most of the SHS with SHOPP projects within the GAI, with large areas of low diversity in the western and southeastern areas. Habitats are mapped in Appendix C, *Land Cover Types*, and the other special-status species that may occur in these habitats are provided in Appendix D, *Complete SAMNA Species Results*.

Figure 7-1. Terrestrial Biodiversity within the GAI



The installation of artificial bat roosts, culvert escape ramps, undercrossings, 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 terrestrial species of mitigation need or 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 these other species. Caltrans will consider the special-status species with the potential to co-occur in habitat with species of mitigation need in order to inform advance mitigation scoping and thereby improve the conservation benefits of mitigation 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 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 11 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[2] 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.[3] Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific. They are not presented in order of importance.

[2] For the purposes of this document, “functional lift” means the difference between an existing degraded condition and a restored or enhanced condition.
[3] In accordance with both law and Caltrans policy, standard best management practices are followed on all Caltrans transportation projects. Therefore, they are presumed and they are not itemized as goals and objectives for the AMP.

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

Objective	Sub-Objective	Affected Species[a]	Alignment with Conservation and Management Plans[b]
Goal WILD-1: Conserve and expand habitat for species of mitigation need 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.	**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. **Sub-Objective WILD-1.1.2:** Prioritize key areas, such as designated critical habitat, movement corridors, and buffer zones. **Sub-Objective WILD-1.1.3:** Prioritize acquisition and/or protection of large blocks of suitable, occupied habitat for the species of mitigation need; lands adjacent to occupied habitat; and/or land that expands or buffers existing occupied protected habitats. **Sub-Objective WILD-1.1.4:** Prioritize land acquisition and/or protection that supports key populations.[c] **Sub-Objective WILD-1.1.5:** Prioritize acquisition, protection, and/or enhancement of SWAP (CDFW 2025b) conservation targets: freshwater marsh, California grassland and flowerfields, coastal dune and bluff scrub, shadscale-saltbush scrub, Mojave and Sonoran desert scrub, sparsely vegetated desert dune, desert wash woodland and scrub, and American southwest riparian forest and woodland (Figure 7-2) that coincide with the species of mitigation need range, as well as other locally or regionally important habitat types.	▪ Flat-tailed horned lizard ▪ Desert tortoise ▪ Desert bighorn sheep ▪ Burrowing owl ▪ Ringtail ▪ Switak's banded gecko	▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Heber Dunes SVRA General Plan* (California Department of Parks and Recreation 2011) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2007) ▪ *Flat-Tailed Horned Lizard (*Phrynosoma mcalli*)* (CDFW 2016) ▪ *Flat-Tailed Horned Lizard Rangewide Management Strategy (*FHLICC 2003) ▪ *Imperial County General Plan* (Imperial County 2016) ▪ *Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California* (FWS 2000) ▪ *Revised Recovery Plan for the Mojave Desert Tortoise* (FWS 2011) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (FWS 2014) ▪ *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) ▪ *SWAP* (CDFW 2025b) and SWAP companion plans ▪ *Final Salton Sea Long-Range Plan* (Salton Sea Program 2024) ▪ *Salton Sea Management Plan Phase I: 10-Year Plan* (Salton Sea Program 2018)

Objective	Sub-Objective	Affected Species[a]	Alignment with Conservation and Management Plans[b]
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
Objective WILD- 2.1: Acquire, protect, restore, and/or enhance dispersal corridors within the GAI in advance of transportation project impacts.	**Sub-Objective WILD-2.1.1:** Identify movement corridors for the wildlife 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. **Sub-Objective WILD-2.1.2:** Prioritize habitat in key linkage areas, between habitat areas, and/or areas that provide a buffer to key or habitat areas.[c]	▪ Flat-tailed horned lizard ▪ Desert tortoise ▪ Desert bighorn sheep ▪ Burrowing owl ▪ Ringtail ▪ Switak's banded gecko	▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2007) ▪ *Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California* (FWS 2000) ▪ *Revised Recovery Plan for the Mojave Desert Tortoise* (FWS 2011) ▪ *SWAP* (CDFW 2025b) and companion plans
Goal WILD-3: Support resiliency of the landscape to climate change	See below	See below	See below
Objective WILD-3.1: Acquire, protect, restore, and/or enhance habitat that supports resilience to climate change within the GAI in advance of transportation project impacts.	**Sub-Objective WILD-3.1.1:** Identify, acquire, protect, restore, and/or enhance habitat critical to climate resilience for the species of mitigation need within the GAI (Figure 2-7). **Sub-Objective WILD-3.1.2:** Prioritize management of invasive species in key areas, such as movement corridors, that may be exacerbated by climate change that would provide functional lift for the species of mitigation need.	▪ Flat-tailed horned lizard ▪ Desert tortoise ▪ Desert bighorn sheep ▪ Burrowing owl ▪ Ringtail ▪ Switak's banded gecko	▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2007) ▪ *Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California* (FWS 2000) ▪ *Revised Recovery Plan for the Mojave Desert Tortoise* (FWS 2011) ▪ *SWAP* (CDFW 2025b) and companion plans
Goal WILD-4: Decrease mortality and competition, and protect population health for species of mitigation need	See below	See below	See below
Objective WILD-4.1: Reduce impacts of invasive species on populations of species of mitigation need within the GAI in advance of transportation project impacts.	**Sub-Objective WILD-4.1.1:** Reduce invasive species in key habitat locations and/or in areas that provide a buffer to high-value habitat for the species of mitigation need. Prioritize areas where invasive species reduction would provide the greatest functional lift to species of mitigation need and their habitat. **Sub-Objective WILD-4.1.2:** Prioritize restoration of native plant species in key areas, such as critical habitat, movement corridors, and buffer zones.	▪ Flat-tailed horned lizard ▪ Desert tortoise ▪ Desert bighorn sheep ▪ Burrowing owl ▪ Ringtail ▪ Switak's banded gecko	▪ Same references as listed with objective WILD-3.1.

Objective	Sub-Objective	Affected Species[a]	Alignment with Conservation and Management Plans[b]
Goal WILD-5: Prioritize multi-species and multi-resource benefits	See below	See below	See below
Objective WILD-5.1: Acquire, protect, restore, and/or enhance habitat that provides multi-species benefits within the GAI in advance of transportation project impacts.	**Sub-Objective WILD-5.1.1:** Prioritize mitigation to provide benefits to special-status species that may co-occur with the species of mitigation need in key areas and that will provide functional lift to other special-status species within the GAI. **Sub-Objective WILD-5.1.2:** Identify SHS right-of-way areas where enhancement efforts may benefit species of mitigation need.	▪ Flat-tailed horned lizard ▪ Desert tortoise ▪ Desert bighorn sheep ▪ Burrowing owl ▪ Ringtail ▪ Switak's banded gecko	▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Heber Dunes SVRA General Plan* (California Department of Parks and Recreation 2011) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2007) ▪ *Imperial County General Plan* (Imperial County 2016) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (FWS 2014) ▪ *SWAP* (CDFW 2025b) and companion plans

[a] This column includes species of mitigation need that could benefit from these objectives.
[b] More information on these plans is provided in Chapter 3, *Relevant Plans, Policies, and Regulations*, and Chapter 4, *Existing Mitigation Opportunities*.
[c] As identified in recovery plans and other pertinent documents (see Table 7-2).

