HELIX Environmental Planning

City of San Diego Dam Maintenance Program

Biological Technical Report

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Prepared for:

City of San Diego
Public Utilities Department
9192 Topaz Way, MS 901A
San Diego, CA 92123

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ARTO	Arroyo toad
ASMD	Area Specific Management Directive
BCC	Bird of Conservation Concern
BMP	Best Management Practices
CAGN	Coastal California Gnatcatcher
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG Code	California Fish and Game Code
City	City of San Diego
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DSOD	Division of Safety of Dams
EPP	Essential Public Projects
ESA	Endangered Species Act
ESL	Environmentally Sensitive Lands
FESA	Federal Endangered Species Act
FP	Fully Protected
GPS	Global Positioning System
HELIX	HELIX Environmental Planning, Inc.
I-	Interstate
ITP	Incidental Take Permit
LBVI	Least Bell's Vireo
LUAG	Land Use Adjacency Guidelines

LIST OF ACRONYMS AND ABBREVIATIONS (cont.)

MBTA	Migratory Bird Treaty Act
MHPA	Multi-habitat Planning Area
MM	Mitigation Measures
MMRP	Mitigation and Monitoring Reporting Program
MSCP	Multiple Species Conservation Program
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
NWPR	Navigable Waters Protection Rule
OHWM	ordinary high water mark
PCE	Primary Constituent Elements
Program	Dam Maintenance Program
PUD	Public Utilities Department
QCB	Quino Checkerspot Butterfly
RBC	Rocks Biological Consulting
RECON	RECON Environmental, Inc.
RWQCB	Regional Water Quality Control Board
SanGIS	San Diego Geographic Information Source
SAP	Subarea Plan
SCR	Substantial Conformance Review
SDP	Site Development Permit
SR	State Route
SSC	Species of Special Concern
SWFL	Southwestern Willow Flycatcher
SWPT	Southwestern Pond Turtle
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Society
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VPHCP	Vernal Pool Habitat Conservation Plan
WDR	Waste Discharge Requirements
WL	Watch List

EXECUTIVE SUMMARY

The City of San Diego (City) Public Utilities Department (PUD) owns and manages 13 dams, spillways, and other associated infrastructure, including the approximately 13-mile Dulzura Conduit, located throughout San Diego County as part of the City's drinking water infrastructure. These facilities are subject to the regulatory jurisdiction of the Division of Safety of Dams (DSOD), part of the California Department of Water Resources, which oversees dam safety in California with the goal of avoiding dam failure. As part of the dam safety program, the DSOD completes regular safety inspections of the City's dams and provides annual inspection reports. These reports identify maintenance needs that are required to allow for inspection, meet dam safety standards, and prevent failure of critical infrastructure. The City proposes the Dam Maintenance Program (Program) which would cover the long-term maintenance of the 13 City-owned dams, Dulzura Conduit, spillways, and other associated infrastructure. The proposed Program would include maintenance activities that are routinely included the annual DSOD inspection reports.

The purpose of this report is to describe the existing biological resources within the Program area and provide a programmatic analysis of potential impacts to sensitive biological resources resulting from implementation of the Program with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA) by the City Development Services Department (DSD) as well as the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS) in support of the City's goal of obtaining master or general permits from those agencies to conduct long-term maintenance activities without the need for separate approvals for each maintenance action.

The Program area supports 36 vegetation communities and land cover types including 14 wetland and riparian vegetation communities and 22 upland vegetation communities and land cover types. Wetland and riparian vegetation communities include southern riparian forest, southern coast live oak riparian forest, riparian woodland, mule fat scrub, southern willow scrub, arrowweed scrub, tamarisk scrub, freshwater marsh, disturbed wetland, lakeshore fringe, non-vegetated channel, non-native riparian, arundo-dominated riparian, and open water/freshwater lake. Upland vegetation communities and land cover types include native grassland (disturbed), coast live oak woodland, Engelmann oak woodland, mixed oak woodland, scrub oak chaparral, Diegan coastal sage scrub (including disturbed and sparse), laurel sumac dominated Diegan coastal sage scrub, Baccharis dominated Diegan coastal sage scrub, flat-topped buckwheat scrub, coastal sage-chaparral scrub (including disturbed), southern mixed chaparral, ceanothus dominated southern mixed chaparral, granitic southern mixed chaparral (including disturbed), granitic northern mixed chaparral (including sparse), chamise chaparral, non-native grassland, non-native vegetation, eucalyptus woodland, bedrock, talus slope, disturbed habitat, and developed land.

No state or federally listed plant species were observed within the Program area during biological surveys. Seventeen other special status plant species were documented within the Program area. Three of these species are covered species under the City's Multiple Species Conservation Program (MSCP) subarea plan (City 1997): San Diego golden star (*Bloomeria clevelandii*), wart-stemmed ceanothus (*Ceanothus verrucosus*), and San Diego barrel cactus (*Ferocactus viridescens*). None are MSCP narrow endemic species.

Seven state and/or federally listed animal species, including candidate species, were documented in the Program area during biological surveys. Twenty-seven other special status animal species were documented within the Program area. Fourteen of these species are covered under the City's MSCP subarea plan: arroyo toad (*Anaxyrus californicus*), bald eagle (*Haliaeetus leucocephalus*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), Belding orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Blainville's (formerly coast) horned lizard (*Phrynosoma blainvillii*), Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Canada goose (*Branta canadensis*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), peregrine falcon (*Falco peregrinus*), yellow warbler (*Setophaga petechia*), western bluebird (*Sialia mexicana*), and mule deer (*Odocoileus hemionus*).

The Program area supports wetland and non-wetland waters of the U.S. subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the federal Clean Water Act (CWA); wetland and non-wetland waters of the State subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA; riparian-vegetated and unvegetated streambed subject to the regulatory jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Section 1600 et seq. of California Fish and Game Code; and wetlands subject to the regulatory jurisdiction of the City pursuant to the City's Municipal Code Environmentally Sensitive Lands Regulations (Chapter 14, Article 3, Division 1).

Implementation of the Program would result in direct impacts to approximately 95.40 acres of habitat, including 10.90 acres of wetlands and non-wetland resources, 19.9 acres of sensitive upland habitats, and 64.6 acres of non-sensitive uplands and developed land. Approximately 4.87 acres of wetland impacts, 5.2 acres of sensitive upland impacts, and 13.7 acres of non-sensitive upland impacts may occur within the City's Multi-Habitat Planning Area (MHPA). Impacts to wetland habitats (except for arundo-dominated riparian) and sensitive uplands would be considered significant and would require mitigation at ratios prescribed by the City's Biology Guidelines (2018). The proposed Program would provide mitigation through one or more of the following: acquisition/preservation, enhancement, restoration, or creation of appropriate habitat and/or purchase or allocation of mitigation credits.

Implementation of the Program would result in impacts to special status plant species and habitat occupied or suitable for special status animal species found to occur within the Program area, as well as those with potential to occur. Impacts to special status plant and animal species would be avoided and minimized to the greatest extent practicable, and unavoidable impacts would be mitigated through transplantation of individuals (when feasible) and habitat-based mitigation.

Implementation of the Program would result in permanent and temporary impacts to jurisdictional waters, wetlands, and riparian habitat, as defined by the USACE, RWQCB, CDFW, and City. These impacts would be considered significant and would require appropriate permits from the applicable regulatory agencies. Mitigation requirements to offset impacts to federal and state regulated water bodies will be determined through the wetland permitting process and depend on mitigation type (creation, restoration, etc.), mitigation location, and quality of mitigation proposed. It is anticipated that these impacts would be mitigated through wetland enhancement, restoration, creation, and/or purchase or allocation of mitigation credits from an Agency approved wetland mitigation site or bank (as deemed appropriate).

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

HELIX Environmental Planning, Inc. (HELIX) has completed this biological technical report for the City of San Diego (City) Public Utilities Department (PUD) Dam Maintenance Program (Program; Proposed Project). The Program includes the oversight and long-term routine maintenance of 13 of the City's dams, Dulzura Conduit, and associated infrastructure located throughout San Diego County. The purpose of this report is to document the existing biological conditions within the Program area and provide a programmatic analysis of potential impacts to sensitive biological resources resulting from the implementation of the overall Program with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA) by describing the Proposed Project, evaluating potential impacts, identifying potential mitigation, and establishing a framework for future environmental review, as applicable.

1.2 PROJECT BACKGROUND AND DESCRIPTION

The City PUD owns and manages 13 dams, spillways, and other associated infrastructure, including the approximately 13-mile Dulzura Conduit, located throughout San Diego County as part of the City's drinking water infrastructure. Each dam has a unique system of outlet works and spillway components to control the reservoir water levels and safely release water during severe storm events or impending dam failure. Associated dam infrastructure includes, but is not limited to, groins, toes, saddle dams, spillways and auxiliary spillways, training and parapet walls, outlet works, storm drain headwalls that are associated with the outlet works, and appurtenant structures. These facilities are subject to the regulatory jurisdiction of the Division of Safety of Dams (DSOD), which is part of the California Department of Water Resources, under Division 3 of the California Water Code. The DSOD oversees dam safety in California with the goal of avoiding dam failure, which could lead to potential loss of life and destruction of property. As part of the dam safety program, the DSOD completes detailed semi-annual inspections and provides an annual inspection report of the City's dams to identify maintenance activities such as vegetation removal, grading, dredging, and repairs to infrastructure and may request certain maintenance work to be performed to improve dam safety.

The proposed Program would cover the long-term maintenance of these facilities and includes maintenance activities that are routinely included in the DSOD annual inspection reports. As of recent, DSOD is in the process of providing a regulatory framework that could potentially penalize an agency through monetary fines should violations occur. The proposed Program provides the City oversight to address items in DSOD's inspection reports and avoid potential violations. The Program describes the maintenance methods and overall potential impacts that are anticipated to occur during the implementation of the Program. It also includes the protocols to address the impact of maintenance activities with respect to environmental resources.

1.2.1 Maintenance Activities

Maintenance activities covered under the proposed Program include the maintenance of access roads, access trails, and pedestrian footpaths, maintenance of staging and material storages areas, trimming and clearing of vegetation, dredging, maintenance of outlet/intake towers and trash racks, removal of

debris along spillways and other appurtenant structures to provide a clear path and remove obstruction, maintenance and repair of the dams and appurtenant structures to prevent deterioration that could lead to dam failure, concrete maintenance and repairs, maintenance and replacement of piezometers and survey monuments, and geotechnical investigations, as described further below.

Access Road and Staging Area Maintenance

Under the proposed Program, existing access roads, access trails, pedestrian footpaths, and staging and material storage areas would continue to be maintained in a usable condition along the current path alignments and existing disturbed/developed footprints. No widening, expansion, relocation, or establishment of new access roads, access trails, footpaths, or staging areas are proposed as part of the Program. Routine maintenance activities include patching and minor surface repaving of paved access roads and trails and staging areas; patching and minimal grading of gravel and dirt access roads and trails, and staging areas; filling of erosional voids, rills, and gullies caused by winter storms; and minor trimming of vegetation to remove overhanging branching and other encroaching vegetation. Minor trimming of vegetation would also occur along footpaths, which are necessary to maintain pedestrian access to the toe of dams, dam leakage measuring structures, and weir and outlet work structures. Maintenance and repair activities along existing paved, gravel, and dirt access roads and trails would be limited to the current road width, generally 10 feet wide, and established road right-of-ways, where present. Maintenance of pedestrian footpaths would be limited to minor trimming of vegetation along the path alignment; no soil disturbance or removal of vegetation would occur as part of footpath maintenance. Maintenance and repair activities within staging and material storage areas would be limited to the current disturbed and developed footprints.

Access to the dams and associated infrastructure to complete maintenance activities covered under this Program, and detailed below, would occur along established access roads, access trails, and pedestrian footpaths. Any staging of equipment or materials required to complete activities would occur within existing staging and material storage areas, within disturbed and developed portions of the dam, or within existing developed lands on nearby City property at the reservoirs. These areas are maintained as parking and operational space for dam and reservoir maintenance staff. If direct access to outlet/intake towers from the dam is not available, crews, materials, and the necessary equipment to perform maintenance and repair activities, including dredging, would be transported to the outlet/intake towers utilizing a boat or barge launched from the reservoir's boat ramp.

Vegetation Clearing

Vegetation growing on and adjacent to the dams and associated infrastructure has the potential to hinder site access and safety inspections, visually obstruct dam components, interfere with safe operations, damage critical infrastructure, and possibly lead to dam failure. Removal of vegetation and debris is critical to the functioning of the dams and associated infrastructure, and Dulzura Conduit, as vegetation could reduce design capacity and prevent proper inspection of infrastructure. Clearing of vegetation would continue to be conducted on a routine basis under the Program to keep the maintenance area free and clear of vegetation. This will avoid the re-establishment of upland and wetland vegetation, as well as decrease the chances of introducing a new species into an existing maintenance area.

Vegetation clearing would be limited to the following activities and areas:

- Clearing of all vegetation located within at least 5 feet of Dulzura Conduit;
- Clearing of all vegetation located within 10 feet of the dams and associated infrastructure;
- Clearing of all marsh habitat (i.e., giant reed [*Arundo donax*], cattail [*Typha* spp.], bulrush [*Schoenoplectus* spp.], etc.) located within 10 feet of the dam;
- Removal of all trees located within 10 feet of the dams, saddle dams, parapet walls, and spillways;
- Removal of all eucalyptus (*Eucalyptus* spp.) trees located within 50 feet of the dam, saddle dams, parapet walls, and spillways;
- Clear and maintain all vegetation within 10 feet of all weirs; headwalls; blow-off and outlet valves; inlet and outlet pipes; discharge, leakage, and seepage pipes and associated discharge paths; and
- Maintain slopes surrounding Black Mountain and Rancho Bernardo Dams so that no trees are allowed to establish. The slopes shall be maintained in their current condition so that only herbaceous vegetation and low-growing shrubs occur.

Clearing of vegetation on land surfaces would be limited to above ground level, and the roots of all cut vegetation would be left in place to prevent soil disturbance and reduce potential erosion. Clearing of eucalyptus and other tree species would be completed by cutting trees at the base and treating the stumps with herbicide. Aquatic vegetation, such as cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.), will either be cut at the water surface, removed with mechanical equipment, or treated with an herbicide approved for aquatic use by the U.S. Environmental Protection Agency by a licensed applicator. Vegetation clearing work would be conducted with hand tools such as pole saws, chain saws, and weed eaters. Felled trees and aquatic vegetation shall be removed from the area using mechanized equipment (such as a bobcat, backhoe, or excavator), where feasible, and transported to an appropriate waste management facility for disposal. Felled trees in areas inaccessible to mechanized equipment would be removed via helicopter.

Dredging

Accumulated lake bottom sediment covering dam infrastructure, such as lower saucer valve ports, would be removed through dredging to maintain operational function. Dredging would occur within a 50-foot radius of the outlet/intake tower base at Barrett, Chollas, El Capitan, Miramar, Morena, Murray, San Vicente, and Savage (Lower Otay) Dams, and within a 50-foot radius at the low-level outlet intake at Barrett, Hodges, and San Vicente Dams. The depth of dredging activities would be variable depending on site conditions.

There are two main dredging methods that are anticipated to be employed under the proposed Program: mechanical and hydraulic. Mechanical dredging typically involves a stationary, bucketed machine (such as a boom, clamshell, or backhoe) positioned on a barge that is lowered into the water to scoop up material. The dredged material is then raised above the water surface and deposited on a barge or other structure above the water surface. Hydraulic dredging utilizes a high-powered water

pump to suction up material that is then pumped away from the dredge site. A dredging plan would be prepared and approved prior to the commencement of dredging activities at each proposed location. The dredging plan would describe the scope of work, amount of material to be removed, method of dredging, equipment, access roads and points, staging area(s), duration and schedule, and protocols to be implemented. Dredged material would be removed from the reservoir and either disposed of at an appropriate disposal facility or reused in a beneficial capacity (i.e., agricultural).

Outlet Tower & Trash Rack Maintenance

Routine maintenance and minor repairs to the outlet/intake towers to maintain and improve the operational safety of the towers. These activities include filling cored holes on the operating platform; repairing the valve rack; repairing concrete spalls; applying a top seal to waterproof and protect concrete surfaces and seal hairline cracks; coating metal covers, access ladders, and handrails to prevent corrosion; repairing and replacing access ladders; replacing access hatches (in-kind); replacing the safety chains across rails at the landing (in-kind); replacing or refurbishing fall arrests; coating of the roof structural steel; and strengthening the concrete roof slab with the application of a fabric reinforced matrix. Equipment required to complete these activities would be limited to the use of manual and mechanical hand tools; no heavy machinery would be required. Additionally, trash racks would be regularly cleared, maintained, and kept free of debris that may block intake and outlet valves and other critical dam infrastructure hindering operational functionality.

Spillway Clearing

Accumulated debris such as dirt, rocks, boulders, and vegetation present on the spillways, spillway channels, and auxiliary spillways would be removed as part of the Program to maintain operational function and prevent damage to infrastructure. Debris would be removed by hand, where feasible, and heavy equipment including, but not limited to, a truck-mounted crane, rubber-wheeled front-end loader, track-mounted long arm excavator, track-mounted bobcat with jackhammer attachment, and dump trucks. Small equipment (such as a bobcat) would be lowered into the spillways and other appurtenant structures with a truck mounted crane to move the debris to a point where it can be accessed by a long-arm track-mounted excavator positioned at the top of the structure. Boulders would be broken up into manageable pieces with a hydraulic jackhammer to allow for removal. A track-mounted excavator would lift the debris from the spillway and appurtenant structures and place it in a dump truck to be hauled away and disposed of at a licensed landfill or stockpiled on-site within disturbed/developed areas of the dam. Spillway clearing activities would be contained within the unvegetated spillways and appurtenant structures, existing access roads, previously disturbed workspaces and staging areas, and disturbed and developed areas adjacent to the dams.

Removal of soil, debris, and vegetation along the El Capitan Dam spillway, lower dam spillway, and spillway channel will be conducted as part of the El Capitan Dam Spillway Vegetation Removal Project (Project No. 679843; State Clearing House No. 2022050039). Long-term maintenance of these areas will be covered under the El Capitan Dam Spillway Vegetation Removal Project and is not included as part of the proposed Program.

Dam Maintenance and Repairs

Routine maintenance and repair of the dams and appurtenant structures would occur to prevent deterioration and maintain the integrity and functionality of critical dam infrastructure. The 13 City-owned dams covered under this Program include four earthen dams (Chollas, El Capitan, Miramar, and

Morena Dams), seven concrete dams (Barrett, Hodges, Murray, San Vicente, Savage, Sutherland, and Upper Otay Dams), and two concrete reservoirs (Black Mountain and Rancho Bernardo).

Maintenance of earthen dams includes filling of voids, gullies, and rills caused by erosion on the upstream and downstream faces of the dam, and minor grading and regular compaction of the dam face and toe of the dam. Maintenance of concrete dams, reservoirs, and concreted appurtenant structures at earthen and concrete dams (i.e., saddle dams, parapet walls, spillways, etc.) includes repairs such as sealing of all joints and cracks with gaps with a flexible sealant to prevent infiltration of water and buildup of stagnation pressures; repairing all degraded concrete, spalls, and boulder impact areas within the spillway (channel floor and walls) and dam face and walls by cutting-out existing material then replacing and patching material to prevent further damage; repairing spalled concrete on all elements of the dam, especially where reinforcing steel is exposed; and smoothing vertically-displaced joints on concrete surfaces by surface grinding or other approved methods.

Additionally, auxiliary infrastructure located on or within the dams would be maintained, repaired, and or replaced, including perimeter fencing, piezometers and survey monuments, ladders, micrometers, electronic level sensors, and other instrumentation. All maintenance and repairs activities would be performed on existing structures, with work activities limited to disturbed and developed portions of the dam.

Dulzura Conduit

Routine maintenance and repair of the Dulzura Conduit would occur to prevent flow impairment through the conduit and maintain design capacity. The Dulzura Conduit is an approximately 13-mile-long aqueduct constructed to divert water from Barrett Dam Reservoir to Lower Otay Reservoir through a series of canals, flumes, and tunnels. Water is released into the conduit through the Barret Dam outlet tower by a 30-inch drainpipe. Upgrades to the conduit were completed in 2011, with a majority of the conduit now comprised of concrete channels and steel pipes. The average depth of the concrete trench segments is approximately four and a half feet, with a bottom width of three feet, and a top width of approximately six feet. The flume is a combination of enclosed metal flumes measuring approximately four feet in interior diameter, and board-formed poured concrete. Existing access roads and trails are constructed of decomposed granite, gravel, or concrete. Pedestrian footpaths primarily consist of dirt paths, and in some cases, small steel catwalks.

Maintenance activities along Dulzura Conduit involve the removal of landslide debris, rocks and boulders, and vegetation within the concrete conduit and the repair of damaged or deteriorating sections of the existing conduit with in-kind materials. Repairs of the existing concrete conduit would be completed with shotcrete and include the installation of reinforcing mesh, ground wires, and compound curing. The shotcrete would be broom finished by hand. Large boulders that are found to be blocking the conduit will be broken up into manageable pieces with the use of approved expansive chemical agents and/or mechanical equipment.

All inspection, repair, and maintenance activities along Dulzura Conduit would occur within the existing developed footprint of the conduit, pedestrian footpaths, and access roads and trails. The remote location of the conduit, rugged terrain, and limited vehicle access makes typical maintenance activities challenging. Maintenance and construction personnel would access the site through existing access roads, access trails, and pedestrian footpaths. Helicopters would airlift all supplies, equipment (i.e., mini excavator, bobcat, etc.), and debris that cannot be hand carried to and from the repair sites or removed

with maintenance vehicles. Helicopter landing, materials, and equipment staging areas would be located within existing developed lands on nearby City property at Barrett Reservoir. These areas are maintained as parking and operational space for dam and reservoir maintenance staff.

Geotechnical Investigations

Subsurface geotechnical investigation of the dams, foundations, and associated infrastructure would occur as part of periodic condition assessments under the proposed Program. Geotechnical investigations shall include seismic stability analysis using modern techniques, penetration tests, and borings. The techniques used to perform the investigations shall be limited to a small footprint within existing disturbed and developed areas associated with the dams and along access roads. No vegetation would be removed as part of the geotechnical investigation activities, and no native soil would be impacted as excavations would be conducted within disturbed soils of previously installed infrastructure (i.e., rockfill and concrete).

1.2.2 Frequency of Maintenance Activities

The frequency of maintenance activities would be based upon routine inspections and recommendations identified in the DSOD annual inspection reports. Factors influencing the timing and frequency of maintenance events would include, but are not limited to, current conditions, past maintenance history, and risk assessment. In general, the clearing of vegetation is anticipated to occur annually, though the extent of clearing would depend on the current conditions at each site. Other maintenance activities would occur on an as-needed basis as directed by the DSOD and City PUD.

Maintenance activities may need to be conducted in the event of an emergency. “Emergency” means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate the loss of, or damage to, life, health, property, or essential public services. Physical evidence, such as observation of surcharging conditions, blockages by debris/rocks/roots, or holes/cracks/offsets in dam infrastructure, or where impacts to vegetation, wetlands, and landforms have resulted from surcharging conditions (unanticipated water releases) that would demonstrate emergency conditions.

1.2.3 Maintenance Program Procedures

The overall maintenance process is summarized below.

Maintenance Determination Process

The maintenance determination process will begin with a review of information compiled by the City PUD and maintenance recommendations and mandates provided by DSOD. The City PUD will complete technical assessments of each facility and develop a maintenance plan for each planned activity, as determined necessary. The proposed maintenance activities will be reviewed and approved by the City PUD prior to the initiation of activities. Maintenance activities will be limited to the Program’s maintenance footprint and will follow the methods and procedures, as described in this report and the Program’s Maintenance Plan. Maintenance will occur on an annual to as-needed basis, as directed by the City PUD and DSOD.

Maintenance Plan

If necessary, a maintenance plan will be prepared for each planned activity. The maintenance plan will describe the scope of work, limits of maintenance, maintenance method, equipment, access roads and points, staging area(s), duration and schedule, and protocols to be implemented. If dredging activities are to occur, a site-specific dredging plan will also be prepared. Maintenance crews and technical staff will use the maintenance plan to direct and limit maintenance activities within the appropriate work areas.

Technical Assessments

The City PUD shall conduct site-specific technical assessments for each maintenance activity to determine if the proposed activities would result in impacts to sensitive biological or historical resources. The assessment shall include a description of the proposed maintenance activity(ies); summary of any field surveys completed; identification of any sensitive biological and historical resources present within the maintenance area, and those with potential to occur, if appropriate; description and quantification, as needed, of impacts to all sensitive biological and historical resources; and identification of any resource protection or avoidance measures. If the proposed maintenance activity(ies) were to result in impacts to sensitive biological resources or significant historical resources, the associated assessment would identify the mitigation measures to be implemented to minimize the impact(s) in accordance with the approved Mitigation and Monitoring Reporting Program (MMRP) and master permits.

The Program would generally not involve any maintenance efforts that would generate issues related to geology and soils; however, maintenance activities such as geotechnical investigations (borings) or dredging may require the preparation of a site-specific geotechnical investigation report to evaluate the geologic hazards of that maintenance activity.

Substantial Conformance Review Process

City PUD will complete a review of maintenance and repair activities to confirm that work will be completed within the approved maintenance footprint and is in conformance with the methods described in this report and the Program's Maintenance Plan. Consistency with the Program's final environmental documents, mitigation measures, and conditions will be determined by City PUD in compliance with the applicable delegation of authority under CEQA provided by the City's Planning Department.

Maintenance or repair activity deviating from the maintenance activities and methods detailed in this Plan or located outside of the defined maintenance footprint will be submitted to the City's DSD for a Substantial Conformance Review (SCR) to determine if the activity is consistent with the Program's Site Development Permit (SDP). As part of the SCR process, DSD will determine if the planned maintenance activity deviating from the Program description or maintenance footprint is consistent with the SDP and applicable mitigation measures and conditions included in that permit. If DSD determines that maintenance activities substantially conform, work may proceed. Any maintenance activities or expansion in the maintenance footprint that are not in substantial conformance will require a new or amended permit to address any new impacts that may occur and subsequent CEQA review.

Maintenance Implementation

Maintenance activities under this Program would commence once activities have been approved by the City PUD, as well as the state and federal agencies with jurisdiction over waterways and wetlands occurring within proposed maintenance areas. Maintenance activities would follow the methods and procedures as described in this report and the Program's Maintenance Plan.

Maintenance Reporting

An annual Program Monitoring Report summarizing the maintenance activities and mitigation measures that took place during the preceding year shall be prepared and submitted to the designated City departments and state and federal agencies. This report shall include a summary of biological resources impacted during maintenance and the mitigation that occurred, and a summary of the status of mitigation that has been carried out during the current and previous years to compensate for impacts to upland and wetland vegetation, as well as special status species.

1.2.4 Program Approvals

Implementation of the maintenance activities included in the Program would require a variety of discretionary actions and approval by the City and resources agencies. Due to the long-term nature of the Program, long-term (master) permits from the City, as well as state and federal agencies, are being sought to streamline the maintenance process. Long-term authorizations include a SDP (City of San Diego), Section 404 Permit (U.S. Army Corps of Engineers [USACE]), 1602 Streambed Alteration Agreement (California Department of Fish and Wildlife [CDFW]), and Section 401 Certification (California Regional Water Quality Control Board [RWQCB]). If surface discharges of water are involved, maintenance would require a Wastewater Discharge Permit from the RWQCB. Impacts to state and/or federally listed species would also require appropriate approvals and permits, including a Section 10(a) Permit or Section 7 Consultation by the U.S. Fish and Wildlife Service (USFWS). In the event of an emergency, after-the-fact permits, which may be required by the City, state, or federal agencies for emergency maintenance would be obtained.

1.3 PROJECT LOCATION

The proposed project includes long-term routine maintenance of 13 City dams and associated infrastructure, and the approximately 13-mile Dulzura Conduit located throughout San Diego County, California (Figure 1, *Regional Location*). The location of each of these areas is detailed below.

1.3.1 Barrett Dam

Barrett Dam is located in the eastern portion of the County, in the unincorporated community of Dulzura (Figure 1). It lies within Section 22 of Township 17 South, Range 3 East, on the U.S. Geological Survey (USGS) 7.5-minute Barrett Lake quadrangle map (Figure 2a, *USGS Topography – Barrett Dam*). Barrett Dam is located at the outlet of Barrett Reservoir along Barrett Lake Road north of Campo Road (State Route [SR] 94), south of Skye Valley Road, east of Lyons Valley Road, and west of Horizon View Drive (Figure 3a, *Aerial Photograph – Barrett Dam*). The study area occurs in the City's Barrett Reservoir Open Space area and Cleveland National Forest.

Barrett Dam is located outside of the boundaries of the City's Multiple Species Conservation Program (MSCP) Subarea Plan (SAP) (Figure 4a, *Regional Context – Barrett Dam*). U.S. Fish and Wildlife Service

(USFWS)-designated critical habitat for the arroyo toad (*Anaxyrus californicus*; ARTO) occurs within the Barrett Dam study area, and critical habitat for the Hermes copper butterfly (*Lycaena hermes*) occurs along the north access road but is absent from the dam itself (Figure 5a, *USFWS Critical Habitat – Barrett Dam*). The Barrett Dam study area encompasses the dam and associated infrastructure (i.e., outlet tower, tower outlet tunnel boat ramp, discharge paths, etc.), including access roads to the north and south of the dam (Figures 6a-1 to 6a-3, *Existing Facilities and Maintenance Areas – Barrett Dam*).

1.3.2 Black Mountain Dam

Black Mountain Dam is located in the northern portion of the City, in the community of Black Mountain Ranch (Figure 1). It lies within Section 6 of Township 14 South, Range 2 West, on the USGS 7.5-minute Del Mar quadrangle map (Figure 2b, *USGS Topography – Black Mountain Dam*). Black Mountain Dam is located south of Carmel Valley Road, east of Black Mountain Road, and north of Maler Road (Figure 3b, *Aerial Photograph – Black Mountain Dam*). The study area occurs within the City's Black Mountain Open Space Park.

Black Mountain Dam is located within the boundaries of the City's MSCP SAP and occurs within the Multi-Habitat Planning Area (MHPA; Figure 4b, *Regional Context – Black Mountain Dam*). No USFWS-designated critical habitat occurs within or adjacent to the Black Mountain Dam study area (Figure 5b, *USFWS Critical Habitat – Black Mountain Dam*). The nearest critical habitat occurs approximately 2.2 miles northwest of the dam for thread-leaved brodiaea (*Brodiaea filifolia*). The Black Mountain Dam study area encompasses a concrete reservoir and associated infrastructure (i.e., headwall, discharge path, slope maintenance area, etc.), including an access road from Carmel Valley Road (Figure 6b, *Existing Facilities and Maintenance Areas – Black Mountain Dam*).

1.3.3 Chollas Dam

Chollas Dam is located in the central portion of the City (Figure 1). It lies in unsectioned lands of Township 16 South, Range 2 West, on the USGS 7.5-minute National City quadrangle map (Figure 2c, *USGS Topography – Chollas Dam*). Chollas Dam is located at the outlet of Chollas Reservoir, north of College Grove Drive, south of Fauna Drive, east of Chollas Station Road, and west of College Grove Way (Figure 3c, *Aerial Photograph – Chollas Dam*).

Chollas Dam is located within the boundaries of the City's MSCP SAP, and the northeastern portion of the study area occurs within the MHPA (Figure 4c, *Regional Context – Chollas Dam*). No USFWS-designated critical habitat occurs within the Chollas Dam study area, but critical habitat for San Diego fairy shrimp (*Branchinecta sandiegonensis*) occurs 0.2-mile northeast of the study area (Figure 5c, *USFWS Critical Habitat – Chollas Dam*). The Chollas Dam study area encompasses an earthen dam and associated infrastructure (i.e., headwall, discharge path, etc.), including a service access road from the west (Figures 6c-1 to 6c-2, *Existing Facilities and Maintenance Areas – Chollas Dam*).

1.3.4 El Capitan Dam

El Capitan Dam is located in the eastern portion of the County, in the unincorporated community of Lakeside (Figure 1). It lies within Sections 7 and 8 of Township 15 South, Range 2 East, on the USGS 7.5-minute El Cajon Mountain quadrangle map (Figure 2d, *USGS Topography – El Capitan Dam*). El Capitan Dam is located at the outlet of El Capitan Reservoir along El Monte Road, north of Interstate (I-) 8, south of Featherstone Canyon Road, east of Lake Jennings Road, and west of Peutz Valley Road

(Figure 3d, *Aerial Photograph – El Capitan Dam*). The study area occurs in City's El Capitan Reservoir Open Space Area and Cleveland National Forest.

El Capitan Dam is located outside of the boundaries of the City's MSCP SAP (Figure 4d, *Regional Context – El Capitan Dam*). USFWS-designated critical habitat for the ARTO and coastal California gnatcatcher (*Polioptila californica californica*; CAGN) occurs within the El Capitan Dam study area (Figure 5d, *USFWS Critical Habitat – El Capitan Dam*). The El Capitan Dam study area encompasses a concrete dam and associated infrastructure (i.e., spillway channel, outlet tower, blow-off valves, discharge channel, etc.), including a northern and southern access road from El Monte Road (Figures 6d-1 to 6d-2, *Existing Facilities and Maintenance Areas – El Capitan Dam*).

1.3.5 Hodges Dam

Hodges Dam is located in the north portion of the City (Figure 1). It lies within Section 18 of Township 13 South, Range 2 West, on the USGS 7.5-minute Escondido and Rancho Santa Fe quadrangle maps (Figure 2e, *USGS Topography – Hodges Dam*). Hodges Dam is located at the outlet of Hodges Reservoir, north of Camino Santa Fe, south of Del Dios Road, east of Lake Drive, and west of Calle Ambiente (Figure 3e, *Aerial Photograph – Hodges Dam*). The study area occurs in the City's Hodges Reservoir Open Space area.

Hodges Dam is located within the boundaries of the City's MSCP SAP within the MHPA (Figure 4e, *Regional Context – Hodges Dam*). No USFWS-designated critical habitat occurs within the Hodges Dam study area (Figure 5e, *USFWS Critical Habitat – Hodges Dam*). The nearest critical habitat occurs approximately 0.6-mile west of the study area for San Diego ambrosia (*Ambrosia pumila*). The Hodges Dam study area encompasses a concrete dam and associated infrastructure (i.e., spillway approach and apron, training walls, weir, intake pipe, leakage pipes, blow-off valve, discharge channel, etc.), including western and eastern access roads from Del Dios Highway (Figures 6e-1 to 6e-2, *Existing Facilities and Maintenance Areas – Hodges Dam*).

1.3.6 Miramar Dam

Miramar Dam is located in the northern portion of the City (Figure 1). It lies within Section 32 of Township 14 South, Range 2 West, on the USGS 7.5-minute Poway quadrangle map (Figure 2f, *USGS Topography – Miramar Dam*). Miramar Dam is located at the outlet of Miramar Reservoir, north of Scripps Lake Drive, south and east of Scripps Ranch Boulevard, and west of Mira Lago Terrace (Figure 3f, *Aerial Photograph – Miramar Dam*). The study area occurs in the City's Miramar Reservoir Open Space area.

