HABITAT MANAGEMENT DIVISION

GUIDELINES FOR BIOLOGICAL STUDIES

Revised February 3, 2022

City of Carlsbad

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1.0 INTRODUCTION

1.1 Habitat Management Plan Overview

The Habitat Management Plan (HMP) is a citywide conservation plan that dictates how the city will comply with state and federal environmental laws while remaining consistent with the city's General Plan and Growth Management Plan. Developed in coordination with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (collectively the Wildlife Agencies), the HMP is part of a regional planning effort under the North County Multiple Habitat Conservation Program (MHCP). The HMP constitutes a Habitat Conservation Plan (HCP) under the Federal Endangered Species Act and a Natural Communities Conservation Plan (NCCP) under the California Natural Communities Conservation Planning Act. HCP/NCCP plans protect rare species and native vegetation communities at the ecosystem scale while accommodating compatible land uses through conservation, permanent land protection, and long-term management.

1.2 Purpose of the Guidelines for Biological Studies

The Guidelines for Biological Studies were developed to provide the biological standard for demonstrating HMP compliance, processing HMP permits, and preparing biological resources technical reports in the City of Carlsbad. Following these guidelines will ensure that an adequate environmental impact analysis is conducted using the appropriate biological data, and that HMP-compliant mitigation is incorporated into project design and permit conditions.

1.3 How to Use These Guidelines

It is important to note that these guidelines were not developed to be a stand-alone document to replace the HMP or related environmental regulations. The purpose of this document is to provide a summary of pertinent regulations which have been distilled into a more concise format so that the user can understand the larger context of environmental protections within the City of Carlsbad. The user should always refer directly to the regulations referenced in the guidelines to fully understand them. These guidelines may be used in several different ways, including:

- **General reference –** By reading the guidelines section by section, the reader will gain an overview of the HMP compliance process.
- **Compliance checklist –** The HMP Compliance Checklist (**Appendix A**) can be used as a tool to help the user determine which regulations and mitigation requirements are relevant to a particular project.
- **Template –** Biological consultants should use the Biological Resources Technical Report Format (Section 6.0) as a template for the project-specific biological resources survey report, which is required as part of the impact and mitigation evaluation for the project.

2.0 DEFINITIONS, ACRONYMS AND ABBREVIATIONS

2.1 Definitions

Biological Buffer – An undisturbed strip of vegetation surrounding sensitive habitats or species for f protection from negative impacts. Development is not allowed within a biological buffer.

Coastal Zone – An area along the coast that is subject to the city's adopted Local Coastal Program, which ensures that development within the city's Coastal Zone boundary protects and enhances resources and is consistent with the California Coastal Act.

Conservation Easement – A legally binding restriction placed on a piece of property to protect its associated resources. A conservation easement limits certain types of uses and prevents development from taking place on land in perpetuity while the land remains in private hands. Conservation Easements are defined in California Civil Code Section 815.1.

Core Areas – Areas within the Focused Planning Area that consist of blocks of habitat that are sufficiently large to reliably support breeding populations of species, or that are large and intact enough to form ecologically functional areas for preserve design.

Covered species – A species for which incidental take has been authorized under the terms and conditions of the Habitat Management Plan and Implementing Agreement.

Clearing and grubbing – Removal of any and all types of vegetation, roots, stumps or other plant material, or the clearing or breaking-up of the surface of the land by digging or other means.

Existing Hardline – Open space lands that were already under permanent conservation when the HMP was adopted (better referred to as Pre-existing Hardline). Also refers to new permanently preserved lands that were established after the HMP was adopted.

Focused Planning Area – Lands within the Multiple Habitat Conservation Plan (MHCP) area that were identified as having a high biological value and that were the highest priority for conservation. The city's Focused Planning Area consisted of HMP cores, linkages and special resources areas, and was used to identify the Existing Hardline, Proposed Hardline and Standards Areas.

Fully Protected Species – Species of wildlife that are listed as Fully Protected by the State Legislature (see Fish and Game Code, Sections 3511, 4700, 5050, and 5515). Fully protected species may not be taken or possessed at any time.

Grading – Any excavation, fill, clearing and grubbing of vegetation or any combination thereof.

Habitat – The place or environment where an plant or animal makes its home, including the living (plants and other organisms) and non-living (soils, moisture, etc.) components.

Habitat Conservation Plan – The federal counterpart to the California Natural Communities Conservation Plan (NCCP). Pursuant to Section 10 of the federal Endangered Species Act, an HCP allows the U.S. Fish and Wildlife Service to permit "take" of endangered or threatened species incidental to otherwise lawful activities, when the taking is mitigated by conservation measures. The city's Habitat Management Plan is an HCP Plan.

Habitat creation – Habitat creation establishes habitat on disturbed land or areas dominated by non-native vegetation. Impacts to habitats with a no-net-loss requirement must mitigate at least 1:1 using habitat creation.

Habitat enhancement –Improvement of disturbed or degraded habitats without changing the ecological community; for example, through exotic species removal.

Habitat mitigation fee (referred to in the HMP as *in-lieu* mitigation fee) – a per-acre fee charged for impacts to Habitat Groups D, E, and F (See HMP Table 11). Fees are charged in addition to mitigation in the form of restoration or preservation.

Habitat restoration – restoring an existing habitat or vegetation community that has been degraded, damaged, or destroyed and re-establishment of the pre-existing species composition and community structure.

Hardline preserve – Areas which have been conserved in perpetuity for their value to biological resources through open space zoning or conservation easements (also referred to as Existing Hardline).

Incidental take – The taking (e.g., impact) of a state or federally listed species, if such taking is incidental to and not the purpose of carrying out otherwise lawful activities.

Jurisdictional wetlands and waters – Wetlands and riparian habitat subject to federal and state jurisdiction pursuant to the federal Clean Water Act and the California Fish and Game Code.

Linkage – A component of the preserve system established under the HMP, consisting of conserved habitat that provides connectivity between Core Areas and to natural communities within the region.

Listed species – A species that has been designated as rare, threatened, or endangered by state or federal wildlife agencies pursuant to the California or Federal Endangered Species Acts.

Local Facilities Management Zone – The City of Carlsbad has been divided into 25 Local Facilities Management Zones (LFMZ) under the Growth Management Plan to facilitate planning and conservation within the city (HMP Figure 1). The HMP standards developed for Standards Areas are specific to each LFMZ.

Mitigation – Measures undertaken to diminish or compensate for the negative impacts of a project or activity on the environment, including: (a) avoiding the impact altogether; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by

repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (e) compensating for the impact by replacing or providing substitute resources or environments.

Narrow endemic species – Native species with restricted geographic distributions, soil affinities and/or habitats, and species that in addition have important populations or their habitat is within the plan area, such that substantial loss of these populations or habitat within the HMP area might jeopardize the continued existence or recovery of that species.

Natural Communities Conservation Plan (NCCP) – the state counterpart to the federal habitat conservation plan (HCP). Pursuant the Natural Communities Conservation Planning Act, an NCCP allows the California Department of Fish and Wildlife to permit "take" of endangered or threatened species incidental to otherwise lawful activities, when the taking is mitigated by conservation measures. NCCPs are broader than HCPs because the NCCP must include conservation actions that improve the overall condition of a species rather than just avoiding adverse impacts. The city's Habitat Management Plan is an NCCP Plan.

Property Analysis Record (PAR) – A cost estimate generated by a specific software program to calculate the costs associated with the long-term management and biological monitoring of habitat preserves in perpetuity. "PAR" is also sometimes used as a general term for a cost estimate for long-term management (not necessarily generated using the PAR software).

Proposed Hardline – Properties whose conservation and development areas were pre-planned in coordination with the landowners, city and Wildlife Agencies as part of the HMP. If development is proposed on these lands in substantial conformance with the predesignated boundaries, the development will be automatically permitted under the HMP. Any changes to the preserve boundary would require an HMP Minor Amendment.

Sensitive biological resources – Habitats and species that are legally protected by state and federal law or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations.

Setback – An ecological buffer zone to protect features of a natural community. The purpose of a setback is to separate conserved land from other land uses so that conflicts and impacts are minimized.

Special Resource Area – Areas within the preserve, but outside of core and linkage areas, that are defined as vernal pools, significant populations of listed or endemic plant species, or movement corridors for large mammals.

Standards Area – Lands which must be designed, permitted and developed in accordance with the standards stated in Section D of the HMP. Prior to the approval of the HMP, these properties were identified as important to the preservation of the diversity of natural communities in the HMP area, but hardline area boundaries had not yet been submitted by a potential developer.

Vegetation communities – an association of plants, each occupying a certain position or ecological niche, inhabiting a common environment, and interacting with one another. Dominant plants usually define the community, e.g., a grassland community. This term is often used interchangeably with "habitat." Sensitive vegetation communities are protected by state or federal law.

Wildlife Agencies – Collectively, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife.

2.2 Acronyms and Abbreviations

ACOE – U.S. Army Corps of Engineers
BTR – Biological Resources Technical Report
CCC – California Coastal Commission
CDFW – California Department of Fish and Wildlife
CEQA – California Environmental Quality Act
CESA – California Endangered Species Act
City – City of Carlsbad
CNDDB – California Natural Diversity Database
CWA – Federal Clean Water Act
EIA – Environmental Impact Assessment
EIR – Environmental Impact Report
EIS – Environmental Impact Statement
FESA – Federal Endangered Species Act
GIS – Geographic Information System
HCP – Federal Habitat Conservation Plan
HMP – City of Carlsbad Habitat Management Plan
IA – Implementing Agreement
LFMZ – Local Facilities Management Zone
MHCP – Multiple Habitat Conservation Program
MND – Mitigated Negative Declaration
NCCP – Natural Communities Conservation Plan (or Program)
ND – Negative Declaration
OSMP – Carlsbad Open Space Management Plan
PAR – Property Analysis Record
RWQCB – Regional Water Quality Control Board
USFWS – U.S. Fish and Wildlife Service
Wildlife Agencies – collectively, the CDFW and the USFWS

3.0 CITY REVIEW PROCESS

3.1 General Overview

To put these guidelines into context, it is helpful to understand the development project review process and details of the HMP compliance component, which can be summarized as follows:

Project Application Submittal. Prior to submitting a project application, the applicant should consult the HMP and the Guidelines for Biological Studies to ensure compliance with HMP regulations. A complete application requires all necessary technical studies, including a Biological Resources Technical Report. The Biological Resources Technical Report is a critical document that describes the biological resources on site, potential project impacts, and recommended mitigation. The Guidelines for Biological Studies contain minimum standards for Biological Resources Technical Report content and format to clearly demonstrate HMP (and CEQA) compliance.

Project Review. The project is reviewed by the city's Planning Division to determine if it is in compliance with the HMP. HMP compliance is determined by reviewing Biological Resources Technical Report and project materials (e.g., grading and landscape plans, other technical reports, etc.). At this stage, the Wildlife Agencies and California Coastal Commission (CCC; collectively, the Resource Agencies) can be involved at various levels for different projects, either through informal discussions or for project design Standards Area compliance consultation.

An **HMP Minor Amendment** is necessary for the following:

- **HMP boundary adjustments**. Projects that require an HMP boundary adjustment must obtain Wildlife Agency approval under an *Equivalency Finding*. Boundary adjustments may not reduce the acreage of the HMP hardline or quality of habitat. See HMP page E-3 for information about Equivalency Findings.
- **Projects within a Standards Area**. Standards Areas do not have pre-determined boundaries for the conserved habitat. Therefore, the delineation of the conserved habitat and the conversion of these areas to HMP hardline will be processed under a *Consistency Finding*. Projects must demonstrate compliance with the standards specific to the Local Facility Management Zone (LFMZ) in which it occurs. See HMP pages D-73 to D-82 and E-3 for more details.