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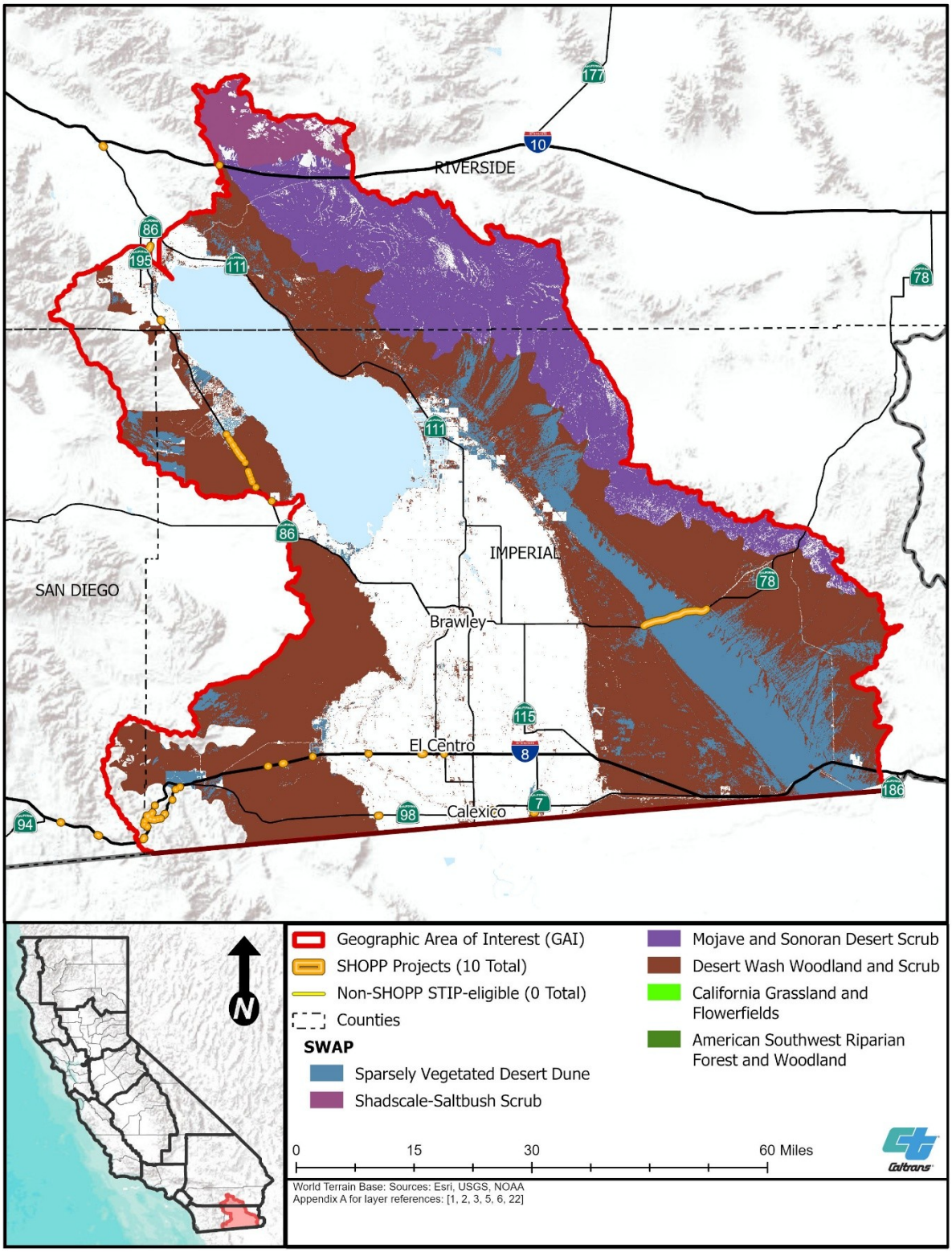
Figure 7-2. State Wildlife Action Plan Conservation Target Habitats



7.8. Summary

Caltrans anticipates that future SHOPP-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 functional lift or conservation benefit 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 existing habitat for species of mitigation need within the GAI and increase connectivity between blocks of habitat. The objectives to fulfill these goals are acquisition, protection, restoration, and/or enhancement of land. Caltrans intends to prioritize efforts that provide the greatest functional lift for the species of mitigation need and that provide a conservation benefit in terms of size, connectivity, quality, and contribution to the climate resilience of habitat within the GAI. 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 and predation.
- **Goal WILD-3** seeks to support landscape resiliency for species of mitigation need habitat within the GAI. The primary objectives are to reduce the effects of climate change on these species by increasing the protection and functionality of land that is identified as crucial for climate resiliency, including corridors that allow the wildlife species to migrate from areas of low climate resilience into areas with higher resilience and addressing the climate change-related threat from invasive species. In addition to addressing climate change in general, these goals and objectives address habitat loss, fragmentation, and degradation as well as invasive species.
- **Goal WILD-4** seeks to decrease mortality of species of mitigation need from known immediate and ongoing threats to individuals or populations by protecting native

vegetation and reducing conditions that favor predators and competitors. These objectives address issues related to habitat loss, fragmentation, and degradation as well as threats from invasive species and predation.

- **Goal WILD-5** seeks to guide advance mitigation scoping to prioritize multi-species and multi-resource benefits to maximize ecological benefits 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 habitat or corridors into advance mitigation scopes and address important threats in the area through an advance mitigation project. This concept is an important way Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects that will provide a functional lift for the species of mitigation need and maximize conservation benefits from mitigation within the GAI.

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8. AQUATIC RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for aquatic resources is to avoid and minimize all impacts on fish, wetlands, 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 purchased and/or 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, therefore, 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.[1] Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

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

8.1. Approach

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

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

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

- 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 wetland, non-wetland waters, riparian habitat, 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 the conservation benefits through advance mitigation projects
  - Opportunities to provide co-benefits, where possible, to water quality, groundwater recharge, and species that require aquatic habitats
- Last, Caltrans 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 Resource Regulatory Agencies with the Authority to Approve Aquatic Resource Compensatory Mitigation Credits (or Values)

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 of debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW issues agreements to project proponents under its authorities, including Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. Under the CESA, CDFW also has authority to issue incidental take permits for state-listed species, and Consistency Determinations for state and federally listed species. Additionally, CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Division 1 of Title 14 of the California Code of Regulations, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values.
Corps	It is the mission of the Corps' Regulatory Program (33 CFR Part 230 and Parts 320–332) to protect the nation's aquatic resources and navigation capacity while allowing reasonable development through fair, flexible, and balanced permit decisions. The Corps is responsible for administering laws for the protection and preservation of aquatic resources pursuant to Section 10 of the Rivers and Harbors Act of 1899 and CWA Section 404. Pursuant to the Rivers and Harbors Act, all work or structures in, over, or under navigable WOTUS require Corps authorization. The Corps authorizes, under CWA Section 404, the discharge of dredged or fill material into WOTUS, including wetlands. When the Corps' civil works projects are proposed to be used or altered by another entity, CWA Section 408 permission (33 USC 408 or Section 14 of the Rivers and Harbors Act of 1899, as amended) must be obtained in addition to the CWA Section 404 authorization. According to the 2008 mitigation rule, in general it is the preference of the Corps to use the following order of priority for mitigation: mitigation bank, in-lieu fee program, permittee responsible mitigation under the watershed approach, in-kind/on-site permittee responsible mitigation, and out-of-kind/off-site permittee responsible mitigation, but the preference may change based on what is environmentally preferable.
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. 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 Sections 7 and 10 processes. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Sections 7 and 10 of the FESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on or off site.
Water Boards	The Porter-Cologne Act governs water quality regulation in California and gives the Water Boards the authority to condition projects, through waste discharge requirements, to protect water quality and the beneficial uses of waters of the state, as identified in Basin Plans. Basin Plans, adopted by the RWQCBs, incorporate the beneficial use designation of surface waters of the state and must consider (among other uses) the use and value of water for protection and propagation of fish, shellfish, and wildlife. The Water Boards have been delegated the responsibility of implementing CWA Section 401, which regulates the discharge of pollutants 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 *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2021). Projects that occur within one region are regulated by that regional board, whereas projects that cross regions are regulated by the SWRCB.

8.3. Aquatic Resources and Species of Mitigation Need

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

8.3.1. Wetlands and Non-wetland Waters

The GAI conforms to the Salton Sea Sub-basin HUC-8 (HUC-8 18100204). As such, all named aquatic features in this chapter occur within this HUC-8. The Alamo River, the New River, and the Whitewater River are the major river systems of the GAI (Colorado River Basin RWQCB 2024). Additionally, there are hundreds of named and unnamed

tributaries, the majority of which flow into these rivers and/or irrigation canals. Flow into these systems primarily originates urban runoff, agricultural and industrial waste, and rainwater (Colorado River Basin RWQCB 2024).

Aquatic habitat types with the potential to occur within the GAI are mapped in Appendix E, *Aquatic Resource Locations*. Based on the SAMNA Reporting Tool's wetlands and waters layer, the GAI has a total of 357,148 acres of aquatic habitat, consisting of 35 wetland and non-wetland water habitats listed in Table 2-7 (Caltrans 2025c). Nine 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 (Table 2-6).

8.3.2. Riparian Habitat

Riparian habitat is discussed in Section 2.16. Because no detailed riparian GIS layer is currently available, riparian habitat information was excerpted from the SAMNA's aquatic resources layer, which divides aquatic resources into three classes: waters, wetlands, and riparian (Caltrans 2025c).

8.3.3. Fish Species of Mitigation Need

One endangered fish species was identified in Section 2.15.4 and is described below.