Miramar Dam is located within the boundaries of the City's MSCP SAP, with the majority of the study area occurring within the MHPA (Figure 4f, *Regional Context – Miramar Dam*). No USFWS-designated critical habitat occurs within or adjacent to the Miramar Dam study area (Figure 5f, *USFWS Critical Habitat – Miramar Dam*). The nearest critical habitat occurs approximately 2 miles north of the study area for San Diego thornmint (*Acanthomintha ilicifolia*). The Miramar Dam study area encompasses an earthen dam and associated infrastructure (i.e., spillway, saddle dam, outlet tower, blow-off valve, discharge path, etc.), including a service access road from the east (Figure 6f, *Existing Facilities and Maintenance Areas – Miramar Dam*).

1.3.7 Morena Dam

Morena Dam is located in the eastern portion of the County, in the unincorporated community of Lake Morena (Figure 1). It lies within Section 23 of Township 17 South, Range 4 East, on the USGS 7.5-minute Morena Reservoir quadrangle map (Figure 2g, *USGS Topography – Morena Dam*). Morena Dam is located at the outlet of Morena Reservoir along Morena Reservoir Road, north of Hauser Creek Road, south of Skye Valley Road, and west of Lake Morena Drive (Figure 3g, *Aerial Photograph – Morena Dam*). The study area occurs in the County's Lake Morena Regional Park and Cleveland National Forest.

Morena Dam is located outside of the boundaries of the City's MSCP SAP (Figure 4g, *Regional Context – Morena Dam*). No USFWS-designated critical habitat occurs within the Morena Dam study area (Figure 5g, *USFWS Critical Habitat – Morena Dam*). The nearest critical habitat is located approximately 1.2 miles west of the study area for ARTO. The Morena Dam study area encompasses an earthen dam and associated infrastructure (i.e., spillway, outlet tower, weir, blow-off valve, discharge path, etc.), including a service access road from the east along Morena Reservoir Road (Figures 6g-1 to 6g-2, *Existing Facilities and Maintenance Areas – Morena Dam*).

1.3.8 Murray Dam

Murray Dam is located in the eastern portion of the City (Figure 1). It lies within unsectioned lands of Township 16 South, Range 2 West, on the USGS 7.5-minute La Mesa quadrangle map (Figure 2h, *USGS Topography – Murray Dam*). Murray Dam is located at the outlet of Murray Reservoir, north of Lake Murray Boulevard, south of Jackson Drive, east of Del Cerro Boulevard, and west of Baltimore Drive (Figure 3h, *Aerial Photograph – Murray Dam*). The study area occurs in the City's Lake Murray Open Space area.

Murray Dam is located within the boundaries of the City's MSCP, with the majority of the study area occurring within the MHPA (Figure 4h, *Regional Context – Murray Dam*). No USFWS-designated critical habitat occurs within or adjacent to the Murray Dam study area (Figure 5h, *USFWS Critical Habitat – Murray Dam*). The nearest critical habitat is located approximately 2.5 miles north of the study area for the least Bell's vireo (*Vireo bellii pusillus*; LBVI). The Murray Dam study area encompasses a concrete dam and associated infrastructure (i.e., spillway, outlet tower, headwall, discharge path, etc.) (Figure 6h, *Existing Facilities and Maintenance Areas – Murray Dam*).

1.3.9 Rancho Bernardo Dam

Rancho Bernardo Dam is located in the northern portion of the City within the community of Rancho Bernardo (Figure 1). It lies within unsectioned lands of Township 13 South, Range 2 West, on the USGS 7.5-minute Escondido quadrangle map (Figure 2i, *USGS Topography – Rancho Bernardo Dam*). Rancho Bernardo Dam is located north of Sun Summit Point, south of Cloudcrest Drive, east of Lofty Trail Drive, and west of Turtleback Road (Figure 3i, *Aerial Photograph – Rancho Bernardo Dam*).

Rancho Bernardo Dam is located within the boundaries of the City's MSCP SAP but outside of the MHPA (Figure 4i, *Regional Context – Rancho Bernardo Dam*). No USFWS-designated critical habitat occurs within or adjacent to the Rancho Bernardo Dam study area (Figure 5i, *USFWS Critical Habitat – Rancho Bernardo Dam*). The nearest critical habitat occurs approximately 3.3 miles northwest of the study area for ARTO. The Rancho Bernardo Dam study area encompasses a concrete reservoir, including

surrounding slope maintenance areas (Figure 6i, *Existing Facilities and Maintenance Areas – Rancho Bernardo Dam*).

1.3.10 San Vicente Dam

San Vicente Dam is located in the central portion of the County, in the unincorporated community of Lakeside (Figure 1). It lies within Sections 31 and 36 of Township 14 South, Ranges 1 West and 1 East, on the USGS 7.5-minute San Vicente Reservoir quadrangle map (Figure 2j, *USGS Topography – San Vicente Dam*). The dam is located at the outlet of San Vicente Reservoir, north of Morena Avenue, south of Foster Truck Trail, east of SR-67, and west of Muth Valley Road (Figure 3j, *Aerial Photograph – San Vicente Dam*). The study area occurs in the City's San Vicente Reservoir recreation area.

San Vicente Dam is located within the boundaries of the City's MSCP SAP within the MHPA (Figure 4j, *Regional Context – San Vicente Dam*). No USFWS-designated critical habitat occurs within or adjacent to the San Vicente Dam study area (Figure 5j, *USFWS Critical Habitat – San Vicente Dam*). The nearest critical habitat occurs approximately 1.3 miles west of the study area for San Diego thornmint. The San Vicente Dam study area encompasses a concrete dam and associated infrastructure (i.e., spillway, saddle dam, outlet tower, intake pipe, discharge path, etc.), including service access roads from Morena Avenue (Figures 6j-1 to 6j-2, *Existing Facilities and Maintenance Areas – San Vicente Dam*).

1.3.11 Savage Dam

Savage (Lower Otay) Dam is located in the southern portion of the County, in the unincorporated community of Otay (Figure 1). It lies within Sections 13 and 18 and unsectioned lands of Township 18 South, Ranges 1 West and 1 East, on the USGS 7.5-minute Otay Mesa quadrangle map (Figure 2k, *USGS Topography – Savage Dam*). The dam is located at the outlet of Lower Otay Reservoir, north of Alta Road, south of Otay Lakes Road, east of Wueste Road and Otay Lakes County Park, and west of the Otay Open Space Preserve (Figure 3k, *Aerial Photograph – Savage Dam*). The study area occurs in the City's Otay Lakes Recreation Area.

Savage Dam is located within the boundaries of the City's MSCP SAP, with the majority of the study area occurring within the MHPA (Figure 4k, *Regional Context – Savage Dam*). USFWS-designated critical habitat for the quino checkerspot butterfly (*Euphydryas editha quino*; QCB) occurs within the Savage Dam study area (Figure 5k, *USFWS Critical Habitat – Savage Dam*). Additionally, critical habitat for Otay tarplant (*Deinandra conjugens*) occurs 0.4-acre west of the dam. The Savage Dam study area encompasses a concrete dam and associated infrastructure (i.e., spillway, auxiliary spillway, outlet tower, blow-off valve, discharge path, etc.), including a service access road from Wueste Road (Figures 6k-1 to 6k-2, *Existing Facilities and Maintenance Areas – Savage Dam*).

1.3.12 Sutherland Dam

Sutherland Dam is located in the northern portion of the County, in the unincorporated community of Ramona (Figure 1). It lies within Sections 20 and 21 of Township 12 South, Range 2 East, on the USGS 7.5-minute Ramona quadrangle map (Figure 2l, *USGS Topography – Sutherland Dam*). The dam is located at the outlet of Sutherland Reservoir along Sutherland Dam Road, north of SR-78, south and east of Black Canyon Road, and west of Rancho Ballena Road (Figure 3l, *Aerial Photograph – Sutherland Dam*). The study area occurs in the City's Sutherland Reservoir Open Space area and Cleveland National Forest.

Sutherland Dam is located outside of the boundaries of the City's MSCP SAP (Figure 4l, *Regional Context – Sutherland Dam*). No USFWS-designated critical habitat occurs within the Sutherland Dam study area (Figure 5l, *USFWS Critical Habitat – Sutherland Dam*). The nearest critical habitat is located approximately 1.75 miles east of the study area for ARTO. The Sutherland Dam study area encompasses a concrete dam and associated infrastructure (i.e., spillway, blow-off valve, discharge path, etc.), including service access roads from the north (Figure 6l, *Existing Facilities and Maintenance Areas – Sutherland Dam*).

1.3.13 Upper Otay Dam

Upper Otay Dam is located in the southern portion of the County, in the unincorporated community of Otay (Figure 1). It lies within unsectioned lands of Township 17 South, Range 1 West, on the USGS 7.5-minute Jamul Mountains quadrangle map (Figure 2m, *USGS Topography – Upper Otay Dam*). The dam is located at the outlet of Upper Otay Reservoir, north of Otay Lakes Road, south of Proctor Valley Road, east of Centennial Trail, and west of Wueste Road (Figure 3m, *Aerial Photograph – Upper Otay Dam*). The study area occurs in the City's Otay Lakes Recreation Area.

Upper Otay Dam is located within the boundaries of the City's MSCP SAP, with the majority of the study area occurring within the MHPA (Figure 4m, *Regional Context – Upper Otay Dam*). USFWS-designated critical habitat for the QCB occurs within the Upper Otay Dam study area (Figure 5m, *USFWS Critical Habitat – Upper Otay Dam*). Additionally, critical habitat for Otay tarplant and CAGN occur north of Upper Otay Reservoir. The Upper Otay Dam study area encompasses a concrete dam and associated infrastructure (i.e., parapet wall, discharge inlet, discharge path, etc.), including service access roads from Otay Lakes Road (Figures 6m-1 to 6m-2, *Existing Facilities and Maintenance Areas – Upper Otay Dam*).

1.3.14 Dulzura Conduit

The approximately 13-mile-long Dulzura Conduit, also known as the San Diego City Conduit, is located in the eastern portion of the County, in the unincorporated community of Dulzura (Figure 1). It lies within Sections 4, 5, 7, 8, 10, 11, 12, 13, 14, 22, 28, and 33 of Townships 17 and 8 South, Ranges 2 and 3 East, on the USGS 7.5-minute Barrett Lake, Otay Mountain, and Tecate quadrangle maps (Figure 2n, *USGS Topography – Dulzura Conduit*). The northern terminus of the Dulzura Conduit is located at Barrett Dam, and the southern terminus is located at the conduit's confluence with Dulzura Creek to the west of the Community Building Road and Flume Road intersection (Figure 3n, *Aerial Photograph – Dulzura Conduit*). The conduit traverses from Barrett Dam southward to Campo Road (SR-94), primarily along the eastern facing slopes west of Lake Barrett Road. The conduit then travels under Campo Road and continues in a westerly direction towards Dulzura Creek, with the western underground portion paralleling Flume Road.

Dulzura Conduit is located outside of the boundaries of the City's MSCP SAP (Figure 4n, *Regional Context – Dulzura Conduit*). USFWS-designated critical habitat for the ARTO occurs within portions of the Dulzura Conduit study area (Figure 5n, *USFWS Critical Habitat – Dulzura Conduit*). Additionally, critical habitat for Hermes copper butterfly occurs to the east and west of the northern portion of the conduct, and critical habitat for QCB occurs to the south and west of the western portion of the conduit. The Dulzura Conduit study area encompasses the entire length of the conduit, including piped sections, covered and uncovered portions of the trapezoidal channel, flumes, and tunnels; associated infrastructure such as

flush gates, sand traps, siphon, and spillway; and designated access trails (Trail 1 through 7) and service access roads (Figures 6n-1 through 6n-9, *Existing Facilities and Maintenance Areas – Dulzura Conduit*).

2.0 SURVEY METHODS

2.1 LITERATURE REVIEW

Baseline biological resources information for the Program area was reviewed and compiled from several sources, including the City's Final Vernal Pool Habitat Conservation Plan (VPHCP; City 2019), the City's MSCP SAP (City 1997), the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; CDFW 2020a), USFWS sensitive species database (USFWS 2020a), County's SanBIOS data (County 2020), California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2021), and biological reports for various projects, including biological reports for the Barrett Dam Drainpipe Replacement Project (RECON Environmental, Inc. [RECON] 2018a, 2018b, and 2019) and El Capitan Dam Spillway Vegetation Removal Project (RECON 2017, 2018c, 2018d, 2018e, 2018f, 2019, 2021). Recent aerial imagery, topographic maps, soils maps (Natural Resource Conservation Service [NRCS] 2021), regional vegetation mapping (San Diego Geographic Information Source [SanGIS] 2020), and other maps of the Program area were acquired and reviewed to obtain updated information on the natural environmental setting.

2.2 GENERAL BIOLOGICAL SURVEY

HELIX conducted a general biological survey of each of the Program's study areas between January 23 and March 4, 2020 (Appendix A, *Biological Survey Schedule*). The study area boundary was established using the following parameters: 500-foot buffer from the dams and appurtenant structures (i.e., spillways and saddle dams); 50-foot buffer from associated facilities (i.e., weirs, blow-off valves, discharge pipes, etc.); 25-foot buffer on either side of Dulzura Conduit; 25-foot buffer on either side of discharge paths (i.e., drainage, leakage, seepage; etc.); and 25-foot buffer on either side access roads and trails.

Vegetation was mapped on a 1"=200' scale aerial of the site. The site was surveyed on foot and with the aid of binoculars. Plant and animal species observed or otherwise detected were recorded in field notebooks. Animal identifications were made in the field by direct, visual observation or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs. The locations of special status plant and animal species incidentally observed or otherwise detected were mapped. The study areas were examined for evidence of potential jurisdictional waters and wetlands.

In addition to the general biological surveys, HELIX conducted jurisdictional delineations, habitat assessments for special status plant and animal species, rare plant surveys, and focused surveys for QCB, ARTO, CAGN, LBVI, southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL), and southwestern pond turtle (*Actinemys pallida*; SWPT).

Appendix A provides a summary of biological surveys conducted to date for the project. Representative site photographs of each of the dams and Dulzura Conduit are included in Appendix B, *Representative Site Photographs*.

2.3 FOCUSED SPECIES SURVEYS

2.3.1 Rare Plant

Rare plant surveys were conducted by HELIX and Rocks Biological Consulting (RBC) biologists between April 2 and May 21, 2020, with follow-up surveys for late-blooming species conducted in the summer between June 1 and August 13, 2020 (Appendix A). Rare plant surveys were conducted at the following sites: Black Mountain Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and the Dulzura Conduit. Previous rare plant surveys were also conducted by RECON at Barrett Dam in 2018 and 2019 (RECON 2019) and El Capitan Dam in 2018 (RECON 2021).

Rare plant surveys were not conducted at Barrett Dam in 2020, as surveys were recently conducted in 2018 and 2019 as part of the Barrett Dam Drainpipe Replacement Project (RECON 2019). Rainfall during the 2019 rainy season was exceptionally high, creating optimal conditions for annual special status plants to emerge; therefore, updated rare plant surveys were not conducted in 2020. Rare plant surveys also did not occur at Rancho Bernardo Dam because the study area is completely developed, surrounded by landscaping, and lacks native vegetation, and as such, does not contain suitable habitat to support rare plants.

Special status plant species include species that are: listed as threatened or endangered by the USFWS or the CDFW; those with a California Rare Plant (CRPR) Rank 1 through 4 designated by the CNPS; those listed as vernal pool species under the VPHCP (City 2019), and those that are listed as narrow endemic under the City's Biological Guidelines (City 2018) and covered by the City's MSCP SAP (City 1997). The surveys were conducted on foot for all accessible areas within the study areas except for areas with steep hillsides and cliffs, densely vegetated slopes, and other inaccessible areas (i.e., private property). Physically inaccessible areas were surveyed visually with the aid of binoculars. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs. Special status plant species encountered were mapped using a hand-held Global Positioning System (GPS) unit and/or on an aerial photograph. Special status plant species were also searched for opportunistically during other surveys, and biologists recorded their numbers and locations when encountered.

2.3.2 Quino Checkerspot Butterfly

Focused surveys for QCB were conducted by HELIX, RBC, and Huffman Environmental biologists at Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit, all of which occur within the USFWS Recommended Survey Area (USFWS 2014a). QCB surveys were not conducted at Black Mountain Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, or Rancho Bernardo, as these sites are either completely developed and lack suitable habitat for the species or are located outside of the USFWS Recommended Survey Area. The current USFWS protocol (USFWS 2014a) calls for weekly surveys to be conducted between the third week of February through the second Saturday in May in order to determine the presence/absence of QCB. The first observation of adult QCB in San Diego County was on January 27, 2020, in southwestern San Diego County (Quino Biologists United 2020). Due to this early observation of QCB, surveys at the two lower-elevation western dam sites, Savage and Upper Otay, were initiated early during the week of

February 10, 2022, with the approval from the USFWS[1], and with the first protocol survey conducted on February 12, 2020. Surveys for the remaining dam sites and Dulzura Conduit commenced the week of February 17th pursuant to the USFWS protocol. Surveys were conducted during a 13-week period for Savage Dam and Upper Otay Dam between February 12 and May 7, 2020 (Appendix A). Surveys at the remaining sites (Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Sutherland Dam, and Dulzura Conduit) were conducted during a 12-week period between February 17 and May 8, 2020 (Appendix A).

Surveys were conducted in accordance with USFWS protocol (USFWS 2014a) between February 12 and May 8, 2020 (Appendix A). Surveys consisted of walking through potential, non-excluded, habitat within the study areas, covering no more than 10 acres per hour per surveyor, and identifying all butterflies observed by sight and with the aid of binoculars. All QCB locations were recorded with the aid of hand-held GPS units and mapped on an aerial photograph. Larval host plants (purple owl's clover [*Castilleja exserta*], Chinese houses [*Collinsia* sp.], rigid bird's beak [*Cordylanthus rigidus*], and dwarf plantain [*Plantago erecta*]) were mapped during the peak flowering conditions and opportunistically during surveys, and potential nectaring resources (e.g., onion [*Allium* sp.], fiddleneck [*Amsinckia intermedia; A. menziesii*], goldenstar [*Bloomeria* sp.], popcorn flower [*Cryptantha* sp.; *Plagiobothrys* sp.], flat-topped buckwheat [*Eriogonum fasciculatum*], goldfields [*Lasthenia* sp.], and ground pink [*Linanthus dianthiflorus*]) were documented during surveys. Larval host plant patches were mapped as the number of individual host plants per square meter, and were categorized as either low density (1-99 plants per square meter), medium density (100-999 plants per square meter), or high density (1,000-9,999 plants per square meter) as described in detail in the QCB survey report. The QCB survey report is included as Appendix C, *2020 Quino Checkerspot Butterfly Survey Report*.

2.3.3 Arroyo Toad

Focused surveys for ARTO were conducted by RBC biologists at Barrett Dam, El Capitan Dam, and Sutherland Dam in 2020. The survey consisted of six survey visits at each location conducted between March 31 and June 24, 2020 (Appendix A), in accordance with *Survey Protocol for Arroyo Toad* (USFWS 1999). ARTO surveys were not conducted at any of the remaining sites, as they do not contain suitable habitat (i.e., slow-moving rivers or streams with shallow breeding pools and sandy or fine gravel substrates) for the species. At least one survey was conducted during the months of April, May, and June. The arroyo toad survey area consisted of all potential habitat occurring within the study areas. The surveys included both a daytime and nighttime component, conducted within the same 24-hour period. Daytime surveys were conducted during the daylight hours prior to sunset, and nighttime surveys began one hour after sunset. The surveys were timed to take place outside of the near- and full-moon phases. The primary objective of daytime surveys was to detect and document the presence of any arroyo toads in the immature life stage (egg strings, larvae, metamorphic individuals, or toadlets). Nighttime surveys were conducted to detect any breeding or foraging individuals.

Daytime surveys were conducted by walking slowly and carefully along the stream margin and adjacent riparian habitat, visually searching for eggs, larvae, and juveniles. Potential breeding pools and ARTO locations detected during the survey were either marked on an aerial photograph or recorded with a hand-held GPS unit. Nighttime surveys were conducted by walking slowly and methodically along stream

[1] Email from Stacey Love (USFWS) to Krista Catelani (HELIX), dated February 11, 2020.

banks and associated suitable upland habitat areas while making repeated stops to listen for calling toads. The arroyo toad survey report is included as Appendix D, *2020 Arroyo Toad Survey Report*.

2.3.4 Southwestern Pond Turtle

Southwestern pond turtle surveys were conducted at Barrett Dam and Murray Dam, and consisted of visual surveys conducted over two days at each location (May 21 and 26, and June 24 and 25, 2020) by HELIX biologists Erica Harris, Benjamin Rosenbaum, Mandy Mathews, and Alexander Walsh (Appendix A). The survey was completed using a modified protocol that generally followed those detailed in USGS Visual Survey Protocol (USGS 2006). No trapping of pond turtles or other reptiles/amphibians occurred as part of the surveys. Surveys for southwestern pond turtle were not conducted at Black Mountain Dam, Rancho Bernardo Dam, and Dulzura Conduit as these sites are either completely developed or lack suitable aquatic habitat for the species. Surveys were not conducted at the remaining dam sites as deep-water habitat at the reservoirs is of marginal quality and the species was found to be absent at several of the reservoirs (Chollas, Hodges, Miramar, Lower Otay, and Upper Otay) during visual surveys and target trapping conducted by USGS between 2002 and 2003 (USGS 2005).

The pond turtle survey area consisted of all potential habitat occurring within the study areas, which was limited to open water/lake habitat within Barrett Reservoir and Murray Reservoir; no downstream stream segments were surveyed within the study areas as no flowing water was present in these areas. The reservoirs were surveyed by conducting visual scans and passively monitoring the open bank along the lake edges for basking turtles with the aid of binoculars. Biologists were positioned at selected vantage points at separate locations along the shoreline to ensure complete visual coverage (typically one biologist at each end of the dam). The banks of the reservoirs were surveyed by slowly walking the edges where accessible. If a splash was heard by the biologist or made from an unknown source, the biologist would remain still and attempt to determine the source of the splash. The survey included a search for potential submerged refugia locations. All species observed during the survey were recorded.

2.3.5 Coastal California Gnatcatcher

Focused surveys for CAGN were conducted by HELIX biologists at Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam in 2020. Surveys were not conducted at Barrett Dam, Morena Dam, or Rancho Bernardo Dam as the study is either completely developed and/or does not contain suitable habitat (i.e., coastal sage scrub) for the species. Though suitable gnatcatcher habitat is present within the Black Mountain Dam and Dulzura Conduit study areas, surveys were not conducted as the species is known to occur within or adjacent to these areas (CDFW 2020), and presence has been assumed.

The survey consisted of three survey visits spaced at least seven days apart conducted between February 26 and May 26, 2020 (Appendix A), in accordance with the *Coastal California Gnatcatcher Presence/Absence Survey Protocol* (USFWS 1997). The gnatcatcher survey area consisted of all potential coastal California gnatcatcher habitat (i.e., Diegan coastal sage scrub [including disturbed, Baccharis dominated, and laurel sumac dominated] and coastal sage-chaparral scrub) occurring within the study areas. The surveys were conducted by walking through the vegetation or on adjacent paths, and viewing avian species with the aid of binoculars, where necessary. If the coastal California gnatcatcher was not detected passively, a digital coastal California gnatcatcher call prompt was briefly played. Coastal California gnatcatcher locations, along with any other special status species locations encountered

during the survey, were mapped on an aerial photograph. The coastal California gnatcatcher survey report is included as Appendix E, *2020 Coastal California Gnatcatcher Survey Report*.

2.3.6 Least Bell's Vireo

Focused surveys for LBVI were conducted by HELIX biologists at Chollas Dam, El Capitan Dam, Hodges Dam, Murray Dam, San Vicente Dam, Savage Dam, and Sutherland Dam in 2020. Surveys for LBVI were not conducted at Barrett Dam in 2020, as protocol surveys were recently conducted in 2018 as part of the Barrett Dam Drainpipe Replacement Project (RECON 2018b), during which the species was observed and was presumed to be present. Surveys were not conducted at Black Mountain Dam, Miramar Dam, Morena Dam, Rancho Bernardo Dam, Upper Otay Dam, or Dulzura Conduit, as the study area is either completely developed and/or suitable habitat (i.e., riparian habitat) is not present. The survey consisted of eight survey visits spaced at least 10 days apart, conducted between April 14 and July 30, 2020 (Appendix A), in accordance with *Least Bell's Vireo Survey Guidelines* (USFWS 2001). The vireo survey area consisted of potential least Bell's vireo riparian habitat (i.e., southern cottonwood-willow riparian forest, southern willow scrub, and tamarisk scrub) present within the study area. The survey was conducted by walking along the edges of, as well as within, potential least Bell's vireo habitat while listening for least Bell's vireo vocalizations and while viewing birds with the aid of binoculars. All least Bell's vireo locations, along with other special status species locations (and those of the brown-headed cowbird [*Molothrus ater*]; a nest parasite) encountered during the survey, were mapped on an aerial photograph. The least Bell's vireo survey report is included as Appendix F, *2020 Least Bell's Vireo Survey Report*.

2.3.7 Southwestern Willow Flycatcher

Focused surveys for southwestern willow flycatcher were conducted by HELIX biologists at El Capitan Dam in 2020. Surveys for SWFL were not conducted at any of the remaining sites, as suitable habitat (i.e., dense riparian habitat) for the species is not present. The survey consisted of five survey visits conducted at least five days apart, between May 16 and July 13, 2020 (Appendix A), in accordance with USFWS-approved survey protocol (Sogge et al. 2010). The flycatcher survey area consisted of potential southwestern willow flycatcher riparian habitat (i.e., southern cottonwood-willow riparian forest, southern willow scrub, and tamarisk scrub) present within the study area. The survey was conducted by walking along the edges of, as well as within, potential southwestern willow flycatcher habitat while listening for flycatcher vocalizations and viewing birds with the aid of binoculars. Recorded SWFL vocalizations were played every 20 to 30 meters, followed by a one-minute silent period to listen for a response. All flycatcher locations, along with other special status species locations encountered during the survey, were mapped on an aerial photograph. The southwestern willow flycatcher survey report is included as Appendix G, *2020 Southwestern Willow Flycatcher Survey Report*.

2.4 JURISDICTIONAL DELINEATION

Prior to conducting fieldwork, aerial photographs (1"=150' scale), topographic maps (1"=150' scale), and National Wetland Inventory (NWI) maps (USFWS 2020b) were reviewed to assist in determining the presence or absence of potential jurisdictional areas within the Program area. The jurisdictional delineation study area included all dam infrastructure and Program maintenance areas, including a 25-foot buffer. The purpose of the delineation was to identify and map water and wetland resources potentially subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) jurisdiction

pursuant to Section 401 of the CWA and State Porter-Cologne Water Quality Control Act, and streambed and riparian habitat potentially subject to CDFW jurisdiction pursuant to Sections 1600 et seq. of the California Fish and Game Code (CFG Code). The delineation was also conducted to determine the presence or absence of City Environmentally Sensitive Lands (ESL) wetlands. Areas generally characterized by depressions, drainage features, and riparian and wetland vegetation, were evaluated.

2.4.1 Waters of the U.S.

Potential USACE-jurisdictional waters of the U.S. were determined using three criteria (vegetation, hydrology, and soils) established for wetland delineations as described within Wetlands Delineation Manual (Environmental Laboratory 1987) and Arid West Regional Supplement (USACE 2008). Plants were identified according to Jepson eFlora (2021). Wetland affiliations of plant species follow the National Wetland Plant List (Lichvar et al. 2016). Areas were determined to be potential non-wetland waters of the U.S. if there was evidence of regular surface flow (e.g., bed and bank), but vegetation and/or soil criteria were not met. Jurisdictional limits for these areas were defined by the ordinary high water mark (OHWM). The OHWM widths were measured to the nearest foot at various locations along the mapped tributary.

2.4.2 Waters of the State

Potential RWQCB-jurisdictional waters of the State were delineated in the same manner as potential waters of the U.S. Potential RWQCB jurisdiction for waters of the State extends to the top of bank for streams and to the outer edge of wetlands when the OHWM is not apparent, pursuant to the State Water Resources Control Board's (SWRCB's) wetland definition that was adopted on April 2, 2019 (SWRCB 2019) and implemented as of May 28, 2020. All waters of the State are subject to RWQCB jurisdiction pursuant to CWA Section 401.

2.4.3 California Department of Fish and Wildlife Jurisdictional Areas

Potential CDFW-jurisdictional streambed and riparian habitat were determined based on the presence of riparian vegetation or regular surface flow within a measurable bed and bank. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that support riparian vegetation" (Title 14, Section 1.72). Potential CDFW-jurisdictional unvegetated streambed encompasses the top-of-bank to top-of-bank width for the features within the study areas. Riparian habitat is not defined in Title 14, but the section refers to vegetation and habitat associated with a stream. The CDFW jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream.

2.4.4 City Environmentally Sensitive Lands Wetlands

Potential ESL wetlands were evaluated based on the predominance of hydrophytic plant species. In addition, areas lacking naturally occurring wetland vegetation communities are still considered wetlands if hydric soil or wetland hydrology is present and past human activities have occurred to remove the historic vegetation. Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands will be considered a wetland under the ESL and regulated accordingly. However, seasonal drainage patterns that are sufficient enough to etch the

landscape would not satisfy the City's wetland definition unless wetland dependent vegetation is either present in the drainage or lacking due to past human activities. Naturally occurring wetland vegetation communities include saltmarsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub, and vernal pools. Artificially created wetlands, such as those created by human activities in historically non-wetland areas, are not considered City ESL wetlands in accordance with the City's definitions.

2.5 SURVEY LIMITATIONS

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of species identified are not necessarily comprehensive accounts of all species that utilize the site, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special status and have the potential to occur on-site, however, are addressed in this report.

2.6 NOMENCLATURE

Nomenclature used in this report follows the conventions used in the City's Biology Guidelines (City 2018) and MSCP SAP (City 1997). Vegetation community classifications follow Holland (1986) and Oberbauer (2008); plant names follow the Jepson eFlora (2021). Animal nomenclature is taken from NatureServe (2021) for insects; Pelham (2021) and Davenport (2018) for butterflies; Society for the Study of Amphibians and Reptiles (2021) for reptiles and amphibians; American Ornithological Society (2021) for birds; and Tremor et al. (2017) for mammals. Plant species status is from the CNPS Rare Plant Inventory (CNPS 2021), CDFW (2022a), and City's MSCP SAP (City 1997). Animal species status is from the CDFW (2022b) and City's MSCP SAP (City 1997).

3.0 REGULATORY FRAMEWORK

The Program is governed by several federal, state, and local policies, and regulations and such regulatory act(s) and plan(s) are discussed below.

3.1 FEDERAL

3.1.1 Endangered Species Act

Administered by the USFWS, the Federal Endangered Species Act (FESA) provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that impact endangered or threatened species and the habitats upon which they rely are considered a "take" under the FESA. Section 9(a) of the FESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitats so they can be removed from the list of threatened or endangered species. Once an area is designated as critical

habitat pursuant to the FESA, federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat.

Sections 7 and 10(a) of the FESA regulate actions that could impact endangered or threatened species. Section 7 generally describes a process of federal interagency consultation and issuance of a biological opinion and incidental take statement when federal actions may adversely affect listed species. Section 10(a) generally describes a process for the preparation of a Habitat Conservation Plan and issuance of an Incidental Take Permit (ITP). Pursuant to Section 10(a), the City was issued a take permit for their adopted MSCP SAP and VPHCP (City 2020). Actions consistent with the adopted MSCP SAP and VPHCP have authorized take authority for covered species.

3.1.2 Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal migratory bird treaty act (MBTA), as amended under the Migratory Bird Treaty Reform Act of 2004 (H.R. 4114). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is now used to place restrictions on the disturbance of active bird nests during the nesting season.

3.1.3 Clean Water Act (Section 404) and Rivers and Harbors Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting for projects filling waters of the U.S. is overseen by the USACE under Section 404 of the CWA. Most development projects are permitted using Individual Permit or Nationwide Permit instruments.

Section 401 of the CWA requires that any applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. must obtain a Water Quality Certification, or a waiver thereof, from the state in which the discharge originates. In California, the RWQCB issues Water Quality Certifications.

3.2 STATE OF CALIFORNIA

3.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (or impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) established that it is State policy to conserve, protect, restore, and enhance State endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California

Fish and Game Commission. The CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal ITP if the CDFW certifies that the incidental take is consistent with CESA (CFG Code Section 2080.1[a]). For State-only listed species, Section 2081 of the CFG Code authorizes the CDFW to issue an Incidental Take Permit for State-listed threatened and endangered species if specific criteria are met. The City was issued a take permit for state listed species covered by its adopted MSCP SAP pursuant to Section 2081.

3.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) enacted a process by which plants are listed as rare or endangered. The NPPA regulates the collection, transport, and commerce of listed plants. The California ESA followed the NPPA and covers both plants and animals determined to be endangered or threatened with extinction. Plants listed as rare under NPPA were designated rare under the California ESA.

3.2.4 California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological resources. Sections 1600 *et seq*. of the CFG Code require notification and, if required, a Streambed Alteration Agreement for any activity that would alter the flow, change or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. Typical activities that require notification include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement.

The CFG Code provides specific protection and listing for several types of biological resources. Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

3.2.5 Section 401 Water Quality Certification / Porter-Cologne Water Quality Control Act

The RWQCB, through the SWRCB, asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne (Porter-Cologne) Water Quality Control Act as described in the California Water Code. The California Water Code is the State's version of the federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. Potential RWQCB jurisdiction (i.e., waters of the State) need to be delineated on the project site and typically extend to the top of bank for streams and to the outer edge of wetlands,

pursuant to the SWRCB's wetland definition that was adopted on April 2, 2019 (SWRCB 2019) and implemented as of May 28, 2020.

Whenever a project requires a federal CWA Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The RWQCB administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in the discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA Section 401 Water Quality Certification.

3.3 CITY OF SAN DIEGO

3.3.1 Environmentally Sensitive Lands

Impacts to biological resources in the City must comply with City ESL Regulations. The purpose of the regulations is to "protect, preserve, and, where damaged restore, the environmentally sensitive lands of San Diego and the viability of the species supported by those lands." Environmentally Sensitive Lands (ESL) include sensitive biological resources, steep hillsides, coastal beaches, sensitive coastal bluffs, and 100-year floodplains. Mitigation requirements for sensitive biological resources must follow the requirements of the City's Biology Guidelines (2018) as outlined in the City's Municipal Code ESL Regulations (Chapter 14, Article 3, Division 1). Impacts to biological resources within and outside the MHPA must comply with the ESL Regulations, which also serve as standards for the determination of biological impacts and mitigation under the CEQA in the City.

The ESL Regulations require that impacts to wetlands impacts be avoided, and unavoidable impacts be minimized to the maximum extent practicable. Where impacts are unavoidable, deviation findings must be made in accordance with Section 143.0150 of the City Municipal Code. Impacts to wetlands must be mitigated in accordance with Section III(B)(1)(a) of the City's Biology Guidelines (City 2018). In addition to protecting wetlands, the ESL Regulations require that a buffer be maintained around wetlands, as appropriate, to protect wetland-associated functions and values. Buffer widths may either be increased or decreased as determined on a case-by-case basis, taking into consideration the size and type of project proposed, sensitivity of the wetland resource to detrimental edge effects, topography, specific functions and values of the wetland, as well as the need for transitional upland habitat.

The City's Land Development Code (113.0101) defines wetlands as areas that are characterized by any of the following conditions:

(1) All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to, salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools;

(2) Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed historic wetland vegetation, or

catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation, as in the case of salt pannes and mudflats;

(3) Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands;

(4) Areas mapped as wetlands on Map No. C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone).