Environmental Review. The next step consists of an environmental review by the Resource Agencies and city staff to determine compliance with CEQA. The Resource Agencies will review the project for compliance with CEQA and HMP concurrently. The Environmental Impact Assessment (EIA) is reviewed by city staff to help determine the appropriate documentation. If the project is not exempt from CEQA, the appropriate CEQA documentation, including the project Biological Technical Report, are sent to the Agencies and made available for a 30-day (for ND and MND) or 45-day (for EIR/EIS) public review. Comments made by the Resource Agencies or during the public review period will be reviewed and responded to by city staff. If the project is found to be in non-compliance, the applicant would revise the project or mitigation accordingly and resubmit the project. To avoid lengthy delays, the Habitat Management Division meets with the Resource Agencies on a bimonthly basis to discuss project

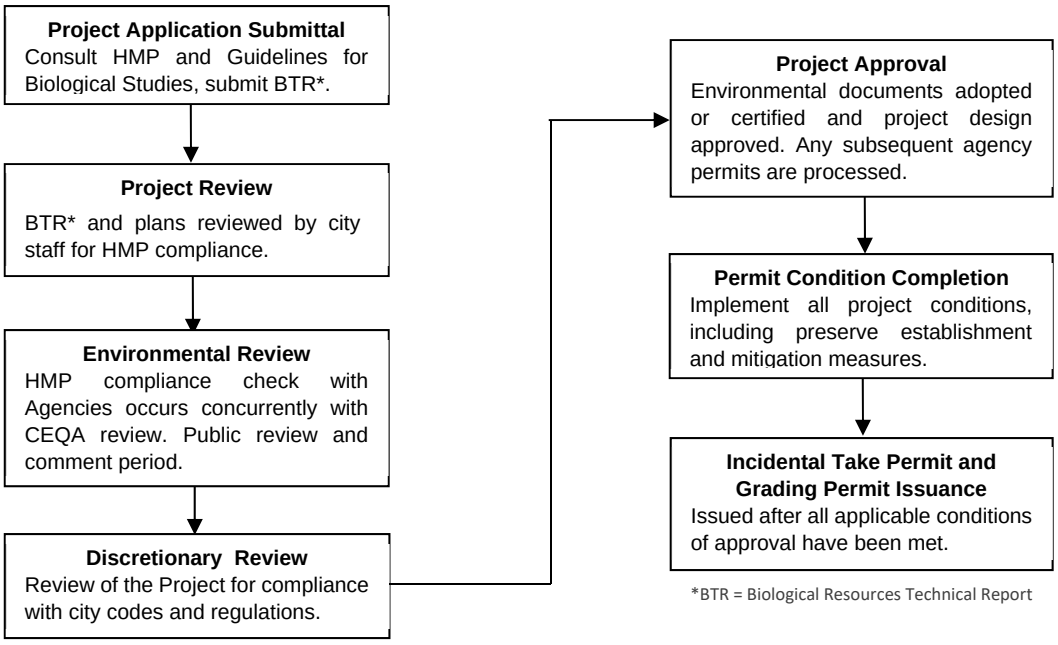
compliance prior to the formal CEQA/HMP consistency review to work out any potential issues as much as feasible.

Discretionary Review. CEQA documents are processed concurrently with discretionary project review. The CEQA public review process precedes any public hearing or determination on the project. After the public review period has concluded, the CEQA document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is taken to the decision makers with all other discretionary actions.

Project Approval. Once the project is found to be compliant with CEQA and the HMP, as well as other applicable codes and regulations, the environmental documents are adopted or certified and the project design is approved. The city has authority to issue take permits for covered species and to authorize impacts to their habitats (see below). However, any permits or certifications required by the Army Corps of Engineers, Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), CCC, or other agencies are processed directly with those agencies concurrent with or subsequent to city discretionary review. Coordination with all permitting agencies greatly facilitates the process and is strongly encouraged.

Permit Condition Completion. All relevant project conditions must be met prior to approval of a Final Map or issuance of grading permit, whichever comes first. For projects that are establishing a preserve, project conditions require submittal and final approval of the following: Preserve Management Plan, Property Analysis Record (PAR) or equivalent, funded account(s) for long-term management, and recorded conservation easement. In addition, a qualified Preserve Manager must be secured.

Incidental Take Permit and Grading Permit Issuance. After all applicable conditions have been met, the city will issue an incidental take permit (if required) and a grading permit.



4.0 HMP REGULATIONS OVERVIEW

4.1 Regulatory Context

All development projects and fuel modification activities in the city shall comply with the guidelines provided in this document. The guidelines were developed to be consistent with policies, regulations, and ordinances that pertain to habitat and species conservation within the City of Carlsbad, including the following:

- Federal Endangered Species Act (FESA)
- Federal Migratory Bird Treaty Act
- California Environmental Quality Act (CEQA)
- California Endangered Species Act (CESA)
- California Fish and Game Code
- California Coastal Act
- Multiple Habitat Conservation Program (MHCP)
- Carlsbad Habitat Management Plan (HMP)
- Local Coastal Program
- City Municipal Code
    - 21.33 O-S Open Space Zone
    - 21.203 Coastal Resources Protection Overlay Zone
    - 21.210 Habitat Preservation and Management Requirements

These Guidelines incorporate the above regulations with respect to biological resources. Generally, there are three main characteristics that must be assessed to determine pertinent HMP regulations: project location, habitats on site, and species that occur or potentially occur onsite. Additional requirements may also pertain to the project, as discussed below.

4.2 Project Location

General HMP compliance regulations apply to all projects, but will be superseded by more restrictive special requirements, as described below. Specific mitigation requirements will be discussed in more detail in Section 5.3. Figure 1 shows HMP hardline areas and the Coastal Zone boundary.

1. **HMP Hardline** (see Section 2.0 for definitions)
    a. **Existing Hardline** – no new development is allowed; if remediation is needed (for example, slope repair), the area must be revegetated with pre-existing habitat.
    b. **Proposed Hardline** – development is allowed only in areas that have been delineated for development on a specific parcel. Any changes to the project footprint, which would change the preserve boundary, require an HMP Minor Amendment.

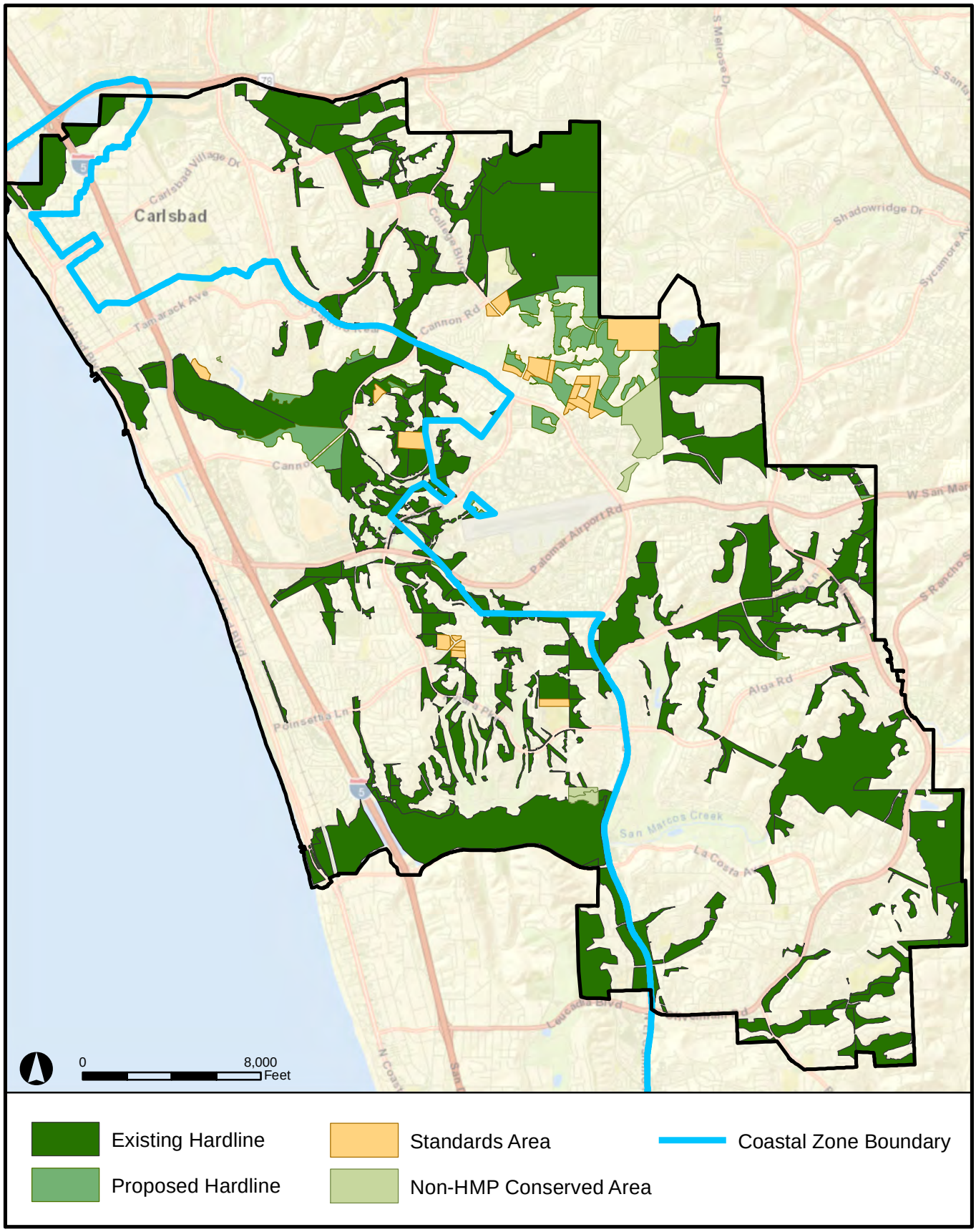


Figure 1
Habitat Management Plan (HMP) Conservation Area*

*As of 02/02/22

City of Carlsbad

Created: 2/2/2022

c. **Standards Area** – Development within a Standards Area is allowed, but must follow the standards that are specific to the Local Facilities Management Zone in which the project is located.

2. **Outside of the HMP Hardline**

   a. **Not-a-Part** – There are certain areas in the HMP labeled "not-a-part." County-owned property (McClellan-Palomar Airport and adjacent county-owned portion of the Carlsbad Oaks North Preserve) is not covered by the city's HMP because the county has its own HCP/NCCP plan. Land owned by the Carlsbad Unified School District is also designated as "not-a-part" because the school district did not sign on to the HMP. This property has since been developed into the Sage Creek High School and Sage Creek Preserve, which was processed without HMP take authorization.

   b. **"Development Areas"** – these are areas that are not an HMP Hardline and not labeled "not-a-part." Development in these properties are allowed, but mitigation for impacts to sensitive vegetation communities and species is required. Unless the property is in the Coastal Zone, impacts to habitat groups D, E, and F (HMP Table 11) can generally be mitigated with a fee rather than habitat preservation or restoration.

3. **Within the Coastal Zone** – All properties in the Coastal Zone must follow the HMP Coastal Zone Standards, which are generally more restrictive than outside of the Coastal Zone.

4. **Adjacent to HMP Hardline** – Projects adjacent to an existing preserve could increase threats to the preserve through edge effects (indirect impacts, such as invading weeds, unauthorized visitors, predation to native birds by pet cats, etc.); therefore, HMP Adjacency Standards must be followed.

4.3 Sensitive Vegetation Communities

In these Guidelines, "vegetation communities" is used synonymously with "habitat." A variety of sensitive habitats occur in Carlsbad. The vegetation classification system used in the HMP is based on *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986, Oberbauer 2008). Although a newer classification system is now widely used throughout Western San Diego County (*Vegetation Classification Manual for Western San Diego County*, Sproul et al. 2011), impact assessments and mitigation requirements are based on the Holland-Oberbauer system. HMP Table 11 includes a list of habitats by group and required mitigation ratios for each group. Projects in the Coastal Zone must follow mitigation ratios and requirements in the HMP Coastal Zone Standards, which supersede Table 11.