Desert Pupfish

Desert pupfish is both federally and state endangered. While there is federally designated critical habitat for this species, it does not overlap with the GAI (Section 2.8). Desert pupfish generally breed from late March to late September. Male desert pupfish will defend a territory between one and two meters in size in which a female will lay approximately 50 to 800 eggs. Eggs take approximately 10 days to hatch, and hatchlings take an estimated 6 weeks to become sexually mature; however, most individuals will not breed until their second summer (FWS 1993).

Desert pupfish can survive in extreme conditions such as water temperatures up to 113 degrees Fahrenheit, dissolved oxygen concentrations as low as 0.1 milligrams per liter, and salt concentrations as high as 68 grams per liter. This species can survive absolute, abrupt changes to these parameters unlike most freshwater fishes. For successful breeding, desert pupfish thrive in habitats with water temperatures between 65 and 75 degrees Fahrenheit in waters less than one meter in depth (FWS 1993).

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 for aquatic resource enhancement and restoration. Additionally, the documents include strategies for aquatic resource protection and measures to address specific known, ongoing threats to aquatic resources. These conservation and land management plans are presented in Table 8-2.

Table 8-2. Documents Identifying Aquatic Resource Goals and Objectives within the GAI

Document	Reference	Information Identified
Policies, Procedures, Guidelines, and Water Quality Plans	See below	See below
2008 Final Compensatory Mitigation Rule	73 *Federal Register* 19593	This is the 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. It recognizes that consolidating mitigation may be environmentally preferable for linear projects (because advance, or at least concurrent, compensatory mitigation is environmentally preferable but not always possible to achieve) (Preamble and 33 Section 332.3).
303(d) List of Impaired Water Bodies	SWRCB 2024	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, seven water bodies are listed as impaired within the GAI. Of the six, one has an established total maximum daily load.
California Wetlands Conservation Policy	Executive Order W-59-93	The "No Net Loss Policy" for wetlands aims to "[e]nsure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property."
National Wetlands Mitigation Action Plan	EPA and Corps 2002	An EPA and Corps comprehensive, interagency document to further achievement of the goal of no net loss of wetlands. The goals and objectives of the *National Wetlands Mitigation Action Plan* were incorporated into the 2008 Final Compensatory Mitigation Rule, which was updated in 2015 and includes the no net loss policy.
Final 2015 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 2021	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.

Document	Reference	Information Identified
Water Quality Control Plan for the Colorado River Basin Region	Colorado River Basin RWQCB 2024	Identifies water quality objectives and beneficial uses for the Colorado River Basin, as well as a specific goal to reduce the present level of salinity in the Salton Sea and stabilize it to 35,000 milligrams per liter.
Conservation and Land Management Documents	See below	See below
2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan	Coachella Valley Regional Water Management Group 2020	Includes general goals to improve groundwater and surface water quality and restore permanent water sources for riparian habitat. Includes a specific goal to restore permanent water sources for desert pupfish habitat.
Anza Borrego Desert State Park General Plan	California Department of Parks and Recreation 2005	Includes general goals to remove tamarisk from all areas of the park and restore sustainable and ecologically functional watersheds and groundwater basins throughout the State Park region.
City of Brawley Final General Plan 2030	City of Brawley 2008	Includes general goals to improve surface water quality, and a specific goal to improve water quality of the New River.
City of El Centro Final General Plan	City of El Centro 2022	Includes a general goal to reclaim polluted waterbodies, including the New River and Alamo River.
City of Holtville General Plan Administrative Draft General Plan Update	City of Holtville 2017	Includes a general goal to enhance the Alamo River. Includes a specific goal to complete a 31-acre wetland complex on the Alamo River on the unincorporated land owned by the City.
County of San Diego General Plan	San Diego County 2011	Includes general goals to enhance wetlands surrounding development and encourage removal of invasive species to restore natural drainage systems, habitats, and natural hydrologic regimes of watercourses.
El Centro Field Office East San Diego County Resource Management Plan and Record of Decision	Bureau of Land Management 2008	Includes general goals to enhance stream bank and channel condition, improve water quality, enhance native plant communities in riparian areas, restore unproductive riparian sites to desired plant communities, restore and enhance native species in riparian communities, and remove tamarisk and other invasive species in the plan area.

Document	Reference	Information Identified
El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan	Bureau of Reclamation 2013	Includes general goals to enhance the natural condition and hydrology of washes, reduce water quality degradation and improve water quality, and remove tamarisk and other invasive species.
Final Heber Dunes SVRA General Plan	California Department of Parks and Recreation 2011	Includes general goals to establish areas for adaptive management where known populations of special-status plants and wildlife occur, minimize disturbance of natural resources, enhance existing natural resources including creosote scrub and saltbush scrub in Resource Management Zones, located in the southern part of the GAI between Heber Dunes Rd and State Highway 7, and implement weed control measures to encourage recovery of degraded native habitats.
Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan	Coachella Valley Association of Governments 2007	Includes general goals to restore sustainable populations of Covered Species in Core Habitat areas, incorporate a range of environmental gradients and high habitat diversity to provide for shifting species distributions, provide for population fluctuations, provide opportunities for dispersal and resultant genetic and demographic exchange among populations, control threats including invasive species, OHV use, and edge effects, and restore and/or enhance degraded native habitats. Includes specific goals to: ▪ Establish 25 acres of managed replacement habitat for desert pupfish on a 1:1 ratio; ▪ Establish 66 acres of permanent marsh habitat; ▪ Ensure conservation of 55 acres of valley freshwater marsh; ▪ Establish permanent riparian habitat including 44 acres of Sonoran cottonwood-willow riparian forest; ▪ Ensure conservation of 119 acres of desert fan palm oasis in the Dos Palmas Conservation Area; and ▪ Ensure conservation of 321 acres of cismontane alkaline marsh in the Dos Palmas Conservation Area, as well as the watershed for Salt Creek.
Heber Dunes State Vehicular Recreation Area 2022 Wildlife Habitat Protection Plan	California Department of Parks and Recreation 2022	Includes a specific goal to remove five acres of tamarisk from Heber Dunes State Vehicular Recreation Area.
Imperial County General Plan	Imperial County 2016	Includes general goals to improve water quality and quantity for all water bodies in Imperial County.

Document	Reference	Information Identified
Imperial Integrated Regional Water Management Plan	Imperial Irrigation District 2012	Includes general goals to improve the quality of incoming Colorado River flows and of groundwater sources in Imperial Valley and enhance aquatic ecosystems.
Imperial Irrigation District 2021 Water Conservation Plan	Imperial Irrigation District 2021	Includes general goals to manage water quality in the Imperial Irrigation District area.
Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan	FWS 2014	Includes general goals to manage remnant native riparian areas to support resident wildlife species and restore, enhance, and adaptively manage habitat functions that support fish in and around the Salton Sea. Includes specific objectives to annually produce wetlands plants such as watergrass (*Echinochloa crus-galli*), alkali bulrush (*Scirpus robustus*), and swamp timothy (*Crypsis schoenoides*) on approximately 700 acres of seasonally flooded managed ponds.
Sustainable Communities Planning Grant City of Calexico	City of Calexico 2015	Includes a specific goal to restore water quality of the New River.

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 2025b), a pressure is defined as "an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant." Additionally, stress is defined in the SWAP as "[a] degraded ecological condition of a target that resulted directly[2] or indirectly from negative impacts of pressures (e.g., habitat fragmentation)" (CDFW 2025b). 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 8-2 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 the contribution of 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 2025b, 2016). Within the GAI, the majority of urbanization and development have happened in the central and south-central regions of Imperial Valley (Figure 2-8).

Aquatic habitat within the GAI is negatively affected by agriculture and water impoundments and diversions, particularly in Imperial Valley where a large majority of land use is attributed to agriculture. The reduction in drainage flows from agricultural operations into the Salton Sea and surrounding tributaries are a concern, contributing to a reduction in Salton Sea surface flows (CDFW 2021b). Additionally, groundwater pumping for agricultural irrigation and municipal water demands leads to overextraction of aquifers within the GAI, resulting in reduction or loss of aquatic habitat that is supported by aquifer-fed spring systems (CDFW 2021b).

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

8.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. When invasive, nonnative species enter an ecosystem, they can disrupt the natural balance, resulting in a reduction of biodiversity, degradation of habitats, alteration of native genetic diversity, shifting of wetland type, and further threats to already endangered or threatened natural resources (CDFW 2016).

Invasive plant species that affect riparian systems within the GAI include giant reed, smallflower tamarisk (*T. parviflora*), and saltcedar (*T. ramosissima*) (Cal-IPC 2026a). Invasive animal species that can damage aquatic ecosystems within the GAI include American bullfrog, western mosquitofish, sailfin molly, cichlid species, feral burros, and red swamp crayfish (FWS 1993; CDFW 2025b). American bullfrog and western mosquitofish are the greatest concern in terms of predation on desert pupfish, as they will predate on desert pupfish eggs and fry (FWS 1993).