In addition to restricting impacts to wetland habitats, the ESL regulations restrict development within the MHPA, including required impact avoidance areas around raptor nesting locations (specifically, Cooper's hawk, golden eagle, burrowing owl [*Athene cunicularia*], and northern harrier), and known locations of coastal California gnatcatcher and southwestern pond turtle. The ESL regulations also impose seasonal restrictions on grading where development may impact the following bird species: coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird (*Agelaius tricolor*), coastal cactus wren, western snowy plover (*Charadrius nivosus nivosus*), and California least tern (*Sternula antillarum browni*).

3.3.2 Multiple Species Conservation Program

The MSCP is a long-term regional conservation plan established to protect sensitive species and habitats within San Diego County. The MSCP is separated into local SAPs that are implemented independently from each other. The City's MSCP SAP (City 1997) was prepared pursuant to the outline developed by USFWS and CDFW to meet the requirements of the state Natural Communities Conservation Planning Act of 1992. Adopted by the City in March 1997, the SAP forms the basis for the MSCP Implementing Agreement, which is the contract between the City, USFWS, and CDFW. The Implementing Agreement ensures implementation of the SAP and, thereby, allows the City to issue "take" permits under the federal and state ESAs to address impacts at the local level. Under the FESA, an ITP is required when non-federal activities would result in "take" of a threatened or endangered species. A habitat conservation plan, such as the City's MSCP SAP, must accompany an application for a federal ITP. In July 1997, USFWS, CDFW, and City entered into the 50-year MSCP Implementing Agreement, wherein the City received its FESA Section 10(a) ITP.

The City's MSCP SAP identifies lands designated as MHPA, which is a "hard-line" preserve developed by the City in cooperation with the wildlife agencies, developers, property owners, and various environmental groups. Within the MHPA, biological core resource areas and corridors targeted for conservation are identified and discussed, in which development restrictions may occur (City 1997). The MHPA consists of public and private lands, much of which has been conserved. Conserved lands include lands that have been set aside for mitigation or purchased for conservation. These lands may be owned by the City (i.e., dedicated lands) or other agencies, may have conservation easements, or may have other restrictions (per the City's ESL regulations) that protect the overall quality of the resources and prohibit development.

Pursuant to the MSCP permit issued pursuant to Section 10(a), the City has incidental "take" authority over 85 rare, threatened, and endangered species, including regionally sensitive species that it aims to conserve (i.e., "MSCP Covered Species). "MSCP Covered" refers to species that are covered by the City's federal and state ITPs and considered to be adequately protected within the City's Preserve, the MHPA. Special "Conditions of Coverage" apply to MSCP Covered Species that would be potentially impacted by

projects, including modifying project design to avoid impacts to Covered Species in the MHPA where feasible. Additionally, projects must adhere to MSCP SAP requirements, including those for Compatible Land Uses (MSCP Section 1.4.1), General Planning Policies/Design Guidelines (MSCP Section 1.4.2), and MHPA Land Use Adjacency Guidelines (LUAGs; MSCP Section 1.4.3), as well as general and specific management directives (MSCP Section 1.5.2) where applicable). Additional state and federal policy, regulations, and permits may also be required for wetlands and species not covered or fully covered under the MSCP.

The Program area lies within the City's MSCP SAP and several of the Program facilities (Black Mountain Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam) are located within or adjacent to lands designated as MHPA. Though Barrett Dam, El Capitan Dam, Morena Dam, Sutherland Dam, and Dulzura Conduit are located outside of the boundaries of the City's MSCP SAP, the dams and associated infrastructure are owned and operated by the City, and as such, will comply with the policies and guidelines of the City's MSCP SAP.

3.3.3 Vernal Pool Habitat Conservation Plan

In October 2009, the USFWS and City entered into a Planning Agreement for the development of the City's VPHCP (City 2019), a habitat conservation plan focusing on vernal pools and seven associated threatened and endangered species. This plan allows for the incidental take of the following seven threatened and endangered species (VPHCP covered species) that do not have federal coverage under the City's MSCP SAP:

- San Diego fairy shrimp (*Branchinecta sandiegonensis*)
- Riverside fairy shrimp (Streptocephalus woottoni)
- San Diego button-celery (*Eryngium aristulatum* var. *parishi*i)
- San Diego Mesa mint (*Pogogyne nudiuscula*)
- Spreading navarretia (*Navarretia fossalis*)
- California Orcutt grass (*Orcuttia californica*)
- Otay Mesa mint (*Pogogyne nudiuscula*)

The VPHCP is compatible with the MSCP and expands upon the City's existing MHPA with the conservation of additional lands that support vernal pools and vernal pool covered species. The VPHCP provides long-term conservation and management for vernal pool species and was written to comply with the requirements of the FESA Section 10(a)(1)(B), as well as being designed to meet the requirements under California FGC Section 2800 for listed and non-listed species conserved under a Natural Community Conservation Plan. The VPHCP provides methods to help ensure minimization and mitigation are adequate for the covered species and is intended to meet all standard requirements of the USFWS to issue permits for incidental take of threatened and endangered plant and animal species. The City's Vernal Pool Management and Monitoring Plan (City 2020) outlines the VPHCP management and monitoring strategy and how the City will implement it. It provides a framework plan that outlines site-specific management and monitoring actions for the vernal pool complexes that will be managed as part of the MHPA to achieve the VPHCP objectives.

The Program area is located outside of the boundaries of the VPHCP and VPHCP preserve areas. No vernal pools or VPHCP-covered species were found to occur within the Program area. The Program would not result in any impacts to vernal pools, VPHCP-covered species, or VPHCP preserve areas.

4.0 SURVEY RESULTS

This section describes the physical characteristics of the Program's study areas, including topography, soils, and land uses, as well as the general conservation planning context.

4.1 REGIONAL CONTEXT

San Diego County is generally a semi-arid environment and supports a wide range of habitats and biological communities that vary greatly depending on the eco-region, soils and substrate, elevation, and topography. Representative habitats within the county include beaches, tidal marshes, and lagoons along the coast; coastal sage scrub, chaparral, grassland, riparian scrub and forests, oak woodlands, and freshwater lakes (both natural and artificial) throughout the lowlands and foothills; mixed chaparral, oak woodlands, and coniferous forest associated with the higher elevation mountain ranges in the east; and desert scrub and badlands located in the eastern portion of the county within the Colorado Desert. These communities provide habitat for a vast assemblage of flora and fauna, many of which are endemic to California.

The climate of the San Diego region varies by location, but is generally classified as a Mediterranean climate, with warm, dry summers and mild, wet winters. Temperatures in the region are typically moderate on the coast, with an average high temperature of 69.9 degrees Fahrenheit (°F) and an average low temperature of 56.5°F. Average monthly temperatures rarely exceed 75°F. Average annual precipitation on the coast is approximately 10.1 inches (San Diego Association of Governments 2015).

Important biological resources within the Program area generally include grasslands, coastal sage scrub, chaparral, oak woodland, wetlands, and riparian habitats present within open space and recreational areas that surround most of the reservoirs, including Cleveland National Forest. The majority of open space and recreational areas within the Program area are owned and managed by the City or County of San Diego, with open space areas surrounding Hodges, San Vicente, and Otay Reservoirs occurring as part of the City's Cornerstone Lands (large contiguous areas owned by the City's PUD). These areas provide essential habitat for special status plant and animal species, create a viable habitat preserve system, and serve as watershed management. The City has committed to preserving these Cornerstone Lands as part of the City's MSCP SAP through the Cornerstone Lands Conservation Bank Agreement with the CDFW and USFWS (herein referred to as wildlife agencies).

These areas provide live-in habitat for native species, facilitate dispersal of species, and provide shelter and foraging habitat for migrating species, primarily birds. Several plant and animal species covered under the City's MSCP SAP and VPHCP are found within these areas, including Otay tarplant, San Diego goldenstar (*Bloomeria clevelandii*), wart-stemmed ceanothus (*Ceanothus verrucosus*), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), San Diego barrel cactus (*Ferocactus viridescens*), willowy monardella (*Monardella viminea*), San Diego mesa mint (*Pogogyne abramsii*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Blainville's horned lizard (*Phrynosoma blainvillii*), coastal California gnatcatcher, least Bell's vireo, Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps*

canescens), golden eagle (*Aquila chrysaetos*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), mule deer (*Odocoileus hemionus*), and mountain lion (*Puma concolor*), among others.

The Program's study area contains USFWS designated critical habitat for four federally listed animal species (Figures 5a through 5n). Critical habitat includes specific areas that contain physical and biological features that are essential to the conservation and recovery of federally listed species. USFWS-designated critical habitat for the following species occurs within the Program's study area at the following sites:

- Quino checkerspot butterfly: Savage Dam, Upper Otay Dam
- Hermes Copper Butterfly: Barrett Dam
- Arroyo toad: Barrett Dam, El Capitan Dam, Dulzura Conduit (northern portion that partially overlaps Barrett Dam)
- Coastal California gnatcatcher: El Capitan Dam

In the context of the City's MSCP SAP, Black Mountain Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam occur within the MHPA. Though Barrett Dam, El Capitan Dam, Morena Dam, Sutherland Dam, and Dulzura Conduit are located outside of the boundaries of the City's MSCP SAP, the dams and associated infrastructure are owned and operated by the City, and as such, will comply with the policies and guidelines of the City's MSCP SAP.

4.2 GENERAL LAND USES

Land uses within San Diego County vary between the urban areas along the coast and the more rural areas in the eastern regions. The majority of the land in the eastern portion of San Diego County is open space or undeveloped, while the majority of land along the coastal region is developed. Urban uses tend to consist of residential and commercial uses, as well as small-scale agricultural and industrial uses. Land uses that occur throughout San Diego County include low-density residential and commercial uses, agricultural operations, mineral resources and extraction, and undeveloped habitats, as well as national forest and state park lands. The Program area generally encompasses open space and recreation areas that are public or semi-public facilities situated within undeveloped, open space, rural, and residential areas. Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Sutherland Dam, and Dulzura Conduit are located in more rural or undeveloped areas. Black Mountain Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, Rancho Bernardo Dam, Savage Dam, and Upper Otay Dam are located in more urbanized areas, and in some cases, are completely surrounded by residential development.

4.3 DISTURBANCE

The Program area has been heavily modified and developed through the construction of previous stream impoundments (i.e., dams), reservoirs, and aqueducts for water storage and conveyance, along with surrounding residential, commercial, and recreational development. Barrett Dam, which consists of a single curved concrete gravity dam, was constructed between 1920 and 1922. Black Mountain Dam, which consists of a concrete reservoir, was constructed between 2000 and 2003. Chollas Dam, which consists of an earthen fill dam, was constructed between 1900 and 1901. El Capitan Dam, which consists of a hydraulic fill rock embankment, was constructed between 1932 and 1934. Hodges Dam, which consists of a concrete multiple arch buttress dam, was constructed between 1917 and 1919. Miramar

Dam, which consists of a zoned earth embankment, was constructed between 1959 and 1960. Morena Dam, which consists of a rock-filled structure with a concrete face, was constructed between 1895 and 1912. Murray Dam, which consists of a concrete multiple arch dam, was constructed in 1918. Rancho Bernardo Dam, which consists of a concrete reservoir, was constructed between 1963 and 1964. San Vicente Dam, which consists of a concrete gravity-raised dam, was constructed between 1941 and 1943 and raised between 2011 and 2014. Savage Dam, which consists of a curved concrete gravity dam, and was constructed between 1917 and 1919. Sutherland Dam, which consists of a multiple arch concrete wall buttress dam, was constructed between 1927 and 1928. Upper Otay Dam, which consists of a concrete arch dam, was constructed between 1896 and 1901. Dulzura Conduit, which consists of an approximately 13-mile-long concrete aqueduct, was constructed between 1907 and 1909, and historically transported water from the Barrett Reservoir to the Lower Otay reservoir through a series of canals, flumes, and tunnels.

4.4 TOPOGRAPHY AND SOILS

The Program area contains varied topography. Several of the study areas are located within more coastal valley areas (i.e., Black Mountain Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, and Rancho Bernardo Dam), while others are located in the eastern foothills and contain more rugged topography (i.e., Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit). The lowest and highest elevations within the Program study areas are detailed below in Table 1, *Existing Elevations within the Program Area*:

Table 1
EXISTING ELEVATIONS WITHIN THE PROGRAM AREA

Program Study Area	Low Elevation (feet)	High Elevation (feet)
Barrett Dam	960	2,000
Black Mountain Dam	646	846
Chollas Dam	350	476
El Capitan Dam	560	1,120
Hodges Dam	184	696
Miramar Dam	550	812
Morena Dam	2,600	3,360
Murray Dam	414	702
Rancho Bernardo Dam	702	822
San Vicente Dam	450	1,030
Savage Dam	350	640
Sutherland Dam	1,920	2,160
Upper Otay Dam	480	635
Dulzura Conduit	960	1,920

Eleven soil types have been mapped within the Barrett Dam study area (Figure 7a-1, *Soils – North Access Road*; Figure 7a-2, *Soils – Barrett Dam*; Figure 7a-3, *Soils – South Access Road*): Acid igneous rock land; Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes; Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded; Fallbrook sandy loam, 15 to 30 percent slopes, eroded; Greenfield sandy loam, 2 to 5 percent slopes; Las Posas stony fine sandy loam, 9 to 30 percent slopes; Las Posas stony fine sandy loam, 30 to 65 percent slopes; Ramona gravelly sandy loam, 15 to 30 percent slopes; Stony Land; Vista coarse sandy loam, 9 to 15 percent slopes; and Water.

Three soil types have been mapped within the Black Mountain Dam study area (Figure 7b, *Soils – Black Mountain Dam*): Auld clay, 5 to 8 percent slopes; San Miguel rocky silt loam, 9 to 30 percent slopes; and San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes.

Four soil types have been mapped within the Chollas Dam study area (Figure 7c, *Soils – Chollas Dam*): Olivenhain-Urban land complex, 2 to 9 percent slopes; Redding-Urban land complex, 2 to 9 percent slopes; Stony Land; and Water.

Six soil types have been mapped within the El Capitan Dam study area (Figure 7d *Soils – El Capitan Dam*): Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded; Dams; Riverwash; Stony Land; Visalia sandy loam, 5 to 9 percent slopes; and Water.

Three soil types have been mapped within the Hodges study area (Figure 7e *Soils – Hodges Dam*): Riverwash; Stony Land; San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes; and Water.

Six soil types have been mapped within the Miramar Dam study area (Figure 7f *Soils – Miramar Dam*): Redding gravelly loam, 2 to 9 percent slopes; Redding cobbly loam, 9 to 30 percent slopes; Redding-Urban land complex, 2 to 9 percent slopes; Riverwash; San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes; and Water.

Three soil types have been mapped within the Morena Dam study area (Figure 7g *Soils – Morena Dam*): Acid igneous rock land; La Posta rocky loamy coarse sand, 5 to 30 percent slopes; and Water.

Three soil types have been mapped within the Murray Dam study area (Figure 7h *Soils – Murray Dam*): Diablo-Urban land complex, 5 to 15 percent slopes; Friant rocky fine sandy loam, 30 to 70 percent slopes; and Water.

Six soil types have been mapped within the Rancho Bernardo Dam study area (Figure 7i *Soils – Rancho Bernardo Dam*): Diablo clay, 2 to 9 percent slopes; Diablo clay, 9 to 15 percent slopes; Diablo clay, 15 to 30 percent slopes; Diablo-Olivenhain complex, 9 to 30 percent slopes; Linne clay loam, 9 to 30 percent slopes; and Olivenhain cobbly loam, 2 to 9 percent slopes.

Six soil types have been mapped within the San Vicente Dam study area (Figure 7j *Soils – San Vicente Dam*): Acid igneous rock land; Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes; Olivenhain cobbly loam, 30 to 50 percent slopes; Riverwash; Tujunga sand, 0 to 5 percent slopes; and Water.

Four soil types have been mapped within the Savage Dam study area (Figure 7k *Soils – Savage Dam*): Huerhuero loam, 9 to 15 percent slopes, eroded; Huerhuero loam, 15 to 30 percent slopes, eroded; San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes; and Water.

Five soil types have been mapped within the Sutherland Dam study area (Figure 7l *Soils – Sutherland Dam*): Bancas stony loam, 30 to 65 percent slopes; Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded; Holland stony fine sandy loam, 30 to 60 percent slopes; Vista coarse sandy loam, 9 to 15 percent slopes; and Water.

Four soil types have been mapped within the Upper Otay Dam study area (Figure 7m *Soils – Upper Otay Dam*): Friant rocky fine sandy loam, 9 to 30 percent slopes; Olivenhain cobbly loam, 9 to 30 percent slopes; San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes; and Water

Twenty (20) soil types have been mapped within the Dulzura Conduit study area (Figure 7n *Soils – Dulzura Conduit*): Acid igneous rock land; Cieneba coarse sandy loam, 30 to 65 percent slopes, eroded; Cieneba rocky coarse sandy loam, 9 to 30 percent slopes, eroded; Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes; Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded; Fallbrook sandy loam, 5 to 9 percent slopes; Fallbrook sandy loam, 5 to 9 percent slopes, eroded; Fallbrook sandy loam, 9 to 15 percent slopes, eroded; Fallbrook rocky sandy loam, 9 to 30 percent slopes; Friant rocky fine sandy loam, 30 to 70 percent slopes; Las Posas stony fine sandy loam, 9 to 30 percent slopes; Las Posas stony fine sandy loam, 30 to 65 percent slopes; Metamorphic rock land; Placentia sandy loam, 2 to 9 percent slopes; Ramona sandy loam, 2 to 5 percent slopes; Ramona gravelly sandy loam, 15 to 30 percent slopes; Stony Land; Visalia sandy loam, 5 to 9 percent slopes; Vista coarse sandy loam, 30 to 65 percent slopes; and Water.

4.5 VEGETATION COMMUNITIES/LAND COVER TYPES

A total of 36 vegetation communities (including land cover types) were recorded within the Program area. Vegetation communities are presented below by each of the Program's study areas. The numeric codes in parentheses following each vegetation community/land cover type name are from the City's Land Development Code Biology Guidelines (City 2018), with further guidance from the Holland classification system (Holland 1986) and as expanded by Oberbauer (2008). The communities/habitat types are presented in order by the City's Habitat Tier. Vegetation community characteristics are described further below.

4.5.1 Barrett Dam

A total of 17 vegetation communities/land cover types were mapped within the Barrett Dam study area (Figure 8a-1, *Vegetation and Sensitive Biological Resources – Barrett Dam*; Figures 8a-2 to 8a-4, *Vegetation and Sensitive Biological Resources – Barrett Access North*; Figures 8a-5 to 8a-8, *Vegetation and Sensitive Biological Resources – Barrett Access South*): southern riparian forest, southern coast live oak riparian forest, arrowweed scrub, non-vegetated channel, open water/freshwater lake, coast live oak woodland, mixed oak woodland, Diegan coastal sage scrub (including disturbed), flat-topped buckwheat scrub, coastal sage-chaparral scrub, granitic southern mixed chaparral, chamise chaparral, non-native grassland, eucalyptus woodland, disturbed habitat, and developed land (Table 2a, *Existing Vegetation Communities and Land Cover Types – Barrett Dam*).

Table 2a
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – BARRETT DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Riparian Forest (61300)	N/A	0	1.28	1.28
Southern Coast Live Oak Riparian Forest (61310)	N/A	0	0.84	0.84
Arrowweed Scrub (63820)	N/A	0	0.39	0.39
Non-Vegetated Channel (64200)	N/A	0	0.06	0.06
Open Water/Freshwater Lake (64140)	N/A	0	5.78	5.78
Wetlands/Non-wetlands Subtotal		***0***	***8.35***	***8.35***
Sensitive Uplands				
Coast Live Oak Woodland (71160)	I	0	1.8	1.8
Mixed Oak Woodland (77000)	I	0	1.6	1.6

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Diegan Coastal Sage Scrub (32500)	II	0	5.0	5.0
Diegan Coastal Sage Scrub - Disturbed (32500)	II	0	0.1	0.1
Flat-topped Buckwheat Scrub (32800)	II	0	0.0	0.0
Coastal Sage-Chaparral Scrub (37G00)	II	0	1.0	1.0
Granitic Southern Mixed Chaparral (37121)	IIIA	0	38.8	38.8
Chamise Chaparral (37200)	IIIA	0	1.5	1.5
Non-native Grassland (42200)	IIIB	0	0.4	0.4
Sensitive Uplands Subtotal	**-**	***0***	***50.2***	***50.2***
Non-Sensitive Uplands				
Eucalyptus Woodland (79100)	IV	0	<0.1	<0.1
Disturbed Habitat (11000)	IV	0	0.3	0.3
Developed (12000)	-	0	23.0	23.0
Non-Sensitive Uplands Subtotal	**-**	***0***	***23.3***	***23.3***
	TOTAL	**0**	**81.85**	**81.55**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.2 Black Mountain Dam

A total of five vegetation communities/land cover types were mapped within the Black Mountain Dam study area (Figure 8b, *Vegetation and Sensitive Resources – Black Mountain Dam*): native grassland (disturbed), Diegan coastal sage scrub, southern mixed chaparral, disturbed habitat, and developed land (Table 2b, *Existing Vegetation Communities and Land Cover Types – Black Mountain Dam*).

Table 2b
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – BLACK MOUNTAIN DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Sensitive Uplands				
Native Grassland - Disturbed (42100)	I	1.9	0	1.9
Diegan Coastal Sage Scrub (32500)	II	31.2	3.8	35.0
Southern Mixed Chaparral (37120)	IIIA	1.0	0	1.0
Sensitive Uplands Subtotal	**-**	***34.1***	***3.8***	***37.9***
Non-Sensitive Uplands				
Disturbed Habitat (11000)	IV	0.7	0.1	0.8
Developed (12000)	-	1.3	5.8	7.1
Non-Sensitive Uplands Subtotal	**-**	***2.0***	***5.9***	***7.9***
	TOTAL	**36.1**	**9.7**	**45.8**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.3 Chollas Dam

A total of nine vegetation communities/land cover types were mapped within the Chollas Dam study area (Figure 8c, *Vegetation and Sensitive Resources – Chollas Dam*): riparian woodland, southern willow scrub, freshwater marsh, open water/freshwater lake, Diegan coastal sage scrub (including disturbed),

non-native grassland, eucalyptus woodland, disturbed habitat, and developed land (Table 2c, *Existing Vegetation Communities and Land Cover Types – Chollas Dam*).

Table 2c
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – CHOLLAS DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Riparian Woodland (62000)	N/A	0	0.10	0.10
Southern Willow Scrub (63320)	N/A	0.10	0.03	0.13
Freshwater Marsh (52400)	N/A	0	0.05	0.05
Open Water/Freshwater Lake (64140)	N/A	0.11	7.09	7.20
Wetlands/Non-wetlands Subtotal	**-**	***0.21***	***7.27***	***7.48***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	4.3	7.0	11.3
Diegan Coastal Sage Scrub – Disturbed (32500)	II	0	0.7	0.7
Non-native Grassland (42200)	IIIB	0	0.5	0.5
Sensitive Uplands Subtotal	**-**	***4.3***	***8.2***	***12.5***
Non-Sensitive Uplands				
Eucalyptus Woodland (79100)	IV	1.1	6.4	7.5
Disturbed Habitat (11000)	IV	0	4.4	4.4
Developed (12000)	-	0.7	5.8	6.5
Non-Sensitive Uplands Subtotal	**-**	***1.8***	***16.6***	***18.4***
	TOTAL	**6.31**	**32.07**	**38.38**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.4 El Capitan Dam

A total of 14 vegetation communities/land cover types were mapped within the El Capitan Dam study area (Figure 8d, *Vegetation and Sensitive Resources – El Capitan Dam*): southern riparian forest, unvegetated habitat/lakeshore fringe, open water/freshwater lake, coast live oak woodland, scrub oak chaparral, Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub – Baccharis dominated, coastal sage-chaparral scrub (including disturbed), southern mixed chaparral, non-native grassland, non-native vegetation, eucalyptus woodland, disturbed habitat, and developed land (Table 2d, *Existing Vegetation Communities and Land Cover Types – El Capitan Dam*).

Table 2d
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – EL CAPITAN DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Riparian Forest (61300)	N/A	0	12.72	12.72
Unvegetated Habitat/Lakeshore Fringe (64000)	N/A	0	1.13	1.13
Open Water/Freshwater Lake (64140)	N/A	0	16.98	16.98
Wetlands/Non-wetlands Subtotal	**-**	***0***	***30.83***	***30.83***

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Sensitive Uplands				
Coast Live Oak Woodland (71160)	I	0	3.3	3.3
Scrub Oak Chaparral (37900)	I	0	1.7	1.7
Diegan Coastal Sage Scrub (32500)	II	0	14.4	14.4
Diegan Coastal Sage Scrub – Disturbed (32500)	II	0	23.9	23.9
Diegan Coastal Sage Scrub – Baccharis Dominated (32530)	II	0	1.6	1.6
Coastal Sage-Chaparral Scrub (37G00)	II	0	1.0	1.0
Coastal Sage-Chaparral Scrub – Disturbed (37G00)	II	0	0	0
Southern Mixed Chaparral (37120)	IIIA	0	14.5	14.5
Non-native Grassland (42200)	IIIB	0	2.8	2.8
Sensitive Uplands Subtotal	**-**	***0***	***63.2***	***63.2***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	0	5.1	5.1
Eucalyptus Woodland (79100)	IV	0	1.7	1.7
Disturbed Habitat (11000)	IV	0	1.2	1.2
Developed (12000)	-	0	21.3	21.3
Non-Sensitive Uplands Subtotal	**-**	***0***	***29.3***	***29.3***
	TOTAL	**0**	**123.33**	**123.33**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.5 Hodges Dam

A total of 12 vegetation communities/land cover types were mapped within the Hodges Dam study area (Figure 8e, *Vegetation and Sensitive Resources – Hodges Dam*): southern riparian forest, mule fat scrub, freshwater marsh, open water/freshwater lake, Diegan coastal sage scrub (including disturbed), southern mixed chaparral, southern mixed chaparral – ceanothus dominated, non-native vegetation, eucalyptus woodland, unvegetated habitat/bedrock, disturbed habitat, and developed land (Table 2e, *Existing Vegetation Communities and Land Cover Types – Hodges Dam*).

Table 2e
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – HODGES DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Riparian Forest (61300)	N/A	1.74	0.01	1.75
Mule Fat Scrub (63310)	N/A	0.07	0	0.07
Freshwater Marsh (52400)	N/A	0.07	0	0.07
Open Water/Freshwater Lake (64140)	N/A	6.83	0	6.83
Wetlands/Non-wetlands Subtotal	**-**	***8.71***	***0.01***	***8.72***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	5.2	2.2	7.4
Diegan Coastal Sage Scrub – Disturbed (32500)	II	6.6	0.9	7.5
Southern Mixed Chaparral (37120)	IIIA	0.5	0.3	0.8
Southern Mixed Chaparral – Ceanothus Dominated (37120)	IIIA	8.6	2.6	11.2
Sensitive Uplands Subtotal	**-**	***20.9***	***6.0***	***26.9***

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	1.4	0.6	2.0
Eucalyptus Woodland (79100)	IV	0.8	0	0.8
Unvegetated Habitat/Bedrock (N/A)	IV	1.4	0	1.4
Disturbed Habitat (11000)	IV	1.2	0.3	1.5
Developed (12000)	IV	2.5	0.7	3.2
Non-Sensitive Uplands Subtotal	**-**	***7.3***	***1.6***	***8.9***
	TOTAL	**36.91**	**7.61**	**44.52**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
2 Tiers refer to City's Biology Guidelines (2018) habitat classification system.
3 Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.6 Miramar Dam

A total of 12 vegetation communities/land cover types were mapped within the Miramar Dam study area (Figure 8f, *Vegetation and Sensitive Resources – Miramar Dam*): freshwater marsh, southern willow scrub, open water/freshwater lake, Diegan coastal sage scrub, coastal sage-chaparral scrub, southern mixed chaparral, chamise chaparral, non-native grassland, non-native vegetation, eucalyptus woodland, disturbed habitat, and developed land (Table 2f, *Existing Vegetation Communities and Land Cover Types – Miramar Dam*).

Table 2f
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – MIRAMAR DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Willow Scrub (63320)	N/A	0	0.17	0.17
Freshwater Marsh (52400)	N/A	2.02	0.34	2.36
Open Water/Freshwater Lake (64140)	N/A	18.19	2.26	20.45
Wetlands/Non-wetlands Subtotal	**-**	***20.21***	***2.77***	***22.98***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	7.8	6.8	14.6
Coastal Sage-Chaparral Scrub (37G00)	II	0.6	<0.1	0.6
Southern Mixed Chaparral (37120)	IIIA	1.1	0.8	1.9
Chamise Chaparral (37200)	IIIA	0.7	<0.1	0.7
Non-native Grassland (42200)	IIIB	1.7	3.9	5.6
Sensitive Uplands Subtotal	**-**	***11.9***	***11.5***	***23.4***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	0.4	2.8	3.2
Eucalyptus Woodland (79100)	IV	0.1	2.3	2.4
Disturbed Habitat (11000)	IV	0.1	1.3	1.4
Developed (12000)	-	2.7	27.3	30.0
Non-Sensitive Uplands Subtotal	**-**	***3.3***	***33.7***	***37.0***
	TOTAL	**35.41**	**47.97**	**83.38**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
2 Tiers refer to City's Biology Guidelines (2018) habitat classification system.
3 Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.7 Morena Dam

A total of 10 vegetation communities/land cover types were mapped within the Morena Dam study area (Figure 8g, *Vegetation and Sensitive Resources – Morena Dam*): southern riparian forest, riparian woodland, unvegetated habitat/lakeshore fringe, open water/freshwater lake, mixed oak woodland, scrub oak chaparral, granitic northern mixed chaparral (including sparse), unvegetated habitat/talus slope, disturbed habitat, and developed land (Table 2g, *Existing Vegetation Communities and Land Cover Types – Morena Dam*).

Table 2g
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – MORENA DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Riparian Forest (61300)	N/A	0	0.27	0.27
Riparian Woodland (62000)	N/A	0	0.16	0.16
Unvegetated Habitat/Lakeshore Fringe (64000)	N/A	0	0.62	0.62
Open Water/Freshwater Lake (64140)	N/A	0	6.89	6.89
Wetlands/Non-wetlands Subtotal	**-**	***0***	***7.94***	***7.94***
Sensitive Uplands				
Mixed Oak Woodland (77000)	I	0	0.3	0.3
Scrub Oak Chaparral (37900)	I	0	10.0	10.0
Granitic Northern Mixed Chaparral (37131)	IIIA	0	19.2	19.2
Granitic Northern Mixed Chaparral – Sparse (37131)	IIIA	0	4.5	4.5
Sensitive Uplands Subtotal	**-**	***0***	***34.0***	***34.0***
Non-Sensitive Uplands				
Unvegetated Habitat/Talus Slope (N/A)	IV	0	3.8	3.8
Disturbed Habitat (11000)	IV	0	0.7	0.7
Developed (12000)	-	0	4.3	4.3
Non-Sensitive Uplands Subtotal	**-**	***0***	***8.8***	***8.8***
TOTAL		**0**	**50.74**	**50.74**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.8 Murray Dam

A total of 10 vegetation communities/land cover types were mapped within the Murray Dam study area (Figure 8h, *Vegetation and Sensitive Resources – Murray Dam*): freshwater marsh, non-native riparian, open water/freshwater lake, Diegan coastal sage scrub, Diegan coastal sage scrub – Baccharis dominated, non-native grassland, non-native vegetation, eucalyptus woodland, disturbed habitat, and developed land (Table 2h, *Existing Vegetation Communities and Land Cover Types – Murray Dam*).

Table 2h
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – MURRAY DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Freshwater Marsh (52400)	N/A	0.64	0.03	0.67
Non-native Riparian (65000)	N/A	1.54	0	1.54
Open Water/Freshwater Lake (64140)	N/A	9.03	0	9.03
Wetlands/Non-wetlands Subtotal	**-**	***11.21***	***0.03***	***11.24***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	11.4	0.7	12.1
Diegan Coastal Sage Scrub - Baccharis Dominated (32530)	II	0.2	0.9	1.1
Non-native Grassland (42200)	IIIB	0.5	<0.1	0.5
Sensitive Uplands Subtotal	**-**	***12.1***	***1.6***	***13.7***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	0.3	0	0.4
Eucalyptus Woodland (79100)	IV	<0.1	0.1	0.1
Disturbed Habitat (11000)	IV	0.2	0.1	0.3
Developed (12000)	-	2.4	12.2	14.6
Non-Sensitive Uplands Subtotal	**-**	***2.9***	***12.4***	***15.3***
	TOTAL	**26.21**	**14.03**	**40.24**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.9 Rancho Bernardo Dam

A total of five vegetation communities/land cover types were mapped within the Rancho Bernardo Dam study area (Figure 8i, *Vegetation and Sensitive Resources – Rancho Bernardo Dam*): non-native grassland, non-native vegetation, eucalyptus woodland, disturbed habitat, and developed land (Table 2i, *Existing Vegetation Communities and Land Cover Types – Rancho Bernardo Dam*).

Table 2i
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – RANCHO BERNARDO DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Sensitive Uplands				
Non-native Grassland (42200)	IIIB	0	0.6	0.6
Sensitive Uplands Subtotal	**-**	***0***	***0.6***	***0.6***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	0	5.8	5.8
Eucalyptus Woodland (79100)	IV	0	1.7	1.7
Disturbed Habitat (11000)	IV	0	1.2	1.2
Developed (12000)	-	0	30.6	30.6
Non-Sensitive Uplands Subtotal	**-**	***0***	***39.3***	***39.3***
	TOTAL	***0***	***39.9***	***39.9***

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.10 San Vicente Dam

A total of nine vegetation communities/land cover types were mapped within the San Vicente Dam study area (Figure 8j, *Vegetation and Sensitive Resources – San Vicente Dam*): riparian woodland, southern willow scrub, freshwater marsh, open water/freshwater lake, Diegan coastal sage scrub (including disturbed), chamise chaparral, non-native vegetation, disturbed habitat, and developed land (Table 2j, *Existing Vegetation Communities and Land Cover Types – San Vicente Dam*).

Table 2j
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – SAN VICENTE DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Riparian Woodland (62000)	N/A	0.12	0	0.12
Southern Willow Scrub (63320)	N/A	0.25	0	0.25
Freshwater Marsh (52400)	N/A	0.03	0	0.03
Open Water/Freshwater Lake (64140)	N/A	21.95	0	21.95
Wetlands/Non-wetlands Subtotal	**-**	***22.35***	***0***	***22.35***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	59.1	<0.1	59.1
Diegan Coastal Sage Scrub – Disturbed (32500)	II	0.5	0	0.5
Chamise Chaparral (37200)	IIIA	4.7	0	4.7
Sensitive Uplands Subtotal	**-**	***64.3***	***0***	***64.3***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	1.7	0	1.7
Disturbed Habitat (11000)	IV	1.8	0	1.8
Developed (12000)	-	15.6	<0.1	15.6
Non-Sensitive Uplands Subtotal	**-**	***19.1***	***0***	***19.1***
	TOTAL	**105.75**	**0**	**105.75**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.11 Savage Dam

A total of 11 vegetation communities/land cover types were mapped within the Savage Dam study area (Figure 8k, *Vegetation and Sensitive Resources – Savage Dam*): southern willow scrub, freshwater marsh, non-vegetated channel, open water/freshwater lake, Diegan coastal sage scrub, Diegan coastal sage scrub – Laurel Sumac dominated, non-native grassland, non-native vegetation, eucalyptus woodland, disturbed habitat, and developed land (Table 2k, *Existing Vegetation Communities and Land Cover Types – Savage Dam*).