4.4 Sensitive Species

Seven categories of sensitive species are discussed below. **Appendix B** includes a complete list of MHCP species and provides information about sensitivity status, HMP coverage, and breeding season. In general, most of the sensitive plant and animal species in Carlsbad are protected through the citywide habitat conservation program and project mitigation for habitat impacts; however, certain species have specific requirements. Mitigation requirements for the species below are described in Section 5.3.3.

1. **HMP covered species** – There are three lists of covered species and species which could become covered in the future. **List 1** species were covered upon adoption of the HMP; **List 2** species coverage is contingent upon other MHCP subarea plans being permitted (there are no other adopted plans to date); and **List 3** species are contingent upon funding for long-term management of specific conserved areas.

   The following species are currently covered by the HMP:

   - **List 1** – all species (see HMP p. C-10)
   - **List 3**
     - Thread-leaved brodiaea (*Brodiaea filifolia*)
     - San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
     - Little mousetail (*Myosurus minimus* ssp. *apus*)
     - Spreading navarretia (*Navarretia fossalis*)
     - California orcutt grass (Orcuttia *californica*)
     - Riverside fairy shrimp (*Streptocephalus woottoni*)
     - San Diego fairy shrimp (*Branchinecta sandiegonensis*)

2. **Narrow endemic species** – Narrow endemic species (1) have restricted geographic distribution, soil affinities, and/or habitats, (2) occur in the city, and (3) the substantial loss of which might jeopardize the long-term survival of the species. The following species occurring in Carlsbad are considered narrow endemic and are regulated by the narrow endemic species policy.

   - Blochman's Dudleya (*Dudleya blochmaniae ssp. blochmaniae*)
   - California Orcutt Grass (*Orcuttia californica*)
   - Del Mar Manzanita (*Arctostaphylos glandulosa ssp. crassifolia*)
   - Del Mar Mesa Sand Aster (*Corethrogyne filaginifolia var. linifolia*)
   - Encinitas Baccharis (*Baccharis vanessae*)
   - Little Mousetail (*Myosurus minimus ssp. apus*)
   - Orcutt's Brodiaea (*Brodiaea orcuttii*)
   - Orcutt's Hazardia (*Hazardia orcuttii*)
   - Orcutt's Spineflower (Chorizanthe orcuttiana)
   - San Diego Ambrosia (*Ambrosia pumila*)
   - San Diego Button-Celery (*Eryngium aristulatum var. parishii*)
   - San Diego Goldenstar (Bloomeria *clevelandii*)
   - San Diego Thorn-mint (*Acanthomintha ilicifolia*)
   - Short-leaved dudleya (*Dudleya blochmaniae ssp. brevifolia*)
   - Spreading Navarretia (*Navarretia fossalis*)
   - Thread-leaved Brodiaea (*Brodiaea filifolia*)
   - Harbison's Dun Skipper (*Euphyes vestries harbisoni*)
   - Hermes Copper Butterfly (*Lycaena Hermes*)
   - Riverside Fairy Shrimp (*Streptocephalus woottoni*)
   - San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)

3. **Species with special requirements** – Additional measures are required for the following species:

   - Harbison's dun skipper butterfly
   - Least Bell's vireo (*Vireo bellii pusillus*)
   - Southwest willow flycatcher (*Empidonax traillii extimus*)

4. **Raptors and other migratory birds** – Raptors and migratory birds are protected by the federal Migratory Bird Treaty Act, and take of any such species, including their nests and eggs, are prohibited.
5. **CDFW Fully protected species** – Take of a CDFW Fully Protected species is prohibited, and no provision of the Fish and Game Code or any other law may authorize take of these species. One Fully Protected Species occurs in Carlsbad:
    - White-tailed kite (*Elanus leucurus*)
6. **State or federally listed species not covered by the HMP** (candidate, rare, threatened or endangered). Take of listed species not covered by the HMP must be permitted directly with the Wildlife Agencies since the city does not have incidental take permit authority for those species.

4.5 Other Requirements

There are other environmental requirements that are not explicitly stated in the HMP, but are included in the Carlsbad Municipal Code or are otherwise standard practice by the Resource Agencies. These requirements have to do with setbacks, buffers, easements and manufactured slopes. Details are given in Section 5.3.4.

5.0 BIOLOGICAL IMPACT ANALYSIS AND MITIGATION

5.1 Evaluation of Baseline Conditions

To have a clear understanding of the biological resources that might be affected by a project, it is necessary to acquire all available site-specific biological information, which will be used to design a project that minimizes potential impacts to sensitive habitats and species. Current conditions, potential impacts (Section 5.2) and recommended mitigation (Section 5.3) will be provided to the city in a Biological Resources Technical Report (Section 6.0). Current onsite conditions should be evaluated by reviewing pertinent documents, GIS data, and recent site surveys (no more than two years old). Site surveys should include:

1. General biological assessment. Conduct a general biological resources assessment to identify the flora, fauna, potential habitat for sensitive species and wildlife movement corridors within the property. Field documentation should include locations of sensitive plants and animals observed, and a complete list of species, including non-sensitive and non-native. The assessment should be conducted in the study area, which consists of the project footprint (including areas to be impacted and conserved) plus a 100-foot survey buffer.
2. Vegetation mapping. Conduct onsite vegetation communities mapping (ground-truth existing mapping), using the modified Holland system of classification (Oberbauer 2008, Holland 1986) within the study area. The initial mapping may be conducted using the more recent *Vegetation Classification Manual for Western San Diego County* (Sproul et al 2011); however, this must be crosswalked to the modified Holland classification in the Biological Resources Technical Report, as this is the system upon which the required mitigation ratios are based. See HMP Appendix A for definition of each vegetation community. Note that "ruderal" and "exotic species" are not acceptable classifications. All vegetation types must fit into the modified Holland classification scheme.
3. Potentially occurring species. Conduct an assessment of *potentially* occurring sensitive species by assessing onsite habitat and documented species locations:
    a. Conduct a review of pertinent literature.
    b. Query current GIS species databases (CNDDB, SANDAG, SDNHM, etc.)
    c. Review soils maps to identify suitable areas for species with particular soil affinities.
4. Jurisdictional wetland delineation. Conduct jurisdictional wetland delineation if any wetland or riparian habitat or soil conditions occur on the property. Wetlands within the Coastal Zone must be delineated following the definitions and boundary descriptions in Section 13577 of the California Code of Regulations. Outside the Coastal Zone, wetlands shall be defined by following the Cowardin Wetland Classification System (Cowardin et al. 1979).
5. Focused species surveys. Use the results of steps 1 – 4 to determine if focused species surveys are needed.
    a. Identify time of year each survey should be conducted based on species biology. Surveys shall be conducted at the appropriate time of year (i.e., blooming or breeding season).

b. The survey window can be adjusted based on climate variation for a given year (amount and timing of rain, drought, etc.). Seasonal conditions (to be determined by the project biologist) must be suitable for blooming plants. For example, if winter rains were scant in a given year, certain rare plants might not bloom that season, and therefore might not be detected even if present.

c. Conduct focused species surveys as necessary for covered species, state or federally listed species, and narrow endemic species, using the most current USFWS survey protocol.

d. Biological surveys must be recent to be used for a project impact analysis. Surveys should be no more than two years old to be considered "recent."

5.2 Biological Impact Analysis

This section describes how to quantify and describe potential impacts for a proposed project, and how to use this information to revise the project's design and or develop mitigation measures. The impact analysis should include the following:

1. Using GIS, overlay the baseline biological resources (species, habitats, movement corridors, etc.) with the project impact footprint.

2. The project impact boundary must include fuel modification zones, utility easements, manufactured slopes, trails, detention basins, etc.

3. Evaluate and quantify the potential impacts to sensitive biological resources within and adjacent to the project footprint (e.g., acres of each vegetation community, numbers and locations of each sensitive species, etc.).
    - Analyze and quantify permanent and temporary impacts
    - Evaluate direct and indirect impacts
    - Evaluate significant (mitigable or non-mitigable) and non-significant impacts

4. Demonstrate (with documentation) that the project was designed to first avoid, and then minimize impacts to sensitive biological resources. The impact assessment for wetlands may require an analysis of alternatives and an analysis of the functions and values of affected habitat (see HMP Section D.6, p. D-90 for more details).

5. Whether or not an impact is avoidable will be decided on a case-by-case basis. Examples include impacts to allow reasonable use of a parcel entirely constrained by wetlands, essential public facilities where no feasible alternative exists, or roads that are the only access to the developable portion of the site.

6. Recreation and public access may be conditionally allowed if consistent with Section F.2.B of the HMP (see p. F-11). The primary purpose of the HMP preserve system is to conserve sensitive native species and habitats in the long-term. Therefore, public use, including trails, will only be allowed when compatible with the conservation objectives of the HMP.

- Evaluate the direct and indirect impacts of recreational use to sensitive plants, wildlife, and habitat based on the best available science (include citations).
- Identify mitigation measures such as signage, fencing, extra patrols, reducing trail width or length, etc.

7. Evaluate any potential hydrological effects that could impact habitat, such as insufficient drainage or flood control structures, placement of sewer outfalls, structures that would reduce flow to riparian habitat, etc. See HMP Section F.2.C, p. F-14.

8. Review HMP regulations to determine allowable impact limits (See Section 5.3).

9. Redesign project if necessary to reduce impacts, or assess appropriate mitigation requirements.

10. Note that impacts to wetlands require state and federal permits that must be obtained independently from the HMP permit.

5.3 Mitigation Requirements and Avoidance Measures

All significant impacts to sensitive biological resources in the City of Carlsbad require mitigation. Project-specific Biological Resources Technical Reports and CEQA documentation must describe impact mitigation with enough detail to illustrate how they will reduce impacts to a level below significant, and satisfy HMP and CEQA requirements. This section describes location-specific requirements, mitigation requirements for sensitive habitats and species, avoidance measures, and open space conservation and long-term management requirements.

5.3.1 Location Specific Requirements

1. Existing or Proposed Hardline

Development located within or encroaching into Proposed or Existing Hardline Preserve Areas is prohibited in most cases. Exceptions may be processed as a minor or major amendment (described below). Remedial work, such as slope repair or maintenance in a pre-existing easement, could be allowed within a hardline if deemed necessary for human safety or structural integrity, at the discretion of the city. All temporary impacts from such work would require 1:1 mitigation by restoring habitat in place.

- HMP Minor Amendment. Minor adjustments to hardline boundaries that result in no net loss of the quality or quantity of habitat are allowed if processed as a Minor Amendment through an Equivalency Finding (HMP p. E-3; IA Section 20, p. 29).
- HMP Major Amendment. A Major Amendment is required if lands are removed from conserved areas or if a hardline boundary adjustment results in a net loss of habitat or a reduction in habitat quality (HMP p. E-4; IA Section 20, p. 29).

2. Standards Areas

Development is allowed within Standards Areas, but unlike Proposed Hardline properties, the boundaries of developable and conserved areas have not yet been determined. To guide development in a manner that is most beneficial to the preserve system, biological resource issues, conservation goals and planning standards have been developed for each Local Facilities Management Zone (LFMZ). Every project within a Standards Area must comply with the planning standards developed for the LFMZ in which it occurs. These standards should be consulted prior to the design phase of the development (see HMP page D-73). Processing a project within a Standards Area requires consultation with the Wildlife Agencies, and HMP Consistency Findings, which will result in an HMP Minor Amendment.