8.5.3. Altered Hydrology, Geomorphology, and Water Quality

Water quality and hydrology can be directly altered by physical barriers such as culverts, dams (including cofferdams), dikes, trash racks, bridges, roads, canals, and other human-made infrastructure, which can have effects both upstream and downstream by truncating connectivity, altering sediment transport processes, altering natural flow regimes, and changing water surface elevations, adding to the downstream loss of habitat. Stable geomorphology and sediment transport are critical to maintaining healthy streams so that degradation and aggradation do not destroy habitats in the stream, 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 2025b).

Heavy metal, organochloride, and selenium levels from agricultural runoff affect long-term aquatic habitat viability and persistence of desert pupfish populations within the GAI. Selenium levels within the irrigation drains of the Salton Sea are anticipated to continue increasing, impairing water quality of the irrigation drains and Salton Sea. Decreased agricultural flows are expected to increase salinity of Salton Sea, resulting in the exclusion of desert pupfish from the Salton Sea itself (CDFW 2021b).

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 extended periods of higher temperatures and more frequent heat waves in the summer; large fluctuations in precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of wildfire and flooding (Caltrans 2019b).

Unpredictability in rainfall of the inland desert region, as well as variability in extreme drought and extreme wet events of the region, are expected to negatively impact aquatic habitats within the GAI. The existing demand for water sources within the GAI and the regions surrounding the GAI is expected to increase with climate pressures, resulting in demand for existing in-basin water supplies that could further diminish aquatic habitat (CDFW 2021b).

8.5.5. Wildfire Risk

Vegetation can be altered by large-scale wildfire effects from 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 and the amount of woody debris, resulting in increased water temperatures and changes to habitat complexity in the river or stream (CDFW 2025b). While the majority of fires within the GAI are considered human-caused, fires by other methods are dominated by lightning strike ignition. However, weaker North American monsoon signals over the Inland Desert region are expected to contribute to more severe droughts over time, which are projected to the length and severity of fires during the fire season. It has been determined that, because approximately 60% of fires are human-caused, climate-driven changes in human population behavior, and transportation infrastructure are likely to have the largest effect on wildfires (Carranza et al. 2018).

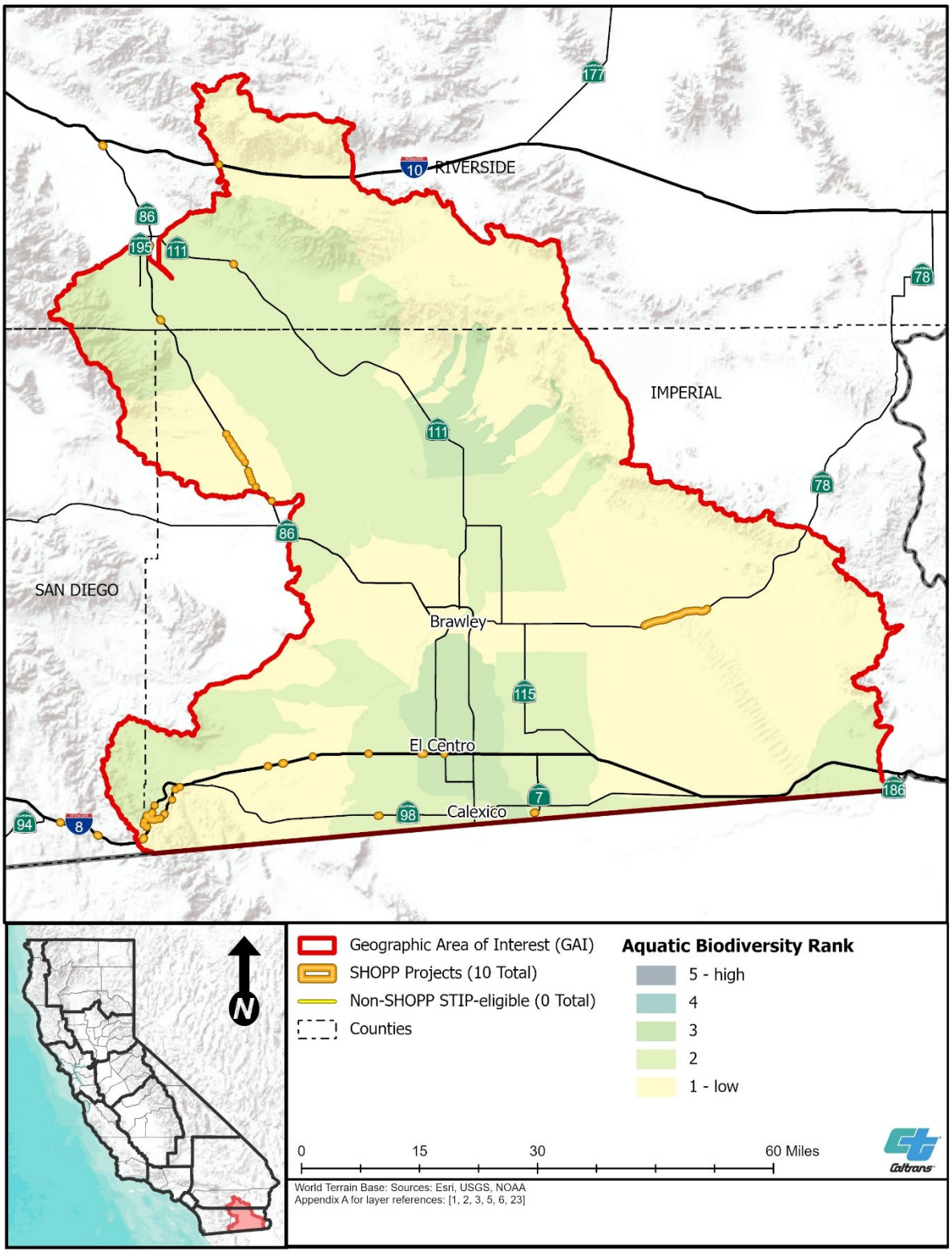
8.6. Multi-resource Benefits

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

- Figure 8-1 illustrates the regional aquatic biodiversity within the GAI, as provided by CDFW's ACE GIS dataset. According to these data, low aquatic biodiversity dominates the GAI, especially in the central portion of the GAI as well as within and around Salton Sea; however, medium aquatic biodiversity occurs centrally and in the southern regions of the GAI.
- Enhancing and/or restoring the aquatic resources within the GAI is expected to contribute to biologically sustainable populations of special-status aquatic, wetland, and riparian plant and wildlife species. For example, enhancement and/or restoration of seasonal wetland habitat would likely benefit several aquatic and terrestrial species that depend on these types of habitats, such as black skimmer (*Rynchops nigeri), Couch's spadefoot (Scaphiopus* couchii), and slender-spined all thorn (*Koeberlinia spinosa* var. *tenuispina*).

- Enhancing and/or restoring the aquatic resources within the GAI is expected to support or contribute to beneficial uses of wetland and non-wetland waters of the GAI. For example, enhancement and/or restoration of wetlands adjacent to spawning habitat would likely improve spawning habitat water quality. Further, enhancement and/or restoration of wetlands adjacent to GAI waters could sequester contaminants on waters identified as 303(d) impaired and/or with an established total maximum daily load.

Figure 8-1. Aquatic Biodiversity of the GAI



Caltrans will consider aquatic resources' biodiversity values, special-status species with the potential to co-occur in aquatic habitats, 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 8-3 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 8-3 reflect Caltrans' intention to develop advance mitigation project scopes for in-kind mitigation and are intended to reflect the watershed approach, as practiced by natural resource regulatory agencies. The watershed approach is an analytical process through which the Corps, EPA, and Water Boards 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, depending on the size and location of a transportation or other project (Corps 2015). The Water Boards generally subscribe to an approach for compensatory mitigation decisions that follows the Corps' watershed approach; however, the HU classification system may be used on a case-by-case basis (SWRCB 2020).