Table 2k
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – SAVAGE DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Willow Scrub (63320)	N/A	0.10	0	0.10
Freshwater Marsh (52400)	N/A	1.16	0	1.16
Non-Vegetated Channel (64200)	N/A	0.16	0	0.16
Open Water/Freshwater Lake (64140)	N/A	15.32	<0.01	15.32
Wetlands/Non-wetlands Subtotal	**-**	***16.74***	***0***	***16.74***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	19.1	2.8	21.9
Diegan Coastal Sage Scrub – Laurel Sumac Dominated (32500)	II	2.0	0	2.0
Non-native Grassland (42200)	IIIB	2.7	0.1	2.8
Sensitive Uplands Subtotal	**-**	***23.8***	***2.9***	***26.7***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	<0.1	0.0	0.0
Eucalyptus Woodland (79100)	IV	2.5	0.3	2.8
Disturbed Habitat (11000)	IV	0.3	0.1	0.4
Developed (12000)	-	3.0	0.2	3.2
Non-Sensitive Uplands Subtotal	**-**	***5.8***	***0.6***	***6.4***
	TOTAL	**46.34**	**3.50**	**49.84**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.12 Sutherland Dam

A total of 12 vegetation communities/land cover types were mapped within the Sutherland Dam study area (Figure 8l, *Vegetation and Sensitive Resources – Sutherland Dam*): southern riparian forest, unvegetated habitat/lakeshore fringe, open water/freshwater lake, coast live oak woodland, Engelmann oak woodland, Diegan coastal sage scrub (including disturbed), coastal sage scrub-chaparral scrub, chamise chaparral, non-native vegetation, unvegetated habitat/bedrock, disturbed habitat, and developed land (Table 2l, *Existing Vegetation Communities and Land Cover Types – Sutherland Dam*).

Table 2l
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – SUTHERLAND DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Riparian Forest (61300)	N/A	0	2.17	2.17
Unvegetated Habitat/Lakeshore Fringe (64000)	N/A	0	1.28	1.28
Open Water/Freshwater Lake (64140)	N/A	0	15.40	15.40
Wetlands/Non-wetlands Subtotal	**-**	***0***	***18.85***	***18.85***
Sensitive Uplands				
Coast Live Oak Woodland (71160)	I	0	2.8	2.8
Engelmann Oak Woodland (71180)	I	0	0.2	0.2
Diegan Coastal Sage Scrub (32500)	II	0	8.4	8.4

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Diegan Coastal Sage Scrub - Disturbed (32500)	II	0	1.6	1.6
Coastal Sage-Chaparral Scrub (37G00)	II	0	2.9	2.9
Chamise Chaparral (37200)	IIIA	0	14.6	14.6
Non-native Grassland (42200)	IIIB	0	0.5	0.5
Sensitive Uplands Subtotal	**-**	***0***	***31.0***	***31.0***
Non-Sensitive Uplands				
Unvegetated Habitat/Bedrock (N/A)	IV	0	1.7	1.7
Disturbed Habitat (11000)	IV	0	0.8	0.8
Developed (12000)	-	0	4.3	4.3
Non-Sensitive Uplands Subtotal	**-**	***0***	***6.8***	***6.8***
	TOTAL	**0**	**56.65**	**56.65**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.13 Upper Otay Dam

A total of nine vegetation communities/land cover types were mapped within the Upper Otay Dam study area (Figure 8m, *Vegetation and Sensitive Resources – Upper Otay Dam*): tamarisk scrub, freshwater marsh, open water/freshwater lake, Diegan coastal sage scrub, non-native grassland, non-native vegetation, eucalyptus woodland, disturbed habitat, and developed land (Table 2m, *Existing Vegetation Communities and Land Cover Types – Upper Otay Dam*).

Table 2m
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – UPPER OTAY DAM

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Tamarisk Scrub (63810)	N/A	0.11	0	0.11
Freshwater Marsh (52400)	N/A	0.35	0	0.35
Open Water/Freshwater Lake (64140)	N/A	3.77	0	3.77
Wetlands/Non-wetlands Subtotal	**-**	***4.23***	***0***	***4.23***
Sensitive Uplands				
Diegan Coastal Sage Scrub (32500)	II	20.5	2.1	22.6
Non-native Grassland (42200)	IIIB	0.2	0	0.2
Sensitive Uplands Subtotal	**-**	***20.7***	***2.1***	***22.8***
Non-Sensitive Uplands				
Non-native Vegetation (11000)	IV	<0.1	<0.1	<0.1
Eucalyptus Woodland (79100)	IV	1.6	0	1.6
Disturbed Habitat (11000)	IV	1.1	0.2	1.3
Developed (12000)	-	0.7	0.1	0.8
Non-Sensitive Uplands Subtotal	**-**	***3.4***	***0.3***	***3.7***
	TOTAL	**28.33**	**2.40**	**30.37**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.14 Dulzura Conduit

A total of 12 vegetation communities/land cover types were mapped within the Dulzura Conduit study area (Figure 8n, *Vegetation and Sensitive Resources – Dulzura Conduit*): southern riparian forest, disturbed wetland, arundo-dominated riparian, open water/freshwater lake, coast live oak woodland, Diegan coastal sage scrub (including disturbed), coastal sage-chaparral scrub (including distributed), granitic southern mixed chaparral (including disturbed), chamise chaparral, non-native grassland, disturbed habitat, and developed land (Table 2n, *Existing Vegetation Communities and Land Cover Types – Dulzura Conduit*).

Table 2n
EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES – DULZURA CONDUIT

Vegetation/Land Cover[1]	Habitat Tier[2]	Acres[3]		
		Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetlands				
Southern Riparian Forest (61300)	N/A	0	0.18	0.18
Disturbed Wetland (11200)	N/A	0	0.02	0.02
Arundo-Dominated Riparian (65100)	N/A	0	0.08	0.08
Open Water/Freshwater Lake (64140)	N/A	0	0.01	0.01
Wetlands/Non-wetlands Subtotal	**-**	***0***	***0.29***	***0.29***
Sensitive Uplands				
Coast Live Oak Woodland (71160)	I	0	0.2	0.2
Diegan Coastal Sage Scrub (32500)	II	0	32.6	32.6
Diegan Coastal Sage Scrub – Disturbed (32500)	II	0	2.1	2.1
Coastal Sage-Chaparral Scrub (37G00)	II	0	10.4	10.4
Coastal Sage-Chaparral Scrub – Disturbed (37G00)	II	0	0.2	0.2
Granitic Southern Mixed Chaparral (37121)	IIIA	0	24.3	24.3
Granitic Southern Mixed Chaparral – Disturbed (37121)	IIIA	0	0.1	0.1
Chamise Chaparral (37200)	IIIA	0	1.9	1.9
Non-native Grassland (42200)	IIIB	0	0.1	0.1
Sensitive Uplands Subtotal	**-**	***0***	***71.9***	***71.9***
Non-Sensitive Uplands				
Disturbed Habitat (11000)	IV	0	23.4	23.4
Developed (12000)	-	0	13.2	13.3
Non-Sensitive Uplands Subtotal	**-**	***0***	***36.6***	***36.6***
	TOTAL	**0**	**108.79**	**108.79**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Tiers refer to City's Biology Guidelines (2018) habitat classification system.
[3] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

4.5.15 Vegetation Community Descriptions

Southern Riparian Forest

Southern riparian woodlands and forests are composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* spp.), cottonwood (*Populus* spp.), and western sycamore (*Platanus racemosa*) form a dense medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat, stinging nettle (*Urtica dioica*), and wild grape (*Vitis*

girdiana). The differences between woodlands and forests are physiognomic rather than compositional. Woodlands have less canopy cover than forests. In forests, the canopies of individual tree species do overlap so that a canopy cover exceeding 100 percent may occur in the upper tree stratum. In woodlands, there may be large canopy gaps within the upper tree stratum.

Southern riparian forest within the Program area is composed of arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Goodding's black willow (*Salix gooddingii*), Fremont cottonwood (*Populus fremontii*), and western sycamore. A total of 18.03 acres of southern riparian forest was mapped in the Program area within the Barrett Dam, El Capitan Dam, Hodges Dam, Morena Dam, Sutherland Dam, and Dulzura Conduit study areas.

Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is an open, to locally dense, evergreen, sclerophyllous, riparian woodland that is dominated by coast live oak (*Quercus agrifolia*). This community appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Southern coast live oak riparian forest occurs on fine-grained alluvial soils on the floodplains along large streams in the canyons and valleys of coastal southern California. Associated species include toyon (*Heteromeles arbutifolia*), black elderberry (*Sambucus nigra*), spreading snowberry (*Symphoricarpos mollis*), California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), and poison oak (*Toxicodendron diversilobum*). A total of 0.84 acre of this community occurs in the Program area within the Barrett Dam study area.

Riparian Woodland

Riparian woodland is a moderately dense community dominated by small trees or shrubs, with scattered taller trees. Characteristic species include western sycamore, cottonwood, willows, black elderberry (*Sambucus nigra*), and mule fat (*Baccharis salicifolia*). This community is found along major river systems and smaller tributaries where flood scour occurs. A total of 0.38 acre of riparian woodland was mapped in the Program area within the Cholla Dam, Morena Dam, and San Vicente study areas.

Mule Fat Scrub

Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or western sycamore dominated riparian woodland or forest. In some environments, limited hydrology may favor the persistence of mule fat. A total of 0.07 acre of mule fat scrub was mapped in the Program area within the Hodges Dam study area.

Southern Willow Scrub

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by arroyo willow in association with mule fat. This vegetation community appears as a single layer; it lacks separate shrub and tree layers and generally appears as a mass of short trees or large shrubs. It occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest. Stands of southern willow scrub totaling 0.65 acre occur in the Program area within Chollas Dam, Miramar Dam, San Vicente Dam, and Savage Dam study areas.

Arrowweed Scrub

Arrowweed scrub is a moderate to densely vegetated community dominated by arrow weed (*Pluchea sericea*). It occurs along stream banks, ditches, and washes with gravelly or sandy channels. Scattered individuals of cattails, bulrushes, rushes, and saltgrass (*Distichlis spicata*) may occur along the margins of arrow weed thickets or interspersed within. A total of 0.39 acre of arrow weed scrub was mapped in the Program area within the Barrett Dam study area along the southern access road.

Tamarisk Scrub

Tamarisk scrub is typically comprised of shrubs and/or small trees of exotic tamarisk species (*Tamarix* spp.) but may also contain willows, salt bushes (*Atriplex* spp.), catclaw acacia (*Senegalia greggii*), and salt grass. This habitat occurs along intermittent streams in areas where high evaporation rates increase the salinity level of the soil. Tamarisk is a phreatophyte, a plant that can obtain water from an underground water table. Because of its deep root system and high transpiration rates, tamarisk can substantially lower the water table to below the root zone of native species, thereby competitively excluding them. As a prolific seeder, it may rapidly displace native species within a drainage. A total of 0.11 acre of tamarisk scrub occurs in the Program area within the Upper Otay Dam study area.

Disturbed Wetland

This vegetation community is dominated by exotic wetland species that invade areas that have been previously disturbed or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include annual beard grass (*Polypogon monspeliensis*), bristly ox-tongue (*Helminthotheca echioides*), cocklebur (*Xanthium strumarium*), and curly dock (*Rumex crispus*). A total of 0.02 acre of disturbed wetland was mapped in the Program area at the western end of the Dulzura Conduit study area within the spillway.

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots forming incomplete to completely closed canopies. This vegetation type occurs near river mouths and around the margins of lakes and springs, freshwater, or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current. Dominant species include cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.), along with sedges (*Cyperus* sp.), rushes (*Juncus* sp.), and spike-sedge, (*Eleocharis* sp.). A total of 4.69 acres of freshwater marsh occur in the Program area within the Chollas, Hodges, Miramar, Murray, San Vicente, Savage Dam, and Upper Otay Dam study areas, often along the perimeter of the reservoirs.

Unvegetated Habitat/Lakeshore Fringe

Unvegetated habitat consists of submerged aquatic communities or terrestrial wetlands with minimal vegetative cover. In the Program area, this community is comprised of lakeshore fringe which is characterized by unvegetated areas along the shoreline of the reservoirs in areas that have been previously inundated during fluctuating water levels. A total of 3.03 acres of lakeshore fringe occur in the Program area within the El Capitan Dam, Morena Dam, and Sutherland Dam study areas.

Non-Vegetated Channel

Non-vegetated channel consists of sandy, gravelly, or rocky fringe of waterways or flood channels. These areas generally lack vegetation on a permanent basis but may contain scattered plants. Within the Program area, this habitat type occurs where streambed is generally lacking plant cover. Approximately 0.22 acre of natural flood channel occurs in the Program area within the Barrett Dam and Savage Dam study areas at the toe of the dams.

Arundo-Dominated Riparian

Arundo-dominated riparian consists of densely vegetated riparian thickets dominated almost exclusively by giant reed. It occurs along disturbed water courses. A total of 0.08 acre of arundo-dominated riparian is mapped in the Program area within the western portion of the Dulzura Conduit study area at Flume 14.

Non-Native Riparian

Non-native riparian consists of density vegetated riparian thickets dominated by non-native species such as tamarisk and giant reed. This vegetation community describes riparian areas where non-native and invasive species account for greater than 50 percent of the total vegetative cover. Associated species include Mexican fan palm (*Washingtonia robusta*), pampas grass (*Cortaderia* spp.), Bermuda grass (*Cynodon dactylon*), and castor bean (*Ricinus communis*), along with native species such as willows and cottonwoods. It occurs in a variety of wetland habitats where disturbance has occurred and is common along major river channels throughout San Diego County. A total of 1.54 acres of non-native riparian habitat occur in the Program area within the Murray Dam study area downstream of the dam.

Open Water/Freshwater Lake

Open water consists of year-round bodies of fresh water in the form of lakes, streams, ponds, or rivers. It also includes portions of water bodies that are usually covered by water and less than 10 percent vegetative cover. Approximately 129.61 acres of open water/freshwater lake occur in the Program Area, primarily as reservoirs, within the Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam study areas.

Native Grassland (disturbed)

Native grassland is a community dominated by perennial bunchgrasses such as purple needle grass (*Stipa pulchra*) with annual and perennial forbs such as common golden star (*Bloomeria crocea*) and blue-eyed grass (*Sisyrinchium bellum*). Native grasslands generally occur on fine-textured soils that exclude the annual, exotic grasses. Almost all of the native grasslands in California have been displaced by non-native grassland dominated by introduced annual species. Native grasslands occur throughout California as small isolated islands. Disturbed native grassland contains a higher cover of non-native grasses (*Bromus* spp.). A total of 1.9 acres of disturbed native grassland occur in the Program Area within the Black Mountain study area.

Coast Live Oak Woodland

Coast live oak woodland is an open to dense evergreen woodland or forest community, dominated by coast live oak that may reach a height of 35 to 80 feet. The shrub layer consists of toyon, black elderberry, spreading snowberry, fuchsia-flowered gooseberry (*Ribes speciosum*), and poison oak. A dense herbaceous understory is dominated by miner's lettuce (*Claytonia perfoliata*) and chickweed (*Stellaria media*). This community occurs along the coastal foothills of the Peninsular Ranges; typically, on north-facing slopes and shaded ravines. Approximately 8.1 acres of coast live oak woodland occur in the Program area within the Barrett Dam, El Capitan Dam, Sutherland Dam, and Dulzura Conduit study areas.

Engelmann Oak Woodland

Engelmann oak woodland occurs on relatively moist sites on fine-textured soils of gentle slopes and valley bottoms. This community type is dominated by Engelmann oak (*Quercus engelmannii*) in association with coast live oak. Annual grasses dominate the understory. This habitat occurs on slightly more mesic sites like steep canyons than open Engelmann oak woodland. A total of 0.2 acre of Engelmann oak woodland was mapped within the Program area within the Sutherland Dam study area.

Mixed Oak Woodland

Mixed oak woodland is dominated by a variety of oak species such as coast live oak, Engelmann oak, canyon live oak (*Quercus chrysolepis*), and black oak (*Quercus kelloggii*). This community typically occurs at higher elevations where several oak species may be present and dominant. Approximately 0.3 acre of mixed oak woodland occurs in the Program area within the Barrett Dam and Morena Dam study areas.

Scrub Oak Chaparral

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall, dominated by scrub oak (*Quercus berberidifolia*; *Q. dumosa*), with considerable mountain mahogany (*Cercocarpus betuloides*). Scrub oak chaparral occurs in somewhat more mesic areas than many other chaparrals, such as north-facing slopes, and recovers more rapidly from fires than other chaparrals due to resprouting capabilities of scrub oak. This vegetation community often occurs at slightly higher elevations (to 5,000 feet) and substantial leaf litter accumulates. Approximately 11.7 acres of scrub chaparral occur in the Program area within the El Capitan Dam and Morena Dam study areas.

Diegan Coastal Sage Scrub (including sparse, disturbed, Baccharis dominated, and Laurel Sumac dominated)

Coastal sage scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Four distinct coastal sage scrub geographical associations (northern, central, Venturan, and Diegan) are recognized along the California coast. Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within Diegan coastal sage scrub include California sagebrush (*Artemisia californica*), flat-topped buckwheat, laurel sumac (*Malosma laurina*), and black sage (*Salvia mellifera*). Sparse Diegan coastal sage scrub contains a lower overall vegetative cover with more spacing between individual shrubs. Disturbed Diegan coastal sage scrub contains many of the same shrub species as undisturbed Diegan coastal sage scrub but is sparser and has a higher proportion of non-native, annual species. A total of 244.4 acres of Diegan coastal sage scrub occur within the Program area at Barrett

Dam, Black Mountain Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit study areas. Approximately 1.6 acres of sparse Diegan coastal sage scrub occur in the Program area within the Sutherland Dam study area. Approximately 34.8 acres of disturbed Diegan coastal sage scrub occur in the Program area within the Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, San Vicente Dam, and Dulzura Conduit study areas.

Laurel sumac dominated Diegan coastal sage scrub is a subtype of coastal sage scrub that is dominated by laurel sumac. A total of 2.0 acres of this vegetative community occur in the Program area within the Savage Dam study area.

Baccharis dominated Diegan coastal sage scrub is a subtype of coastal sage scrub that is dominated by broom baccharis (*Baccharis sarothroides*) or coyote brush (*B. pilularis*). It often occurs on disturbed sites and areas with nutrient-poor soils, and on upper terraces of streams and in detention basins, where it may include goldenbush (*Isocoma menziesii*). A total of 2.7 acres of this vegetative community occur in the Program area within the El Capitan Dam and Murray Dam study areas.

Flat-topped Buckwheat Scrub

Flat-topped buckwheat scrub is a near monoculture community of flat-topped buckwheat*,* usually resulting from disturbance and transitioning to coastal sage scrub or chaparral. Species characteristic of these communities usually appear over time. In addition to flat-topped buckwheat, deerweed (*Acmispon glaber*) is usually associated with this community. Less than 0.1 acre of flat-topped buckwheat scrub occurs within the Program area within the Barrett Dam study area.

Coastal Sage-Chaparral Scrub (including disturbed)

Coastal sage-chaparral scrub is a mixture of sclerophyllous chaparral shrubs and drought-deciduous sage scrub species regarded as an ecotone (transition) between two vegetation communities. This singular community contains floristic elements of both communities, including California sagebrush, California buckwheat, laurel sumac, chamise (*Adenostoma fasciculatum*), scrub oak, and ceanothus (*Ceanothus* sp.). This community varies in species composition but always contains coastal sage and chaparral species. Disturbed coastal sage-chaparral scrub contains the same species composition but is sparser with a higher cover of non-native annual species. A total of 16.1 acres of coastal sage-chaparral scrub, including disturbed, occur in the Program area within the Barrett Dam, El Capitan Dam, Miramar Dam, Sutherland Dam, and Dulzura Conduit study areas.

Southern Mixed Chaparral (including Ceanothus Dominated)

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that can reach 6 to 10 feet in height, and form dense, often nearly impenetrable stands, with poorly developed understories. In this mixed chaparral, the shrubs are generally tall and deep-rooted, with a well-developed soil litter layer, high canopy coverage, low light levels within the canopy, and lower soil temperatures. This vegetation community occurs on dry, rocky, often steep north-facing slopes with little soil. As conditions become more mesic, broad-leaved sclerophyllous shrubs that resprout from underground root crowns become dominant. Southern mixed chaparral is dominated by chamise, mission manzanita (*Xylococcus bicolor*), ceanothus species such as Ramona lilac (*Ceanothus tomentosus*) and chaparral whitethorn (*Ceanothus leucodermis*), big-berry manzanita (*Arctostaphylos glauca*), and scrub oak. Ceanothus dominated southern mixed chaparral is a subtype of this community dominated by ceanothus species. A total of

18.2 acres of southern mixed chaparral was mapped in the Program area within the Black Mountain Dam, El Capitan Dam, Hodges Dam, and Miramar Dam study areas. Approximately 11.2 acres of ceanothus dominated southern mixed chaparral occur in the Program area within the Hodges Dam study area.

Granitic Southern Mixed Chaparral (including disturbed)

Granitic southern mixed chaparral is a subtype of southern mixed chaparral that contains the same characteristic species but occurs on granitic soils. Disturbed granitic southern mixed chaparral contains a higher preponderance of annual, non-native grasses. Approximately 63.2 acres of granitic southern mixed chaparral, including disturbed, occur in the Program area within the Barrett Dam and Dulzura Conduit study areas.

Granitic Northern Mixed Chaparral (including sparse)

Northern mixed chaparral is composed of broad-leaved sclerophyll shrubs between two and four meters tall, forming dense, often nearly impenetrable stands, of vegetation dominated by deep-rooted species such as scrub oak, chamise, and ceanothus. There is often a considerable accumulation of leaf litter, but usually little or no understory vegetation. Adapted to repeated fires, many species respond by stump sprouting. A dense cover of annual herbs may appear during the first growing season after a fire, followed in subsequent years by perennial herbs, short-lived shrubs, and re-establishment of dominance by the original shrub species. This vegetation community is often found in dry, rocky areas, often on steep slopes with little soil. Granitic northern mixed chaparral is a subtype of this community that occurs on granitic soils. The disturbed form contains a higher preponderance of annual, non-native species. A total of 23.7 acres of granitic northern mixed chaparral, including disturbed, occur in the Program area within the Morena Dam study area.

Chamise Chaparral

Chamise chaparral is the most widely distributed chaparral subtype and is dominated by the species chamise. This vegetation community is found from Baja to northern California in pure or mixed stands. It often dominates at low elevations and on xeric south-facing slopes with 60 to 90 percent canopy cover. Along its lower elevation limit, chamise chaparral intergrades with coastal sage scrub. Mission manzanita and black sage are other plant species often associated within this vegetation community. Characteristic species within this habitat on-site include chamise, laurel sumac, and toyon. Approximately 23.4 acres of chamise chaparral were mapped in the Program area within the Barrett Dam, Miramar Dam, San Vicente Dam, Sutherland Dam, and Dulzura Conduit study areas.

Non-native Grassland

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include oats (*Avena* spp.), foxtail chess (*Bromus madritensis*), ripgut grass (*B. diandrus*), ryegrass (*Festuca* sp.), and mustard (*Brassica* spp.). Most of the annual introduced species that make up most species and biomass within the non-native grassland originated from the Mediterranean region, an area with a long history of agriculture and a climate like California. A total of 14.0 acres of non-native grassland occur in the Program area within the Barrett Dam, Chollas Dam, El Capitan Dam, Miramar Dam, Murray Dam, Rancho Bernardo Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit study areas.

Non-Native Vegetation

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* spp.], peppertree [*Schinus* spp.]), many of which are also used in landscaping. Approximately 18.1 acres of non-native vegetation occur in the Program area within the El Capitan Dam, Hodges Dam, Miramar Dam, Murray Dam, Rancho Bernardo Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam study areas.

Eucalyptus Woodland

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* spp.), an introduced genus that has often been planted purposely for wind-blocking, ornamental, and hardwood production purposes. Most groves are monotypic, with the most common species being either the blue gum (*Eucalyptus globulus*) or river red gum (*E. camaldulensis*). The understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf and bark litter. If enough moisture is available, this species becomes naturalized and can reproduce and expand its range. A total of 18.5 acres of eucalyptus woodland was mapped in the Program area within the Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Murray Dam, Rancho Bernardo Dam, Savage Dam, and Upper Otay Dam study areas.

Unvegetated Habitat (Bedrock and Talus Slope)

Unvegetated habitat is characterized by lands lacking vegetation and those that contain minimal vegetative cover. In the Program area, unvegetated habitat consists of talus slopes or bedrock. A total of 3.1 acres of bedrock occur in the Program area within the Hodges Dam and Sutherland Dam study areas. A total of 3.8 acres of talus slopes were mapped in the Program area within the Morena Dam study areas.

Disturbed Habitat

Disturbed habitat includes land cleared of vegetation (e.g., dirt roads), land containing a preponderance of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage that removes any capability of providing viable habitat. A total of 39.6 acres of disturbed habitat were mapped in the Program area and occur within each study area.

Developed

Developed land is where permanent structures and/or pavement occur, which prevents the growth of vegetation, or where landscaping is clearly tended and maintained. Developed land within the Program area includes pavement or hardscape associated with dams, buildings, parking lots, roads, and additional infrastructure associated with the dams and reservoirs. A total of 39.6 acres of developed land was mapped within the Program area and occur within each study area.

4.6 FLORA

A total of 527 plant species were observed within the Program area, of which 383 (73 percent) were native species and 144 (27 percent) were non-native species (Appendix H, *Plant Species Observed*).

4.7 FAUNA

A total of 222 animal species were observed or detected within the Program area during surveys conducted to date, including 58 butterfly, seven amphibian, 16 reptile, 133 bird, and eight mammal species (Appendix I, *Animal Species Observed or Otherwise Detected*).

5.0 SENSITIVE BIOLOGICAL RESOURCES

According to City Municipal Code (Chapter 11, Article 3, Division 1) and Appendix I of the City's Biology Guidelines (City 2018), sensitive biological resources refer to upland and/or wetland areas that meet any one of the following criteria:

(a) Lands that have been included in the MHPA as identified in the City's MSCP SAP and VPHCP;

(b) Wetlands (as defined by Municipal Code Section 113.0103);

(c) Lands that contain Tier I, Tier II, Tier IIIA, or Tier IIIB habitats;

(d) Lands supporting species or subspecies listed as rare, endangered, or threatened;

(e) Lands containing habitats with narrow endemic or vernal pool species as listed in the City's Biology Guidelines (City 2018); or

(f) Lands containing habitats of Covered Species, as listed in the City's Biology Guidelines (City 2018).

5.1 SENSITIVE VEGETATION COMMUNITIES/HABITAT TYPES

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines. The City defines sensitive habitat as ESL in their Land Development Code Biology Guidelines. In the context of the City's MSCP SAP, wetlands and Tier I through IIIB uplands are considered sensitive habitat types. Impacts to sensitive habitats typically require mitigation.

Sensitive vegetation communities/habitat types mapped within the Program's study area include:

- Wetlands: southern riparian forest, southern coast live oak riparian forest, riparian woodland, mule fat scrub, southern willow scrub, arrowweed scrub, tamarisk scrub, freshwater marsh, non-native riparian, arundo-dominated riparian, and disturbed wetland;
- Non-wetland areas: non-vegetated channel and unvegetated habitat/lakeshore fringe;
- Tier I Habitats: native grassland (disturbed), coast live oak woodland, Engelmann oak woodland, mixed oak woodland, and scrub oak chaparral;

- Tier II Habitats: Diegan coastal sage scrub (including sparse, disturbed, laurel sumac dominated, and Baccharis dominated), flat-topped buckwheat, and coastal sage-chaparral scrub (including distributed);

- Tier IIIA Habitats: southern mixed chaparral (including Ceanothus dominated), granitic southern mixed chaparral (including disturbed), granitic northern mixed chaparral (including sparse), and chamise chaparral; and

- Tier IIIB Habitat: non-native grassland

Open water/freshwater lake, non-native vegetation, eucalyptus woodland, unvegetated habitat (bedrock and talus slope), disturbed habitat, and developed lands do not meet the definition of sensitive habitat under CEQA. Impacts to these vegetation communities do not require mitigation.

5.2 SPECIAL STATUS PLANT SPECIES

Special status plant species have been afforded special status and/or recognition by the USFWS, CDFW, and/or the City (e.g., MSCP or VPHCP Covered Species or MSCP Narrow Endemic species). More specifically, if a species is designated with any of the following statuses (a-c below), it is considered sensitive:

(a) A species (or subspecies) is listed as rare, endangered, or threatened under Section 670.2 or 670.5, Title 14, California Code of Regulations, or the Federal Endangered Species Act, Title 50, Code of Federal Regulations, Section 17.11 or 17.12, or candidate species under the California Code of Regulations;

(b) A species is a Narrow Endemic as listed in the Biology Guidelines in the Land Development Manual (City 2018); and/or

(c) A species is an MSCP Covered Species or VPHCP Covered Species as listed in the Biology Guidelines in the Land Development Manual (City 2018).

A plant species is also considered sensitive if it is included in the CNPS Inventory of Rare and Endangered Plants with an assigned CRPR of 2 or lower (CNPS 2021), although species with lower CRPR ranks (i.e., CRPR 3 and 4 species) also may be considered sensitive species by local jurisdictions; however, no CRPR 3 or 4 species are specifically identified as sensitive species in the City's Biology Guidelines, MSCP SAP, or VPHCP. According to the CNPS, CRPR 1 and 2 species meet the State CEQA Guidelines definition for Rare and Endangered and, therefore, must be considered in Project CEQA analysis. While CRPR 3 and 4 species do not have this requirement, CNPS recommends that they be disclosed.

Sensitive plant status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. A species that exhibits a small or restricted geographic range (such as those endemic to the region) is geographically rare. A species may be abundant but occur only in very specific habitats. Lastly, a species may be widespread but exists naturally in small populations.

5.2.1 Special Status Plant Species Observed

The following 17 special status plant species were documented within the Program area during biological surveys: California adolphia (*Adolphia californica*), San Diego bur-sage (*Ambrosia*

chenopodiifolia), San Diego sagewort (*Artemisia palmeri*), Dean's milkvetch (*Astragalus deanei*), San Diego County sunflower (*Bahiopsis laciniata*), San Diego goldenstar (*Bloomeria clevelandii*), wart-stemmed ceanothus (*Ceanothus verrucosus*), delicate clarkia (*Clarkia delicata*), San Diego barrel cactus (*Ferocactus viridescens*), San Diego marsh-elder (*Iva hayesiana*), pride of California (*Lathyrus splendens*), golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*), chaparral rein orchid (*Piperia cooperi*), Engelmann oak (*Quercus engelmannii*), Munz's sage (*Salvia munzii*), ashy spike-moss (*Selaginella cinerascens*), and rush-like bristleweed (*Xanthisma junceum*). These species are a compilation of the results of the rare plant surveys conducted by HELIX and RBC in 2020, and prior surveys conducted by RECON in 2018 and 2019 (RECON 2019 and 2021) and are discussed further below. A complete list of plant species observed within the Program area is included as Appendix H. Appendix L, *Explanation of Status Codes for Plant and Animal Species*, includes explanations of sensitivity codes.

Federally or State Listed Plant Species

No federally and/or state listed plant species were documented within the Program area.

Other Special Status Plant Species

Seventeen other special status plant species have been recorded within the Program area, including nine CRPR designation 1 or 2 species: California adolphia, San Diego bursage, Dean's milkvetch, San Diego goldenstar, wart-stemmed ceanothus, delicate clarkia, San Diego barrel cactus, San Diego marsh-elder, and Munz's sage; and eight CRPR designation 4 species: San Diego sagewort, San Diego sunflower, pride of California, golden-rayed pentachaeta, chaparral rein orchid, Engelmann oak, ashy spike-moss, and rush-like bristleweed.

California adolphia (Adolphia californica)

California adolphia has a CRPR of 2B.1. This perennial shrub occurs in coastal scrub and occasionally on the peripheral chaparral habitats. It is often found on hillsides near creeks on clay soils. This species occurs in San Diego at elevations between 30 and 2,4230 feet.

Scattered individuals were observed within Diegan coastal sage scrub within the Black Mountain Dam (487 individuals) and Hodges Dam (16 individuals) study areas. This species was also determined to have a high potential to occur at Miramar Dam and San Vicente Dam based on the presence of suitable habitat and soils and previous occurrences within the surrounding area.

San Diego bursage (Ambrosia chenopodiifolia)

San Diego bursage has a CRPR of 2B.1. This perennial shrub occurs in coastal scrub. This species occurs in southwestern San Diego County at elevations between 180 and 510 feet.

Small patches, totaling 0.53 acre and approximately 65 individuals, were observed within Diegan coastal sage scrub in the western portion of the San Vicente Dam study area in areas adjacent to project access roads. This species was also determined to have a high potential to occur at Savage Dam and Upper Otay dam based on the presence of suitable habitat, geographic location, and previous occurrences within the surrounding area.

San Diego sagewort (Artemisia palmeri)

San Diego sagewort has a CRPR of 4.2. This is a biennial or perennial herb that is typically found in sandy soils along stream courses. This species often occurs within a shaded understory beneath riparian woodland, but may occur in coast live oak woodland, coastal sage scrub, or southern mixed chaparral. San Diego sagewort occurs in San Diego County at elevations between 50 and 3,000 feet. A total of 170 individuals were observed within chamise chaparral to the west (downstream side) of the Miramar Dam study area. This species was also determined to have a high potential to occur at Hodges Dam and San Vicente Dam based on the presence of mesic soils, suitable habitat, and previous occurrences within the surrounding area.

Dean's milkvetch (Astragalus deanei)

Dean's milkvetch has a CRPR of 1B.1. This is a perennial herb that occurs on open, shrubby slopes in chaparral but can also be found in coastal sage scrub, woodlands, and riparian forest. Dean's milkvetch occurs in San Diego County at elevations between 245 and 2,280 feet.

Observed within the El Capitan Dam and Dulzura Conduit study areas. At El Capitan Dam, 29 individuals were observed by HELIX in 2020, and 260 individuals were observed by RECON between 2018 and 2019 (RECON 2021) within disturbed Diegan coastal sage scrub, primarily along the slopes to the west of the dam. It is presumed that some of these locations may represent the same individuals. At Dulzura Conduit, 71 scattered individuals and small patches, totaling 0.01 acre, and approximately 10 individuals, were observed along the conduit and access trails, primarily along the northern portion of the conduit between Trail 1 and Trail 5. This species was also determined to have a high potential to occur at Barrett Dam and Morena Dam based on the presence of open scrubby habitats and previous occurrences within the surrounding area.

San Diego County sunflower (Bahiopsis laciniata)

San Diego viguiera has a CRPR of 4.3. This is a perennial shrub that occurs on a variety of soil types in arid Diegan coastal sage scrub. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. This species is found along the coastal regions from Ventura County south to San Diego County and western Riverside County at elevations between 295 and 2,461 feet.