3. Areas Outside of the HMP Hardline

Areas zoned as Open Space, even if outside of the HMP hardline (i.e., not Existing Hardline, Proposed Hardline or Standards Areas) generally do not allow structures of any kind or habitat removal. In addition, county-owned lands labeled Not-a-Part in the HMP cannot be impacted without county coordination. All other areas outside of the HMP hardline are considered "development areas." Projects impacting habitat in development areas are still obligated to follow the mitigation requirements in HMP Table 11, Coastal Zone requirements, Adjacency Standards and requirements discussed in Sections 5.3.2 to 5.3.4.

4. Within the Coastal Zone

The California Coastal Commission has jurisdiction over lands within the Coastal Zone. All projects within the Coastal Zone are required to follow Coastal Zone Standards, which supersede any HMP mitigation requirements that are less restrictive. Table 1 provides a summary of the key standards; however, **refer to HMP Section D.7 (pp. D-114 through D-121) for a complete set of standards.**

Table 1. Key Conservation Standards within the Coastal Zone

Resource/HMP Reference*	Conservation Standard within the Coastal Zone
Coastal Sage Scrub **7-2**	Conserve a minimum of 67% of the coastal sage scrub habitat and 75% of the gnatcatchers onsite.
Wetlands **7-7**	If impacts to wetlands are allowed per CA Public Resources Code Section 30233, mitigation shall be provided at a ratio of 3:1 for riparian impacts and 4:1 for impacts to saltwater or freshwater wetlands.
No Net Loss of Habitat **7-8**	A no net loss standard applies to coastal sage scrub, maritime succulent scrub, southern maritime chaparral, southern mixed chaparral, native grassland, and oak woodland. Mitigation shall include a creation component that achieves the no-net-loss standard. Substantial restoration may be substituted for creation if approved by Wildlife Agencies and California Coastal Commission.
Upland Habitat **7-9**	Mitigation will typically include creation at a ratio of least 1:1. Onsite mitigation is not eligible for mitigation credit in the Coastal Zone. Onsite or offsite areas may be used for mitigation if habitat is disturbed and suitable for restoration or enhancement, or if habitat is devoid of habitat value and therefore eligible for the 1:1 creation/substantial restoration mitigation component.

	Mitigation should be provided within the Coastal Zone. Refer to 7-9 for more details, including mitigation ratios.
Highly Constrained Properties **7-10**	(a) If more than 80% of property is covered with ESHA, at least 75% of the property shall be conserved, OR (b) If the city approves a hardline preserve boundary for these properties as part of the HMP, the amount of onsite preservation as identified in the hardline boundary will apply.
Buffers and Fuel Modification Zones/ **7-11**	1. Minimum buffers between preserved habitat and development are (a) 100 feet for wetlands; (b) 50 feet for riparian areas; (c) 20 feet for native uplands 2. No development, grading, or alteration shall occur within a buffer except (a) Fuel modification Zone 3 may overlap upland buffer a maximum of 20 feet, and (b) trails may overlap up to 15 feet of upland buffer closest to development 3. No development within 50 feet of oak woodland habitat 4. Buffer areas that do not contain native habitat will be landscaped using native plants.
Grading and Landscaping **7-12**	See model grading ordinance in Carlsbad Master Drainage Plan; (a) Grading in the Coastal Zone has generally been prohibited during the rainy season, Oct 1 to April 1; (however, pursuant to revisions to the city Zoning Ordinance processed through a Local Coastal Plan Amendment, grading is allowed if appropriate Best Management Practices (BMPs) are established); (b) All graded areas will be landscaped by October 1 to reduce erosion. Exceptions to these guidelines may be approved as described in 7-12. For example, habitat should not be cleared during the bird breeding season (March 15 - Sept 15) unless birds are cleared from the habitat first.
Parcel-specific Standards **7-13, 7-14**	The following properties have parcel specific standards: (a) city owned lands adjacent to Macario Canyon and Veterans Memorial Park, and (b) specific parcels in Zones 20 and 21 that are located within biological core and linkage areas; see HMP 7-14 for a list.

* HMP Section D.7, pp. D-114-121

5. Adjacent to HMP Hardline

A project may result in indirect impacts to sensitive species or habitats in an adjacent HMP hardline. For example, temporary impacts during construction, such as noise and dust, could affect nearby nesting birds. Permanent impacts might cause edge effects such as invasion by non-native plant species. To avoid these potential impacts, Adjacency Standards have been developed, which apply to properties that are adjacent to conserved habitat areas or undeveloped portions of a Standards Area that might be conserved in the future. The standards address issues of fire management, erosion control, landscaping, fencing, signage, indirect impacts, and non-native species control.

A selection of project-related HMP Adjacency Standards is given below; however, **refer to HMP Section F, pages F-16 to F-24 for a complete list of standards**.

- **Fuel management**. Fuel modification zones for brush management (fire prevention) will be considered an impact and, therefore, must be included within the project impact footprint. Fuel modification zones are not allowed within preserved habitat.
- **Erosion control measures** shall be implemented to avoid new surface drainage or erosion within or near the preserve.
- **The use of non-native or invasive plant species** in landscaping for public projects adjacent to preserves is prohibited.

- **Native plants** used for restoration or revegetation should be obtained from local genetic stock to avoid genetic contamination of native species.
- **Irrigation runoff** should be prevented from entering into the preserve from adjacent landscaping to reduce nitrogen, pesticides, and excess moisture.
- **Signage and fencing** should be used as necessary to prevent harmful or unauthorized use of the adjacent preserve, and to protect animals from road kill mortality. Fences that restrict animal movement across movement corridors and habitat linkages should be removed.
- **Lighting** adjacent to preserves should be shielded down and away from preserved habitat. Light fixtures should produce long wavelength lighting (> 560 nm; amber or orange), rather than short wavelength (blue, green). Follow the guidelines developed by the Florida Fish and Wildlife Conservation Commission https://myfwc.com/conservation/you-conserve/lighting/.
- **Noise**. The use of noise generating equipment should be avoided during the breeding season. Noise levels inside the preserve should not exceed 60 dBA Leq.

5.3.2 Mitigation and Avoidance Measures for Impacts to Sensitive Habitats

The following mitigation and avoidance measures are required for impacts to sensitive habitats. Specific standards for impacts within the Coastal Zone are generally more restrictive and supersede less restrictive requirements.

1. **Impact avoidance**. Impacts will be avoided, minimized, and mitigated to the greatest extent possible. Development will be limited to disturbed areas whenever possible.

2. **Habitat creation/restoration/enhancement**. If there is not sufficient habitat preservation acreage onsite to mitigate impacts, the applicant may mitigate through the enhancement, restoration, or creation of habitat onsite or offsite. Creation (creating new habitat on an area devoid of native species) would create a greater ecological "lift" than restoring or enhancing a disturbed form of existing habitat. Therefore, the mitigation ratio required for restoration or enhancement may be higher than for creation (or put another way, more acres of land may be required to mitigate for each acre of impact depending on the percent cover of non-native species in the mitigation area, and therefore, amount of ecological lift). The applicant will submit final habitat restoration plans to the city and/or Resource Agencies for review at least 30 days prior to initiating project impacts. A grading permit will not be issued until the restoration plan is approved by the city and/or Resource Agencies.

3. **Onsite mitigation**
   - **Outside Coastal Zone** – Onsite mitigation is preferred over offsite mitigation. Habitat conserved onsite will be credited towards mitigation (HMP p. D-90).
   - **Within Coastal Zone** – Habitat conserved onsite will *not* be credited toward mitigation.

4. **Offsite mitigation**.

   - **Outside Coastal Zone** – If at least 67% of native habitat within the property is preserved, no offsite mitigation will be required if (a) the project is consistent with the HMP, (b) the project would not interfere with the city's HMP obligations, and (c) the site would benefit the city's preserve system (HMP p. D-90).
   - **Within Coastal Zone** – Offsite mitigation should be inside the Coastal Zone, especially the 1:1 creation component, to ensure no net loss within the Coastal Zone.

5. **Mitigation ratios**

   - **Uplands** - Impacts to sensitive habitat are subject to the mitigation ratios in Table 2 (recreated from HMP Table 11, p. D-113). However, under certain conditions (e.g., habitat creation/ enhancement/restoration, impacts to wetlands, or impacts within the Coastal Zone), additional mitigation measures or higher mitigation ratios may be required.
   - **Wetlands** – Mitigation ratios for impacts to wetland and riparian habitats will be determined by jurisdictional permitting agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and Coastal Commission if in the coastal zone).

Table 2. Mitigation Ratios for Impacts to HMP Habitats
(HMP Table 11, p. D-113)

	Habitat Group and Type	Mitigation Ratio/Requirement by Type of Impacted Habitat
A.	Coastal salt marsh, alkali marsh, freshwater marsh, estuarine, salt pan/mudflats, riparian forest, riparian woodland, riparian scrub, vernal pools, disturbed wetlands, flood channel, fresh water Engelmann oak woodland, coast live oak woodland[1]	1:1 to 3:1 No net loss goal (mitigation ratio varies by type of replacement habitat)
B.	Beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, native grassland	3:1[2]
C.	Gnatcatcher - Occupied coastal sage scrub	2:1[3]
D.	Unoccupied coastal sage scrub, coastal sage/chaparral mix, chaparral (excluding southern maritime chaparral)	1:1[4, 5]
E.	Annual (non-native) grassland	0.5:1[4, 5]
F.	Disturbed lands, eucalyptus, agricultural lands	Mitigation Fee

1. Group A habitats are associated with wetlands. Impacts to these habitat types are subject to review under Section 404 of the federal Clean Water Act or Section 1600 of the California Fish and Game Code.
2. It is assumed that all habitat types in Group B will be included in the proposed preserve system. Small, isolated patches of low quality southern maritime chaparral may be located outside a preserve area and maximum avoidance and onsite conservation is preferred.
3. Maximum avoidance and onsite conservation of Group C habitat is encouraged.
4. Offsite mitigation for habitat in this group shall pay a per acre in lieu mitigation fee in an amount to be determined by the City Council. This fee is discussed in more detail in Section E of the Plan.
5. City projects that impact Type D, E, and F habitats will not pay the fee and will mitigate at the Lake Calavera Mitigation Parcel. These projects may mitigate out-of-kind because the objective is to build the preserve system by combining small mitigation requirements into a larger, more contiguous area. City projects that impact Type A, B, and C habitats must mitigate in-kind at the ratios stated above.

- **Within Coastal Zone** –the following mitigation ratios are required:
    - Riparian habitat – 3:1
    - Wetland (e.g., saltwater marsh, freshwater marsh, etc.) – 4:1
    - Southern mixed chaparral – 1:1
    - Coastal sage scrub (occupied or unoccupied) – 2:1
    - Southern maritime chaparral, maritime succulent scrub, oak woodland, or native grassland – 3:1

6. **Habitat Mitigation Fees**. The purpose of the Habitat Mitigation Fee Program is to is to fund the city's obligation to acquire, protect and manage lands in the Gnatcatcher Core Area. Habitat mitigation fees are collected for private project impacts to habitat Group D (unoccupied coastal sage scrub, coastal sage/chaparral mix, and southern mixed chaparral, Group E (non-native grassland), and Group F (disturbed lands, eucalyptus, or agricultural lands). The current fee amounts are determined by City Council.

7. **City Projects**. Outside of the Coastal Zone, the city may mitigate for impacts to Habitat Groups D, E, and F on an acre-for-acre basis at the city-owned Lake Calavera mitigation parcel. The Lake Calavera mitigation credits are only available for city use to mitigate impacts from city projects.