Table 8-3. Advance Mitigation Conservation Goals and Objectives for Aquatic Resources

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-2
Goal AR-1: No net loss of area, functions, values, and condition of wetland and non-wetland water resources	See below	See below
Objective AR-1.1: Improve quality and function of wetland and non-wetland water resources.	**Sub-Objective AR-1.1.1:** Enhance and/or rehabilitate wetland and non-wetland water resources such that the greatest functional lift to the aquatic resource is provided, including by consolidating compensatory mitigation consistent with Executive Order W-59-93. **Sub-Objective AR-1.1.2:** Enhance and/or rehabilitate key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, CDFW recovery plans, and other land management plans identified in Table 8-2. **Sub-Objective AR-1.1.3:** Enhance and/or rehabilitate riparian vegetation within the GAI, particularly in the Alamo River, New River, Salton Sea, and other named and unnamed tributaries into the streams of the Salton Sea HUC-8. **Sub-Objective AR-1.1.4:** Enhance and/or restore wetland and non-wetland water resource functions, such as connectivity, abundance of native plants, and water quality, that define habitat value for aquatic organisms and increase basin-wide value of resources.	▪ *2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan* (CVRWMG 2018) ▪ *303(d) List of Impaired Water Bodies* (SWRCB 2024) ▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *City of Brawley Final General Plan 2030* (City of Brawley 2008) ▪ *City of El Centro Final General Plan* (City of El Centro 2022) ▪ *City of Holtville General Plan Administrative Draft General Plan Update* (City of Holtville 2017) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2016) ▪ *Heber Dunes State Vehicular Recreation Area 2022 Wildlife Habitat Protection Plan* (California Department of Parks and Recreation 2022) ▪ *Imperial County General Plan* (Imperial County 2016) ▪ *Imperial Integrated Regional Water Management Plan* (Imperial Irrigation District 2012) ▪ *Imperial Irrigation District 2021 Water Conservation Plan* (Imperial Irrigation District 2021) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2020) ▪ *Sustainable Communities Planning Grant City of Calexico* (City of Calexico 2015) ▪ *SWAP* (CDFW 2025b) ▪ *Water Quality Control Plan for the Colorado River Basin Region* (Colorado River Basin RWQCB 2024) ▪ *Wetlands on the Edge. The Future of Southern California's Wetlands. Regional Strategy 2018* (California Coastal Conservancy 2018)
Objective AR-1.2: Avoid a net loss of aquatic resource acreage by establishing aquatic resources.	**Sub-Objective AR-1.2.1:** Establish and/or reestablish wetland and non-wetland waters, particularly in key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, CDFW recovery plans, and other land management plans identified in Table 8-2. **Sub-Objective AR-1.2.2:** Establish and/or reestablish riparian vegetation in the Salton Sea HUC-8, particularly the Alamo River, New River, and Salton Sea.	▪ Same references as listed with Objective AR-1.1.

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-2
Goal AR-2: Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters	See below	See below
Objective AR-2.1: Protect and enhance water quality.	**Sub-Objective AR-2.1.1:** In coordination with the RWQCB, restore and/or enhance wetland and non-wetland waters with RWQCB biology-related beneficial use designations, such as aquaculture; cold freshwater habitat; freshwater replenishment; groundwater recharge; preservation of rare, threatened, or endangered species; warm freshwater habitat; and wildlife habitat. **Sub-Objective AR-2.1.2:** In coordination with natural resource regulatory agencies, address aggradation, erosion, nutrients, contaminants, sedimentation, and temperatures in the Salton Sea HUC-8. **Sub-Objective AR-2.1.3:** In coordination with the RWQCB, implement restoration and enhancement actions that address water quality for aquatic resources, for example, at the New River and Alamo River, and freshwater marshes. **Sub-Objective AR-2.1.4:** Restore and/or enhance areas upstream of places with high water quality protection and remediation values. **Sub-Objective AR-2.1.5:** Restore or create adjacent wetlands and non-wetland aquatic features to enhance water quality in tributaries. **Sub-Objective AR-2.1.6:** Rehabilitate and/or enhance small streams and sections of larger streams to remove nonnative plant species that degrade stream water quality, such as giant reed and tamarisk. **Sub-Objective AR-2.1.7:** Improve stream temperatures by increasing shaded riverine aquatic habitat in the Alamo River, New River, and Salton Sea for fish and other aquatic life.	▪ *2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan* (CVRWMG 2018) ▪ *303(d) List of Impaired Water Bodies* (SWRCB 2024) ▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *City of Brawley Final General Plan 2030* (City of Brawley 2008) ▪ *City of El Centro Final General Plan* (City of El Centro 2022) ▪ *City of Holtville General Plan Administrative Draft General Plan Update* (City of Holtville 2017) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Heber Dunes State Vehicular Recreation Area 2022 Wildlife Habitat Protection Plan* (California Department of Parks and Recreation 2022) ▪ *Imperial County General Plan* (Imperial County 2016) ▪ *Imperial Integrated Regional Water Management Plan* (Imperial Irrigation District 2012) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *Water Quality Control Plan for the Colorado River Basin Region* (Colorado River Basin RWQCB 2024) ▪ *Final Salton Sea Long-Range Plan* (Salton Sea Program 2024) ▪ *Salton Sea Management Plan Phase I: 10-Year Plan* (Salton Sea Program 2018)
Objective AR-2.2: Improve surface water hydrology	**Sub-Objective AR-2.2.1:** Restore and/or enhance natural hydrologic regimes, natural sediment transport, and geomorphic processes. **Sub-Objective AR-2.2.2:** Reconnect severed aquatic systems and improve connectivity in aquatic and riparian systems, with particular focus on reconnecting higher watershed areas with lower watershed areas, such as reconnecting tributaries to the Alamo and New Rivers. **Sub-Objective AR-2.2.3:** Reestablish hydrologic regimes or drainage patterns for better function of depressional wetlands, lakes, and rivers.	▪ *2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan* (CVRWMG 2018) ▪ *303(d) List of Impaired Water Bodies* (SWRCB 2024) ▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2016) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *SWAP* (CDFW 2025b) ▪ *Water Quality Control Plan for the Colorado River Basin Region* (Colorado River Basin RWQCB 2024) ▪ *Final Salton Sea Long-Range Plan* (Salton Sea Program 2024) ▪ *Salton Sea Management Plan Phase I: 10-Year Plan* (Salton Sea Program 2018)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-2
Objective AR-2.3: Improve water storage and groundwater recharge	**Sub-Objective AR-2.3.1:** Promote restoration of stream and riparian areas' natural functions to provide water storage and release. **Sub-Objective AR-2.3.2:** Reduce excessive nonnative vegetation along stream/riparian corridors to lower vegetative transpiration rates to sustainable levels and increase water storage in soils and streams. **Sub-Objective AR-2.3.3:** Create or restore wetlands adjacent to streams to enhance groundwater-surface water dynamics in tributaries.	▪ *303(d) List of Impaired Water Bodies* (SWRCB 2024) ▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2016) ▪ *Final Heber Dunes SVRA General Plan* (California Department of Parks and Recreation 2011) ▪ *Heber Dunes State Vehicular Recreation Area 2022 Wildlife Habitat Protection Plan* (California Department of Parks and Recreation 2022) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *SWAP* (CDFW 2025b)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-2
Goal AR-3: Restore and/or enhance and expand habitat for fish species of mitigation need.	See below	See below
Objective AR-3.1: Restore and/or enhance habitat	**Sub-Objective AR-3.1.1:** Consult with FishPAC to select and implement habitat restoration and enhancement actions that support key populations and important habitat and contribute to the recovery of desert pupfish populations. Enhancement or restoration may include placement of large pieces of wood in alcoves and pools and stream channel restoration. **Sub-Objective AR-3.1.2:** Consult with FishPAC to select and implement FishPAC and legislative priorities within the GAI to restore access to habitats that support key populations for recovery of desert pupfish. The highest value for fish passage remediation and habitat restoration should be given to the current high-priority locations on the SHS (listed in each years' *Fish Passage Annual Report to Legislature*). FishPAC priority locations have the highest biological value for recovery and should have the greatest support for remediating, both internally and from natural resource regulatory agencies.	▪ *2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan* (CVRWMG 2018) ▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *Final Major Amendment to the Coachella Valley Multi-Species Habitat Conservation Plan* (CVAG 2016) ▪ County of San Diego General Plan (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Imperial Integrated Regional Water Management Plan* (Imperial Irrigation District 2012) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *SWAP* (CDFW 2025b) ▪ *Final Salton Sea Long-Range Plan* (Salton Sea Program 2024) ▪ *Salton Sea Management Plan Phase I: 10-Year Plan* (Salton Sea Program 2018)
Goal AR-4: Support resiliency of aquatic resources to climate change	See below	See below
Objective AR-4.1: Reduce impacts from climate change.	**Sub-Objective AR-4.1.1:** Enhance and/or restore aquatic resource function and value in areas of lower climate resilience, such as the portion of the GAI bordering the Salton Sea, to reduce climate change effects on aquatic resources. **Sub-Objective AR-4.1.2:** Prioritize enhancement and/or restoration that will increase resilience to climate change such as at the Salton Sea. **Sub-Objective AR-4.1.3:** Prioritize riparian areas of the GAI and implement improvements that involve enhancement and/or restoration to improve freshwater quantity and quality, floodplain connectivity, and instream cover continuity. **Sub-Objective AR-4.1.4:** Enhance, rehabilitate, establish and/or re-establish aquatic habitats by using native species such as willows (*Salix* spp.), cattails (*Typha* spp.), rushes (*Juncus* spp.), and bulrushes (*Schoenoplectus* spp.) to reduce the effects of climate change. **Sub-Objective AR-4.1.5:** Reduce adverse instream flooding effects by restoring affected headwater and tributary hydrological functions for the Alamo River and New River. **Sub-Objective AR-4.1.6:** Prioritize habitat establishment and re-establishment within areas that can also reduce risk in flood-prone systems, particularly in areas along the Alamo River, Coachella Valley Canal, New River, and Salton Sea.	▪ *City of El Centro Final General Plan* (City of El Centro 2022) ▪ *City of Holtville General Plan Administrative Draft General Plan Update* (City of Holtville 2017) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *SWAP* (CDFW 2025b) ▪ *Wetlands on the Edge. The Future of Southern California's Wetlands. Regional Strategy 2018* (California Coastal Conservancy 2018)