Large patches and scattered individuals were observed within the Black Mountain Dam, Chollas Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit study areas. At Black Mountain Dam, a single individual was observed at the edge of Diegan coastal sage scrub adjacent to the concrete reservoir. At Chollas Dam, large patches (estimating 680 individuals covering approximately 1.4 acres) were observed within Diegan coastal sage scrub and non-native grassland downstream of the dam. At Miramar Dam, scattered individuals (approximately 988) and large patches (covering approximately 4.2 acres) were observed within Diegan coastal sage scrub and southern mixed chaparral to the west of the dam. At Murray Dam, the species was common throughout Diegan coastal sage scrub located on the slope west of the dam covering approximately 8.5 acres. At San Vicente Dam, the species was dominant throughout the Diegan coastal sage scrub. At Savage Dam, numerous individuals (approximately 2,470) were observed within the Diegan coastal sage scrub and non-native grassland, primarily in the area east of the dam. At Upper Otay Dam, numerous individuals (approximately 2,840) were observed throughout the Diegan coastal sage scrub to the west and east of the dam. At Dulzura Conduit, numerous individuals (approximately 1,524) and large patches (estimating 10,663 individuals covering approximately 12.4 acres) were observed within Diegan coastal sage scrub,

granitic southern mixed chaparral, and coastal sage-chaparral scrub along the entire length of the conduit and associated access trails. This species was also determined to have a high potential to occur at El Captain Dam and Hodges Dam based on the presence of suitable coastal sage scrub habitat and previous occurrences within the surrounding area.

San Diego goldenstar (Bloomeria clevelandii)

San Diego goldenstar has a CRPR of 1B.1 and is a City MSCP Covered species. This is a perennial bulbiferous herb that occurs in valley grasslands and coastal scrub, particularly near mima mound topography or in the vicinity of vernal pools, on clay soils. This species is found in Riverside and San Diego Counties at elevations between 160 and 1,525 feet.

A small patch (totaling 40 square feet) of approximately 35 individuals were observed at Savage Dam within Diegan coastal sage scrub, west of the dam. This species was also determined to have a high potential to occur at Black Mountain Dam based on the presence of suitable habitat and clay soils and previous occurrences within the surrounding area.

Wart-stemmed ceanothus (Ceanothus verrucosus)

Wart-stemmed ceanothus has a CRPR of 2B.2 and is a City MSCP Covered species. This is a perennial evergreen shrub occurring in xeric chamise or southern maritime chaparral. It may be restricted to metavolcanic and gabbroic peaks in western San Diego County. This species s found in Riverside and San Diego Counties at elevations below 1,245 feet.

One individual was observed within ceanothus dominated southern mixed chaparral to the east (upstream) of Hodges Dam.

Delicate clarkia (Clarkia delicata)

Delicate clarkia has a CRPR of 1B.2. This is an annual herb that often occurs on gabbroic soils in shaded areas or the periphery of oak woodlands and cismontane chaparral. This species is found in San Diego County at elevations between 770 and 3,280 feet.

Observed within the Barrett Dam, El Capitan Dam, San Vicente Dam, and Dulzura Conduit study areas. At Barrett Dam, the scattered individuals (approximately 227) and small patches of about 600 individuals (covering approximately 0.03 acre) were observed by RECON in 2018 and 2019 (RECON 2019) downstream of the dam along Cottonwood Creek and along the bordering slopes. At El Capitan Dam, scattered clusters of individuals (approximately 326) were observed by RECON in 2018 within the southern portion of the study area (RECON 2021); the species was not detected during rare plant surveys conducted by HELIX in 2020. At San Vicente Dam, a small patch of about 65 individuals (covering approximately 0.02 acre) were observed south of the dam adjacent to a project access road. At Dulzura Conduit, multiple individuals (approximately 3,565) and small patches of approximately 690 plants (covering approximately 0.08 acre) were observed in several locations along the conduit and access trails, primarily along the northern portion of the conduit between Barrett Dam and Trail 7. This species was also determined to have a high potential to occur at Morena Dam and Sutherland Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

San Diego barrel cactus (Ferocactus viridescens)

San Diego barrel cactus has a CRPR of 2B.1 and is a City MSCP Covered species. This stem succulent shrub occurs within Diegan coastal sage scrub hillsides, often at the crest of slopes and growing among cobbles. It is occasionally found on the vernal pool periphery and mima mound topography in Otay Mesa. This species is found in San Diego County at elevations below 492 feet.

Observed within the Black Mountain Dam, Savage Dam, and Upper Otay Dam study areas. At Black Mountain Dam, six individuals were observed within Diegan coastal sage scrub to the southwest of the concrete reservoir outside of the perimeter fencing. At Savage Dam, a total of 117 individuals were observed within Diegan coastal sage scrub to the east of the dam. At Upper Otay Dam, a total of two individuals were observed within Diegan coastal sage scrub to the east of the dam.

San Diego marsh-elder (Iva hayesiana)

San Diego marsh elder has a CRPR of 2B.2. This is a conspicuous, perennial herb that is typically found in creeks or intermittent streambeds, where open canopy allows sunlight to reach the species. It is rarely observed at seeps near creeks. Sandy alluvial embankments with cobbles are frequently utilized. This species is found in San Diego County at elevations between 30 and 1,640 feet.

A total of 3 individuals were observed within the Chollas Dam study area within riparian woodland located downstream (west) of the dam along Chollas Creek. This species was also determined to have a high potential to occur at Hodges Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Pride of California (Lathyrus splendens)

Pride of California has a CRPR of 4.3. This is a perennial herb that occurs in chaparral. This species is found along the coast and Peninsular Ranges of southern California from San Luis Obispo south to San Diego County and east to western San Bernardino and Riverside Counties at elevations between 650 and 5,000 feet.

Approximately 20 individuals were observed within the Dulzura Conduit study area scattered along the conduit in areas between Trail 5 and Flume 14. This species was also determined to have a high potential to occur at Barrett Dam and Morena Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Golden-rayed pentachaeta (Pentachaeta aurea ssp. aurea)

Golden-rayed pentachaeta has a CRPR of 4.2. This is an annual herb that occurs in grassy areas within coastal scrub, chaparral, cismontane woodland, lower montane coniferous forest, and riparian woodland. This species is found in Riverside and San Diego Counties at elevations between 260 and 6,100 feet.

A total of 250 individuals were observed at the Chollas Dam study area within Diegan coastal scrub located west of the dam. This species was also determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Cooper's rein orchid (Piperia cooperi)

Cooper's rein orchid has a CRPR of 4.2. This is a perennial herb that typically grows on dry sites within grasslands, chaparral, and cismontane woodland. This species is found along the coast, San Gabriel and San Jacinto Mountains, and Peninsular Ranges of southern California from Ventura County south to San Diego County and east to western San Bernardo and Riverside Counties, and the Channel Islands at elevations between 50 and 5,200 feet.

Two individuals were observed along Dulzura Conduit adjacent to Trail 3. This species was also determined to have a high potential to occur at Barrett Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Engelmann Oak (Quercus engelmannii)

Engelmann Oak has a CRPR of 4.2. This is a perennial tree that grows on slopes and foothills within grasslands, chaparral, oak woodland, and riparian woodlands. This species is found from Los Angeles County south to San Diego County, western Riverside and San Bernardino Counties, and the Channel Islands at elevations between 160 and 4,300 feet.

Scattered individuals were observed at El Captain Dam (15 trees), Sutherland Dam (27 trees), and Dulzura Conduit (8 trees).

Munz's sage (Salvia munzii)

Munz's sage has a CRPR of 2B.2. This is a perennial shrub that occurs in chaparral and coastal sage scrub. This species is found in San Diego County at elevations between 370 and 3,500 feet.

Two individuals were observed at the Savage Dam study area within Diegan coastal sage scrub located east of the dam. This species was also determined to have a high potential to occur at Chollas Dam, Hodges Dam, and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Ashy spike-moss (Selaginella cinerascens)

Ashy spike-moss has a CRPR of 4.1 This is a rhizomatous fern, occurring in undisturbed chaparral and Diegan coastal sage scrub. A good indicator of site degradation, as it rarely inhabits disturbed soils. The species is often associated with "red clay" soils. Found in the coastal regions from southern Los Angeles County south to San Diego County at elevations below 1,804 feet.

Small patches were observed within Diegan coastal sage scrub and chamise chaparral at Chollas Dam (8 occurrences, Miramar Dam (10 occurrences), San Vicente Dam (18 occurrences), Savage Dam (356 occurrences), and Upper Otay Dam (5 occurrences). This species was also determined to have a high potential to occur at Black Mountain Dam, El Capitan Dam, Hodges Dam, and Murray Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Rush-like bristleweed (Xanthisma junceum)

Rush-like bristleweed has a CRPR of 4.3. This is a perennial herb that grows on dry hillsides within coastal sage scrub and chaparral. The species is found in San Diego County at elevations between 785 and 3,280 feet.

Observed within the El Capitan Dam and Dulzura Conduit study areas. At El Capitan Dam, RECON documented 33 individuals in 2018 in the northern portion of the study area, primarily along the steep hillside north of the spillway (RECON 2021). At Dulzura Conduit, a total of 243 individuals were documented along the conduit between Flume 4 and Tunnel 14. This species was also determined to have a high potential to occur at Barrett Dam and Morena Dam based on the presence of suitable habitat and previous occurrences within the immediate vicinity.

5.2.2 Special Status Plant Species with Potential to Occur

Special status plant species that were not observed but may have the potential to occur within the Program area are listed in Appendix J, *Plant Species Observed or With Potential to Occur*. An additional 41 special status plant species were determined to have high potential within portions of the Program area, based on a combination of factors: presence of suitable soils, hydrology, and/or habitat within the study areas; sensitive species database occurrences within the study area vicinity (typically one-mile); and verified recent observations made by others (including citizen science databases such as Calflora (2021) and iNaturalist (2021). These species are further discussed below and in Appendix J. No additional species have a high potential to occur primarily due to the lack of suitable conditions such as appropriate habitat, soils, hydrology, and elevation.

Singlewhorl burrobrush (Ambrosia monogyra)

Singlewhorl burrobrush has a CRPR of 2B.2. This is a perennial shrub that occurs in washes and dry riverbeds. This species occurs in San Bernardino, Riverside, and San Diego Counties at elevations below 1,640 feet. In San Diego County, most observations of this species occur in the southwestern part of the county.

Singlewhorl burrobrush was determined to have a high potential to occur at Savage Dam based on the presence of sandy soils and dry riverbed habitat, and previous occurrences downstream along Otay River.

San Diego ambrosia (Ambrosia pumila)

San Diego ambrosia has a CRPR of 1B.1 and is a federally listed endangered and City MSCP Covered and Narrow Endemic species. This is a perennial herb that occurs on sandy loam or clay, sometimes alkaline, soils within grasslands, dry drainages, stream floodplain terraces, and vernal pool margins. It is also found on slopes, disturbed places, and in coastal sage scrub or chaparral. This species occurs in Riverside and San Diego Counties at elevations between 65 and 1,360 feet.

San Diego ambrosia was determined to have a high potential to occur at Hodges Dam based on the presence of suitable sandy soils and habitat, and previous occurrences downstream along the San Dieguito River.

Western spleenwort (Asplenium vespertinum)

Western spleenwort has a CRPR of 4.2. This is a perennial rhizomatous herb that occurs along rocky bluffs in chaparral, cismontane woodland, and coastal scrub habitats. The species is found along the coastal regions from Ventura, south to San Diego County, and east to San Bernardino and Riverside Counties at elevations between 590 and 3,280 feet.

Western spleenwort was determined to have a high potential to occur at Barret Dam, Hodges Dam, Morena Dam, San Vicente Dam, Sutherland Dam, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

Jacumba milk-vetch (Astragalus douglasii var. perstrictus)

Jacumba milk-vetch has a CRPR of 1B.2. This is a perennial herb that occurs on rocky outcrops within grasslands, chaparral, cismontane woodland, pinyon- juniper woodland, and riparian scrub. The species is found in San Diego County at elevations between 2,950 and 4,495 feet.

Jacumba milk-vetch was determined to have a high potential to occur at Morena Dam based on the presence of suitable rock outcrops and habitat and previous occurrences within the surrounding area.

San Diego milk-vetch (Astragalus oocarpus)

San Diego milk-vetch has a CRPR of 1B.2. This is a perennial herb that occurs in openings of chaparral and oak woodlands. The species is found in San Diego County at elevations between 1,000 and 5,000 feet.

San Diego milk-vetch was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Sutherland Dam, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

South coast saltscale (Atriplex pacifica)

South coast saltscale has a CRPR of 1B.2. This is an annual herb that occurs coastally on dunes and within playas in alkali sinks, sage scrub, and wetland/riparian communities. This species is found along the coastal regions from Santa Barbara County south to San Diego County, western portions of San Bernardino and Riverside Counties, and the Channel Islands at elevations below 460 feet.

South coast saltscale was determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area including at Otay Mountain Ecological Preserve and Otay Ranch Preserve.

Thread-leaved brodiaea (Brodiaea filifolia)

Thread-leaved brodiaea has a CRPR of 1B.1 and is a state listed endangered, federally listed threatened, and City MSCP Covered and Narrow Endemic species. This is a perennial herb that is most often associated with vernal pools but may also occur within playas, grasslands, coastal scrub, openings in chaparral, and cismontane woodland, often on clay soils. This species is found in Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties at elevations between 80 and 3,675 feet.

Thread-leaved brodiaea was determined to have a high potential to occur at Black Mountain Dam based on the presence of clay soils and coastal sage scrub and previous occurrences within the surrounding area at Black Mountain Open Space Park.

Orcutt's brodiaea (Brodiaea orcuttii)

Orcutt's brodiaea has a CRPR of 1B.1 and is a City MSCP Covered species. This is a perennial herb that occurs on mesic or clay soils within closed-cone coniferous forest, chaparral, cismontane woodland,

meadows and seeps, valley and foothill grassland, and vernal pools. This species is found in Riverside and San Diego Counties at elevations between 98 and 5,550 feet.

Orcutt's brodiaea was determined to have a high potential to occur at El Capitan Dam, Hodges Dam, San Vicente Dam Savage Dam, and Upper Otay Dam based on the presence of suitable mesic soils and habitats and previous occurrences within the surrounding area.

Brewer's calandrinia (Calandrinia breweri)

Brewer's calandrinia has a CRPR of 4.2. This is an annual herb that occurs within chaparral or coastal scrub on sandy or loamy soils. It also occurs on disturbed sites and after burns. This species is found along the central and southern coast; North Coast, South Coast, western Transverse, and Peninsular Ranges; San Gabriel, San Bernardino, and San Jacinto mountains; Sierra Nevada and western foothills; and the Channel Islands at elevations between 30 and 4,000 feet.

Brewer's calandrinia was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Miramar Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitats and previous occurrences within the surrounding area.

Dunn's mariposa lily (Calochortus dunnii)

Dunn's mariposa lily has a CRPR of 1B.2 and is a City MSCP Covered species. This is a perennial herb that typically occurs on gabbroic, metavolcanics, or rocky soils within closed-cone coniferous forest, chaparral, and valley and foothill grassland. This species is found in San Diego County at elevations between 605 and 6,005 feet.

Dunn's mariposa lily was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of rocky soils and suitable habitats and previous occurrences within the surrounding area.

Slender-pod jewelflower (Caulanthus heterophyllus)

Slender-pod jewelflower is a City MSCP Covered species. This is an annual herb that grows on dry sites within open coastal scrub and chaparral. It also occurs in burned and disturbed areas. This species is found along the coast of southern California; South Coast, western Transverse, and Peninsular Ranges; San Gabriel and San Bernardino mountains; and the Channel Islands at elevations below 4,600 feet.

Slender-pod jewelflower was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Upper Otay, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

Lakeside ceanothus (Ceanothus cyaneus)

Lakeside ceanothus has a CRPR of 1B.2 and is a City MSCP Covered and Narrow Endemic species. This is a perennial shrub that occurs on slopes and ridgelines in closed-cone coniferous forests and chaparral. This species is found in Riverside and San Diego Counties at elevations between 770 and 2,540 feet.

Lakeside ceanothus was determined to have a high potential to occur at El Capitan Dam and San Vicente Dam based on the presence of suitable chaparral habitat and previous occurrences within the surrounding area.

Peninsular spineflower (Chorizanthe leptotheca)

Peninsular spineflower has a CRPR of 4.2. This is an annual herb that occurs on alluvial fans and sandy and gravelly soils in coastal sage scrub, chaparral, and coniferous forests. This species is found within San Bernardino, Riverside, and San Diego Counties at elevations between 980 and 6,235 feet.

Peninsular spineflower was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, and Dulzura Conduit based on the presence of sandy or gravelly soils, suitable habitat, and previous occurrences within the surrounding area.

Long-spined spineflower (Chorizanthe polygonoides var. longispina)

Long-spined spineflower has a CRPR of 1B.2. This is an annual herb that often occurs on clay soils in chaparral, coastal scrub, and native grassland. This species is found in Orange, Riverside, San Bernardino, and San Diego Counties at elevations between 95 and 5,020 feet.

Long-spined spineflower was determined to have a high potential to occur at Black Mountain Dam based on the presence of suitable clay soils and habitat and previous occurrences within the surrounding area.

San Miguel savory (Clinopodium chandleri)

San Miguel savory has a CRPR of 1B.2. This is a perennial shrub that occurs on rocky, gabbroic, or metavolcanic soils in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. This species is found in Orange, Riverside, and San Diego Counties at elevations between 390 and 3,525 feet.

San Miguel savory was determined to have a high potential to occur at San Vicente Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable rocky soils and habitat and previous occurrences within the surrounding area.

Summer holly (Comarostaphylis diversifolia ssp. Diversifolia)

Summer holly has a CRPR of 1B.2. This is a perennial shrub that occurs in chaparral and cismontane woodland. This species is found in Santa Barbara, Orange, Riverside, and San Diego Counties at elevations between 95 and 5,020 feet.

Summer holly was determined to have a high potential to occur at Black Mountain Dam and Hodges Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Small-flowered morning-glory (Convolvulus simulans)

Small-flowered morning-glory has a CRPR of 4.2. This is an annual that occurs on clay soils and serpentinite seeps in openings within chaparral, coastal scrub, and native grassland. This species is found in the San Francisco Bay area, San Joaquin Valley, western Sierra Nevada foothills, along the coast

of southern California, the Channel Islands, and the western Transverse and Peninsular Ranges at elevations between 95 and 2,430 feet.

Small-flowered morning-glory was determined to have a high potential to occur at Black Mountain Dam based on the presence of clay soils and suitable habitat and previous occurrences within the surrounding area.

Snake cholla (Cylindropuntia californica var. californica)

Snake cholla has a CRPR of 1B.1 and is a City MSCP Covered and Narrow Endemic species. This is a perennial stem succulent that occurs in coastal sage scrub and coastal chaparral. This species is found in San Diego County at elevations between 95 and 490 feet.

Snake cholla was determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Tecate tarplant (Deinandra floribunda)

Tecate tarplant has a CRPR of 1B.2. This is an annual herb that occurs in coastal sage scrub and coastal chaparral. This species is found in San Diego County at elevations between 225 and 4,005 feet.

Tecate tarplant was determined to have a high potential to occur at Barrett Dam, Morena Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

Paniculate tarplant (Deinandra paniculata)

Paniculate tarplant has a CRPR of 4.2. This is an annual herb that occurs in vernally mesic areas, sometimes sandy soils, in coastal scrub, valley and foothill grassland, and vernal pools. This species is found along the coastal regions from San Luis Obispo County south to San Diego County and east to western San Bernardino and Riverside Counties at elevations between 80 and 3,100 feet.

Paniculate tarplant was determined to have a high potential to occur at Barrett Dam and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

Western dichondra (Dichondra occidentalis)

Western dichondra has a CRPR of 4.2. This is a perennial rhizomatous herb. It occurs on a variety of soil types in Diegan coastal sage scrub, southern mixed chaparral, chamise chaparral, and rocky outcrops in grasslands, and often proliferates on recently burned slopes. This species is found along the coastal regions from San Luis Obispo County south to San Diego County at elevations between 165 and 1,640 feet.

Western dichondra was determined to have a high potential to occur at Black Mountain Dam, Hodges Dam, and Miramar Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Cleveland's bush monkeyflower (Diplacus clevelandii)

Cleveland's bush monkeyflower has a CRPR of 4.2. This is a perennial herb that occurs on rocky and gabbroic soils within openings of chaparral, cismontane woodland, and lower montane coniferous forests and is often in disturbed places. This species is found in Orange, Riverside and San Diego Counites at elevations between 1,475 and 6,560 feet.

Cleveland's bush monkeyflower was determined to have a high potential to occur at Barrett Dam and Dulzura Conduit based on the presence of suitable rocky soils and chaparral habitat and previous occurrences within the surrounding area.

Variegated dudleya (Dudleya variegata)

Variegated dudleya has a CRPR of 1B.2 and is a City MSCP Covered and Narrow Endemic species. This is a perennial herb succulent that occurs on clay soils of dry hillsides and mesas within chaparral, valley grassland, foothill woodland, and coastal sage scrub communities. This species is found in San Diego County at elevations below 1,905 feet.

Variegated dudleya was determined to have a high potential to occur at Black Mountain Dam based on the presence of suitable clay soils and habitat and previous occurrences within the surrounding area.

Sticky geraea (Geraea viscida)

Sticky geraea has a CRPR of 2B.2. This is a perennial herb that often occurs in disturbed areas of chaparral. This species is found in Imperial and San Diego Counties at elevations between 1,475 and 5,575 feet.

Sticky geraea was determined to have a high potential to occur at Morena Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Palmer's grapplinghook (Harpagonella palmeri)

Palmer's grapplinghook has a CRPR of 4.2. This is an annual herb that occurs on clay soils in annual grasslands and coastal sage scrub. This species is found in Orange, Los Angeles, and San Diego Counties, and western Riverside County at elevations between 65 and 3,100 feet.

Palmer's grapplinghook was determined to have a high potential to occur at Morena Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Graceful tarplant (Holocarpha virgata ssp. elongata

Graceful tarplant has a CRPR of 4.2. This is an annual herb that occurs in grasslands, coastal scrub, chaparral, and cismontane woodland. This species is found along the southern coast of California and Peninsular Ranges at elevations between 195 and 3,600 feet.

Graceful tarplant was determined to have a high potential to occur at Black Mountain Dam and Hodges Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Decumbent goldenbush (Isocoma menziesii var. decumbens

Decumbent goldenbush has a CRPR of 1B.2. This is a perennial shrub that occurs on sandy soils and disturbed areas on the inland side of dunes, hillsides, and arroyos within coastal sage scrub and chaparral communities. This species is found along the coast of southern California, Peninsular Ranges, and Channel Islands at elevations below 656 feet.

Decumbent goldenbush was determined to have a high potential to occur at Chollas Dam, Murray Dam, and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the Program area or surrounding area.

Coulter's goldfields (Lasthenia glabrata ssp. coulteri)

Coulter's goldfields has a CRPR of 1B.1. This is an annual herb that occurs in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. This species is found along the Coast, Sierra Nevada, and Peninsular Ranges; Sacramento and San Joaquin Valleys; central and southern coasts; Mojave Desert, and north Channel Islands at elevations below 4,005 feet.

Coulter's goldfields was determined to have a high potential to occur at Chollas Dam based on the presence of suitable habitat and previous occurrences within the Program area.

Southwestern spiny rush (Juncus acutus ssp. leopoldii)

Southwestern spiny rush has a CRPR of 4.2. This is a perennial herb that occurs in coastal salt marshes at brackish locales, alkaline meadows, and riparian marshes. This species may also occur along drainages with willow vegetation or sycamore woodland at mid-elevations, or in palm oases in the desert. This species is found along the coastal regions from San Luis Obispo south to San Diego County at elevations below 984 feet.

Southwestern spiny rush was determined to have a high potential to occur at Hodges Dam and Savage Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Robinson's pepper-grass (Lepidium virginicum var. robinsonii)

Robinson's pepper-grass has a CRPR of 4.3. This is an annual herb that occurs in openings of sage scrub and chaparral and is also grows in disturbed areas. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. This species is found in coastal areas and foothills of Mono, Santa Barbara, Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties at elevations below 9,186 feet.

Robinson's pepper-grass was determined to have a high potential to occur at Black Mountain Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

Jennifer's monardella (Monardella stoneana)

Jennifer's monardella has a CRPR of 1B.2. This is a perennial herb that usually grows in rocky intermittent streambeds within coastal scrub, chaparral, riparian scrub, or close-cone coniferous forests. This species is found in San Diego County at elevations between 30 and 2,590 feet.

Jennifer's monardella was determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Fish's milkwort (Polygala cornuta var. Fishiae)

Fish's milkwort has a CRPR of 4.3. This is a perennial shrub that occurs in chaparral and oak woodlands. This species is found along the coastal regions from Santa Barbara County south to San Diego County at elevations between 320 and 3,280 feet.

Fish's milkwort was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

Nuttall's scrub oak (Quercus dumosa)

Nuttall's scrub oak has a CRPR of 1B.1. This is a perennial shrub that is generally found on sandy or clay loam soils in open coastal chaparral in flat terrain or as monotypic stands on north-facing slopes. This species is found along the coast, San Jacinto Mountains, and Peninsular Ranges of southern California at elevations below 1,310 feet.

Nuttall's scrub oak was determined to have a high potential to occur at Hodges Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Moreno currant (Ribes canthariforme)

Moreno currant has a CRPR of 1B.3. This is a perennial shrub that occurs in open coastal chaparral in chaparral and riparian scrub. This species is found in San Diego County at elevations between 1,115 and 3,955 feet.

Moreno currant was determined to have a high potential to occur at El Capitan Dam, Morena Dam, and San Vicente Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Coulter's matilija poppy (Romneya coulteri)

Coulter's matilija poppy has a CRPR of 4.2. This is a perennial herb that occurs in dry washes and canyons coastal scrub chaparral, often in burned areas. This species is found along the coastal regions from San Luis Obispo County, south to San Diego County, and east to western Riverside and San Bernardino Counties at elevations between 65 and 3,900 feet.

Coulter's matilija poppy was determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

Small-leaved Rose (Rosa minutifolia)

Small-leaved Rose has a CRPR of 2B.1 and is a state listed endangered and City MSCP Covered species. This is a perennial shrub that occurs in coastal sage scrub and chaparral. This species is found in San Diego County at elevations between 490 and 525 feet.

Small-leaved Rose was determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the Otay Mesa area.

Southern mountains skullcap (Scutellaria bolanderi ssp. austromontana)

Southern mountains skullcap has a CRPR of 1B.2. This is a perennial herb that occurs in mesic areas of chaparral, cismontane woodland, and lower coniferous forests. This species is found from Los Angeles County south to San Diego and east to Riverside and San Bernardo Counties at elevations between 1,390 and 6,560 feet.

Southern mountains skullcap was determined to have a high potential to occur at Morena Dam based on the presence of suitable habitat and previous occurrences within the immediate vicinity.

Chaparral ragwort (Senecio aphanactis)

Chaparral ragwort has a CRPR of 2B.2. This is an annual herb that occurs on alkali flats and dry, open, rocky areas within grasslands, coastal scrub, and cismontane woodland. This species is found along the coastal regions from San Francisco Bay south to San Diego County and eastern Riverside and San Bernardino Counties at elevations between 45 and 4,250 feet.

Chaparral ragwort was determined to have a high potential to occur at Savage Dam and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the immediate vicinity.

Purple stemodia (Stemodia durantifolia)

Purple stemodia has a CRPR of 4.2. This is a perennial herb that grows on wet sand or rocks and drying streambeds within riparian habitats. This species is found in the San Jacinto Mountains and Sonoran Desert in San Diego, Riverside, and Imperial Counties at elevations between 590 and 985 feet.

Purple stemodia was determined to have a high potential to occur at Hodges Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable habitat and previous occurrences within the immediate vicinity.

San Diego County needle grass (Stipa diegoensis)

San Diego County needle grass has a CRPR of 4.2. This is a perennial herb that occurs on rocky, mesic soils near streams or along the coast within coastal scrub and chaparral. This species is found in Santa Barbara, Orange, and San Diego Counties and the Channel Islands at elevations between 30 and 2,600 feet.

San Diego County needle grass was determined to have a high potential to occur at Murray Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitat and previous occurrences within the surrounding area.

San Bernardino aster (Symphyotrichum defoliatum)

San Bernardino aster has a CRPR of 1B.2. This is a perennial herb that occurs near ditches, streams, and springs within grasslands, meadows, coastal scrubs, cismontane woodland, and lower montane coniferous forests. Also grows in southern California from San Luis Obispo County south to San Diego

County and east to Kern and western San Bernardino and Riverside Counties at elevations below 6,695 feet.

San Bernardino aster was determined to have a high potential to occur at Morena Dam based on the presence of suitable habitat and previous occurrences within the surrounding area.

5.3 SPECIAL STATUS ANIMAL SPECIES

Special status animal species are those that have been afforded special status and/or recognition by the USFWS, CDFW, and/or the City (e.g., MSCP or VPHCP Covered Species or MSCP Narrow Endemic species). More specifically, if a species is designated with any of the following statuses (a-c below), it is considered sensitive per City Municipal Code (Chapter 11, Article 3, Division 1):

(a) A species (or subspecies) is listed as endangered or threatened under Section 670.2 or 670.5, Title 14, California Code of Regulations, or the federal Endangered Species Act, Title 50, Code of Federal Regulations, Section 17.11 or 17.12, or candidate species under the California Code of Regulations;

(b) A species is a Narrow Endemic as listed in the Biology Guidelines in the Land Development Manual (City 2018); and/or

(c) A species is an MSCP Covered Species or VPHCP Covered Species as listed in the Biology Guidelines in the Land Development Manual (City 2018).

A species would also be considered sensitive if it is included on the CDFW's Special Animals List (CDFW 2021b) as a candidate for federal or state listing, a state Species of Special Concern (SSC), state Watch List (WL) species, state Fully Protected (FP) species, or federal Bird of Conservation Concern (BCC). Generally, the principal reason an individual taxon (species or subspecies) is considered sensitive is the documented or perceived decline or limitations of its population size, or geographical extent and/or distribution, resulting in most cases from habitat loss.

5.3.1 Special Status Animal Species Observed or Otherwise Detected

The following 34 special status animal species have been documented within the Program's study area:

- Invertebrates (2): monarch (*Danaus plexippus*), QCB
- Amphibians (2): ARTO, western spadefoot (*Spea hammondii*)
- Reptiles (6): Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), San Diego banded gecko (*Coleonyx variegatus abbotti*), red diamond rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), two-striped gartersnake (*Thamnophis hammondii*)
- Birds (22): Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), redhead (*Aythya americana*), Canada goose (*Branta canadensis*), Costa's hummingbird (*Calypte costae*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), olive-sided flycatcher (*Contopus cooperi*), white-tailed kite (*Elanus leucurus*), willow flycatcher (*Empidonax traillii*), peregrine falcon (*Falco*

peregrinus), bald eagle (*Haliaeetus leucocephalus*), Caspian tern (*Hydroprogne caspia*), yellow-breasted chat (*Icteria virens*), California gull (*Larus californicus*), osprey (*Pandion haliaetus*), American white pelican (*Pelecanus erythrorhynchos*), double-crested cormorant (*Phalacrocorax auritus*), CAGN, yellow warbler (*Setophaga petechia*), western bluebird (*Sialia mexicana*), LBVI

- Mammals (2): San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), mule deer (*Odocoileus hemionus*)

These species are a compilation of the results of the HELIX general biological survey and previous surveys by others. A list of animal species observed or otherwise detected is included as Appendix I. Appendix L, includes explanations of sensitivity codes.

Federally or State Listed Animal Species

Seven state and/or federally listed animal species, including candidate species, have been documented in the Program's study area: Monarch, QCB, ARTO, willow flycatcher, bald eagle, CAGN, and LBVI.

Invertebrates

Monarch (Danaus plexippus)

The monarch butterfly is a federal candidate species for listing. The species is found from southern Canada south through the United States into Central and South America. The species breeds in areas that have a suitable abundance of their host plant, milkweed (*Asclepias* sp.). The population west of the Rocky Mountains migrates to, and overwinters along, the coast of central and southern California into Baja Mexico (Tuskes 1978). The species inhabits a wide variety of open habitats, including fields, meadows, marshes, and roadsides, and roosts on wind-protected tree groves (such as eucalyptus, Monterey pine [*Pinus radiata*], cypress [*Hesperocyparis* sp.]), with nectar and water sources nearby.

Several individuals were observed flying within Murray Dam, San Vicente Dam, and Savage Dam study areas. However, no overwintering populations were observed within the Program area, and known have been reported or are known to occur.

Quino Checkerspot Butterfly (Euphydryas editha quino)

The quino checkerspot butterfly is a federally listed endangered species that occurs in western Riverside County, southern San Diego County, and northern Baja California Mexico (USFWS 2009a). The species inhabits patchy shrublands or small tree landscapes with openings. Several vegetation types are known to support the species, including coastal sage scrub, open chaparral, juniper woodland, and native grassland. Males, more so than females, are frequently observed on hilltops and ridgelines and exhibit a tendency to occur in barren spots amidst low-growing vegetation (USFWS 2003). Females deposit eggs on the species primary host plants, which include dwarf plantain (*Plantago erecta*), desert plantain (*P. ovata*), woolly plantain (*P. patagonica*), white snapdragon (*Antirrhinum coulterianum*), thread-leaved bird's beak (*Cordylanthus rigidus*). Secondary larval host plants, plants that may consumed by larvae but not used by adults for ovipositing include purple owl's clover (*Castilleja exserta*) and Chinese houses (*Collinsia heterophylla*). Nectaring resources also play an important role in the species life cycle, with butterflies documented frequently taking nectar from California buckwheat, goldfields (*Lasthenia* spp.), goldenstar (*Bloomeria* spp.), popcorn flower (*Plagiobothrys* spp.; *Cryptantha* spp.), onion (*Allium* spp.), chia (*Salvia columbare*), and blue dicks (*Dichelostemma capitatum*), among others (USFWS 2003).

A total of seven QCB individuals (spread across three locations) were observed at Savage Dam, and 11 QCB individuals (spread across four locations) were observed at Dulzura Conduit during the 2020 protocol survey (HELIX 2020d). At Savage Dam, all observations occurred to the east of the dam within the very eastern portion of the study area. At Dulzura Conduit, observations occurred to the south of SR-94 between Summit Road and Little Tecate Road, and north of SR-94 near the bottom of Trail 4.

There is no formally-adopted method from USFWS for determining occupied QCB habitat; however, potentially occupied QCB habitat was mapped within the study areas following guidance detailed in the *2009 Draft Quino Conservation Policies prepared by the Quino Stakeholder Group for the County of San Diego's Proposed MSCP Amendment for Quino* (County of San Diego 2009). This guidance was formulated in coordination with the USFWS in 2009, though it has not been formally approved or adopted. Potentially occupied habitat within the Program study areas includes:

- All Potential QCB Habitat within 200 meters (656 feet) of a QCB sighting (at a minimum).
- Any additional natural habitat within 200 meters (656 feet) of a QCB sighting containing significant larval host plant patches with appropriate nectaring plants present. Significant larval host plant patches are defined as host plant areas that were mapped by HELIX as either moderate density (100-999 plants per square meter) or high density (1,000-9,999 plants per square meter). Insignificant larval host plant patches were host plant patches considered low density (i.e., 1-99 plants per square meter).
- Any additional natural lands within 200 meters (656 feet) of significant larval host plant patches that also contain an additional significant larval host plant patch, until no additional significant patches are encountered.
- Habitats excluded from the extension beyond the 200-meter (656-foot) radius from significant larval host plant patches include inappropriate QCB habitat or habitat beyond significant barriers to dispersal, including:
    - Closed canopy chaparral and riparian habitats that do not have open areas at least two square meters (21.5 square feet) in size;
    - Developed areas, eucalyptus woodland, open water, and lakeshore fringe;
        - Dense non-native grassland where few host plants are present; and
        - Barriers such as solid fencing/walls over two (6.6 feet) meters in height, dense vegetation (ornamental or natural) over three meters (9.8 feet) in height, or buildings.
- Hilltops or ridgelines, linked by open areas and natural vegetation to open canopy areas, containing an open, woody-canopy area at least two square meters (21.5 square feet) in size, that may be used by QCB for mating or hilltopping behavior within 200 meters (656 feet) of an open area containing host and nectar plants for feeding and natural vegetation or open areas for movement and basking (e.g., are within 500 meters [1,640 feet] of significant larval host plant [hatch and consist of potential QCB habitat).