8. **No net loss**
    - **Oak woodland**. The HMP requires 100% conservation of Engelmann oak woodlands and major populations of Nutall's scrub oak. However, smaller populations of scrub oak may be conserved at 60% (HMP Tables 9 and 11).
    - **Wetlands and riparian habitat.** The no net loss of wetlands or riparian habitat standard applies to all areas within Carlsbad. Therefore, a minimum of 1:1 acres of mitigation must be in the form of creation.
    - **Within Coastal Zone.** The no net loss standard applies to coastal sage scrub, maritime succulent scrub, southern maritime chaparral, southern mixed chaparral, native grassland, and oak woodland within the Coastal Zone. Mitigation for impacts requires at least 1:1 in the form of creation or substantial restoration.

9. **Wetland permits.** Impacts to jurisdictional wetlands and waters may require permits from U.S. Army Corps of Engineers, California Regional Water Quality Control Board, California Department of Fish and Wildlife, and/or California Coastal Commission, which must be obtained independently from the HMP permit.

10. **Habitat Buffers.** The purpose of a habitat buffer (also called biological buffer) is to protect water quality, habitat, and/or species adjacent to development. Habitat buffers provide flood control, erosion control, contaminant trapping, and protection from edge effects, such as invasive weeds or human activity. The following buffer standards are required for new development:

a. Buffers Outside Coastal Zone

Wetlands

- Following the city's most current *Guidelines for Riparian and Wetland Buffers* and past regulatory practices by wetland permitting agencies, a wetland/riparian buffer is defined as the area extending outward perpendicularly from the top of bank of a natural or constructed channel or watercourse, or from the outside edge of wetland vegetation if present. Wetland/riparian buffers consist of transitional and upland habitats (including all native and non-native scrub, grassland, and non-riparian woodland habitats) as well as moderately disturbed and/or softscaped areas (e.g., utility ROWs, natural open space, landscaped parkland, etc.). Key buffer requirements follow; however, refer directly to the Guidelines for Riparian and Wetland Buffers for more details.
- Protective buffers shall be a minimum of 100 feet in width surrounding all non-wetlands and riparian habitats.
- Buffers of at least 100 feet shall be maintained adjacent to occupied habitat of least Bell's vireo or southwestern willow flycatcher, unless a lesser buffer is approved by the wildlife agencies
- Within 200 feet of estuarine areas, land uses that would contribute to degraded water quality, changes in surface water or groundwater hydrology, or increased runoff, erosion, and sedimentation are prohibited (HMP p. D-95).
- HMP Standards Areas may have specific wetland setback requirements.
- Wetland/riparian buffers generally include three zones: a protection (inner) zone, separation zone (middle), and transition zone (outer).
- Alternative buffer configurations require Wildlife Agency approval for HMP compliance (and may also require approval from agencies who oversee jurisdictional resources).

b. Buffers Within Coastal Zone

General

- Buffers shall be provided between all preserved habitat areas and development as described below (see HMP Section D.7, pp. D-114-121 for more information).
- No development, grading, or alterations, including clearing of vegetation, shall occur in the buffer area, except as noted below.
- Buffer areas that do not contain native habitat shall be landscaped using native plants.
- Signage and physical barriers such as walls or fences shall be required to minimize edge effects of development.
- Any proposed buffer reductions requires approval from Coastal Commission and Wildlife Agencies.

Estuarine

- Land uses within 200 feet of estuarine areas which contribute to degraded water quality, changes in surface water or ground water hydrology, or increased runoff, erosion and sedimentation are prohibited (HMP D-95).

Wetlands/Riparian

- Required Buffer width is 100 feet for wetlands and 50 feet for riparian habitat.
- No fuel modification shall take place within 50 feet of riparian or wetland areas.
- Allowable uses in a wetland/riparian buffer:

  Recreation trails within the first 15 feet of the buffer closest to the development. Any proposed trail use must be consistent with the preservation goals for the adjacent habitat, and that appropriate measures are taken for physical separation from sensitive areas.

Upland native habitat

- Upland native habitat includes coastal sage scrub, southern maritime chaparral, maritime succulent scrub, southern mixed chaparral, native grassland and oak woodland.
- Required Buffer width is 20 feet.
- Allowable uses in a wetland/riparian buffer:
  a. Fuel modification Zone 3 to a maximum of 20 feet for upland habitat.
  b. Recreation trails within the first 15 feet of the buffer closest to the development. Any proposed trail use must be consistent with the preservation goals for the adjacent habitat, and that appropriate measures are taken for physical separation from sensitive areas.

5.3.3 Mitigation/Avoidance Measures for Impacts to Sensitive Species

In general, most HMP-covered species are protected through habitat conservation; however, certain sensitive species require specific avoidance measures, as described below.

1. **HMP-Covered Species**

   As a condition of the Incidental Take Authorization issued to the city by the Wildlife Agencies under the HMP, certain species-specific conditions for coverage and impact avoidance measures must be met for potential impacts to covered species within and outside of the preserve. These conditions are included in HMP Table 9, page D-97.

2. **Narrow Endemic Species**

   Projects that would affect lands occupied by narrow endemic species must meet the following conservation standards:

- If the property is within a Proposed Hardline or Standards Area, 100% conservation of the narrow endemic population(s) is required.
- If the property is in the development area of the HMP, at least 80% conservation of the narrow endemic population(s) is required.
- Species-specific conditions for coverage and impact avoidance measures are detailed in HMP Table 9, page D-97.

3. **Species with special requirements**

   Specific avoidance measures are required for the **Harbison's Dun skipper butterfly**, **least bell's vireo**, and **southwestern willow flycatcher**, as described in HMP Section D.6 (pp. D-91 to D-95). These measures include the implementation of a 100-foot buffer from the outer edge of occupied habitat within which development is prohibited. Refer directly to the HMP for additional details.

4. **Raptors, listed bird species, and migratory birds**

   Construction activities, including clearing and grubbing, should be avoided during the bird breeding season (February 15 – August 31). If the breeding season cannot be avoided, the following measures will be taken:

   - No more than three days prior to any vegetation clearing or construction activities, a qualified biologist will conduct a pre-construction survey throughout the site to identify nests or nesting behavior. Monitoring will continue throughout the breeding season. If an active nest is observed, a protective buffer will be fenced off, and no work will be allowed within the buffer until the nest is no longer active (e.g., all nestlings have successfully fledged). A buffer width of at least 500 feet will be required for raptors or listed species such as coastal California gnatcatcher or least Bell's vireo. Buffer width for other species will be determined by a qualified biologist, in coordination with the city and Wildlife Agencies based on species biology and site conditions.
   - The USFWS will be notified immediately of any federally listed species that are located during pre-construction surveys.
   - A qualified biologist shall monitor construction activities during the breeding season. No activities that would result in noise levels exceeding 60 dBA hourly Leq within 500 feet of breeding habitat occupied by listed species. Ambient noise shall be excluded from the 60 dBA calculation. If excess noise-producing construction activities are not completed prior to the breeding season, and birds are nesting during the breeding season, noise barriers shall be erected to reduce noise impacts at the distance of the nests to below 60 dBA hourly Leq or the activities shall be suspended. The nest shall be monitored by the monitoring biologist, and the noise restrictions shall continue until the noise producing machinery work is completed.

5. **CDFW Fully protected species**

   Take of a CDFW Fully Protected species is prohibited; therefore, there are no specific mitigation standards.

6. **State or federally listed species not covered by the HMP** (candidate, rare, threatened or endangered) - impacts to these species would require an independent formal consultation with the Wildlife Agencies, who would determine mitigation requirements.

5.3.4 Other Impact Avoidance Measures

Additional avoidance measures include the following:

1. **Fuel modification (brush management) zones** required as a result of the development project, and as required by the fire marshal, must be located outside the preserve areas, considered impacted, and mitigated accordingly.
2. **Pre-existing and new easements** for utilities and other purposes that may require soil or vegetation disturbance in the future, including maintenance activities, will be considered an impact, and cannot be used for mitigation. This includes underground pipelines, drainage basins, etc.
3. **Manufactured slopes** generally contain fill soil, which tends not to support high quality native habitat. Therefore, manufactured slopes are considered an impact, and cannot be used for mitigation.
4. **Standard Construction Best Management Practices**, shall be incorporated into the project mitigation to avoid impacts during construction (**Appendix C**). These measures were compiled from the following sources: MHCP Vol I, Section 6.2.3; MHCP Vol. II, Appendix B; HMP p. D-95.

5.3.5 Conservation and Long-term Management Requirements

All development projects shall be required to provide for the permanent conservation, management and biological monitoring of all onsite and offsite mitigation land and all habitat preserve areas within the boundaries of the property in which the project is located according to the provisions below. All items below must be completed by the developer prior to issuance of a grading permit, approval of a Final Map, or removal of vegetation.

1. **Conservation Easement.** A conservation easement shall be recorded on all mitigation areas and preserves to ensure the area will be preserved in perpetuity and managed for its biological value, and to prevent uses which will impair or interfere with the conservation of the area. At a minimum, the required conservation easement shall include the following:
   - Identification of grantee, underlying land ownership, and third-party beneficiaries including the city and the wildlife agencies.
   - Permitted and prohibited uses.
   - Grantor's duties and responsibilities according to the approved Preserve Management Plan, which may be amended from time to time.

2. **Standard of Management.** All conserved areas shall be managed, maintained and monitored according to the standards contained in Section F.2 of the HMP, Volume 2 and 3 of the MHCP and the citywide Open Space Management Plan.

3. **Preserve Management Plan**. The Preserve Management Plan identifies how the preserve area(s) and mitigation land will be managed and monitored in perpetuity to protect the long-term health and functioning of native plants and animals. Note that the Preserve Management Plan is different than what is commonly referred to as the "long-term management" component of a restoration plan, which typically lasts for five years until restoration success criteria are met. The Preserve Management Plan shall be approved by the city and give the city the right to enforce implementation of the plan in the long-term. The Preserve Management Plan shall include the following (See the city's most current *Guidelines for Preserve Management* for more details):

   a. An overall vision of the preserve area, role in the citywide preserve system and regional relationship.

   b. The baseline biological conditions as identified in field surveys of the property not more than two years old including an identification of the sensitive habitats and species that occur or have the potential to occur in the preserve area, and the known or expected threats to the biological value of the area.

   c. Conservation goals and management/monitoring objectives based on the vision for the preserve area and baseline biological conditions.

   d. Management and monitoring tasks based on the goals and objectives and HMP/MCHP requirements.

   e. Identification of the preserve management entity, subject to approval by the city, who possesses the necessary biological qualifications and experience to manage and monitor the preserve area in perpetuity.

   f. The plan shall commit the preserve manager to update the preserve management plan every five years to re-evaluate site conditions, goals, objectives, priorities and activities.

   g. Estimated costs for managing and monitoring the areas in perpetuity. The cost shall be based on the results of a property analysis record (PAR) or other method acceptable to the city planner. Typically, the cost estimate consists of the following components:

      - *Initial/Capital Phase.* The Initial /Capital component is generally considered the start-up phase of management in which one time tasks are implemented (such as initial fence installation, or baseline biological surveys), or more intensive management is conducted (such as intensive weed abatement). The Initial/Capital phase typically lasts for one to three years.

      - *Ongoing Phase*. The ongoing component is the annual management and monitoring in perpetuity after the initial phase is complete. Some tasks will be done annually, and others will be done every 3 to 5 years or other interval. Tasks that required an intensive effort in the first few years of management are expected to take less effort afterward.

- *Total Cost Estimate*. The total out of pocket estimate consists of the Initial/Capital cost, which is funded in a separate account that will be used up during the first one to three years, and the ongoing cost, which will be funded annually through a non-wasting endowment (i.e, Total cost to the applicant = Initial-Capital cost + Endowment Principal).

4. **Funding of Management.** Based upon the management plan, the developer shall fund long-term management through a nonwasting endowment or other secure financial mechanism acceptable to the city planner. Funds shall be held in a secure financial institution that is approved by the city with demonstrated success in managing endowments. Proof of funding shall be submitted to the city and distributions from interest earned shall be provided to the identified preserve manager based on the cost estimate approved by the city. The endowment principal will not be touched.