Objective	Sub-Objective	Alignment with Documents Identified in Table 8-2
Objective AR-4.2: Improve aquatic habitat resiliency.	**Sub-Objective AR-4.2.1:** Promote native plant species that can stabilize banks, improve filtering of nutrient loads from water, and maintain the flood conveyance properties of streams, such as rushes, bulrushes, cattail, and willows. **Sub-Objective AR-4.2.2:** Prioritize management of invasive species that occur within large contiguous areas in aquatic habitats, such as Chinese tamarisk, giant reed, tamarisk, and smallflower tamarisk that may be exacerbated by climate change such that the greatest functional lift is provided. **Sub-Objective AR-4.2.3:** Enhance, rehabilitate, establish and/or re-establish small (that is, low order) tributaries/streams that discharge into larger rivers such as the Alamo River and New River.	▪ *Anza Borrego Desert State Park General Plan* (California Department of Parks and Recreation 2005) ▪ *County of San Diego General Plan* (San Diego County 2011) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Heber Dunes State Vehicular Recreation Area 2022 Wildlife Habitat Protection Plan* (California Department of Parks and Recreation 2022) ▪ *SWAP* (CDFW 2025b) ▪ *Wetlands on the Edge. The Future of Southern California's Wetlands. Regional Strategy 2018* (California Coastal Conservancy 2018)
Goal AR-5: Provide multi-resource benefits	See below	See below
Objective AR-5.1: Maximize mitigation opportunities for multiple environmental benefits.	**Sub-Objective AR-5.1.1:** Enhance, rehabilitate, establish, and/or re-establish aquatic resource areas currently occupied by, or that provide habitat for, one or more special-status species, or areas that contribute to the protection of ecologically, geographically, and/or genetically distinct populations or sub-populations of obligate aquatic special-status species. **Sub-Objective AR-5.1.2:** Enhance, rehabilitate, establish, and/or re-establish habitats for other aquatic species such as slender-spined all thorn. **Sub-Objective AR-5.1.3:** Address additional RWQCB beneficial use designations, such as recreation (for example, bird watching) through enhancement, rehabilitation, establishment, and/or re-establishment actions that provide a functional lift.	▪ *2018 Coachella Valley Integrated Regional Water Management & Stormwater Resource Plan* (CVRWMG 2018) ▪ *El Centro Field Office East San Diego County Resource Management Plan and Record of Decision* (BLM 2008) ▪ *El Centro Field Office Imperial Sand Dunes Record of Decision and Recreation Area Management Plan* (BLM 2013) ▪ *Final Heber Dunes SVRA General Plan* (California Department of Parks and Recreation 2011) ▪ *Sonny Bono Salton Sea National Wildlife Refuge Complex Final Comprehensive Conservation Plan* (USFWS 2014) ▪ *Imperial County General Plan* (Imperial County 2016) ▪ *SWAP* (CDFW 2025b)

8.8. Summary

Caltrans anticipates that future SHOPP transportation projects may be conditioned by the Corps, Water Boards, and/or CDFW to address the pressures and stressors that threaten aquatic resources within the GAI. These 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 benefit, and by mitigating the pressures and stressors on aquatic resources within the GAI. To summarize Table 8-3:

- **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 protect and enhance water quality, improve surface water hydrology, and improve water storage and groundwater recharge. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality.
- **Goal AR-3** seeks to direct advance mitigation planning toward fish species of mitigation need concern. The objectives are designed to restore and/or enhance habitat for desert pupfish and increase the survivability of this 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; drought; invasive species; and wildfire risk.

- **Goal AR-5** seeks to guide advance mitigation project scoping to prioritize multi-resource benefits, with the only objective being to coordinate mitigation efforts for multi-resource benefits. The sub-objectives of Goal AR-4 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 in the area through an advance mitigation project. This concept is an important way Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects to provide a functional lift for aquatic resources and to maximize conservation benefits from mitigation within the GAI.

9. ASSESSMENT OF AUTHORIZED ACTIVITIES

Informed by this RAMNA and its reviewers' comments and feedback, Caltrans District 11 will nominate advance mitigation projects to the Caltrans Director and request funding approval (see Step 4 in Figure 1-1, Figure 6-1; Caltrans 2019a). Each advance mitigation project nominated to the Director will consist of a scope, schedule, and cost for an SHC § 800.6(a)-authorized activity. With respect to scope, in this chapter, Caltrans analyzes the information presented previously to identify advance mitigation project scope options that have a high probability of successfully meeting the AMP's transportation project and environmental objectives. Understanding the regulatory framework, environmental setting, available opportunities to purchase credits, impact forecasts, transportation project schedule needs, and natural resource regulatory agency goals and objectives will assist Caltrans District 11 with scoping of SHC § 800.6(a)-authorized activities to be considered further for potential funding by the AMA (see Step 4 of Figure 1-1 and Section 9.4).

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

9.1. Overview of Advance Mitigation Project Scope Development

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

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

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

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

Advance mitigation project scopes must:
Be an authorized activity in accordance with SHC § 800.6(a)
Benefit multiple transportation projects' delivery schedules
Deliver mitigation anticipated to be needed to fulfill the mitigation requirements of transportation improvements[a]
Be consistent with natural resource regulatory agency goals and objectives
Yield mitigation in units and terms approved by natural resource regulatory agencies with the authority to condition transportation project permits with compensatory mitigation
Employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements,[b,c] and contracts with qualified third parties[d]
Address overlapping mitigation requirements
Implement the state's competitive proposal and bidding processes[d]
Strategically exercise the AMA
Manage the financial, technical, and strategic risks associated with Caltrans' investments

[a] California Constitution, Article XIX, § 2, subdivision (a)
[b] An advance mitigation project-specific interagency agreement is a general term to describe an agreement between natural resource regulatory agencies that attaches or binds advance mitigation requirements to a sponsor, qualified third party, or permittee; natural resource regulatory agencies agree that the action provides mitigation. Examples of advance mitigation project-specific interagency agreements include cooperative agreements, MCAs, or other interagency agreements. Advance mitigation project-specific interagency agreements are developed after a Caltrans advance mitigation project is funded.
[c] The authority for Caltrans to enter into interagency agreements with public entities such as CDFW is under SHC § 114 and SHC § 130.
[d] Procedures for Caltrans to enter in contracts with third parties are available at: https://dot.ca.gov/programs/procurement-and-contracts/contractor-resources

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

Advance mitigation project scopes will strive to:
Benefit multiple wildlife species and aquatic resources
Be consistent with existing regional conservation planning expressed in a natural resource regulatory agency strategic plan, conservation plan, HCP, NCCP, watershed plan, restoration plan, investment strategy, RCIS, BEI, in-lieu fee program instrument, land management plan, or other documented conservation effort
Benefit regional biodiversity
Contribute to landscape climate change resiliency
Contribute to landscape connectivity
Contribute to federal and/or California special-status species population recovery
Mitigate effects of stressors on wildlife species and aquatic resources
Restore and rehabilitate wildlife habitat and aquatic resources

9.2. Benefiting Transportation Project Needs Summary

The proximity of planned SHOPP transportation projects to natural resources is shown in 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 2023/24 to 2032/33 are presented in Chapter 5, *Modeled Estimated Impacts*, and the timing of the needs is analyzed in Chapter 6, *Benefiting Transportation Project Considerations*. For the time interval under consideration, fiscal years 2023/24 to 2032/33, Caltrans District 11 intends to prioritize purchasing or developing mitigation credits or values that address Road Repair and Accountability Act of 2017 (also known as Senate Bill 1) priorities that are planned for the middle and end of the planning period. Given the expected timing of mitigation need, at this time (August 2026) mitigation that can be purchased or established by fiscal year 2027/28 (within the next 2 years) could potentially address mitigation for impacts on approximately:

- 17.9 acres of burrowing owl habitat, 3.6 acres of desert tortoise habitat, and 3.7 acres of flat-tailed horned lizard habitat in the Colorado Desert Ecoregion Section, potentially contributing to the acceleration of 3, 1, and 2 transportation projects, respectively (Table 6-2)

All or some of these needs could form the basis for Caltrans District 11 to develop an advance mitigation project scope.