A total of 26.30 acres of potentially occupied QCB habitat containing 0.87 acre of host plants was mapped within the Savage Dam Study Area (Figure 13a, *QCB Potentially Occupied Habitat – Savage*

Dam). A total of 85.67 acres of potentially occupied QCB habitat containing 0.63 acre of host plants was mapped within the Dulzura Conduit study area (Figures 13b to 13d, *QCB Potentially Occupied Habitat – Dulzura Conduit*).

Focused surveys for QCB at Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Sutherland Dam, and Upper Otay Dam were negative (HELIX 2020d). The species has a high potential to occur at San Vicente and Upper Otay Dam based on the presence of QCB host plants within the study areas and documented occurrences of the species within the immediate vicinity. Though QCB host plants were mapped within study areas of Barrett Dam, El Capitan Dam, Morena Dam, and Sutherland Dam, the species is not anticipated to occur within these areas based on the minimal amount of plant resources documented in the area, absence of previous observations within five miles of the study areas, and negative survey results (RECON 2018c, HELIX 2020d).

Additionally, USFWS-designated critical habitat for the QCB occurs at Savage Dam (Figure 5k) and Upper Otay Dam (Figure 5m).

Amphibians

Arroyo Toad (Anaxyrus californicus)

Arroyo toad is a federally listed endangered, CDFW SSC, and City MSCP Covered species. It occurs as a year-round resident within coastal and desert drainages of central and southern California. The species inhabits low gradient, medium to large streams and rivers with intermittent and perennial flow. They are breeding habitat specialists that require slow-moving streams composed of sandy soils with nearby sandbars and sandy streamside terraces. Individuals typically utilize water less than four inches deep for breeding, egg-laying, and tadpole development (USFWS 2014b). The species is vulnerable to habitat destruction and alteration due to changes in hydrology, including the construction of dams and water diversions, and is further impacted by the presence of non-native predators such as American bullfrog (*Lithobates catesbeianus*) (USFWS 2014b).

A single arroyo toad was observed within the Sutherland Dam study area on April 30, 2020, within a temporary basin on the rock-lined portion of the dam spillway on the east side of the dam. No other adult toads were observed or heard calling within or adjacent to the study area, and no ARTO eggs, tadpoles, or toadlets were detected.

The section of Santa Ysabel Creek immediately downstream of the Sutherland Dam is characterized by rocky substrates and dense riparian and oak woodland habitat and lacks suitable sandy substrates for burrowing toads. No flowing water or potential breeding pools were detected within the study area. As such, riparian habitat was categorized as low-quality breeding habitat for ARTO and generally lacked physical or biological features that are essential to the conservation of a species. Physical or biological features essential to ARTO include a naturally flooding regime, shallow breeding pools that persist for a minimum of two months, vegetated sand and gravel bars, adjacent valley bottomlands that include areas of loose soil where toads can burrow underground, and stream channels and adjacent uplands that allow for movement to breeding pools, foraging areas, overwintering sites, upstream and downstream dispersal, and connectivity to areas that contain suitable habitat (USFWS 2011). Upland vegetation bordering the creek consists of chamise chaparral and Diegan coastal sage scrub and lacks suitable sandy terraces that would provide suitable burrowing and foraging habitat for the species. A large portion of the upland habitat north of the dam is composed of large rocks and boulder-sized spoils deposited from the construction of the spillway, carved into the hillside east of the dam.

The hydrological regime of Santa Ysabel Creek has been substantially altered by the creation of the Sutherland Dam (constructed in 1954). The construction of the dam and formation of Sutherland Reservoir resulted in the inundation of historical ARTO habitat along this portion of the Santa Ysabel Creek. However, the species is still known to occur both upstream and downstream of Sutherland Reservoir within areas that are also USFWS-designated critical habitat for ARTO. The species was documented in several locations upstream of Sutherland Reservoir along Santa Ysabel Creek in 2009, with the closest reported observation approximately 1.7 miles east of the dam (USFWS 2020a). The species has also been observed over 3.5 miles downstream of the dam at the confluence of Santa Ysabel Creek and Temescal Creek to the west of Pamo Road (USFWS 2020a).

Though a single adult ARTO was observed within the Sutherland Dam study area during the 2020 survey effort, the study area does not support sustainable ARTO breeding habitat. As such, the study area is not anticipated to support a viable population of arroyo toads. The single adult ARTO was only observed during one of the six ARTO survey visits and most likely represents a dispersing individual from a neighboring population of ARTO that moved into the area by way of the upland habitat adjacent to the dam spillway.

Critical habitat for ARTO is mapped at Barrett Dam (Figure 5a) and El Capitan Dam (Figure 5d), and overlaps portions of the Dulzura Conduit study area (Figure 5n). At Barrett and El Captain Dams, no evidence of ARTO, including eggs, tadpoles, toadlets, or adult toads, were found within the study areas during focused surveys conducted in 2018 (RECON 2018a and 2018f) and 2020 (Rocks 2021), and low-quality breeding habitat was found along the reaches downstream of the dams. Physical or biological features essential to ARTO were generally absent from the study areas. At Barrett Dam, the section of Cottonwood Creek immediately downstream of the dam is characterized by rocky substrates lacking suitable sandy substrates for burrowing toads. No flowing water or potential ARTO breeding pools were detected within the study area. The upper reach of Cottonwood Creek is situated within a ravine bordered by very steep slopes. Upland vegetation consists of granitic southern mixed chaparral and lacks suitable sandy terraces that would provide suitable burrowing and foraging habitat for ARTO. At El Capitan Dam, the section of the San Diego River immediately downstream is characterized by vegetative debris and closed canopy southern riparian forest. Loose, sandy soils suitable for ARTO burrowing are present within the spillway channel, and some low terraces occur within the survey area, but no flowing water or potential breeding pools were detected within the study area. Upland vegetation consists of Diegan coastal sage scrub, non-native grassland, eucalyptus woodland, and coast live oak woodland that are considered marginal upland toad habitat.

The hydrological regime of Cottonwood Creek and the San Diego River has been substantially altered by the creation of artificial impoundments, including Morena Dam (constructed in 1912) and Barrett Dam (constructed in 1923), both of which are located along Cottonwood Creek, and Capitan Dam (constructed in 1934). The construction of the dams and formation of reservoirs have resulted in the inundation of ARTO habitat along these portions of streams (USFWS 2009b) and discontinued a natural scour and sediment transport regime required to maintain suitable ARTO habitat. Controlled water releases from the dam can result in heavy scouring, destruction of sandy benches and breeding pools, and washing away of ARTO larvae and individuals, and has previously been shown to have an adverse effect on the ARTO population of Cottonwood Creek (USFWS 2014b). The portion of Cottonwood Creek immediately downstream of Barrett Dam is subject to heavy scouring from controlled dam releases, resulting in the lack of natural flows, loss of sediment, and the absence of sandy substrates necessary for ARTO habitation. ARTO are presumed to be absent from the Barrett Dam and El Captain study areas based on the negative survey results and low quality of potential breeding habitat. However, it is

feasible that dispersing toads may briefly occur and move through the study areas and proposed maintenance footprint.

Within the Dulzura Conduit study area, critical habitat occurs along the northern portion of the alignment, overlapping with the critical habitat mapped in the Barrett Dam study area. The conduit in this section consists of the outlet tower tunnel (Tunnel 1), covered and uncovered portions of the concrete conduit, and flumes located near the top of a steep, rocky hillside that does not support suitable breeding habitat and would preclude ARTO access for foraging or aestivating. Portions of critical habitat also overlap with Barrett Lakes Road and the bottom portions of the dirt access roads (Trail 3, Trail 4, and Trail 5) that lead up to the conduit. These areas are situated in uplands areas outside of Cottonwood Creek and do not contain suitable breeding habitat. Individuals were incidentally heard in downstream portions of Cottonwood Creek but are unlikely to cross Barrett Lakes Road to reach these upland areas.

Birds

Willow Flycatcher (Empidonax traillii)

The willow flycatcher is a state listed endangered and USFWS BCC species. Three subspecies can be found in California: Great Basin willow flycatcher (*E.t. adastus*), little willow flycatcher (*E.t. brewsteri*), and SWFL (Sedgwick 2020). Great Basin willow flycatcher breeds in northeastern California, east of the Cascade and Sierra Nevada ranges. Little willow flycatcher breeds in central and northern California, west of the Cascade and Sierra Nevada ranges, to the north of Tulare County. SWFL, a subspecies that is state listed endangered, federally listed endangered, and City MSCP Covered, breeds in central and southern California, with the northern-most populations occurring in Kern and Inyo Counties. Subspecies cannot be identified based on physical appearance. Therefore, subspecies identity cannot be determined until mid-June, when the majority of individuals are presumed to have completed migration to breeding grounds (Sogge et al. 2010). Willow flycatchers are riparian obligates that breed in relatively dense riparian habitats along rivers, streams, or other wetlands where surface water is present, or soils are very saturated (Sogge et al. 2010). Breeding habitat can consist of monotypic stands of willows, a mixture of native broadleaf trees and shrubs, monotypic stands of exotics such as tamarisk or Russian olive (*Elaeagnus angustifolia*), or mixture of native broadleaf trees and shrubs with exotics. In San Diego County, SWFL primarily breed along the San Luis Rey River and Santa Margarita River, with a few scattered pairs (Unitt 2004).

A single, male WIFL was heard singing within the El Capitan Dam study area along the northern fork of the San Diego River just west (downstream) of the dam spillway on May 16, 2020 (HELIX 2020b). The male could not be identified to subspecies. The male was not observed during the subsequent four surveys, and no other willow flycatchers were detected on any of the surveys. The single observation of a male willow flycatcher is presumed to be a migrating individual.

No breeding SWFL individuals were documented as part of these 2020 focused surveys (HELIX 2020b). The last recorded breeding occurrence in the Program vicinity is from 2001, and is located over 4.8 miles northeast of El Capitan Dam near the confluence of San Diego River and Sand Creek, upstream of where the San Diego River enters El Capitan Reservoir (CNDDB 2021). Migrating individuals may riparian habitat within the Program area as a stop-over habitat, but breeding pairs are not anticipated based on the lack of recent observations and the declining status of the species.

Bald Eagle (Haliaeetus leucocephalus)

Bald eagle is a state listed endangered, USFWS BCC, CDFW FP, and City MSCP Covered species. It occurs as a permanent resident or uncommon winter migrant within California. The species breeds primarily in northern California (Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties) but also nests in scattered locations in the Sierra Nevada mountains and foothills, in several locations from the central coast to inland southern California, and on Santa Catalina Island (Zeiner et al. 1990). The species is associated with large bodies of water, including estuaries, rivers, lakes, and reservoirs, and nests in mature, old-growth forests adjacent to large bodies of water development (Buehler 2020).

The species was detected within the Morena Dam, San Vicente Dam, and Sutherland Dam study areas. At Morena Dam, a pair was observed perched on the dam with a fish in 2020. Additionally, a pair, presumably the same birds, was observed with an active nest at Morena Reservoir in 2021 through news reports. At San Vicente Dam, a single individual was observed flying overhead. At Sutherland Dam, a single individual was observed flying north of the study area. Though there are previous reports of the species within the Program area, individuals most likely occur as occasional wintering visitors and migrants and are unlikely to represent breeding pairs. Breeding occurrences are generally rare and well documented.

Coastal California Gnatcatcher (Polioptila californica californica)

The coastal California gnatcatcher is a federally listed endangered, CDFW SSC, and City MSCP Covered species. It is a year-round resident, occurring from southern California south to northwest Baja California (Atwood and Bolsinger 1992). In California, the species is found from Ventura County south to San Diego County and east to the western portions of San Bernardino and Riverside Counties. Coastal California gnatcatchers typically occur in arid, open sage scrub habitats on gently sloping hillsides to relatively flat areas at elevations below 1,640 feet but may occur as high as 3,000 feet (Grishaver et al. 1998). The composition of sage scrub in which gnatcatchers are found is variable; however, California sagebrush is at least present as dominant or co-dominant species (Atwood and Bontrager 2001). The species is mostly absent from areas dominated by black sage, white sage, or lemonadeberry, though in inland areas, the species may occur more regularly in areas dominated by black sage (Mock 2004).

Coastal California gnatcatcher was detected within the Chollas Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam study areas during the 2020 protocol-level surveys (HELIX 2020c). A total of five pairs of CAGN, three single males, and one juvenile were detected within the Chollas Dam study area. A total of two pairs of CAGN were detected within the Miramar Dam study area. A total of two pairs of CAGN were detected within the Murray Dam study area. A single CAGN was detected within the San Vicente Dam study area. A total of two pairs of CAGN were detected within the Upper Otay Dam study area. The species is also known to occur in areas immediately adjacent to the Black Mountain and Dulzura Conduit study areas and is assumed to be present. The species was also determined to have a high potential to occur at El Capitan Dam, Hodges Dam, and Sutherland Dam based on the presence of suitable coastal sage scrub, though protocol surveys conducted within these areas in 2020 were negative.

Least Bell's Vireo (Vireo bellii pusillus)

The least Bell's vireo is a state and federally listed endangered and City MSCP Covered species. It is the western-most of the four subspecies of Bell's vireo (*Vireo bellii*) breeding within California and northern Baja California and wintering in southern Baja California (Kus 2002). In California, the species breeds

along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County and east to Inyo County, San Bernardino, and Riverside Counties. Preferred breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but the species is also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover are required for nesting and foraging (Kus 2002). Dominant species within the breeding habitat include cottonwood and willows with mule fat, oaks, sycamore, mesquite (*Prosopis glandulosa*), and arrowweed within desert habitats. The species can be tolerant of the presence of invasive non-native species such as tamarisk.

Least Bell's vireo was detected within the Barrett Dam study area during 2018 protocol surveys conducted by RECON (RECON 2018b), and within the Chollas Dam, El Capitan Dam, San Vicente Dam, and Savage Dam study areas during the 2020 protocol surveys conducted by HELIX (HELIX 2020a). Two male vireos were detected within the Barrett Dam study area. One male vireo was detected within the Chollas Dam study area. Three male vireos were detected within or immediately adjacent to the El Capitan Dam study area. One male vireo was detected within the San Vicente Dam study area. One single male vireo and one vireo pair, with at least on fledgling, were detected within the Savage Dam study area. The species was also determined to have a high potential to occur at El Hodges Dam, Murray Dam, and Sutherland Dam based on the presence of suitable riparian habitat, though protocol surveys conducted within these areas in 2020 were negative.

Other Special Status Animal Species

Twenty-six other sensitive animal species have been documented within the Program's study area: western spadefoot, Belding's orange-throated whiptail, San Diegan tiger whiptail, San Diego banded gecko, red diamond rattlesnake, Blainville's horned lizard, two-striped gartersnake, Cooper's hawk, sharp-shinned hawk, southern California rufous-crowned sparrow, redhead, Canada goose, Costa's hummingbird, coastal cactus wren, white-tailed kite, peregrine falcon, Caspian tern, yellow-breasted chat, California gull, osprey, American white pelican, double-crested cormorant, yellow warbler, western bluebird, San Diego black-tailed jackrabbit, and mule deer.

Amphibians

Western spadefoot (Spea hammondii)

The western spadefoot toad is a CDFW SSC. It occurs from northern California southward to San Diego County and farther into Baja California to the west of the Sierra Nevada at elevations below 4,500 feet. This terrestrial species requires temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands but the species is most common in grasslands, with vernal pools or mixed grassland-coastal sage scrub areas (Holland and Goodman 1998). The species breeds in temporary pools formed by heavy rains that hold standing water for more than three weeks to allow adequate time for tadpoles to metamorphose but is also found breeding in riparian habitats with suitable water resources (Feaver 1971). Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce (Jennings and Hayes 1994). The species estivates in burrows within upland habitats adjacent to potential breeding sites (Stebbins and McGinnis 1972).

Five to ten individuals were heard calling within the pond below the dam spillway at El Capitan Dam on April 15, 2020, and one upland individual was observed on April 24, 2020. This species was also determined to have a high potential to occur at Barrett Dam, Miramar Dam, Morena Dam, San Vicente

Dam, Savage Dam, Sutherland Dam. Upper Otay Dam, and Dulzura Conduit, based on the presence of suitable upland and aquatic habitats and documented occurrences within the surrounding area.

Reptiles

Belding's orange-throated whiptail (Aspidoscelis hyperythra beldingi)

The Belding's orange-throated whiptail is a CDFW WL and City MSCP Covered species. It is found in the southwestern portion of California within San Diego, Orange, western Riverside, and southern San Bernardino Counties on the western slopes of the Peninsular ranges below 3,500 feet (Jennings and Hayes 1994). Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species appears to be correlated with the presence of perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) that provide a food base for its major food source, termites (Bostic 1966). Belding's orange-throated whiptail was detected within the El Capitan and Dulzura Conduit study areas. At El Capitan, four individuals were observed by RECON between 2018 and 2019 within Diegan coastal sage scrub north of the dam spillway and downstream of the dam (RECON 2021). At Dulzura Conduit, a total of 26 individuals were observed along the conduit and access trails, north of SR-94 between Trail 2 and Trail 7. The species was also determined to have a high potential to occur at Barrett Dam, Chollas Dam, Hodges Dam, Miramar Dam, Murray Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable habitat and documented occurrences within the surrounding area.

San Diegan tiger [coastal] whiptail (Aspidoscelis tigris stejnegeri)

The San Diegan tiger whiptail (formerly known as the coastal whiptail [*Aspidoscelis tigris stejnegeri*]) is a CDFW SSC. This subspecies occurs along the coastal region of southern California, generally from Ventura County south to San Diego County. The species inhabits a wide variety of habitats from sea level up to 7,000 feet. Prefers open, often rocky areas with sparse vegetation and sunny microhabitats within shrub and grasslands (Benes 1969). Suitable habitat includes coastal sage scrub, chaparral, riparian areas, woodlands, and rocky areas with sandy or gravelly substrates.

San Diegan tiger whiptail was detected within the El Capitan Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Dulzura Conduit study areas. At El Capitan Dam, a single individual was observed by RECON within disturbed habitat just west of the dam (RECON 2021). At San Vicente Dam, a single individual was observed along a project access road within the eastern portion of the study area. At Savage Dam, a single individual was observed within Diegan coastal sage scrub on the west side of the dam. At Dulzura Conduit, a total of seven individuals were detected along the conduit, north of SR-94, between Trail 7 and the Dam. The species was also determined to have a high potential to occur at Barrett Dam, Hodges Dam, and Upper Otay Dam based on the presence of suitable habitat and documented occurrences within the surrounding area.

San Diego banded gecko (Coleonyx variegatus abbotti)

San Diego banded gecko is a CDFW SSC. This subspecies occurs in the coastal regions of southern California from interior Ventura County south to San Diego County, although the species is absent from the extreme outer coast. San Diego banded gecko is uncommon but typically inhabits coastal scrub and chaparral, preferring granite or rocky outcrops in these habitats (Stebbins and McGinnis 2012).

A single individual was previously detected by RECON within granitic southern mixed chaparral just south of Barrett Dam. The species was also determined to have a high potential to occur at Capitan Dam, San Vicente Dam, and Dulzura Conduit based on the presence of suitable habitat and rocky outcroppings, and documented occurrences within the surrounding area (SDNHM 2021).

Red diamond rattlesnake (Crotalus ruber)

The red diamond rattlesnake is a CDFW SSC. It occurs in southwestern California from San Bernardino County south to San Diego County at elevations below 5,000 feet. The species has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. It is most commonly found near heavy brush with large rocky microhabitats (Klauber 1972). Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources (Jennings and Hayes 1994).

Red diamond rattlesnake was detected within the Barrett Dam, El Capitan Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit study areas. A total of two individuals were detected within granitic southern mixed chaparral to the south of Barrett Dam. Two individuals were detected within southern mixed chaparral and disturbed habitat at El Capitan Dam. At Upper Otay Dam, one individual was observed along a dirt road on the east side of the Dam. At Dulzura Conduit, a total of eight individuals were observed along the conduit and access trails to the north of SR-94 between Trail 4 and Barrett Dam. The species was also determined to have a high potential to occur at Black Mountain Dam, Hodges Dam, Morena Dam, San Vicente Dam, and Sutherland Dam based on the presence of suitable habitat and documented occurrences within the surrounding area.

Blainville's horned lizard (Phrynosoma blainvillii)

The Blainville's horned lizard (formerly known as coast horned lizard [*Anota coronatum*] and San Diego horned lizard [*Phrynosoma coronatum blainvillii*]) is a CDFW SSC and City MSCP Covered species. It occurs from southern California to northern Baja California. In California, the species predominately occurs from Kern County south to San Diego County and west of the deserts at elevations below 8,000 feet (Brattstrom 1997). The species inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable loose, sandy soils with open areas for basking (Jennings and Hayes 1994). The horned lizard is an insectivore primarily feeding on native harvester ants (*Pogonmyrmex* sp.).

Blainville's horned lizard was detected within the Morena Dam and Dulzura Conduit study areas. At Morena Dam, a single individual was observed within granitic northern mixed chaparral to the southeast of the dam. At Dulzura Conduit, a total of two individuals were observed along the conduit, north of SR-94, between Trail 7 and 6. The species was also determined to have a high potential to occur at Barrett Dam, Black Mountain Dam, El Capitan Dam, Hodges Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable habitat and documented occurrences within the surrounding area.

Two-striped gartersnake (Thamnophis hammondii)

The two-striped garter snake is a CDFW SSC. The species ranges from Monterey County south along the coast into northern Baja California at elevations below 7,000 feet (Atsatt 1913). Commonly inhabits perennial and intermittent streams with rocky beds bordered by riparian habitats dominated by willows and other dense vegetation (Fitch 1941). The species has also been found in stock ponds and other

artificially created aquatic habitats if bordered by dense vegetation with potential prey, such as amphibians and fish (Jennings and Hayes 1994).

One individual was observed within upland areas along Dulzura Conduit, north of SR-94 near the top of Trail 3. The species was also determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable aquatic and riparian habitats and documented occurrences within the surrounding area.

Birds

Cooper's Hawk (Accipiter cooperii)

Cooper's hawk is a CDFW WL and City MSCP Covered species. The species is widespread throughout North America ranging from southern Canada south to Mexico, and occurring as a year-round resident within the majority of the continental United States. In California, the species breeds from Siskiyou County south to San Diego County and east to the Owens Valley at elevations below 9,000 feet (Curtis et al. 2006). The species inhabits forests, riparian areas, and more recently suburban and urban areas nesting within dense woodlands and forests and isolated trees in open areas (Chiang et al. 2012).

Cooper's hawk was detected within the Barrett Dam, Chollas Dam, El Capitan Dam, Miramar Dam, Murray Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit study areas. At Barrett Dam, RECON previously observed one individual north of the dam. At Chollas Dam, at least one individual was observed on multiple occasions within the eucalyptus woodland downstream (west) of the dam. At El Capitan Dam, at least one pair was observed on multiple occasions within the southern riparian forest downstream (west) of the dam spillway. At Miramar Dam, at least one individual was observed flying overhead to the west of the dam. At Murray Dam, at least one individual was observed flying overhead to the north of the dam outside of the study area. At Savage Dam, at least one individual was observed flying overhead to the west of the dam. At Sutherland Dam, at least three individuals were observed flying overhead and within coast live oak woodland/southern riparian forest habitat to the north of the dam. At Upper Otay Dam, at least one individual was observed on multiple occasions within eucalyptus woodland to the north of the dam. At Dulzura Conduit, at least one individual was observed at the bottom of Trail 4. The species was also determined to have a high potential to occur at Black Mountain Dam, Hodges Dam, Morena Dam, Rancho Bernardo Dam, and San Vicente Dam based on the presence of suitable habitat and documented occurrences within the surrounding area. Furthermore, the species can occupy residential and urbanized areas.

Sharp-shinned Hawk (Accipiter striatus)

The sharp-shinned hawk is a CDFW WL species that occurs throughout North America. The species breeds from Alaska through Canada, the northern United States, southwestern states of Arizona and New Mexico, and into Mexico, and winters from southern Canada to Central America. Primarily migrates through and winters in California, with breeding records restricted to the northern and central portions of the State, but the species' breeding range within California is poorly known (Bildstein and Meyer 2000). Breeding habitat consists of most closed-canopy woodlands and forests, including riparian habitats, located at sea level to near alpine elevations, with nest sites generally placed in trees near openings (Platt 1976). Wintering habitat is similar to its breeding habitat but more expansive to include suburban and agricultural areas.

Sharp-shinned hawk was detected within the Hodges Dam, Murray Dam, and Dulzura Conduit study areas. At Hodges Dam, one individual was observed perched on a snag downstream (west) of the dam outside of the study area. At Murray Dam, at least one individual was observed flying overhead downstream (west) of the dam. At Dulzura Conduit, at least one individual was observed flying over the hillside south of the conduit, north of SR-94, and east of Trail 7. Though suitable wintering habitat occurs within the Program area, including residential areas where the species can be found, and there are scattered reports of the species. Individuals likely occur as wintering visitors and migrants but are not expected to breed based on the species' known breeding range and lack of confirmed breeding records in the county (Unitt 2004).

Southern California Rufous-crowned Sparrow (Aimophila ruficeps canescens)

The southern California rufous-crowned sparrow is a CDFW WL and City MSCP Covered species. This species' range is restricted to southwestern California, occurring from Santa Barbara south into northern Baja California, at elevations below 5,000 feet (Grinnell and Miller 1944). The species generally inhabits moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. They have been documented to prefer areas with California sagebrush but are generally absent from areas of dense stands of coastal sage scrub or chaparral (Collins 1999). The species may occur on steep grassy slopes without shrubs if rock outcrops are present (Zeiner et al. 1990).

Southern California rufous-crowned sparrow was detected within or adjacent to the Barrett Dam, El Capitan Dam, Hodges Dam, San Vicente Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit study areas. At Barrett Dam, at least two individuals were detected within granitic southern mixed chaparral to the south of the dam, and one was observed further north along Barrett Lakes Road. At El Capitan Dam, at least two individuals were detected within disturbed Diegan coastal sage scrub to the north of the dam spillway. At Hodges Dam, at least one individual was heard along the hillside to the southeast of the dam outside of the study area. At San Vicente Dam, at least five individuals were detected within Diegan coastal sage scrub to the east and west of the dam. At Savage Dam, at least two individuals were detected within Diegan coastal sage scrub to the east and west of the dam. At Upper Otay Dam, at least one individual was detected within Diegan coastal sage scrub to the southwest of the dam. At Dulzura Conduit, at least 26 individuals were detected within upland vegetation along the conduit and access trails, to the north and south of SR-94, between Little Tecate Road and the dam. The species was also determined to have a high potential to occur at Black Mountain Dam, Morena Dam, and Sutherland Dam based on the presence of suitable habitat and documented occurrences within the surrounding area.

Redhead (Aythya americana)

Redhead is a CDFW SSC that occurs year-round in California. The species breeds in northeastern California, the Central Valley, southern California coast, and southern deserts. The species nests in freshwater emergent wetlands where dense stands of marsh habitat are interspersed with areas of deep, open water (Shuford and Gardali 2008).

At least one redhead was observed in Murray Reservoir within the Murray Dam study area. The species was also determined to have a high potential to occur at Chollas Dam, Hodges Dam, Miramar Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable open water/lake habitat and documented occurrences at these reservoirs. The species likely overwinters within the Program area but would have a low potential to breed. Breeding occurrences are mostly concentrated along the coastal regions, with few breeding records in more westerly areas such as Sweetwater Reservoir (Unitt 2004).

Oak Titmouse (Baeolophus inornatus)

Oak titmouse is a USFWS BCC that occurs as a year-round resident of California. It is found throughout most of the state but is generally absent from the northwestern coastal region and San Joaquin Valley. The species inhabits dry oak and oak-pine woodlands but may also use scrub oaks and other scrub habitat near woodlands, juniper woodlands, and open pine forests (Cicero et al. 2020).

Oak titmouse was detected within Barrett Dam, El Capitan Dam, Morena Dam, and Sutherland Dam study areas. At Barrett Dam, an individual was detected just south of the dam, to the west of Cottonwood Creek, within the canopy of an oak tree (this area also overlaps with Dulzura Conduit). At El Capitan Dam, an individual was observed within southern riparian forest downstream (west) of the dam. At Morena Dam, an individual was detected within southern riparian forest downstream (west) of the dam near the weir along Cottonwood Creek. At Sutherland Dam, at least two individuals were detected downstream (north) of the dam.

Canada Goose (Branta canadensis)

The Canada goose is the most widely distributed species in North America, but only winters in southern California. It occupies a broad range of habitats in temperate to low-arctic regions, including flat, featureless tundra, boreal forest, prairies and parklands, high mountain meadows, and a variety of managed refuge conditions and areas of human habitation (Mowbray et al. 2002). Wintering rounds consist of fresh and brackish water environments, with low grass or succulent leaves for grazing (Unitt 2004). At least one individual was observed within or adjacent to the Chollas Dam and Murray Dam study areas on multiple occasions. The species was also determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable open water/lake habitat and documented occurrences at these reservoirs.

Costa's Hummingbird (Calypte costae)

The Costa's hummingbird is a USFWS BCC that is found in deserts and xeric habitats west of the Continental Divide and south of the Great Basin from southern Utah, western and southern Arizona, to southern California and further into Baja California and Mexico (Baltosser et al. 1996). The species occurs year-round in southern California, breeding along the coast in sage scrub and chaparral habitats from Santa Barbara County south to San Diego County, and east into the desert regions of Inyo County and south to Imperial County (Garrett and Dunn 1981). Breeding habitats include Sonoran Desert scrub, Mojave Desert scrub, coastal sage scrub, and chaparral.

Costa's hummingbird was detected within the El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Dulzura Conduit study areas. At El Capitan Dam, at least one individual was detected on multiple occasions within southern riparian forest downstream of the dam spillway. At Hodges Dam, at least two individuals were detected on multiple occasions within Diegan coastal sage scrub to the north and west of the dam. At Morena Dam, at least one individual was detected within scrub oak chaparral to the southeast of the dam. At San Vicente Dam, at least one individual was detected within Diegan coastal sage scrub to the west of the dam on multiple occasions. At Savage Dam, at least two individuals were detected on multiple occasions within Diegan coastal sage scrub to the east and west of the dam. At Sutherland Dam, at least two individuals were detected on multiple occasions within coast live oak woodland and southern riparian forest to the north of the dam. At Dulzura Conduit, at least six individuals were detected along the conduit and access trails, north of

SR-94, between Trail 7 and Trail 1. The species was also determined to have a high potential to occur at Barrett Dam, Black Mountain Dam, Chollas Dam, Miramar Dam, Murray Dam, and Upper Otay based on the presence of suitable habitat and documented occurrences within the surrounding area.

Coastal Cactus Wren (Campylorhynchus brunneicapillus sandiegensis)

The coastal cactus wren is a USFWS BCC, CDFW SSC, and City MSCP species. It is one of seven subspecies and is restricted to southern California from southern Orange County and San Diego County (Hamilton et al. 2020). The species inhabits native scrub vegetation with thickets of mature cacti consisting of cholla (*Cylindropuntia* spp.) or prickly-pear cactus (*Opuntia oricola*) at elevations below 1,500 feet (Shuford and Gardali 2008). Cacti must be tall enough to support and protect the bird's nest (typically three feet or more in height). Surrounding vegetation usually consists of coastal sage scrub habitat, with shrubs normally below the level of nest placement.

At least one individual was detected within the Chollas Dam study area on multiple occasions within Diegan coastal sage scrub, to the north of the dam. Coastal cactus wren is not anticipated to occur at any other locations due to either a lack of suitable cacti thickets within the Program area, known range and distribution within the county, and a lack of documented occurrences within the surrounding area.

Olive-sided Flycatcher (Contopus cooperi)

Olive-sided flycatcher is a USFWS BCC and CDFW SSC. The species occurs as a migrant and summer resident in California. Its breeding range extends from the Oregon border south along the coast and near-coastal mountains west of the Central Valley to Santa Barbara County, Modoc Plateau and Cascade Range in northeastern California, south along the Sierra Nevada Range to Tulare County, east to the White Mountains, and in higher elevations of the Transverse and Peninsular Ranges south to San Diego County (Shuford and Gardali 2008). The species breeds in conifer forests with open canopies at elevations up to 9,400 feet.

A single individual was detected within the El Captain Dam study area in 2018 during surveys conducted by RECON (RECON 2021). This observation most likely represents a migrating individual, as the El Capitan Dam study area lacks suitable breeding habitat, and the species is associated with higher elevation areas. In San Diego, breeding individuals primarily occur at elevations over 4,500 feet and have been rarely observed breeding at elevations below 3,500 feet (Unitt 2004). All of the Program facilities occur at elevations below 3,500 feet, with Morena Dam representing the highest elevation feature at 3,360 feet, and lacks suitable coniferous forest habitat. As such, the species is not anticipated to utilize the Program area for breeding purposes. Though individuals may occur in portions of the Program area as migrants, the species would not be expected to breed within the Program area due to either being completely developed or lacking a suitable conifer forest habitat required by the species.

White-tailed Kite (Elanus leucurus)

The white-tailed kite is a CDFW FP species. The species occurs in small portions of Washington south to California and east to Texas and Florida, as well as further south to Mexico and South America. In California, the species is a year-long resident of coasts and valleys west of the Sierra Nevada foothills and southeast deserts, though the species has been documented breeding in arid regions east of the Sierra Nevada and within Imperial County (Small 1994). The species inhabits low elevation grasslands, wetlands, oak woodlands, and open woodlands, and is associated with agricultural areas. Kites breed in

riparian areas adjacent to open spaces, nesting in isolated trees or relatively large stands of trees (Dunk 1995).

White-tailed kite was detected within the Savage Dam and Upper Otay Dam study areas. At Savage Dam, a pair with at least three fledglings was observed to the north of the dam. At Upper Otay Dam, at least one pair was observed just south of the study area, possibly the same pair observed at Savage Dam. The species was also determined to have a high potential to occur at El Capitan Dam, Hodges Dam, Morena Dam, and Sutherland Dam based on the presence of suitable oak woodland or riparian habitats and documented occurrences within the surrounding area.

Peregrine Falcon (Falco peregrinus)

Peregrine falcon is a USFWS BCC, CDFW FP, and City MSCP Covered species. In California, the species breeds and winters throughout the state inhabiting a large variety of open habitats, including tundra, marshes, grasslands, coastlines, and woodlands but can also be found within urban areas. The species traditionally nests on cliff faces in remote rugged sites where adequate food is available nearby, but can also be found in urbanized areas nesting on artificial structures such as towers, building, and other suitable nesting platforms (White et al. 2020). Within southern California, peregrine falcons are primarily found at coastal estuaries and inland oases where ever a food source is located (Garrett and Dunn 1981).

Peregrine falcon was detected in Barrett Dam, San Vicente Dam, and Sutherland Dam study areas. At Barrett Dam, one individual was observed to the southwest of the study area. At San Vicente Dam, one pair was observed with an active nest on the dam itself. At Sutherland Dam, one pair was observed with an active nest on the dam itself. Peregrine falcon was also determined to have a high potential to occur at El Capitan Dam, Hodges Dam, Morena Dam, Murray Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable rugged habitat and documented occurrences within the surrounding area. Individuals may utilize the Program area for foraging and have the potential to breed within surrounding hillsides or on the dams themselves.