6.0 BIOLOGICAL RESOURCES TECHNICAL REPORT

The Biological Resources Technical Report will provide the necessary information to establish the current status of biological resources within a project footprint, an analysis of potential project impacts, and mitigation measures that should be implemented to reduce the impacts to below a level of significance. Below is a suggested outline for an adequate Biological Resources Technical Report. Key items for each section are included under each main heading.

Cover page

Summary of Findings

Introduction

- Project location
- Project description (describe all components)
- Graphics showing:
  - Regional location
  - Location with respect to HMP boundaries (Existing and Proposed Hardline, Standards Areas)
  - Project study area including property boundary and survey area boundary

Methods and Survey Limitations

- Background literature and GIS data search
  - Review previous biological studies and CEQA documentation, if available.
  - Data sources may include California Natural Diversity Database (CNDDB), County of San Diego SanBIOS, San Diego Natural History Museum species databases, etc.
- Field survey methods
  - Biological surveys should be no more than two years old.
  - Surveys should include vegetation mapping, general biological survey to identify all observed plant and animal species within study area and potential habitat for listed and covered species, and appropriate focused species surveys using the most current accepted protocol.
  - Site evaluation should include potential wildlife movement in the vicinity of the site.
  - Vegetation mapping and biological surveys shall be conducted at the appropriate time of year (growing season, blooming season, breeding season, etc.).

Results (quantification of existing conditions)

- Vegetation communities descriptions
  - Classification must follow the modified Holland system (Holland 1986, Oberbauer et al 2008).

- Vegetation mapping may use the more current Vegetation Classification Manual for Western San Diego County (Sproul et al. 2012), but must be cross-walked to the modified Holland system.
- Each vegetation community should be described in general, and specifically onsite. Descriptions should include dominant species, indicator species, and other key characteristics.

- Inventory of plants and wildlife, including native and non-native
- Sensitive species – locations and number of individuals, and status (federal, state, HMP coverage)
- Sensitive habitats – location and acres
- Jurisdictional wetlands – Jurisdictional delineation report to be included as appendix
- Wildlife movement corridors
- Graphics showing sensitive resources, property boundary and study area boundary

Evaluation of Project Impacts

- Quantify impacts to each vegetation community and jurisdictional resource
- Analyze impacts to sensitive species and habitats
- Quantify permanent and temporary impacts
- Analyze direct and indirect impacts
- Evaluate significant and non-significant impacts
- Evaluate local and regional significance of the loss of species or habitat
- Evaluate impacts to wildlife movement corridors
- Graphics showing
  - Property/study area boundary
  - Vegetation and sensitive species
  - Temporary vs. permanent impacts, including staging areas, temporary access, manufactured slopes, drainage basins, etc.
  - Current and proposed easements (utilities, etc.)
  - Fuel modification zones
  - Biological buffer zones, including upland, wetland, and species-specific

Mitigation measures

- General mitigation measures to avoid or reduce potential impacts
- Measures to reduce the significant impacts to below a level of significance
- Avoidance/Mitigation requirements for Coastal Zone or Standards Areas
- Adjacency Standards
- Habitat mitigation fees
- Habitat mitigation
  - Required habitat mitigation ratios per HMP

  - Ratios for mitigation habitat that is created, restored, or preserved
  - Mitigation habitat (on or offsite) must be determined prior to project approval
  - Acreage and location of mitigation (creation, restoration, enhancement, preservation)
- Mitigation requirements for jurisdictional resources (wetlands and waters)
- Species-specific mitigation requirements
- Include supporting documentation, as necessary, including:
  - Fencing plan describing the type and location of fencing, including (a) permanent fencing along any urban/wildlands interface to deter unauthorized access, (b) permanent fencing to direct animals toward wildlife undercrossings and away from traffic, and (c) temporary fencing to delineate the construction footprint, impact zones within the footprint, protected areas, and no-construction buffer zones.
  - Lighting plan describing wildlife friendly lighting in areas adjacent to preserved habitat. Details for appropriate wildlife friendly lighting can be found on the Florida Fish and Wildlife Conservation Commission website (http://myfwc.com/conservation/you-conserve/lighting).
  - Restoration plan (mitigation plan) following the city's most current Guidelines for Habitat Creation and Restoration.

7.0 PERMITTING

This section discusses the local, state, and federal permits that may be necessary for a project that impacts biological or jurisdictional resources. Listed below are the regulations that govern the impacts and require the permits. Table 3 in Section 7.8 below provides an abbreviated summary of permit types, events that trigger the permit, and the permitting authority. It is important to note that, depending on the biological resources located on the project site and the potential development impacts, more than one of these permits/certifications may be required.

7.1 City of Carlsbad HMP Permit

A minor HMP permit or major HMP permit shall be required for any development project that directly or indirectly impacts natural habitat in accordance with the Carlsbad Municipal Code 21.210.070. If the permit application is processed concurrently with any other permit for which the Planning Commission or City Council is the decision-making authority, then a major HMP is required. If the permit application is not processed concurrently with any other permit for which the Planning Commission or City Council is the decision-making authority, then a minor HMP is required.

7.2 City of Carlsbad Incidental Take Permit

The Wildlife Agencies have issued take authority to the city for impacts to covered species. This means that the city can issue an *Incidental Take Permit* for "take" of state or federally listed species covered by the HMP. "Take" is defined by the federal Endangered Species Act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Take is defined by the State Endangered Species Act as "hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture or kill." This process replaces the previous requirement for Federal ESA Section 7 consultation, Section 10(a), and Federal Incidental Take Permit with the USFWS for federally listed species covered by the HMP and replaces the previous requirement for a State Incidental Take Permit from the CDFW for state listed species covered by the HMP (See Sections 7.3 and 7.4 below).

7.3 Federal Incidental Take Permit

Potential impacts to federally listed species not covered by the HMP require a federal incidental take permit issued by USFWS based on the following sections from the Federal Endangered Species Act (FESA):

- FESA Section 9 prohibits take of federally listed species.
- FESA Section 7 describes a formal consultation process which is required of any federal action (such as permit processing by the U.S. Army Corps of Engineers), for any federal governmental agency, or for projects that receive federal funding and may potentially impact a federally listed species. The USFWS will analyze the project impacts and prepare a Biological Opinion (BO). From the date that the formal consultation is initiated, the USFWS is allowed 90 days to consult with the agency and applicant (if any) and 45 days to prepare and submit a BO to the permitting federal agency.

- FESA Section 10(a) allows exceptions to Section 9 for non-federal entities (e.g., private landowners or non-federal governmental agencies), through issuance of an Incidental Take Permit. A Habitat Conservation Plan (HCP), along with other documents such as an application form and possibly an Implementing Agreement, must accompany Incidental Take Permit in order to be approved. The applicant is responsible for preparing the HCP. While processing the permit application, USFWS will prepare the incidental take permit, write a BO under Section 7 of the ESA, and finalize the federal environmental review analysis. According to the USFWS website, the target processing time depends on the severity of project impacts on the listed species, ranging from three (3) months to12 months from the time of a complete application acceptance.

7.4 State Incidental Take Permit

Potential impacts to state listed species not covered by the HMP require a California Endangered Species Act (CESA) Incidental Take Permit, issued by CDFW. Some species are designated as Fully Protected Species by the California Fish and Game Code and no provision of any other law can be construed to authorize take of those species.

7.5 State Streambed Alteration Agreement

The HMP does not cover impacts to state wetlands and waters pursuant to Fish and Game Code Section 1600. Therefore, projects that may cause changes, diversions, or obstructions to the natural flow of bed, channel, or bank or any river, stream or lake that supports wildlife resources may require a Streambed Alteration Agreement issued by CDFW. The process begins with a notification to the CDFW of planned activities, specifying the anticipated habitat impacts and the type of agreement that may be required. The CDFW has 30 days from the time of notification package submittal to make a completeness determination. If the CDFW determines that an agreement is required, they will submit a draft agreement to the applicant within 60 days of receipt of a complete notification.

7.6 Federal Section 404 and 401 Permits

The HMP does not cover impacts to wetlands and waters of the U.S. pursuant to the Federal Clean Water Act. Therefore, projects that discharge dredged or fill materials into "wetlands and waters of the U.S." as defined by the U.S. Army Corps of Engineers may require permits as described below.

- CWA Section 404. Activities that require a 404 permit may include placing fill or riprap, grading, mechanized land clearing or dredging, and deposit of dredged or fill material within the Ordinary High Water Mark of waters of the U.S. Lakes, rivers, streams, tributaries and wetlands. Depending on the level of the proposed activity, the project could require either a General Permit (in the form of a Nationwide or Regional Permit) or an Individual Permit. General Permits are decided on average 30 days after a receipt of a complete application and decisions on Individual Permits are made within two to six months after application completeness.
- CWA Section 401. Section 401 of the Clean Water Act (CWA) specifies that any applicant for a federal permit to conduct any activity that may result in any discharge into navigable waters,

shall provide the federal permitting agency a certification from the state in which the discharge originates that any such discharge will comply with the Clean Water Act. This means that in California, the Regional Water Quality Control Board (RWQCB) must certify that the project will comply with water quality standards. The Regional Board has 30 days following receipt of an application to notify the applicant of its completeness. Once an application is complete, the Board has between 60 days and one year in which to make a decision.

7.7 Coastal Development Permit

All development within the Coastal Zone, with the exception of the Agua Hedionda Lagoon segment of the Carlsbad Local Coastal Program, may be subject to a major or minor coastal development permit, which is described in Carlsbad Municipal Code 21.210. The city's coastal development permit requirements are based on the city's Local Coastal Program, adopted by the California Coastal Commission pursuant to Public Resources Code Sections 30620.6 and 30333. The Local Coastal Program is the city's land use plan, zoning ordinances, zoning maps, and other implementing actions certified by the coastal commission as meeting the requirements of the California Coastal Act of 1976. The HMP, including the Coastal Zone requirements, is one component of the Local Coastal Program's implementation plan.

7.8 Summary of Permits and Responsible Agencies

Table 3 below contains a summary of the permits that may be required for impacts to natural habitats and/or sensitive species. This table is intended to be a summary for reference purposes and does not constitute a detailed description of the permit triggers or other pertinent information. It is highly recommended that the individual agencies are consulted prior to determining which permits and procedures would be required for allowing habitat impacts.