9.3. Authorized Activity Summary

Advance mitigation project scope options that have a high probability of successfully meeting the AMP's objectives are feasible. Below, a brief description of each of the 11 SHC § 800.6(a)-authorized advance mitigation project types is provided, followed by a discussion of its feasibility. Listed in Table 9-3, some advance mitigation project types are not currently feasible because they are not available 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 § 800.6(a)(1)–(3) options are not feasible. Results of the feasibility analysis are summarized in the subsections below, and in Table 9-4 (wildlife resources) and Table 9-5 (aquatic resources) later in this chapter.

Table 9-3. Advance Mitigation Project Types[a]

Advance Mitigation Project Type	Authorization	Section
Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved NCCP[b] and/or an approved HCP.	SHC § 800.6(a)(2)	9.3.1
Caltrans purchases credits from an existing conservation bank.	SHC § 800.6(a)(1)	9.3.2
Caltrans purchases credits from an existing mitigation bank.	SHC § 800.6(a)(1)	9.3.3
Caltrans purchases credits from an existing in-lieu fee program.	SHC § 800.6(a)(1)	9.3.4
Caltrans purchases credits developed through an MCA, established under a CDFW-approved RCIS.[c]	SHC § 800.6(a)(3)(A)	9.3.5
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.6
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.7
Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards.	SHC § 800.6(a)(1)	9.3.8
Caltrans funds the implementation of conservation actions and habitat enhancement actions[c,d] to generate mitigation credits pursuant to an MCA[b] established under a CDFW-approved RCIS.[c] The scope may include Caltrans first entering into or funding the preparation of an MCA.[c] The scope may also include Caltrans first entering into or funding the preparation of an RCIS.[c]	SHC § 800.6(a)(3) SHC § 800.6(a)(3)(A)	9.3.9

Advance Mitigation Project Type	Authorization	Section
Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation[e] of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.	SHC § 800.6(a)(3)(B)	9.3.10
When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan[f] pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS.[c]	SHC § 800.6(a)(4) SHC § 800.9	9.3.11

[a] Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.
[b] When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP
[c] See: https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[d] Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with FGC § 1850–1861.
[e] The Water Boards do not typically approve establishment of or accept preservation credits.
[f] Programmatic mitigation plans are defined in 23 USC § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

9.3.1. HCP and/or NCCP Fees

HCPs and NCCPs are discussed in Section 4.2. HCPs and NCCPs are species-focused and are aligned with and plan for natural resource protection. HCPs, including multiple species HCPs, and NCCPs provide for incidental take under 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 and that includes transportation-related projects (Table 4-1, Figure 4-1).

Feasibility. This authorized activity may be feasible for CDFW participation; however, FWS is not authorized to participate in an investment per SHC § 800.6(a)(2) and Caltrans is not a permittee under the one HCP/NCCP. However, Caltrans could qualify as a Participating Special Entity if the justifying transportation projects were a covered activity in the NCCP. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years,[1] at which point the credits or values would be available to transportation projects.

9.3.2. Conservation Bank Credit Purchase

Conservation banks are discussed in Section 4.3. Conservation banks are species-focused, and each bank's alignment with natural resource protection is documented

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

through its BEI. Within the GAI, CDFW is a signatory to five conservation banks (four active and one pending), four of which offer credits for desert tortoise, but none of the other species of mitigation need. FWS is a signatory to three active banks, two of which offer credits for desert tortoise, but none of the other species of mitigation need (Table 4-2). CDFW and FWS are cosignatories to two active conservation banks.

Conservation bank service areas are shown on Figures 4-2 through 4-6, and the anticipated transportation project impact forecast on species of mitigation need is presented by year on Figures 6-3 and 6-4. When placed side-by-side, it is possible to see that multiple transportation projects may need species of mitigation need credits and which bank's service areas might have them available by 2027/28, when the credits might contribute to transportation project acceleration.

Feasibility. This authorized activity may be feasible. Caltrans District 11 may be able to address some of its desert tortoise 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 bulk credit purchase terms. Bulk 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, a BEI amendment would be required to formalize a process for bulk pre-transfer credit purchases, and additional time for amending the bank instrument should be considered. Pre-permit purchases must be authorized in a BEI for this authorized activity to be feasible. The decision to amend a BEI is at the discretion of the bank sponsor and, if needed, additional Caltrans-specific terms would also need to be negotiated with bank sponsors.

9.3.3. Mitigation Bank Credit Purchase

Mitigation banks are discussed in Section 4.3. Mitigation banks are wetlands- and non-wetland waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. Caltrans did not identify any mitigation banks with service areas that overlap the GAI.

Feasibility. At this time (August 2026) this authorized activity is not feasible because no mitigation banks have service areas that overlap the GAI.

9.3.4. In-lieu Fee Credit Purchase

In-lieu fee programs are discussed in Section 4.4.[2] In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing project-specific mitigation or purchasing credits from a conservation or mitigation bank. Additionally, it offers permittees an in-lieu fee option to satisfy their compensatory

[2] Up-to-date information on approved in-lieu fee programs, including available credits, can be found at: https://ribits.ops.usace.army.mil/ords/f?p=107:47:17546428866010::NO

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.[3] The in-lieu fee program's alignment with natural resource protection is documented through its enabling instrument and will be incorporated into future biological opinions on transportation projects.

There are no in-lieu fee programs with service areas that overlap the GAI.

Feasibility. This authorized activity is not currently feasible because there are currently no in-lieu fee programs within the GAI.

9.3.5. MCA Credit Purchase

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. CDFW has released RCIS program guidelines, including guidance for the creation of MCAs[4]. There are no approved or pending RCIS's with service areas that overlap the GAI. Therefore, no MCAs have been developed within the GAI.

Feasibility. At this time (August 2026), 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[5] and FWS.[6] Conservation banks are species-focused, and each bank's alignment with natural resource protection will be documented through its BEI. CDFW and FWS are potential signatories, and circumstances may occur in which the Corps and/or Water Boards 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*

[3] https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pdf/banking_faq.pdf
[4] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[5] https://wildlife.ca.gov/Conservation/Planning/Banking/Templates
[6] https://www.fws.gov/service/conservation-banking

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

- Conserve and expand existing habitat for species of mitigation need within the GAI (WILD-1).
- Preserve, enhance, and increase connectivity between blocks of habitat supporting species of mitigation need (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).
- Prioritize multi-species and multi-resource benefits (WILD-5).

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

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

9.3.7. Mitigation Bank Establishment

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

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

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

To support future transportation project permits, Caltrans would prioritize wetlands and waters credit establishment under the Corps' jurisdiction (wetlands and WOTUS) and Water Boards' 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, Water Boards, FWS, and CDFW are potential signatories. In some circumstances, CDFW's participation in a bank would be documented through an MCA.

An understanding of Corps, Water Boards, FWS, and CDFW 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 wetland and non-wetland water resources[9] (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 fish species of mitigation need (AR-3).
- Support resiliency of aquatic resources to climate change (AR-4).
- Provide multi-resource benefits (AR-5).

Further, for each objective, Table 8-3 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 discussed above, instructions and guidance for establishing mitigation banks are available from the Corps and CDFW and, 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.

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.

[9] Preservation alone is not recognized by the Corps or RWQCB as providing no net loss.

Instructions and guidance for establishing in-lieu fee programs are available from the federal agencies.[10] With respect to wildlife, like the Corps, FWS also follows federal guidance for establishing an in-lieu fee program; however, a supportive regulatory and administrative pathway for CDFW to develop an in-lieu fee program has not been developed.