Caspian Tern (Hydroprogne caspia)

Caspian tern is a USFWS BBC. In California, the species occurs commonly to very commonly along the coast and at scattered inland locations. It is primarily a summer visitor but may also winter and occur year-round in southern California regions. The species nests in dense colonies, in a wide variety of habitats ranging from coastal estuarine, salt marsh, and barrier islands to beaches and freshwater islands in inland rivers and lakes (Cuthbert and Wires 2020). Breeding adults often fly substantial distances to forage at rivers, lakes, reservoirs, and fresh or saltwater wetland habitats. Nesting colonies occur at Humboldt Bay, San Francisco Bay, San Pablo Bay, San Diego Bay, Elkhorn Slough, and several lakes in Modoc and Lassen Counties (Zeiner et al. 1990). In San Diego County, the species is known to nest at the south bay salt works in Chula Vista (Unitt 2004).

Caspian tern was detected within or adjacent to the Murray Dam, Savage Dam, and Upper Otay Dam study areas. At Murray Dam, multiple individuals were observed foraging over the reservoir and perched on buoys on several occasions. At Savage Dam, at least one individual was observed flying over the reservoir. At Upper Otay Dam, at least one individual was observed flying over the reservoir. The species was also determined to have a high potential to occur at Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, San Vicente Dam, and Sutherland Dam based on the

presence of suitable open water/lake habitat and documented occurrences within the surrounding areas. The species most likely utilizes the reservoirs for foraging purposes but has the potential to breed.

Yellow-breasted Chat (Icteria virens)

The yellow-breasted chat occurs throughout North America from Canada south to Baja California, and Mexico. The species' breeding range includes southern British Columbia south to Baja California, with the species wintering from southern Baja California and south Texas, south to Mexico and Panama (Eckerle and Thompson 2001). In California, the species occurs as a migrant and summer resident breeding from the coastal regions of northern California east of the Cascades, and throughout the central and southern portions of the state. Chats breed in early successional riparian habitats with a well-developed shrub layer and an open canopy with nest sites often placed on the borders of streams, creeks, rivers, and marshes (Shuford and Gardali 2008).

Yellow-breasted chat was detected within the Barrett Dam, Chollas Dam, El Capitan Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam study areas. At Barrett Dam, multiple individuals were detected by RECON along Cottonwood Creek downstream of the dam. At Chollas Dam, at least one individual was heard singing within riparian habitat along Chollas Creek on multiple occasions. At El Capitan Dam, at least two individuals were detected within riparian habitat along the San Diego River. At Savage Dam, at least one individual was heard singing south of the dam. At Savage Dam, at least one individual was heard singing at the edge of the reservoir to the west of the dam. At Upper Otay Dam, at least one individual was heard singing at the edge of the reservoir to the east of the dam. The species was also determined to have a high potential to occur at Hodges Dam and Sutherland Dam based on the presence of suitable riparian habitat and documented occurrences within the surrounding area.

California Gull (Larus californicus)

The California gull is found throughout western North America, with breeding populations occurring from northern Canada south to Utah. In California, the species winters along coastal regions with breeding populations localized at Mono Lake and southern San Francisco Bay (Winkler 1996). Breeding colonies nearly always occur on islands in natural lakes, rivers, or reservoirs. Individuals can forage up to 37 miles away from their colony, which can take them to any fairly open habitat with food availability (Jones 1986). California gulls rarely forage in densely vegetated habitats. In the winter, the species is found along coastal California at beaches, rocky coasts, mudflats, coastal estuaries, and deltas of rivers and streams.

California gull was detected within the Murray Dam and Savage Dam study areas. At Murray Dam, at least one individual was observed perched on buoys to the north of the study area. At Savage Dam, at least one individual was observed perched on buoys to the north of the study area. The species was also determined to have a high potential to occur at Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, San Vicente Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable overwintering habitat; however, the Program area is located of the species' known breeding range.

Osprey (Pandion haliaetus)

The osprey is a CDFW WL species that is found throughout North America. In California, breeding populations reside in the Cascade and Sierra Nevada Ranges, though the species' range has expanded along the coast south to include a growing population around San Francisco Bay, and two disjunct

populations from San Diego to Irvine and east and north of San Bernardino (Bierregaard et al. 2020). The species is generally restricted to large water bodies such as rivers, lakes, and reservoirs supporting fish with suitable nesting habitat, such as rocky pinnacles or large trees and snags. Breeding pairs often build their large nests in the dead tops of older trees and on artificial structures.

The osprey was detected within the Barrett Dam, El Capitan Dam, Murray Dam, Savage Dam, and Upper Otay Dam study areas. At Barrett Dam, a single individual was observed flying over the reservoir. At El Capitan Dam, at least one individual was observed flying over the reservoir. At Murray Dam, at least one individual was observed flying over the reservoir on multiple occasions. At Savage, at least one individual was observed flying over the reservoir. At Upper Otay Dam, at least one individual was observed flying over the reservoir. This species was also determined to have a high potential to occur at Chollas Dam, Hodges Dam, Miramar Dam, Morena Dam, San Vicente Dam, and Sutherland Dam based on the presence of suitable open water and aquatic habitat and documented occurrences within the surrounding area.

American White Pelican (Pelecanus erythrorhynchos)

The American white pelican is found in the western and southern portions of North America, from central Canada south to the western two-thirds of the United States as far east as Florida and then further south into Mexico. The species is mainly an overwintering visitor to California found along the Pacific Coast and lowlands of central California, although birds also winter at the Salton Sea in Imperial County (Shuford and Gardali 2008). In California, the species breeds at lakes and marshes in the Klamath Basin, Modoc Plateau, and Great Basin Desert in the northeastern portion of the state (Shuford 2005). The species breeds in colonies on isolated islands of freshwater lakes and overwinters at marine estuaries and inland lakes where suitable habitat for feeding, loafing, and roosting is present (Knopf 2004).

Small flocks of overwintering individuals were observed within the Barrett Dam and Miramar Dam study areas. This species was also determined to have a high potential to occur at Chollas Dam, El Capitan Dam, Hodges Dam, Morena Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable overwintering habitat; however, the Program area is located in the species' known breeding range.

Double-crested Cormorant (Phalacrocorax auritus)

The double-crested cormorant is widely distributed throughout North America, ranging as far north as Alaska and south toward Canada and Mexico. In California, the species is a year-round resident along the entire coast, occupying fresh and saltwater estuaries, and inland lakes. The species also occurs east of the coast within the Central Valley, lower Colorado River, and Salton Sea (Dorr et al. 2014). Habitat requirements include suitable places for feeding, resting, loafing, and nighttime roosts. The species' diet mostly consists of fish but may include other aquatic animals, and at times terrestrial animals, based on opportunity (Robertson 1974). Cormorants breed in colonies at sites safe from predators and adjacent to feeding areas such as rocky or sandy islands, bridges, docks, nesting towers, trees, emergent marsh vegetation, and on the ground (Meier 1981).

Multiple individuals were detected within, or immediately adjacent to the Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Murray Dam, Savage Dam, and Sutherland Dam study areas on several occasions. Observations included fly overs, birds foraging within the reservoirs, and birds perched on dam structures (i.e., dams and outlet towers). Individuals likely utilize the study areas for

foraging and but do have the potential to breed. This species was also determined to have a high potential to occur at Morena Dam based on the presence of suitable aquatic habitat and documented occurrences within the surrounding area.

Yellow Warbler (Setophaga petechia)

The yellow warbler is a USFWS BBC and CDFW SSC. It is a common to locally abundant species breeding throughout California, excluding most of the Mojave Desert and all of the Colorado Desert, and wintering in northern Mexico (Lowther et al. 1999). The species breeds in riparian areas dominated by willows near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests in higher elevation areas (Shuford and Gardali 2008).

Multiple individuals were detected within the Barrett Dam, Chollas Dam, El Capitan Dam, Murray Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam study areas on multiple occasions. This species was also determined to have a high potential to occur at Hodges Dam based on the presence of suitable riparian habitat and documented occurrences within the surrounding area.

Western Bluebird (Sialia mexicana)

The western bluebird is a City MSCP Covered species that is found throughout the western United States, Mexico, and southwestern Canada. The species is a common year-round resident throughout California but is absent from the higher mountain regions and eastern deserts (Guinan et al. 2008). Western bluebirds breed in open woodlands, riparian habitats, grasslands, and farmlands. They nest and roost in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Bluebirds are found in a wider variety of habitats in the winter.

At least one individual was observed within the Chollas Dam study area near the top of the dam. This species was also determined to have a high potential to occur at El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable habitat and documented occurrences within the surrounding area.

Mammals

San Diego black-tailed jackrabbit (Lepus californicus bennettii)

The San Diego black-tailed jackrabbit is a CDFW SSC and is one of nine subspecies of black-tailed-jackrabbit that occur in the United States (Hall 1951). It occurs along the coastal regions of southern California south to northern Baja California (Hall 1951). The species is found in arid regions, preferring grasslands, agricultural fields, and sparse scrub. They are typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.

A single individual was observed within the western portion of the Dulzura Conduit study area adjacent to Tunnel 14. This species was also determined to have a high potential to occur at Barrett Dam, El Captain Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable habitat, documented occurrences in the surrounding area, and connectivity to adjacent open space areas that allow for movement and dispersal throughout the area.

Mule deer (Odocoileus hemionus)

Mule deer is a City MSCP Covered species found throughout California. The southern mule deer (*Odocoileus hemionus fuliginatus*) is one of six subspecies found in Norther America, occurring from Orange and Riverside counties south through San Diego County (Tremor et al. 2017). The species distribution is determined by vegetation type, water availability, and quality and quantity of foraging habitat (Tremor et al. 2017). Mule deer inhabit a wide array of habitats from grasslands, meadows, coastal sage scrub, chaparral, riparian and montane forests, though the species is generally absent in completely urbanized areas and the desert floor. The species prefer to move along routes that provide the greatest amount of protective cover for this crepuscular species.

Individuals, or sign (i.e., tracks and scat), were observed within the Barrett Dam, El Capitan Dam, San Vicente Dam, and Dulzura Conduit study areas. This species was also determined to have a high potential to occur at Hodges Dam, Morena Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable habitat, documented occurrences in the surrounding area, and connectivity to adjacent open space areas that allow for movement and dispersal throughout the area.

5.3.2 Special Status Animal Species with Potential to Occur

Special status animal species that were not observed but may have the potential to occur within the Program area are listed in Appendix K, *Animal Species Observed or With Potential to Occur*. The species are grouped into invertebrates and vertebrates (fish, amphibians, reptiles, birds, and mammals) and alphabetized by scientific name. Twenty-six additional special status animal species that were not observed within the Program area were determined to have high potential within portions of the Program area, based on a combination of factors: presence of suitable habitat within the study areas; sensitive species database occurrences within the study area vicinity (typically one-mile but highly mobile species [mountain lion (*Felis concolor*)] or those with large home ranges [i.e., golden eagle (*Aquila chrysaetos*)] were evaluated accordingly); verified recent observations made by others (including citizen science databases such as eBird [2021] and iNaturalist [2021]); appropriate soils; and/or known wintering and breeding ranges, based on literature. These species are further discussed below and in Appendix K. No additional species have a high potential to occur primarily due to the lack of suitable conditions such as appropriate habitat, soils, hydrology, and elevation.

Hermes copper butterfly (Lycaena hermes)

Hermes copper butterfly is a federally listed threatened species that occurs in San Diego County from Pine Valley west to the coastal mesas of southwestern San Diego County, and northeast towards Bonsall (USFWS 2021a). The species inhabits coastal sage scrub and southern mixed chaparral where mature specimens of its larval host plant, spiny redberry (*Rhamnus crocea*), are present. Spiny redberry typically occurs in deeper, well-drained soils of canyon bottoms and north-facing hillsides. Adults are active from May through July when females deposit eggs on spiny redberry shrubs (USFWS 2021a). The primary nectaring resources for Hermes copper butterfly is California buckwheat (*Eriogonum fasciculatum*), though they will opportunistically take nectar from other flowering plants in the vicinity of spiny redberry such as chamise (*Adenostoma fasciculatum*) and tarplants (*Deinandra* sp.), among others (USFWS 2021a). Hermes copper butterfly is typically a sedentary species with limited movement capabilities (Marschalek and Klein 2010).

Hermes copper butterfly was determined to have a high potential to occur at Barrett Dam and Dulzura Conduit based on the presence of the species' larval host plant (spiny redberry), previous observations

within the surrounding area, and USFWS-designated critical habitat within and adjacent to the Program area. USFWS-designated critical habitat for Hermes copper butterfly occurs along the north access road to Barrett Dam (approximately 1.6 miles northeast of the dam in Lawson's Valley) and approximately one mile east (Hartley Peak) and west (Lawson Valley) of Dulzura Conduit. Core and non-core occurrence areas of the species are present within the vicinity of Barrett Dam and Dulzura Conduit (USFWS 2021a).

Large-blotched ensatina (Ensatina eschscholtzii klauberi)

Large-blotched ensatina is a CDFW WL species that occurs in southern California from San Jacinto Mountains in Riverside County south to Cottonwood Creek in San Diego County at elevations below 5,400 feet (Jennings and Hayes 1994). The species inhabits moist shaded forests and woodlands with lots of coarse woody debris and are typically found beneath rocks, logs, and other debris, especially peeled-off bark.

Large-blotched ensatina was determined to have a high potential to occur at El Capitan Dam based on the presence of suitable moist and shaded riparian habitats and reported occurrences of the species at the northern portion of El Capitan Reservoir near the confluence of San Diego River and Sand Creek (SDNHM 2021).

San Diegan legless lizard (Anniella stebbinsi)

The San Diegan legless lizard is a CDFW SSC that occurs from southern California to northern Baja California, Mexico. Preferred habitat consists of coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. Soil moisture is essential for the species with individuals commonly found in moist warm loose soil with plant cover (Stebbins and McGinnis 2012). Sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks are also suitable habitats. Leaf litter under trees and bushes in sunny areas and dunes stabilized with vegetation can also indicate suitable habitat. Individuals can be found under surface objects such as rocks, boards, driftwood, and logs, or within leaf litter under bushes and trees (Parham and Papenfuss 2013).

San Diego legless lizard was determined to have a high potential to occur at El Capitan Dam, Hodges Dam, and Morena Dam based on the presence of suitable habitat and moist soils and reported observations within the surrounding area.

California glossy snake (Arizona elegans occidentalis)

California glossy snake is a CDFW SSC that occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California, though the species is absent along the central coast, at elevations below 6,000 feet (Lemm 2006). The species is a nocturnal snake feeding primarily on lizards and small mammals (Klauber 1956). They retreat to burrowing during the day either using existing mammal burrows, excavations under rocks, or creating burrows themselves (Degenhardt et al. 1996). They are found in a wide variety of habitat types including grasslands, shrublands, chaparral, woodlands, and open desert area preferring loose soils, which allow for burrowing.

California glossy snake was determined to have a high potential to occur at El Capitan Dam, Hodges Dam, and San Vicente Dam based on the presence of suitable habitat and rocky washes and documented occurrences, including historical observations, within the surrounding area.

Baja California coachwhip (Coluber fuliginosus)

Baja California coachwhip is a CDFW SSC that occurs from extreme southern San Diego County south to Baja California at elevations below 7,700 feet (Stebbins 1985). The species is a habitat generalist found in open terrain but is more common in grasslands, scrublands, and coastal sand dunes in California (Wilson 1970). Their diet consists of a wide variety of prey including rodents, lizards, snakes, turtles, insects, bird and lizard eggs, and carrion (Grismer 2002).

Baja California coachwhip was determined to have a high potential to occur at Barrett Dam, Morena Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitat and reported observations within the surrounding area.

Coronado skink (Plestiodon skiltonianus interparietalis)

The Coronado skink is a CDFW SSC that occurs from inland southern San Diego County west to the coast and south into northern Baja California, though the species can also occur up into Riverside County where it intergrades Skilton's skink (*Plestiodon skiltonianus skiltonianus*; Tanner 1957). Suitable habitats include grassland, woodlands, pine forests, and chaparral, especially in open sunny areas such as clearings and edges of creeks or rivers. This skink prefers rocky areas near streams with lots of vegetation but can also be found in areas away from water. They are occasionally seen foraging in leaf litter but are more commonly found underneath surface objects, such as bark or rocks, where they live in extensive burrows (Stebbins and McGinnis 2012).

Coronado skink was determined to have a high potential to occur at El Capitan Dam, Hodges Dam, and San Vicente Dam based on the presence of suitable habitat and reported observations within the surrounding area.

Coast patch-nosed snake (Salvadora hexalepis virgultea)

Coast patch-nosed snake is a CDFW SSC that occurs in the coastal regions of California at elevations below 7,000 feet from the northern Carrizo Plains in San Luis Obispo County, south into San Diego County, and into Baja California (Jennings and Hayes 1994). The species inhabits semi-arid shrubby areas such as chaparral and desert scrub and can also be found along washes, sandy flats, canyons, and rocky areas. Individuals are thought to take refuge and overwinter in burrows or woodrat nests; therefore, the presence of one or more burrow- or refuge-creating mammals is likely necessary for this snake to be present (Jennings and Hayes 1994).

Coast patch-nosed snake was determined to have a high potential to occur at Barrett Dam, Black Mountain Dam, El Capitan Dam, San Vicente Dam, and Dulzura Conduit based on the presence of suitable habitat and reported observations within the surrounding area.

Golden Eagle (Aquila chrysaetos)

Golden eagle is a USFWS BCC, CDFW WL and FP, and City MSCP Covered species that occurs throughout much of western North America. In California, the species occurs as an uncommon year-round resident and migrant throughout the state, except the center of the Central Valley, at elevations up to 11,500 feet (Zeiner et al. 1990). Golden eagles inhabit a wide variety of habitats such as open grasslands, shrublands, woodlands, and forests containing rolling hills and mountains. They nest on cliffs or trees and forage in open habitats including grasslands and low, open shrublands such as chaparral and coastal

sage scrub. The specie is typically absent from heavily forested areas or on the immediate coast, and tends to avoid urbanized areas and dense human populations (Katzner et al. 2020).

Golden eagle was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Morena Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable foraging habitat, geographic location within more rural and undeveloped areas that are more conducive to the species occupancy, and reported occurrences within the immediate vicinity. Furthermore, several of the study areas occur adjacent to known eagle territories (SDMMP 2017). Though active golden eagle nest sites are not publicly disclosed, previous nesting records and territories have been documented within the Program area including at Barrett Reservoir (Echo Mountain), El Capitan Reservoir (El Cajon Mountain), Morena Reservoir (Morena Butte), San Vicente Reservoir (Iron Mountain), and Dulzura Conduit (Echo Mountain, Otay Mountain, Tecate Peak, and White Mountain) (CDFW 2020).

Bell's Sparrow (Artemisiospiza belli belli)

Bells' sparrow is a USFWS BCC and CDFW WL species that occurs in western North America. In California, the species is found on the coastal ranges from Trinity and Shasta Counties south San Diego County and west of the eastern deserts, and in the foothills of the Sierra Nevada mountains from Sierra County south to the upper Kern River basin (Martin and Carlson 2020). The species breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In chaparral, they tend toward younger, less dense stands that are recovering from recent fires and are less common in older, taller stands that have remained unburned (Martin and Carlson 2020).

Bell's sparrow was determined to have a high potential to occur at Barrett Dam, Black Mountain Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable scrub and chaparral habitats and reported occurrences within the surrounding area.

Northern Harrier (Circus cyaneus)

Northern harrier is a CDFW SSC and City MSPC Covered species. The species is a widely distributed species occurring throughout North America from Canada to Mexico and further south into Central America. In California, the species occurs as a year-round resident, migratory breeder, and wintering individual. Inhabits open areas including wetlands, marshes, marshy meadows, grasslands, riparian woodlands, desert scrub, pastures, and agricultural areas. The northern harrier breeds at elevations below 8,000 feet from the northern portion of the state, south through the central coast and valley, and into the southern portion of the state, though harriers are largely absent from the southern desert regions. Breeding populations in southern California occurring from Ventura County to San Diego County are highly fragmented with many local populations extirpated, mostly likely as a result of habitat loss and degradation (Shuford and Gardali 2008). Harriers nest on the ground in wetlands and uplands within patches of dense, often tall, vegetation in undisturbed areas (Smith et al. 2011).

Northern Harrier was determined to have a high potential to occur at Barrett Dam, Chollas Dam, El Capitan Dam, Hodges Dam, Miramar Dam, Morena Dam, Murray Dam, San Vicente Dam, Savage Dam, Sutherland Dam, and Upper Otay Dam based on the presence of suitable habitat and reported occurrences within the surrounding area.

Prairie Falcon (Falco mexicanus)

Prairie falcon is a USFWS BCC and CDFW WL species that occurs throughout western North America. In California, the species occurs as an uncommon permanent resident and migrant ranging from the Sierra Nevada, southwest along the inner coastal mountains, and east to the southeastern deserts but are absent from the northern coastal fog belt (Zeiner et al. 1990). Inhabits open areas such as grasslands, savannahs, alpine meadows, and desert scrub where suitable cliffs or bluffs are present for nest sites. Prairie falcons primarily nest on cliff ledges but can utilize trees, power line structures buildings, and stone quarries for nest sites. Most nest sites have some degree of overhang to provide shelter from the sun and weather, and range in height from 6 to 500 feet (Steenhof 2020).

Prairie falcon was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Morena Dam, San Vicente Dam, Sutherland Dam, and Dulzura Conduit based on the presence of suitable rugged habitat and reported occurrences within the surrounding area. The species likely utilizes the Program area for foraging opportunities and has a potential to breed within the surrounding hillsides, or on the dams themselves.

Least Bittern (Ixobrychus exilis)

Least bittern is a USFWS BCC and CDFW SSC that occurs throughout much of the eastern U.S. and locally within the western U.S. In California, the species primarily occurs as a summer resident breeding in the Sacramento Valley, San Joaquin Valley, Central Valley, Salton Sink, lower Colorado River Valley, and coastal Orange and San Diego counties (Shuford and Gardali 2008). Inhabits freshwater and brackish marshes with dense, tall growths of aquatic or semiaquatic vegetation such as cattails, bulrush, and sedges (*Carex* ssp.) interspersed with clumps of woody vegetation and open water, although they also occasionally occur in salt marshes. Breeds in low-lying areas associated with large rivers, ponds, lakes, and estuaries and is largely absent from higher elevations.

Least bittern was determined to have a high potential to occur at Miramar Dam, Murray Dam, Savage Dam, and Upper Otay Dam based on the presence of suitable marsh habitat and reported occurrences within the surrounding area.

Loggerhead Shrike (Lanius ludovicianus)

Loggerhead shrike is a USFWS BCC and CDFW SSC that occurs year-round throughout the southern United States. In California, the species is found throughout the foothills and lowlands of California, with winter migrants found coastally, north of Mendocino County (Zeiner et al. 1990). Shrikes are found in a variety of habitats seen foraging over open ground within areas of low lying vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral, and beach with scattered shrubs (Yosef 1996). Individuals forage by perching to search for prey (such as large insects, small mammals, amphibians, reptiles, fish, and invertebrates) and using impaling as a means of handling prey (Zeiner et al. 1990).

Loggerhead shrike was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable scrub habitat occurs and reported occurrences within the surrounding area.

Lawrence's Goldfinch (Spinus lawrencei)

Lawrence's goldfinch is a USFWS BCC that occurs in California south into northern Baja California, Mexico. In California, this resident species breeds from Tehama, Shasta, and Trinity Counties south to the foothills surrounding Central Valley, from Contra Costa County south through the southern Coast Range to Santa Barbara County, and continues south into San Diego County and east to the western edge of the southern Mojave and Colorado Deserts (Watt et al. 2020). Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet. Lawrence's goldfinch is a highly nomadic species with seasonal movements that are likely influenced by the availability of preferred seed crops (Watt et al. 2020).

Lawrence's goldfinch was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit) based on the presence of suitable habitat and reported occurrences within the surrounding area. The species likely migrates through or forages within the Program area, and has the potential to breed.

Gray Vireo (Vireo vicinior)

Gray vireo is a USFWS BCC and CDFW SSC that occurs in the southwestern U.S. and adjacent parts of northwestern Mexico (Barlow et al. 2020). In California, the species breeds in arid montane habitats and high plain scrublands from Inyo County south to San Diego County. Preferred habitats include mixed juniper/pinon and oak scrub associations, and chaparral dominated by redshank (*Adenostoma sparsifolium*), chamise, and ceanothus.

Gray vireo was determined to have a high potential to occur at Morena Dam based on the presence of suitable chaparral habitat and adjacent to known breeding locations at the Buckman Springs area north of Interstate 8 (Unitt 2004).

Ringtail (Bassariscus astutus)

Ringtail is a CDFW FP species that occurs in the western and southwestern U.S. south into Mexico. In California, ringtail is a common to uncommon permanent resident that is widely distributed throughout the state (Zeiner et al. 1990). In San Diego County, the species is known from the foothills, mountains, and deserts, from Mt. Woodson, Cuyamaca, and Laguna mountains, and desert escarpment along Montezuma Grade (Tremor et al. 2017). The species inhabits chaparral, oak woodland, coniferous forests, riparian areas, or palm oases in association within rocky areas and nearby permanent water sources. Ringtails tend to avoid urbanized areas, though this highly elusive species is likely more widespread than previously localities imply.

Ringtail was determined to have a high potential to occur at El Capitan Dam and San Vicente Dam based on the presence of suitable habitat and documented occurrences within the vicinity at Wildcat Canyon and Harbison Canyon (Tremor et al. 2017).

Dulzura pocket mouse (Chaetodipus californicus femoralis)

Dulzura pocket mouse is a CDFW SSC that occurs in the foothills and mountains of San Diego County, although it can also be found on the upper portions of mountain slopes extending into the desert

regions (Tremor et al. 2017). The species is found from the coastal regions (Oceanside to Del Mar, and possibly south to the Tijuana River Valley), eastwards to the Palomar and Cuyamaca Mountains, and extends to the desert slopes of San Felipe Valley, Cigarette Hills, and McCain Valley. Inhabits chaparral habitats, but also occurs within coastal sage scrub, oak woodland, and at the edge of grasslands. The species prefers gravelly substrates with sun exposure and can be found within open to dense vegetation.

Dulzura pocket mouse was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Morena Dam, Sutherland Dam, and Dulzura Conduit based on the presence of suitable habitat and gravelly soils and reported occurrences within the surrounding area.

Northwestern San Diego pocket mouse (Chaetodipus fallax fallax)

Northwestern San Diego pocket mouse is a CDFW SSC that occurs throughout southwestern California, and south into northern Baja California, Mexico, at elevations below 6,000 feet. The species is found from western Riverside and San Bernardino Counties and San Diego County (McClenaghan 1983). Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates (Price and Waser 1984). They tend to forage for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices (Reichman and Price 1993).

Northwestern San Diego pocket mouse was determined to have a high potential to occur at Barrett Dam, Hodges Dam, Morena Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitat and gravelly or rocky soils and reported occurrences within the surrounding area.

Townsend's big-eared bat (Corynorhinus townsendii pallescens)

Townsend's big-eared bat is a CDFW SSC that occurs throughout western North America from the southern portion of British Columbia south into Mexico and east into the Great Plains. In California, the species occurs throughout the state, though its distribution is strongly correlated with the availability of caves and cave-like roosting habitat (Zeiner et al. 1990). Suitable roosting habitat includes natural caves, basal hollows of large trees, and artificial structures such as mines, flumes, buildings, and bridges. In San Diego County, is presumed absent from coastal areas, being found more commonly in historic mining districts and boulder-strewn regions (i.e., Escondido, Lakeside, Dulzura, Jacumba, etc.) (Tremor et al. 2017).

Townsend's big-eared bat was determined to have a high potential to occur at Barret Dam, El Capitan Dam, Hodges Dam, Morena Dam, and Dulzura Conduit based on the presence of suitable roosting habitat (i.e., natural caves or cave-like areas such as concrete dams, tunnels, or other similar structures) and documented occurrences within the surrounding area.

Western mastiff bat (Eumops perotis californicus)

Western mastiff bat is a CDFW SSC that has three widely separated populations with one occurring in the southwestern U.S., from California east towards Texas, and south across northern Mexico (Tremor et al. 2017). In California, the species occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert (Zeiner et al. 1990). The western mastiff bat is found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. The species

prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.

Western mastiff bat was determined to have a high potential to occur at Barret Dam, El Capitan Dam, Hodges Dam, Morena Dam, Savage Dam, San Vicente Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable roosting and foraging habitat and documented occurrences within the surrounding area.

Mountain lion (Felis concolor)

Mountain lion is a City MSCP Covered species that occurs throughout much of North America. In California, the species is an uncommon permanent resident found in nearly all habitats, except the xeric regions of the Mojave and Colorado Deserts (Zeiner et al. 1990). Mountain lions require extensive riparian vegetation and brushy habitats with interspersed irregular terrain, rocky outcrops, and tree or brush edges. Seasonal movements are influenced by the movement of mule deer, the species' main prey.

Mountain lion was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, San Vicente Dam, Sutherland Dam, and Dulzura Conduit based on the presence of suitable rugged terrain and riparian areas that are conducive to movement patterns. Furthermore, these areas are located in designated open space, within rural and undeveloped landscapes where the species is known to occur.

Western red bat (Lasiurus blossevillii)

Western red bat is a CDFW SSC that has a broad distribution ranging from southern British Columbia south to the western United States and further south into Mexico. In California, the species is locally common being found from Shasta County south to San Diego County and west of the Sierra Nevada/Cascade Range and deserts (Zeiner et al. 1990). The species mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in invasive non-native vegetation such as tamarisk, eucalyptus, and orchards. The western red bat typically forages along river and stream courses but also feeds at forested meadow edges and suburban and urban parks (Tremor et al. 2017). The species primarily roosts in trees, preferring heavily shaded areas which are open underneath (Zeiner et al. 1990).

Western red bat was determined to have a high potential to occur at Hodges Dam, Morena Dam, and Savage Dam based on the presence of suitable riparian or wooded habitat and documented occurrences within the surrounding area.

Western yellow bat (Lasiurus xanthinus)

Western yellow bat is a CDFW SSC that occurs in southern portions of California, Arizona, and New Mexico south into Mexico. In California, the species occurs in Los Angeles, San Bernardino, and San Diego Counties. In San Diego, western yellow bat is commonly found in Anza-Borrego Desert but is also established west of the desert within rural to suburban areas including Escondido, Vista, Ramona, Lakeside, El Cajon, and La Mesa (Tremor et al. 2017). The species primarily roosts on dead palm frond skirts of native and non-native fan palms but has also been observed in cottonwoods and yuccas. Occurs within a variety of habitats where palms are present including desert riparian, desert washes, palm oasis, cottonwood-willow riparian forest, and developed areas.

Western yellow bat was determined to have a high potential to occur at Chollas Dam, Hodges Dam, and Murray Dam based on the presence of suitable roosting habitat and reported occurrences within the surrounding areas.

California leaf-nosed bat (Macrotus californicus)

California leaf-nosed bat is a CDFW SSC that occurs from southern Nevada, western Arizona, and southern California southward to Mexico. In California, the species is found in San Bernardino, Riverside, Imperial, and San Diego Counties (Zeiner et al. 1990). Within San Diego County, the species primarily occurs as a desert species within the Anza-Borrego Desert, but has also been documented in the western foothills along the Santa Margarita River and inland valley of Dulzura (Tremor et al. 2017). The species uses caves and similar structures for roosting including buildings, bridges, and fallen palm trunks. Forages along desert washes and floodplains in the east, and sandy river valleys along the coast.

California leaf-nosed bat was determined to have a high potential to occur at Barrett Dam and Dulzura Conduit) based on the presence of suitable cave-like habitat (i.e., the tunneled portion of the conduit) and bridge-like areas (concrete dam and flumes) that provided potential roosting habit, and the species reportedly has been previously observed along Dulzura Conduit near Tunnel 9.

San Diego Bryant's (formerly desert) woodrat (Neotoma bryanti [formerly lepida] intermedia)

San Diego Bryant's woodrat is a CDFW SSC that occurs along the coastal regions of Central California south to northern Baja California (Verts and Carrawaay 2002). In California, the species is found as far north as San Luis Obispo County, south into San Diego County, and in the western portions of San Bernardino and Riverside Counties. The San Diego desert woodrat occupies a variety of shrub and desert habitats such as coastal sagebrush scrub, chaparral, pinyon-juniper woodland, and Joshua tree woodland, among others. The species is often associated with rock outcroppings, boulders, cacti patches, and areas with dense understories. Woodrats construct dens used for shelter, food storage, and nesting around rock outcroppings and cacti, using various materials such as twigs, sticks, and other debris.

San Diego Bryant's woodrat was determined to have a high potential to occur at Barrett Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit based on the presence of suitable habitat and rock outcroppings and reported occurrences within the surrounding area.

Pocketed free-tailed bat (Nyctinomops femorosaccus)

Pocketed free-tailed bat is a CDFW SSC that occurs in the southwestern United States and northern Mexico. The species is rare in California, occurring in Riverside, San Diego, and Imperial counties (Zeiner et al. 1990). Inhabits semiarid habitats including pinyon-juniper woodland, desert scrub, succulent scrub, desert riparian, desert washes, alkali desert scrub, Joshua tree woodland, and palm oases (Lancaster 2000). The species roosts in caves, mines, tunnels, and rock crevices but is also known to occasionally roost in buildings and holes in trees.

Pocketed free-tailed bat was determined to have a high potential to occur at El Capitan Dam and San Vicente Dam based on the presence of suitable habitat, steep vertical cliffs and rocky outcrops, and reported occurrences at El Monte County Park located downstream of El Capitan Dam) and Lake Jennings (Tremor et al. 2017).

5.4 JURISDICTIONAL WATERS AND WETLANDS

The Program area supports waterways, wetlands, and riparian habitat that would be subject to USACE, RWQCB, and/or CDFW jurisdiction as detailed in Table 3, *Waters of the U.S.,* Table 4, *Waters of the State*, and Table 5, *California Department of Fish and Wildlife Jurisdictional Areas*, and summarized below. A summary of areas considered City wetlands is provided in Table 6, *City Wetlands*.

Table 3
WATERS OF THE U.S.

Jurisdictional Resource	Program Component[1] (acres)[2]												
	BM	CH	EC	HOD	MIR	MOR	MUR	SNV	SAV	SUT	UPO	DC	Total
Wetlands													
Southern Riparian Forest	0.19	-	4.69	0.58	-	-	-	-	-	-	-	-	**5.26**
Southern Willow Scrub	-	-	-	-	-	-	-	0.24	-	-	-	-	**0.24**
Freshwater Marsh	-	0.05	-	0.05	-	-	0.05	0.03	-	-	-	-	**0.18**
Arundo-dominated Riparian	-	-	-	-	-	-	-	-	-	-	-	0.02	**0.02**
Subtotal	***0.19***	***0.05***	***4.69***	***0.63***	***0***	***0***	***0.05***	***0.27***	***0***	***0***	***0***	***0.02***	**5.90**
Non-wetlands													
Perennial Stream	-	-	-	0.07	0.02	-	-	-	-	-	-	-	**0.09**
Intermittent Stream	0.14	0.02	-	-	-	0.02	0.01	0.18	-	-	0.05	0.05	**0.47**
Concrete-lined Stream	-	-	-	-	-	-	-	-	-	-	-	0.01	**0.01**
Grouted Riprap Spillway	-	-	-	-	-	-	-	0.28	-	-	-	-	**0.28**
Open Water/Lake	0.57	0.79	4.80	0.87	2.96	0.95	1.16	2.14	1.54	0.82	0.22	-[3]	**16.82**
Subtotal	***0.71***	***0.81***	***4.80***	***0.94***	***2.98***	***0.97***	***1.17***	***2.60***	***1.54***	***0.82***	***0.27***	***0.06***	***17.67***
TOTAL	**0.90**	**0.86**	**9.49**	**1.57**	**2.98**	**0.97**	**1.22**	**2.87**	**1.54**	**0.82**	**0.27**	**0.08**	**23.57**

[1] Program Component abbreviations refer to the study areas as follows: BAR = Barrett Dam; BM = Black Mountain Dam; CHO = Chollas Dam; EC = El Capitan Dam; HOD = Hodges Dam; MIR = Miramar Dam; MOR = Morena Dam; MUR = Murray Dam; RB = Rancho Bernardo Dam; SNV = San Vicente Dam; SAV = Savage Dam; SUT = Sutherland Dam; UPO = Upper Otay Dam; DC = Dulzura Conduit.