Table 3. Summary of Permits that May Be Required for Project Impacts

Permit Type	Permit Trigger	Permitting Agency
Carlsbad HMP Permit	Any project that directly or indirectly impacts natural habitat and/or sensitive species within the city	City of Carlsbad
Carlsbad HMP Incidental Take Permit	Take of a state or federally listed species within the city that is covered by the HMP	City of Carlsbad
ESA Section 10(a) Incidental Take Permit and Section 7 consultation	Take, by a *non-federal* entity, of a federally listed species that is *not* covered by the HMP	USFWS
Federal Section 7 consultation and Incidental Take Permit	Take of a federally listed species that is *not* covered by the HMP by a federal entity or by a project that is federally funded or requires other federal permits (such as a Section 404 permit)	USFWS
CESA Incidental Take Permit	Take of state listed species that are not covered by the HMP. Applies to impacts inside and outside of the HMP planning area	CDFW

Streambed Alteration Permit Section 1600	Activities that will substantially modify a river, stream or lake	CDFW
CWA Section 404 Permit	Discharge of dredged or fill materials into "wetlands and waters of the U.S." as defined by the U.S. Army Corps of Engineers (ACOE)	ACOE
CWA Section 401 Certification	A project requires a Section 404 Permit	RWQCB
Coastal Development Permit	Any project that directly or indirectly impacts an environmentally sensitive habitat area within the Coastal Zone	City or CCC

GUIDELINES FOR BIOLOGICAL STUDIES

APPENDICES

APPENDIX A

HMP COMPLIANCE CHECKLIST

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Habitat Management Plan (HMP) Compliance Checklist

Project Name _____

Mitigation for Habitat Impacts

[Mitigation ratios or fees; see HMP Table 11, page D-113, and Coastal Zone Standards (below)]

Narrow Endemic Standards

[See page D-90, and HMP Table 9, page D-97 to D110]

Special Species Standards

[Least Bell's vireo, southwestern willow flycatcher, Dunn's skipper]

Local Facilities Management Zone [##] Standards

[HMP pages D-73; only applicable to Standards Areas]

Additional HMP Requirements

(MC 21.210 and standard practice)

- **Biology Report includes updated surveys** conducted at the appropriate time of year
- **Vegetation mapping** included within buffer 100 feet around project area.
- **Nesting raptors, narrow endemic species, HMP special status species within 100 feet** of the project area must be identified
- **Avoid bird breeding season**. If not feasible, mitigation must include pre-construction nest surveys and establishment of appropriate no-work buffer around active nests.
- **Impact map** must both temporary and permanent impacts, fuel modification zones, and habitat buffers (upland and wetland).
- **Fuel modification zones must be entirely within impact boundary** (outside of the preserve) and mitigated.
- **Preserve requirements** include (1) Preserve Management Plan, (2) property analysis record (PAR) or other long-term management cost estimate, (3) long-term management endowment funded by the developer, (4) management agreement with an approved long-term manager, (5) recorded conservation easement
- **Pre-existing utility easements** [not specifically in the code]
    - **Pre-existing easement rights will not be affected by HMP hardline**. Many pre-HMP preserves include pre-existing easements. These easement areas can still be used by the easement holders, but any damage or impacts to habitat must be repaired. If habitat

grows in to a pre-existing road and the road is later cleared, the wildlife agencies and wetland permitting agencies probably will require at least 1:1 mitigation.

- **New Preserves and pre-existing easements** – (a) mitigation cannot overlap any pre-existing easement, such as a utility easement, (b) pre-existing easements must be cut out of the conservation easement document, although they may be included as part of the preserve (as long as agencies know about it).
- **Anything that requires maintenance,** such as sedimentation basin, swales, etc., cannot be included within a preserve and must be within impact footprint.
- Mitigation cannot be sited on **manufactured slopes;** manufactured slopes should not be included in the preserve, but should be counted as impact and maintained by HOA or other appropriate entity.

Coastal Zone Standards

The following coastal zone standards are included in Section D.7 of the HMP

Coastal Zone Conservation Standard	Consistency Finding
7-1 Environmentally Sensitive Habitat Areas (ESHA) … shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.	
7-2 Coastal Sage Scrub. Properties containing Coastal Sage Scrub located in the Coastal Zone shall conserve a minimum 67% of the Coastal Sage Scrub and 75% of the gnatcatchers on site… .	
7-3 to 7-4	Definitions, no specific standard
7-6 Wetlands. … No impacts to wetlands shall be allowed in the Coastal Zone except… "where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects…	
7-7 Wetland Mitigation Requirements. If impacts to a wetland are allowed consistent with Policy 7-6 above, mitigation shall be provided at a ratio of 3:1 for riparian impacts and 4:1 for saltwater or freshwater wetland or marsh impacts.	
7-8 No Net Loss of Habitat. There shall be no net loss of Coastal Sage Scrub, Maritime Succulent Scrub, Southern Maritime Chaparral, Southern Mixed Chaparral, Native Grassland, and Oak Woodland within the Coastal Zone of Carlsbad...	
7-9 Upland Habitat Mitigation Requirements. …Mitigation for impacts to upland habitat shall be provided as follows: a) The no net loss standard shall be satisfied [through] creation or substantial restoration, if allowed, at a ratio of at least 1:1…	
b) Onsite preservation is not eligible for mitigation credit in the coastal zone. …	
c) Impacts to Coastal Sage Scrub shall be mitigated at a ratio of 2:1…	
d) Impacts to Southern Maritime Chaparral or Maritime Succulent Scrub shall be mitigated at a ratio of 3:1…	
e) Impacts to Southern Mixed Chaparral, Native Grassland, and Oak Woodland shall be mitigated respectively at ratios of 1:1, 3:1, and 3:1.	

Coastal Zone Conservation Standard	Consistency Finding
f) Mitigation for impacts within the coastal zone should be provided within the coastal zone if possible, particularly the 1:1 creation component, in order to have no net loss of habitat within the coastal zone…	
g) Habitat mitigation… other than creation or substantial restoration … may be partially or wholly fulfilled by acquisition of existing like habitat and/or retirement of development credits on existing like habitat with permanent preservation …	
h) All mitigation areas, onsite and offsite, shall be secured with a conservation easement in favor of the wildlife agencies. In addition, a preserve management plan shall be prepared for the mitigation areas, to the satisfaction of the city, the wildlife agencies, and the Coastal Commission. …and… adequate funding [provided] to protect the preserve … perpetuity...	
i) If any conflict should arise between the provisions of the HMP and the policies of the LCP, the LCP shall take precedence.	
7-10 Highly Constrained Properties. … a) If more than 80% of the property by area is covered with ESHA at least 75% of the property shall be conserved, OR b) [the hardline boundary in the approved HMP]… shall apply.	
7-11 Buffers and Fuel Modification Zones. Buffers shall be provided between all preserved habitat areas and development. Minimum buffer widths shall be provided as follows: a) 100 feet for wetlands b) 50 feet for riparian areas c) 20 feet for all other native habitats [as described in 7-8]. ...Any proposed reductions in buffer widths for a specific site shall require sufficient information to determine that a buffer of lesser width will protect the identified resources…. [and approval by the Resource Agencies].	
7-11 continued No development, grading, or alterations, including clearing of vegetation, shall occur in the buffer area, except for: a) Fuel modification Zone 3 to a maximum of 20 feet for upland and non-riparian habitat. No fuel modification shall take place within 50 feet of riparian areas, wetlands, or oak woodland. b) Recreation trails and public pathways within the first 15 feet of the buffer closest to the development, provided that construction of the trail or pathway and its proposed use is consistent with the preservation goals for the adjacent habitat, and that appropriate measures are taken for physical separation from sensitive areas. Buffer areas that do not contain native habitat shall be landscaped using native plants. Signage and physical barriers such as walls or fences shall be required to minimize edge effects of development.	
7-12 Grading and Landscaping Requirements. In addition to the requirements of the model grading ordinance in the Carlsbad Master Drainage Plan, permitted new development shall also comply with the following requirements:	

Coastal Zone Conservation Standard	Consistency Finding
a) Grading activity shall be prohibited during the rainy season: from October 1st to April 1st of each year. b) All graded areas shall be landscaped prior to October 1st of each year with either temporary or permanent landscaping materials, to reduce erosion potential. Such landscaping shall be maintained and replanted if not well-established by December 1st following the initial planting. …[Potential extensions of the allowable grading period are discussed.]	
7-13 City-Owned Lands Adjacent to Macario Canyon and Veterans Memorial Park	
7-14 Other Parcels – Specific Habitat Protection Standards	

Adjacency Standards

Implementation of the HMP will result in a preserve system with a great deal of urban-wildland interface. In order to reduce the negative effects of the associated edge effects, the project will comply with the HMP Adjacency Standards. The Adjacency Standards are summarized below; review Section F.3, Pages F-16 to F-24 for a complete set of standards.

Adjacency Standard	Consistency Finding
A. Fire Management – Where new development is planned, brush management [i.e., fuel modification zones] will be incorporated within the development boundaries and will not encroach into the preserve.	
B. Erosion Control (1) Identify and prioritize areas for erosion control; (2) Develop and implement erosion control plans for high priority …areas … for long-term protection. (3) Address slope stabilization and surface drainage. Prepare contingency plans…for highly erosive areas temporarily disturbed by fire. Prohibit bare surface grading for fire control on slopes [and leave] adequate vegetation cover to prevent surface erosion. Ensure that no new surface drainage is directed into the preserve.	
C. Landscaping Restrictions (1) Control exotic plant species –prohibit use of invasive exotic species in adjacent landscaping (2) Monitor horticultural regimes – prevent irrigation runoff, fertilizers and pesticides/herbicides from entering adjacent preserve areas. (3) Avoid genetic contamination - Use only locally collected seeds and plants in native species plantings within or adjacent preserves.	

Adjacency Standard	Consistency Finding
D. Fencing, Signs and Lighting (1) Fencing – use fencing to control unauthorized access, but ensure that fencing does not impede wildlife movement unless it is used to funnel wildlife away from roads. (2 Signs – use signage for access control and education, but ensure that signage does not attract unwanted attention to sensitive species or other resources. (3) Lighting – Eliminate lighting in or adjacent to the preserve except for safety reasons. Shield adjacent lighting away from preserves. Use low lighting in the warmer portion of the visible spectrum (e.g., yellow range) rather than the cooler portions (e.g., blue range) to reduce negative effects on wildlife's circadian rhythms.	
E. Predator and Exotic Species Control Control domestic predators through education, fencing and trapping (cowbirds) as necessary. When eradicating non-native species, use least biologically intrusive control methods. Properly dispose of all removed exotic plant materials. Revegetated weed removal areas with appropriate native species.	

APPENDIX B

SPECIAL STATUS SPECIES: SENSITIVITY, STATUS & BREEDING/BLOOMING SEASON

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Special Status Species Sensitivity and Blooming/Breeding Season

Common Name*	Scientific Name	Listing Status[1]	Covered by HMP[2]	FP[3]	NE[4]	Blooming/Breeding[5]
Plants						
Blochman's Dudleya	*Dudleya blochmaniae* ssp. *blochmaniae*				X	Apr – Jun
California Orcutt Grass	*Orcuttia californica*	FE/SE	X		X	Apr – Aug
Cliff Spurge	*Euphorbia misera*		X			Dec – Aug
Del Mar Manzanita	*Arctostaphylos glandulosa* ssp. *crassifolia*	FE/ -	List 3		X	Dec – Jun
Del Mar Mesa Sand Aster	*Corethrogyne filaginifolia* var. *linifolia*		List 3		X	May – Sep
Encinitas Baccharis	*Baccharis vanessae*	FT/SE	List 3		X	Aug – Nov
Engelmann Oak	*Quercus engelmannii*		List 2			Mar – Jun
Little Mousetail	*Myosurus minimus* ssp. *apus*		X		X	Mar – Jun
Nuttall's Scrub Oak	*Quercus dumosa*		X			Feb – Aug
Orcutt's Brodiaea	*Brodiaea orcuttii*				X	May – Jun
Orcutt's Hazardia	*Hazardia orcuttii*	- / ST	X		X	Aug – Oct
Orcutt's Spineflower	*Chorizanthe orcuttiana*	FE/SE	X		X	Mar – May
San Diego Ambrosia	*Ambrosia pumila*	FE/ -	List 2		X	Does not occur in Carlsbad
San Diego Barrel Cactus	*Ferocactus viridenscens*		List 2			May – Jun
San Diego Button-Celery	*Eryngium aristulatum* var. *parishii*	FE/SE	X		X	Apr – Jun
San Diego Goldenstar	*Bloomeria (Muilla) clevelandii*				X	Apr – May
San Diego Marsh Elder	*Iva hayesiana*		List 3			Apr – Oct
San Diego Thorn-mint	*Acanthomintha illicifolia*	FT/SE	List 2		X	Apr – Jun
Short-leaved dudleya	*Dudleya blochmaniae* ssp. *brevifolia*	- /SE			X	April
Spreading Navarretia	*Navarretia fossalis*	FT/ -	X		X	Apr – Jun
Sticky Dudleya	*Dudleya viscida*		List 2			May – Jun