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

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

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

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

9.3.9. MCA Credit or Value Establishment

As pointed out in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. In accordance with the *Regional Conservation Investment Strategies Program Guidelines*, MCAs are species- and species habitat-focused and can include credits under CESA and/or for riparian habitat to meet mitigation needs under a Lake and Streambed Alteration Agreement. An MCA's alignment with natural resource protection will be documented through the foundational RCIS and the MCA itself (CDFW 2021a). RCIS development is also an SHC § 800.6(a)-authorized advance mitigation project deliverable.

[10] https://www.spl.usace.army.mil/Missions/Regulatory/Mitigation/

At this time, Caltrans cannot be an MCA sponsor.[11] Therefore, Caltrans envisions that credits or values created through an MCA and funded through the AMA could be established under three 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.[12]

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[13] and CDFW would be the signatory. Caltrans may also request other natural resource regulatory agencies to be signatories to the MCA or may seek project-specific interagency agreements with other natural resource regulatory agencies whose jurisdiction overlaps with CDFW's[14]. 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 (August 2026), RCIS program guidelines, which include guidance for the creation of MCAs, are available (CDFW 2023).[15] Once an MCA has been approved by CDFW, mitigation credits created through the agreement would be available to be applied to Caltrans transportation projects.

However, at this time, there are no pending or approved MCAs, 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

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[11] CDFW's legislation requires that MCA securities take the form of cash, a letter of credit, or a surety bond according to FGC § 1856 subdivision (g)(17), which includes and references all of § 1798.5 subdivision (a)(2).

[12] 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.

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

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

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

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 the RCIS Program's MCA Guidelines for wildlife crossing and aquatic corridor enhancements are finalized.

9.3.10. Mitigation That Meets an RCIS Conservation Objective

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

> *Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation[16] 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 (August 2026) this authorized activity is not feasible because there are no RCIS programs established within the GAI. 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

[16] The Water Boards do not typically approve establishment of or accept preservation credits.

establish credits or values for this advance mitigation project type is uncertain. Consequently, at this time, scoping and delivering an advance mitigation project within the AMP's timeline needs through this authorized activity is unlikely.

9.3.11. Mitigation in Accordance with a Programmatic Mitigation Plan

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

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

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

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

9.3.12. Discussion

Caltrans modeled its compensatory mitigation needs in the GAI for fiscal years 2023/24 to 2032/33 (Chapter 5, *Modeled Estimated Impacts*) and evaluated its needs in light of when transportation projects might need the mitigation (Chapter 6, *Benefiting Transportation Project Considerations*, and Section 9.2). Summarized in Tables 9-4 and 9-5, Caltrans identified a number of options for how to meet its mitigation needs. The authorized activities consist of options to purchase existing mitigation credits (Sections 9.3.1 to 9.3.5) or to establish additional mitigation (Sections 9.3.6 through 9.3.11).

Based on its evaluation, Caltrans found that, at this time (August 2026), a few authorized activities appear to be feasible and, under several scenarios, advance mitigation project scopes could cover multiple resources and address overlapping natural resource regulatory agency jurisdictions (see Section 9.2). Under some conditions, establishing new mitigation credits through existing mechanisms may also be possible.

Table 9-4. Wildlife Resources Credit Options and Feasibility, August 2026

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping[a]	Time to Complete Credit Approval Process[b]
Pay NCCP or NCCP/HCP fees	Yes	Yes, there is 1 active HCP/NCCP with coverage for 27 species, including desert pupfish, desert tortoise, flat tailed horned lizard, burrowing owl, and desert bighorn sheep	Yes, CDFW. FWS is not authorized to allow for advance purchases.	Not available	Not available
Purchase conservation bank credits	Yes, may require instrument amendment	Yes, three active and one pending conservation bank offer credits for at least one of the species of mitigation need. Two of these active banks are FWS-approved, and three active and one pending bank are CDFW-approved, with desert tortoise and/or burrowing owl credits.	Yes, CDFW and FWS for dually listed species	1 to 3 years	1 month to 3 years (depending on complexity and possible need for amendment allowing advance mitigation purchase)
Purchase in-lieu fee credits	No	Not available	Not available	Not available	Not available
Purchase MCA credits	No	Not available	Not available	Not available	Not available
Establish conservation bank	Yes	Yes, with CDFW and FWS	Yes, with CDFW and FWS	2 to 6 years	2 to 6 years
Establish in-lieu fee program	Yes	Yes, with FWS	Yes, with FWS. Potential to align with Corps in-lieu fee program	2 to 6 years	4 to 6 years

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping[a]	Time to Complete Credit Approval Process[b]
Establish MCA credits or values[c]	No There are no RCISs in the GAI; RCISs are a requirement for MCA creation; MCA creation guidelines available	Not available	Not available	Not available	Not available
Establish RCIS and MCA[b]	Yes; RCIS and MCA creation guidelines available	Yes, RCIS and MCA creation guidelines available	Maybe; for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available	Not available
Establish mitigation that meets an RCIS objective	No	No, no RCIS's established in the GAI	Not available	Not available	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available	Not available

[a] Caltrans contracting processes.
[b] Process for agency instrument or agreement development.
[c] Either Caltrans or a third party would be the signatory with CDFW.

Table 9-5. Aquatic Resources Credit Options and Feasibility, August 2026

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping[a]	Time to Complete Credit Approval Process[b]
Purchase mitigation bank credits	No	No, no mitigation banks established in the GAI	Not available	Not available	Not available
Purchase in-lieu fee credits	No	No, no in-lieu fee programs established in the GAI	Not available	Not available	Not available
Purchase MCA credits	No	Not available	Not available	Not available	Not available
Establish mitigation bank	Yes	Yes, Corps, EPA, RWQCB, CDFW, and FWS	Yes, Corps, CDFW, RWQCB, EPA, and FWS	2 to 6 years	4 to 6 years
Establish in-lieu fee program	Yes	Yes, for Corps, EPA, RWQCB, and FWS	Maybe, Corps, FWS, EPA, and RWQCB	2 to 6 years	4 to 6 years
Establish MCA credits or values[b]	No, There are no RCISs in the GAI; RCISs are a requirement for MCA creation; MCA creation guidelines available	Not available.	Not available	Not available	Not available

Authorized Activity	Regulatory and Administrative Pathway Available	Available/Opportunity Exists in the GAI	Potential to Address Overlapping Jurisdictions	Time to Complete Funding and Scoping[a]	Time to Complete Credit Approval Process[b]
Establish RCIS and MCA[b]	Yes; RCIS and MCA creation guidelines available	Yes, RCIS and MCA creation guidelines available	Maybe ; for the CDFW program, CDFW approves the credits and allows other regulatory agencies to acknowledge MCA credits, if desired Potential for parallel evaluation(s) with other natural resource regulatory agencies	Not available	Not available
Establish mitigation that meets an RCIS objective	No	Not available	Not available	Not available	Not available
Establish mitigation in accordance with a programmatic mitigation plan	No	Not available	Not available	Not available	Not available

[a] Caltrans contracting processes.
[b] Process for agency instrument or agreement development.
[c] Either Caltrans or a third party would be the signatory with CDFW.

9.4. Next Steps

Caltrans is required to avoid and minimize any impacts on the environment where practicable, but some impacts are unavoidable. When this is the case, as determined by a natural resource regulatory agency, Caltrans may use compensatory mitigation to offset these unavoidable impacts on the environment. Compensatory mitigation involves the restoration, establishment, enhancement, and/or preservation of the environment, including wetlands, non-wetland waters, and threatened or endangered species and/or their habitats, including riparian habitat.

Caltrans District 11 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 11 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 requesting that others 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 11 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 11 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 11 will commit to delivering the advance mitigation project within the scope, schedule, and budget communicated with nomination materials. At that point, Caltrans District 11 will initiate project delivery (see Steps 6 through 10 on Figure 1-1; Caltrans 2025a). 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 Caltrans or under contract to Caltrans through a competitive bid process, and may include existing mitigation providers such as banks, NCCPs, MCAs, and the identification of new acquisitions. When a competitive bid process is used, sites are subject to what bid respondents put forward in their proposals. Site selection should be consistent with appropriate conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

- When appropriate for the advance mitigation project type, it may be necessary to identify the steps required to meet the goal of satisfying overlapping jurisdictional mitigation requirements.
- Instruments and advance mitigation project-specific interagency agreements will specify the terms of use of the credits, including the service areas. Service areas will be defined based on feedback from the natural resource regulatory agencies. It is intended for the ecological units used for this RAMNA to lead to ecologically based advance mitigation project scopes and service areas; Caltrans uses HUC-8 sub-basins to be consistent with the 2008 Mitigation Rule and ecoregion sections 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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