Common Name*	Scientific Name	Listing Status[1]	Covered by HMP[2]	FP[3]	NE[4]	Blooming/Breeding[5]
Summer Holly	*Comarostaphylis diversifolia* ssp. *diversifolia*		List 3			Apr – Jun
Thread-leaved Brodiaea	*Brodiaea filifolia*	FT/SE	X		X	Mar - Jun
Torrey Pine	*Pinus torreyana ssp. torreyana*		List 3			Natural populations do not occur in Carlsbad
Wart-stemmed Ceanothus	*Ceanothus verrucosus*		List 2			Dec – May
Invertebrates						
Harbison's Dun Skipper	*Euphyes vestries harbisoni*		X		X	Jun 21 – Jul 31
Hermes Copper Butterfly	*Lycaena hermes*				X	May 21 – Jun 30
Quino checkerspot butterfly	*Euphydryas editha quino*	FE/ -				Does not occur in Carlsbad
Riverside Fairy Shrimp	*Streptocephalus woottoni*	FE/ -	X		X	Dec – Apr, wet season
Salt Marsh (Wandering) Skipper	*Panoquina errans*		X			Apr – Sep 30
San Diego Fairy Shrimp	*Branchinecta sandiegoensis*	FE/ -	X		X	Dec – Apr, wet season
Amphibians/Reptiles						
Arroyo Toad	*Anaxyrus (Bufo) californicus*	FE/ -			X	Does not occur in Carlsbad
Orange-throated Whiptail	*Aspidoscelis hyperythra*		X			All year
Birds						
American Peregrine Falcon	*Falco peregrinus anatum*	FD/SE	X	X		Mar – May
Belding's Savannah Sparrow	*Passerculus sandwichensis beldingi*	- /SE	X			Jan – Aug
California Brown Pelican	*Pelecanus occidentalis californicus*	FE/SE	X	X		Mar – May
California Least Tern	*Sterna antillarum browni*	FE/SE	X	X		Apr 1 – Sept 15 No protocol, every other week
California Gnatcatcher	*Polioptila californica californica*	FT/ -	X			Feb 15 – Aug 30
Cooper's Hawk	*Accipiter cooperi*		X			Apr – Jun

Common Name*	Scientific Name	Listing Status[1]	Covered by HMP[2]	FP[3]	NE[4]	Blooming/Breeding[5]
Elegant Tern	*Sterna elegans*		X			Apr – Jul
Large-billed Savannah Sparrow	*Passerculus sandwichensis rostratus*		X			Jan – Aug
Least Bell's Vireo	*Vireo bellii pusillus*	FE/SE	X			Apr 10 – Jul 31
Light-footed Ridgeway's Rail	*Rallus longirostris levipes*	FE/SE	X	X		Mar – Jul
Osprey	*Pandion haliaetus*		X			Apr – Aug
Rufous-crowned Sparrow	*Aimophila ruficeps canescens*		X			Mar – Jun
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	FE/SE	X			Does not breed in Carlsbad
Western Snowy Plover	*Charadrius alexandrinus nivosus*	FT/ -	X			Apr 1 – Sept 15
White-faced Ibis	*Plegadis chihi*		X			Apr – Jul
White-tailed Kite	*Elanus leucurus*			X		Jan – Aug
Yellow-breasted Chat	*Icteria virens*		X			May – Aug
Mammals						
Pacific Pocket Mouse	*Perognathus longimembris pacificus*	FE/ -			X	Does not occur in Carlsbad
Stephen's Kangaroo Rat	*Dipodomys stephensi*	FE/ST				Does not occur in Carlsbad

[1] Key to Listing Status: FE - Federally Endangered, SE - State Endangered, FT - Federally Threatened, ST - State Threatened, FD – Federally Delisted, SSC – state Species of Special Concern

[2] List 2: Species coverage contingent on other MHCP Subarea plans being permitted; List 3: Species coverage contingent upon funding for management of conserved areas

[3] FP = Fully Protected

[4] NE = Narrow Endemic species

[5] Survey window includes blooming period for plants, USFWS survey protocol window for federally listed species, and breeding season for birds. Animal species for which there is no protocol can be surveyed at any time of the year; however breeding season is usually the best time to survey these species. The survey window for all non-federally listed butterfly species recommended by butterfly expert Michael Kline (Kline-Edwards Professional Consulting, 2008).

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APPENDIX C

STANDARD CONSTRUCTION RELATED IMPACT AVOIDANCE MEASURES

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STANDARD IMPACT AVOIDANCE MEASURES

A. Project Design Guidelines

(Source: MHCP Vol. I, Section 6.2.3, and Agency comments)

1. Design placement of new development in lower quality or disturbed areas. Avoid areas that have the potential to be used as wildlife movement corridors or habitat linkages. The footprint of disturbance (e.g., development, staging areas, access roads, etc.) should be minimized to the maximum extent feasible and be specified in the construction plans.

2. Locate staging areas in disturbed habitat, to the degree feasible.

3. Designate no-fueling zones a minimum distance of 10 meters (33 feet) from all drainages and away from fire-sensitive areas.

4. Encourage greater flexibility in engineering design standards for park roads and maintenance roads through preserve areas. Design these roads to minimize biological impacts while still considering safety standards (e.g., minimize road-bed width, eliminate shoulders on rural roads and maintenance roads, and minimize the number and location of maintenance roads).

5. Avoid landform alteration of major natural features. Configure development to existing topography to minimize grading and land alteration.

6. Require setback limitations from sensitive habitat areas, including a minimum setback outside the root protection zone for all trees to be preserved. Require special construction techniques such as concrete pumping to the site and on-grade construction to protect tree roots.

7. Design placement of new utility corridors to minimize fragmentation and edge effects.

8. Encourage underground utilities and trenchless technology, where possible. Use narrow construction easements, and when possible, use practices such as jacking pipelines under drainages. Include restoration plans and construction monitoring plans for utility corridor construction and repairs which will be approved by the wildlife agencies.

9. Use bridges, instead of culverts, for all major riparian crossings and regional wildlife movement corridors, and use 3-meter chain-link fencing to direct wildlife movement toward the wildlife underpass. The site of the riparian crossing and its importance as a wildlife corridor should dictate the design. Noise within underpasses should be less than 60 dBA (decibels, A-weighted scale) during the time of day at which the animals use it. Shield corridors from artificial lighting. Use skylight openings within the underpass to allow for vegetative cover within the underpass. Design underpasses or culverts to be at least 30 feet wide by 15 feet high with a maximum 2:1 length-to-width ratio. Avoid co-locating human trails and wildlife movement corridors/crossings.

10. Construct noise barriers for short sections of road that may impact wildlife breeding.

11. Locate traffic controls such as stoplights and stop signs away from sensitive habitat to reduce the concentration of emissions and noise levels.

B. Pre-construction Measures

(Sources MHCP Vol I, Sec 6.2.3; MHCP Vol. II, Appendix B, Agency comments)

1. A qualified biologist shall conduct a training session for all project personnel prior to proposed activities. At a minimum, the training shall include a description of the target species of concern and its habitats, the general provisions of the Endangered Species Act (Act) and the HMP, the need to adhere to the provisions of the Act and the HMP, the penalties associated with violating the provisions of the Act, the general measures that are being implemented to conserve the target species of concern as they relate to the project, access routes, and project site boundaries within which the project activities must be accomplished.

2. The footprint of disturbance shall be minimized to the maximum extent feasible and shall be specified in the construction plans. Construction limits will be delineated with orange fencing, which will be maintained until the completion of all construction activities. All employees shall be instructed that their activities, vehicles, equipment, and construction materials are restricted to the proposed project footprint, designated staging areas, and routes of travel.

3. For project areas that contain riparian habitat, the upstream and downstream limits of project disturbance plus lateral limits of disturbance on either side of the stream shall be clearly defined, marked in the field, and reviewed by the project biologist prior to initiation of work. Projects should be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by target species of concern.

4. A water pollution and erosion control plan shall be developed that describes sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, and other factors deemed necessary by reviewing agencies. Erosion control measures shall be monitored on a regularly scheduled basis, particularly during times of heavy rainfall. Corrective measures will be implemented in the event erosion control strategies are inadequate. Sediment/erosion control measures will be continued at the project site until such time as the revegetation efforts are successful at soil stabilization.

C. Construction Related Measures

(Sources: MHCP Vol I, Sec 6.2.3; MHCP Vol. II, Appendix B; HMP p. D-95; Agency comments)

1. The qualified project biologist shall review grading plans (e.g., all access routes and staging areas), and monitor construction activities throughout the duration of the project to ensure that all practicable measures are being employed to avoid incidental disturbance of habitat and any target species of concern outside the project footprint.

2. Construction monitoring reports shall be completed and provided to the City summarizing how the project is in compliance with applicable conditions. The project biologist should be empowered to halt work activity if necessary and to confer with City staff to ensure the proper implementation of species and habitat protection measures.

3. Any habitat destroyed that is not in the identified project footprint shall be disclosed immediately to the City, USFWS, and CDFG and shall be compensated at a minimum ratio of 5:1.

4. Access to and from the site will be located along existing access routes or disturbed areas to the greatest extent possible. All access routes outside of existing roads or construction areas will be clearly marked.

5. Construction employees will limit their activities, vehicles, equipment, and construction materials to the fenced project footprint.

6. Equipment storage, fueling, and staging areas shall be located on disturbed upland sites with minimal risk of direct drainage into riparian areas or other sensitive habitats, and at least 100 ft from Waters of the U.S. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. All necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. All project related spills of hazardous materials shall be reported to the City and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.

7. When stream flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing or other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments off-site. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the sediment from re-entering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.

8. Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.

9. The removal of native vegetation shall be avoided and minimized to the maximum extent practicable. Temporary impacts shall be returned to pre-existing contours and revegetated with appropriate native species. All revegetation plans shall be prepared and implemented consistent with MHCP Volume II, Appendix C (Revegetation Guidelines) and shall require written concurrence of the FWS and CDFG.

10. Construction through sensitive areas should be scheduled to minimize potential impacts to biological resources. Construction adjacent to drainages should occur during periods of minimum flow (i.e., summer through the first significant rain of fall) to avoid excessive sedimentation and erosion and to avoid impacts to drainage-dependent species. Construction near riparian areas or other sensitive habitats should also be scheduled to avoid the breeding season (March through September) and potential impacts to breeding bird species.

11. Noise impacts are a concern around areas supporting breeding bird habitat. To avoid or minimize noise impacts, limit construction activities during the breeding season (March through September) to those that will not produce significant noise impacts (i.e., noise levels greater than 60 dB L_{eq} [decibels, equivalent sound level] at the edge of the habitat of concern). Preconstruction surveys at potential impact areas will be conducted from mid-May to mid-June.

12. Lighting in or adjacent to the preserve will not be used, except where essential for roadway, facility use, and safety. If nighttime construction lights are necessary, all lighting adjacent to natural habitat will be shielded and/or directed away from habitat.

13. Fugitive dust will be avoided and minimized through watering and other appropriate measures.

14. If dead or injured listed species are located, initial notification must be made within three working days, in writing, to the USFWS Division of Law Enforcement in Torrance, California and by telephone and in writing to the applicable jurisdiction, Carlsbad Field Office of the FWS, and CDFG.

15. Exotic species that prey upon or displace target species of concern should be permanently removed from the site.

16. To avoid attracting predators of the target species of concern, the project site shall be kept as clean of debris as possible. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s). Pets of project personnel shall not be allowed on-site where they may come into contact with any listed species.

17. The City of Carlsbad has the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions including these BMP. The FWS and CDFG may accompany City representatives on this inspection.

18. All mitigation sites shall be conserved through fee title acquisition or Conservation Easement, as defined in California Civil Code Section 815.1, and proof of recordation shall be provided to the jurisdictional city prior to land disturbance.