[2] Acres rounded to the nearest hundredth.

[3] Open water/lake habitat at northern portion of Dulzura Conduit overlaps with the Barrett Dam study area and is included within that Program component to avoid double counting.

Table 4
WATERS OF THE STATE

Jurisdictional Resource	Program Component[1] (acres)[2]												
	BM	CH	EC	HOD	MIR	MOR	MUR	SNV	SAV	SUT	UPO	DC	Total
Wetlands													
Southern Riparian Forest	0.19	-	4.69	0.65	-	-	-	-	-	-	-	-	**5.53**
Southern Willow Scrub	-	-	-	-	-	-	-	0.24	-	-	-	-	**0.24**
Freshwater Marsh	-	0.05	-	0.05	0.97	-	0.21	0.03	0.07	-	0.04	-	**1.42**
Arundo-dominated Riparian	-	-	-	-	-	-	-	-	-	-	-	0.02	**0.02**
Subtotal	***0.19***	***0.05***	***4.69***	***0.70***	***0.97***	***0.00***	***0.21***	***0.27***	***0.07***	***0.00***	***0.04***	***0.02***	***7.21***

Jurisdictional Resource	Program Component[1] (acres)[2]												
	BM	CH	EC	HOD	MIR	MOR	MUR	SNV	SAV	SUT	UPO	DC	Total
Non-wetlands													
Perennial Stream	-	-	-	<0.01	-	-	-	-	-	-	-	-	<0.01
Intermittent Stream	0.14	0.02	-	-	-	0.02	0.02	0.18	-	-	0.05	0.08	0.51
Ephemeral Stream	-	0.06	-	-	-	-	-	-	-	-	-	-	0.06
Concrete-lined Stream	-	-	-	-	-	-	-	-	-	-	-	0.01	0.01
Grouted Riprap Spillway	-	-	-	-	-	-	-	0.28	-	-	-	-	0.28
Open Water/Lake	0.57	0.79	4.80	0.87	2.01	0.95	1.00	2.14	1.47	0.82	0.18	-[3]	15.60
Subtotal	***0.71***	***0.87***	***4.80***	***0.87***	***2.01***	***0.97***	***1.02***	***2.60***	***1.47***	***0.82***	***0.23***	***0.09***	***16.46***
TOTAL	**0.90**	**0.92**	**9.49**	**1.57**	**2.98**	**0.97**	**1.23**	**2.87**	**1.54**	**0.82**	**0.27**	**0.11**	**23.67**

[1] Program Component abbreviations refer to the study areas as follows: BAR = Barrett Dam; BM = Black Mountain Dam; CHO = Chollas Dam; EC = El Capitan Dam; HOD = Hodges Dam; MIR = Miramar Dam; MOR = Morena Dam; MUR = Murray Dam; RB = Rancho Bernardo Dam; SNV = San Vicente Dam; SAV = Savage Dam; SUT = Sutherland Dam; UPO = Upper Otay Dam; DC = Dulzura Conduit.

[2] Acres rounded to the nearest hundredth.

[3] Open water/lake habitat at northern portion of Dulzura Conduit overlaps with the Barrett Dam study area and is included within that Program component to avoid double counting.

Table 5
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURIDICTIONAL AREAS

Jurisdictional Resource	Program Component[1] (acres)[2]												
	BM	CH	EC	HOD	MIR	MOR	MUR	SNV	SAV	SUT	UPO	DC	Total
Riparian Habitat													
Southern Riparian Forest	1.05	-	7.30	1.34	-	0.09	-	-	-	0.05	-	0.17	**10.00**
Southern Coast Live Oak Riparian Forest	0.89	-	-	-	-	-	-	-	-	-	-	-	**0.89**
Coast Live Oak Woodland	0.27	-	-	-	-	-	-	-	-	-	-	-	**0.27**
Riparian Woodland	-	0.10	-	-	-	<0.01	-	0.05	-	-	-	-	**0.15**
Southern Willow Scrub	-	-	-	-	-	-	-	-	0.14	-	-	-	**0.14**
Mule Fat Scrub	-	-	-	0.03	-	-	-	0.25	-	-	-	-	**0.28**
Arrowweed Scrub	0.39	-	-	-	-	-	-	-	-	-	-	-	**0.39**
Freshwater Marsh	-	0.05	-	0.05	0.96	-	0.21	0.03	0.07	-	0.04	-	**1.41**
Disturbed Wetland	-	-	-	-	-	-	-	-	-	-	-	0.02	**0.02**
Non-Native Riparian	-	-	-	-	-	-	0.17	-	-	-	-	-	**0.17**
Arundo-dominated Riparian	-	-	-	-	-	-	-	-	-	-	-	0.09	**0.09**
Subtotal	***2.60***	***0.15***	***7.30***	**1.42**	***0.96***	***0.09***	***0.38***	***0.33***	***0.21***	***0.05***	***0.04***	***0.28***	***13.81***
CDFW Lake/Streambed													
Perennial Stream	-	-	-	<0.01	-	-	-	-	-	-	-	-	**<0.01**
Intermittent Stream	0.07	-	-	-	-	-	-	0.18	-	-	-	0.02	**0.27**
Ephemeral Stream	-	0.06	-	-	-	-	-	-	-	-	0.05	-	**0.11**
Concrete-lined Stream	-	-	-	-	-	-	-	-	-	-	-	0.01	**0.01**

Jurisdictional Resource	Program Component[1] (acres)[2]												
	BM	CH	EC	HOD	MIR	MOR	MUR	SNV	SAV	SUT	UPO	DC	Total
Grouted Riprap Spillway	-	-	-	-	-	-	-	0.28	-	-	-	-	**0.28**
Open Water/Lake	0.58	0.79	4.80	0.87	2.01	0.95	1.00	2.14	1.47	0.82	0.18	-[3]	**15.61**
Subtotal	***0.65***	***0.85***	***4.80***	***0.87***	***2.01***	***0.95***	***1.00***	***2.60***	***1.47***	***0.82***	***0.23***	***0.03***	***16.28***
TOTAL	**3.25**	**1.00**	**12.10**	**2.29**	**2.97**	**1.04**	**1.38**	**2.93**	**1.68**	**0.87**	**0.27**	**0.31**	**30.09**

[1] Program Component abbreviations refer to the study areas as follows: BAR = Barrett Dam; BM = Black Mountain Dam; CHO = Chollas Dam; EC = El Capitan Dam; HOD = Hodges Dam; MIR = Miramar Dam; MOR = Morena Dam; MUR = Murray Dam; RB = Rancho Bernardo Dam; SNV = San Vicente Dam; SAV = Savage Dam; SUT = Sutherland Dam; UPO = Upper Otay Dam; DC = Dulzura Conduit.

[2] Acres rounded to the nearest hundredth.

[3] Open water/lake habitat at northern portion of Dulzura Conduit overlaps with the Barrett Dam study area and is included within that Program component to avoid double counting.

Table 6
CITY OF SAN DIEGO WETLANDS

Jurisdictional Resource	Program Component[1] (acres)[2]												
	BM	CH	EC	HOD	MIR	MOR	MUR	SNV	SAV	SUT	UPO	DC	Total
Southern Riparian Forest	1.05	-	7.30	1.34	-	0.09	-	-	-	0.05	-	0.17	**10.00**
Southern Coast Live Oak Riparian Forest	0.89	-	-	-	-	-	-	-	-	-	-	-	**0.89**
Coast Live Oak Woodland	0.27	-	-	-	-	-	-	-	-	-	-	-	**0.27**
Riparian Woodland	-	0.10	-	-	-	<0.01	-	0.05	-	-	-	-	**0.15**
Southern Willow Scrub	-	-	-	-	-	-	-	-	0.14	-	-	-	**0.14**
Mule Fat Scrub	-	-	-	0.03	-	-	-	0.25	-	-	-	-	**0.28**
Arrowweed Scrub	0.39	-	-	-	-	-	-	-	-	-	-	-	**0.39**
Freshwater Marsh	-	0.05	-	0.05	0.96	-	0.21	0.03	0.07	-	0.04	-	**1.41**
Disturbed Wetland	-	-	-	-	-	-	-	-	-	-	-	0.02	**0.02**
Non-Native Riparian	-	-	-	-	-	-	0.17	-	-	-	-	-	**0.17**
Arundo-dominated Riparian	-	-	-	-	-	-	-	-	-	-	-	0.09	**0.09**
TOTAL	***2.60***	***0.15***	***7.30***	***1.42***	***0.96***	***0.09***	***0.38***	***0.33***	***0.21***	***0.05***	***0.04***	***0.28***	***13.81***

[1] Program Component abbreviations refer to the study areas as follows: BAR = Barrett Dam; BM = Black Mountain Dam; CHO = Chollas Dam; EC = El Capitan Dam; HOD = Hodges Dam; MIR = Miramar Dam; MOR = Morena Dam; MUR = Murray Dam; RB = Rancho Bernardo Dam; SNV = San Vicente Dam; SAV = Savage Dam; SUT = Sutherland Dam; UPO = Upper Otay Dam; DC = Dulzura Conduit.

[2] Acres rounded to the nearest hundredth.

5.4.1 Barrett Dam

Barrett Dam is located along Cottonwood Creek, which is heavily influenced by the City's operation of Barrett Reservoir for flood control and municipal water storage. Wilson Creek, which is a tributary to Barrett Reservoir and Cottonwood Creek, generally parallels the northern and southern access roads and crosses the northern access road to the reservoir. Several additional unnamed drainages tributaries to Wilson's Creek also bisect the northern access road. Rattlesnake Creek and several unnamed drainages (originating from Bob Owen Canyon) tributary to Cottonwood Creek flow in an easterly direction to Cottonwood Creek and bisect the southern access road. Jurisdictional waters and riparian habitat within the study area are primarily associated with Cottonwood Creek, Barrett Reservoir, Wilson

Creek, and several unnamed drainages tributary to Cottonwood that cross the northern and southern access roads.

Waters of the U.S.

Potential USACE jurisdiction within the Barrett Dam jurisdiction delineation study area includes 0.19 acre of wetland waters of the U.S. and 0.71 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figures 9a-1 to 9a-6, *Waters of the U.S. – Barrett Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Barrett Dam jurisdiction delineation study area totals 0.19 acre of wetland waters of the State and 0.71 acre of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10a-1 to 10a-6*, Waters of the State – Barrett Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction within the Barrett Dam jurisdiction delineation study area includes 0.65 acre of unvegetated lake/streambed, and 2.60 acres of riparian-vegetated habitat comprised of southern riparian forest, southern oak live oak riparian forest, coast live oak woodland, and arrowweed scrub, as summarized above in Table 5, and depicted on Figures 11a-1 to 11a-6*, CDFW Jurisdictional Areas – Barrett Dam*.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Barrett Dam jurisdiction delineation study area total 2.60 acres, consisting of 1.05 acres of southern riparian forest, 0.89 acre of southern coast live oak riparian forest, 0.27 of coast live oak woodland, and 0.39 acre of arrowweed scrub as detailed in Table 6 and depicted on Figures 12a-1 to 12a-6*, City ESL Wetlands – Barrett Dam*.

5.4.2 Black Mountain Dam

Black Mountain Dam is situated within an upland setting and does not contain potentially jurisdictional waters or riparian habitat.

5.4.3 Chollas Dam

Chollas Dam is located along Chollas Creek, which is heavily influenced by the City's operation of Chollas Heights Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with Chollas Creek and Chollas Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Chollas Dam jurisdiction delineation study area includes 0.05 acre of wetland waters of the U.S. and 0.81 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figure 9b, *Waters of the U.S. – Chollas Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Chollas Dam jurisdiction delineation study area totals 0.05 acre of wetland waters of the State and 0.87 acre of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figure 10b*, Waters of the State – Chollas Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Chollas Dam jurisdiction delineation study area includes 0.85 acre of unvegetated lake/streambed, and 0.15 acre of riparian-vegetated habitat comprised of riparian woodland and freshwater marsh, as summarized above in Table 5, and depicted on Figure 11b*, CDFW Jurisdictional Areas – Chollas Dam*.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Chollas Dam jurisdiction delineation study area total 0.15 acre, consisting of 0.10 acre of riparian woodland and 0.05 acre of freshwater marsh as detailed in Table 6 and depicted on Figure 12b*, City ESL Wetlands – Chollas Dam*.

5.4.4 El Capitan Dam

El Capitan Dam is located along the San Diego River, which is heavily influenced by the City's operation of El Capitan Reservoir for flood control and municipal water storage. The San Diego River immediately downstream of El Capitan contains a northern fork originating from the dam spillway and a southern fork generally originating from the blow-off valves. Jurisdictional waters and riparian habitat within the study area are primarily associated with the San Diego River and El Capitan Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the El Capitan Dam jurisdiction delineation study area includes 4.69 acres of wetland waters of the U.S. and 4.80 acres of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figures 9c-1 and 9c-2, *Waters of the U.S. – El Capitan Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the El Capitan Dam jurisdiction delineation study area totals 4.69 acres of wetland waters of the State and 4.80 acres of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10c-1 and 10c-2*, Waters of the State – El Capitan Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the El Capitan Dam jurisdiction delineation study area includes 4.80 acres of unvegetated lake/streambed, and 7.30 acres of riparian-vegetated habitat comprised of southern riparian forest, as summarized above in Table 5, and depicted on Figures 11c-1 and 11c-2*, CDFW Jurisdictional Areas – El Capitan Dam*.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the El Capitan Dam jurisdiction delineation study area consist of 7.30 acres of southern riparian forest, as detailed in Table 6 and depicted on Figures 12c-1 and 12c-2*, City ESL Wetlands – El Capitan Dam*.

5.4.5 Hodges Dam

Hodges Dam is located along the San Dieguito River, which is heavily influenced by the City's operation of the El Capitan Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with the San Dieguito River and Hodges Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Hodges Dam jurisdiction delineation study area includes 0.63 acre of wetland waters of the U.S. and 0.94 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figure 9d, *Waters of the U.S. – Hodges Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Hodges Dam jurisdiction delineation study area totals 0.07 acre of wetland waters of the State and 1.47 acres of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figure 10d*, Waters of the State – Hodges Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Hodges Dam jurisdiction delineation study area includes 1.47 acres of perennial stream and unvegetated lake/streambed and 1.42 acres of riparian-vegetated habitat comprised of riparian forest, mule fat scrub, and freshwater marsh, as summarized above in Table 5, and depicted on Figure 11d*, CDFW Jurisdictional Areas – Hodges Dam*.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Hodges Dam jurisdiction delineation study area total 1.42 acres, consisting of 1.34 acres of southern riparian forest, 0.03 acre of mule fat scrub, and 0.05 acre of freshwater marsh, as detailed in Table 6 and depicted on Figure 12d*, City ESL Wetlands – Hodges Dam*.

5.4.6 Miramar Dam

Miramar Dam is located along Big Sur Creek, a tributary to Carroll Canyon Creek, which is heavily influenced by the City's operation of Miramar Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with Big Sur Creek and Miramar Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Miramar Dam jurisdiction delineation study area includes 2.98 acres of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figures 9e-1 and 9e-2, *Waters of the U.S. –* M*iramar Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Miramar Dam jurisdiction delineation study area totals 0.97 acre of wetland waters of the State and 2.01 acres of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10e-1 and 10-2*, Waters of the State – Miramar Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Miramar Dam jurisdiction delineation study area includes 2.01 acres of open water/lake and 0.96 acre of riparian-vegetated habitat comprised of freshwater marsh, as summarized above in Table 5, and depicted on Figures 11e-1 and 11e-2*, CDFW Jurisdictional Areas – Miramar Dam*.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Miramar Dam jurisdiction delineation study area consists of 0.96 acre of freshwater marsh as detailed in Table 6 and depicted on Figures 12e-1 and 12e-2*, City ESL Wetlands – Miramar Dam*.

5.4.7 Morena Dam

Morena Dam is located along Cottonwood Creek, upstream of Barrett Dam, which is heavily influenced by the City's operation of Morena Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with Cottonwood Creek and Morena Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Morena Dam jurisdiction delineation study area includes 0.97 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figure 9f, *Waters of the U.S. – Morena Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Morena Dam jurisdiction delineation study area totals 0.97 acre of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10e-1 and 10-2*, Waters of the State – Morena Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Morena Dam jurisdiction delineation study area includes 0.95 acre of open water/lake and 0.09 acre of riparian-vegetated habitat comprised of 0.09 acre of southern riparian

forest and less than 0.01 acre of riparian woodland, as summarized above in Table 5, and depicted on Figures 11e-1 and 11e-2*, CDFW Jurisdictional Areas – Morena Dam*.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Morena Dam jurisdiction delineation study area consists of 0.96 acre of freshwater marsh as detailed in Table 6 and depicted on Figures 12e-1 and 12e-2*, City ESL Wetlands – Morena Dam*.

5.4.8 Murray Dam

Murray Dam is located along Chaparral Canyon, a tributary to Alvarado Creek, which is heavily influenced by the City's operation of Murray Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with Chaparral Canyon and Murray Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Murray Dam jurisdiction delineation study area includes 0.05 acre of wetland waters of the U.S. and 1.17 acres of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figure 9g, *Waters of the U.S. – Murray Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Murray Dam jurisdiction delineation study area totals 0.21 acre of wetland waters of the State and 1.02 acres of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figure 10g*, Waters of the State – Murray Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Murray Dam jurisdiction delineation study area includes 1.00 acre of open water/lake and 0.38 acre of riparian-vegetated habitat comprised of freshwater marsh and non-native riparian, as summarized above in Table 5, and depicted on Figure 11g*, CDFW Jurisdictional Areas – Murray Dam.*

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Murray Dam jurisdiction delineation study area total 0.38 acre, consisting of 0.21 acre of freshwater marsh and 0.17 acre of non-native riparian as detailed in Table 6 and depicted on Figure 12g*, City ESL Wetlands – Murray Dam*.

5.4.9 Rancho Bernardo Dam

Rancho Bernardo Dam is situated within a completely developed, urbanized setting and does not contain potentially jurisdictional waters or riparian habitat.

5.4.10 San Vicente

San Vicente Dam is located along San Vicente Creek, a tributary to the San Diego River, which is heavily influenced by the City's operation of San Vicente Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with San Vicente Creek and San Vicente Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the San Vicente Dam jurisdiction delineation study area includes 0.27 acre of wetland waters of the U.S. and 2.60 acres of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figures 9h-1 and 9h-2, *Waters of the U.S. – San Vicente Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the San Vicente Dam jurisdiction delineation study area totals 0.27 acre of wetland waters of the State and 2.60 acres of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10h-1 and 10h-2*, Waters of the State – San Vicente Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the San Vicente Dam jurisdiction delineation study area includes 2.60 acres of unvegetated lake/streambed and 0.33 acre of riparian-vegetated habitat comprised of riparian woodland, mule fat scrub, and freshwater marsh, as summarized above in Table 5, and depicted on Figures 11h-1 and 11h-2*, CDFW Jurisdictional Areas – San Vicente Dam.*

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the San Vicente Dam jurisdiction delineation study area total 0.33 acre, consisting of 0.05 acre of riparian woodland, 0.25 acre of mule fat scrub, and 0.03 acre of freshwater marsh as detailed in Table 6, and depicted on Figures 12h-1 and 12h-2*, City ESL Wetlands – San Vicente Dam*.

5.4.11 Savage Dam

Savage Dam is located along the Otay River, which is heavily influenced by the City's operation of the Lower Otay Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with the Otay River and Lower Otay Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Savage Dam jurisdiction delineation study area includes 1.54 acres of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figures 9h-1 through 9i-3, *Waters of the U.S. – Savage Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Savage Dam jurisdiction delineation study area totals 0.07 acre of wetland waters of the State and 1.47 acres of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10i-1 through 10i-3*, Waters of the State – Savage Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Savage Dam jurisdiction delineation study area includes 1.47 acres of open water/lake and 0.21 acre of riparian-vegetated habitat comprised of 0.14 acre of southern willow scrub and 0.07 acre of freshwater marsh, as summarized above in Table 5, and depicted on Figures 11i-1 through 11i-3*, CDFW Jurisdictional Areas – Savage Dam.*

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Savage Dam jurisdiction delineation study area total 0.21 acre, consisting of 0.14 acre of southern willow scrub and 0.07 acre of freshwater marsh as detailed in Table 6 and depicted on Figures 12i-1 through 12i-3*, City ESL Wetlands – Savage Dam*.

5.4.12 Sutherland Dam

Sutherland Dam is located along San Ysabel Creek, which is heavily influenced by the City's operation of Sutherland Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with San Ysabel Creek and Sutherland Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Sutherland Dam jurisdiction delineation study area includes 0.82 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figure 9j, *Waters of the U.S. – Sutherland Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Sutherland Dam jurisdiction delineation study area totals 0.82 acre of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figure 10j*, Waters of the State – Sutherland Dam*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Sutherland Dam jurisdiction delineation study area includes 0.82 acre of open water/lake and 0.05 acre of riparian-vegetated habitat comprised of southern riparian forest, as summarized above in Table 5, and depicted on Figure 11j*, CDFW Jurisdictional Areas – Sutherland Dam.*

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Sutherland Dam jurisdiction delineation study area is comprised of 0.05 acre of southern riparian forest as detailed in Table 6, and depicted on Figure 12j*, City ESL Wetlands – Sutherland Dam*.

5.4.13 Upper Otay Dam

Upper Otay Dam is located along Proctor Valley Creek, a tributary to Otay River, which is heavily influenced by the City's operation of Upper Otay Reservoir for flood control and municipal water storage. Jurisdictional waters and riparian habitat within the study area are primarily associated with Proctor Valley Creek and Upper Otay Reservoir.

Waters of the U.S.

Potential USACE jurisdiction within the Upper Otay Dam jurisdiction delineation study area includes 0.27 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figure 9k, *Waters of the U.S. – Upper Otay Dam*.

Waters of the State

Potential RWQCB-jurisdiction within the Upper Otay Dam jurisdiction delineation study area totals 0.04 acre of wetland waters of the State and 0.23 acre of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figure 10k*, Waters of the State* – Upper Otay Dam.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Upper Otay Dam jurisdiction delineation study area includes 0.23 acre of unvegetated lake/streambed and 0.04 acre of riparian-vegetated habitat comprised of freshwater marsh, as summarized above in Table 5, and depicted on Figure 11k*, CDFW Jurisdictional Areas* – Upper Otay Dam.

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Upper Otay Dam jurisdiction delineation study area is comprised of 0.04 acre of freshwater marsh as detailed in Table 6 and depicted on Figure 12k*, City ESL Wetlands* – Upper Otay Dam.

5.4.14 Dulzura Conduit

Dulzura Conduit is generally located within an upland setting. The purpose of the conduit is to divert water from Barrett Dam to Dulzura Creek through a low-level outlet from Barrett Dam. Matchin Creek, Rattlesnake Creek, Bee Canyon, and several unnamed tributaries to Cottonwood Creek bisect the conduit, generally originating from the slopes to the west. The conduit discharges into Dulzura Creek at its western terminus. Jurisdictional waters and riparian habitat within the study area are primarily associated with Rattlesnake Creek, Dulzura Creek, and Bee Canyon.

Waters of the U.S.

Potential USACE jurisdiction within the Dulzura Conduit jurisdiction delineation study area includes 0.02 acre of wetland waters of the U.S. and 0.06 acre of non-wetland waters of the U.S., as summarized above in Table 3, and depicted on Figures 9l-1 through 9l-4, *Waters of the U.S. – Dulzura Conduit*.

Waters of the State

Potential RWQCB-jurisdiction within the Dulzura Conduit jurisdiction delineation study area totals 0.02 acre of wetland waters of the State and 0.09 acre of non-wetland waters of the State, as summarized above in Table 4, and depicted on Figures 10l-1 through 10l-4*, Waters of the State – Dulzura Conduit*.

California Department of Fish and Wildlife Jurisdiction

Potential CDFW jurisdiction the Dulzura Conduit jurisdiction delineation study area includes 0.03 acre of unvegetated streambed and 0.28 acre of riparian-vegetated habitat comprised of southern riparian forest, disturbed wetland, and arundo-dominated riparian, as summarized above in Table 5, and depicted on Figures 11l-1 through 11l-4*, CDFW Jurisdictional Areas – Dulzura Conduit.*

City Environmentally Sensitive Lands Wetlands

Potential City wetlands within the Dulzura Conduit jurisdiction delineation study area total 0.28 acre, consisting of 0.17 acre of southern riparian forest, 0.02 acre of disturbed wetland, and 0.09 acre of arundo-dominated riparian as detailed in Table 6 and depicted on Figures 12l-1 through 12l-4*, City ESL Wetlands – Dulzura Conduit*.

5.5 HABITAT CONNECTIVITY AND WILDLIFE CORRIDORS

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping stone linkages that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

Local and regional wildlife movement corridors within the county primarily consist of riparian corridors and larger blocks of undeveloped habitat containing rugged terrain that provide sufficient vegetative cover to facilitate the movement of both small and large mammals. These areas contain vital resources, such as food and water, and conceal wildlife from anthropogonic influences that would otherwise deter wildlife usage. Movement corridors can provide both live-in habitat as well as a temporary refuge for wildlife when moving between more expansive blocks of habitat or areas of higher biological value. Wildlife movement within the western portion of the county, particularly along the coast, is heavily impaired and constrained by urban and residential development. Riparian corridors, preserves, and open space areas function as local movement corridors for smaller mammals, such as coyote (*Canis latrans*) and bobcat (*Lynx rufus*), and provide stepping-stone linkages for birds between key habitat blocks of upland and riparian habitat providing important breeding, foraging and dispersal functions. Movement of larger mammals, such as mule deer (*Odocoileus hemionus*), within the western portion of the county, is concentrated within larger blocks of undeveloped habitat and open space areas such as Los Peñasquitos Canyon Preserve. Further inland, these wildlife movement corridors increase in

function and support a wider range of species as development is largely rural, fewer major highways and roadways are present, and there are larger blocks of undeveloped land.

Regional movement corridors within the county have been identified in regional planning documents such as the City's MSCP SAP, which delineates biological core and linkage areas representing areas of high biological value that support sensitive resources and the identified linkages connecting these areas together. These linkages tend to be formed by rivers and valleys, mesa tops, and ridgelines such as the San Diego River, San Luis Rey River, San Dieguito River, Los Peñasquitos Creek, Sweetwater River, Otay River, Del Mar Mesa, Jamul Mountains, Otay Mountain, Lakes Hodges, and Lyons Valley. The configuration of preserve lands includes large, contiguous areas of habitat supporting important species populations or habitat areas and important functional linkages and movement corridors between them.

The Program area contains areas mapped as MHPA under the City's SAP, and several of the dam sites are located within biological core linkage areas (BCLA), including Black Mountain Dam, Hodges Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam (City 1998). These BCLAs represent areas that contain a high concentration of sensitive biological resources and function as local and regional wildlife movement corridors and linkages. They contain native habitats that support sensitive species, such as CAGN, and facilitate movement and dispersal of birds, small mammals and herpetofauna, and other medium- to large-sized wildlife throughout the region. Furthermore, the dam sites are located along major stream courses such as the Cottonwood Creek, San Dieguito River, San Diego River, and Otay River. The reservoirs, in conjunction with these intermittent to perennial streams, provide a year-round water source for wildlife and an overwintering habitat for waterfowl and other wildlife. The majority of the Program area is located within regional and local movement corridors and linkages, including Barrett Dam, Black Mountain Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Sutherland Dam, Upper Otay Dam, and Dulzura Conduit.

The remaining Program facilities (Chollas Dam, Miramar Dam, Murray Dam, and Rancho Bernardo Dam) do not act as a wildlife linkage or corridor due to their urban surroundings and lack of connectivity to adjacent open space lands. However, these areas do provide islands of habitat in a highly urbanized area. Aquatic and upland habitats within the study areas, particularly those located within the MHPA, support local wildlife, including sensitive plant and animal species such as CAGN, which were detected utilizing native habitat (e.g., Diegan coastal sage scrub) at several of these areas. Although much of the land in the study areas is or has been subject to repeated disturbance and intensive recreation activities over many years, these lands continue to provide foraging and breeding habitat for several small native species of wildlife. Medium- to large-sized wildlife are generally not expected to utilize these areas due to their urban surroundings and relative isolation from other habitat and open space areas. While these areas do not function as a regional movement corridor, the identification of migrating birds, such as LBVI and yellow warbler, suggests that birds, who are less constrained by roads and development, can use these areas as a stopover location during migration, as well as for foraging and nesting.

6.0 MULTIPLE SPECIES CONSERVATION PROGRAM CONSISTENCY ANALYSIS

Projects in the City are reviewed for compliance with the MSCP SAP and VPHCP guidelines and policies. The Program's consistency with the City's MSCP SAP applicable management directives, policies, and guidelines, are detailed in the following section. As noted below, the Program does not occur within or

adjacent to the VPHCP preserve areas; therefore, compliance with the VPHCP is not applicable to the project.

6.1 COMPATIBLE LAND USES – SECTION 1.4.1 OF THE MSCP

The Program is considered conditionally compatible with the biological objectives of the City's MSCP SAP (MSCP Section 1.4.1) with allowable activities within the City's MHPA because the Program contains water facilities and other essential public facilities.

6.2 MHPA GUIDELINES AND EXCLUSIONS – SECTION 1.2 OF THE MSCP

The MSCP includes specific policies and guidelines that are unique to individual MHPA areas. These guidelines are to be incorporated into the design of future projects within or adjacent to the MHPA. The Program's conformance with these guidelines is discussed below.

Urban Habitat Lands – Section 1.2.3 of the MSCP

The following Program facilities are located within or adjacent to Urban Habitat Lands of the MHPA: Chollas Dam and Murray Dam. The City's MSCP SAP does not include any specific MHPA Guidelines for Urban Habitat Lands that are applicable to these areas.

Northern Area – Section 1.2.4 of the MSCP

The following Program facilities are located within or adjacent to the Northern Area of the MHPA: Black Mountain Dam and Miramar Dam. The City's MSCP SAP does not include any specific guidelines for MHPA lands at Miramar Reservoir. The City's MSCP SAP includes one specific guideline for MHPA lands at Black Mountain Park, in which Black Mountain Dam is located:

- *Guideline C21 – If purchased by the City's Water Utilities Department for water facility uses, the development areas shown may expand slightly.*

  The City PUD constructed Black Mountain Dam between 2000 and 2003 thereby expanding the development area of MHPA lands that overlap this area.

Cornerstone Lands and San Pasqual Valley – Section 1.2.5 of the MSCP

The following Program facilities are located within or adjacent to Cornerstone Lands of the MHPA: Hodges Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam. The City's MSCP SAP does not include any specific guidelines for Cornerstone Lands. Alternatively, certain areas have been excluded from the MHPA in order to provide for current and future requirements of the City PUD (the property owner) and the San Diego County Water Authority (CWA). These requirements relate to either the City's known Capital Improvement Program projects, the City's proposed reservoir management program, or the CWA's Emergency Storage Project.

The following areas/facilities within the Program area have been excluded from the MHPA:

Hodges Reservoir

- Where owned by the City, the area of the existing Hodges Reservoir and dam, including the shoreline area within 300 feet horizontally from the high water level for water elevation of the spillway (315 feet above mean sea level), for water quality protection;
- Existing boating and recreation facilities (located within active park use areas);
- All existing and proposed access and service roads;

Otay Lakes

- Existing Otay Water Treatment Plant and proposed expansion (approximately five acres – the treatment plant was expanded in the early 2000s);
- A 50-foot right-of-way (approximately 23 acres) for pipelines within the eastern edge of the Otay Lakes Cornerstone Lands (right-of-way to be aligned approximately along the south and east side of Lower Otay Lake);
- Existing Lower Otay Reservoir boat launching facilities and associated recreation facilities;
- Where owned by the City, the area of Lower Otay Lake and dam, including the shoreline area within 300 feet horizontally from the high water level, water elevation of the spillway with gates closed at 490.7 feet, for water quality protection;
- Area of Upper Otay Lake and dam (i.e., the area enclosed by the 550-foot contour) and the shoreline area within 300 feet horizontally from the 550-foot contour;
- Existing County Park leased from the City;
- Existing and proposed Olympic Training Center boat facilities;
- All existing access and service roads and existing lake recreation facilities.

San Vicente Reservoir

- Area of the existing San Vicente Reservoir and dam, within 300 feet horizontally from the ultimate high water level;
- All permanent impact areas related to the CWA's proposed staging areas, tunnel portals, permanent access roads, relocated roads, and interconnection facilities associated with reservoir expansion and pipeline and pump station construction (approximately 88 acres);
- Right-of-way of the existing CWA bypass pipeline;
- Area for the proposed pump station (approximately 5 acres) at the bottom of the dam;
- Right-of-way for a pipeline from the terminus of the existing Sutherland/San Vicente pipeline to San Vicente Reservoir, aligned along San Vicente Creek (approximately eight acres);
- Area below the dam for the proposed sand and rock mining operation for aggregate materials for the dam expansion (approximately 33 acres, 5,000 feet wide by 2,800 feet long);

- Right-of-way for the proposed reclaimed water pipeline from the North City Wastewater Treatment Plant into the reservoir (approximately three acres);
- Existing employee residences;
- Area sufficient for new boat launch and recreation facilities (ten acres) and access road from Highway 67 above the high water line of the proposed expanded reservoir (i.e., above elevation 800 feet);
- All existing access and service roads, lake recreation facilities, and similar or proposed facilities associated with the CWA's Emergency Storage Project.

6.3 GENERAL PLANNING POLICIES AND DESIGN GUIDELINES – SECTION 1.4.2 OF THE MSCP

The MSCP establishes specific guidelines that limit activities that occur within the MHPA. In general, activities occurring within the MHPA must conform to these guidelines and, wherever feasible, should be located in the least sensitive areas. Utility lines (e.g., sewer, water, etc.), limited water facilities, and other essential public facilities in compliance with policies found in Section 1.4.2 of the City's MSCP SAP are considered conditionally compatible with the biological objectives of the MSCP and are thus allowed within the City's MHPA.

The Program's conformance with the applicable policies and guidelines from Section 1.4.2 of the MSCP are discussed below. The Program does not include mining or extraction; thus, no further discussion is provided for these topics.

Roads and Utilities – Construction and Maintenance Policies

- *All proposed utility lines (e.g., sewer, water, etc.) should be designed to avoid or minimize intrusion into the MHPA. These facilities should be routed through developed or developing areas rather than the MHPA, where possible. If no other routing is feasible, then the lines should follow previously existing roads, easements, rights-of-way and disturbed areas, minimizing habitat fragmentation.*

  No utility lines are proposed within the MHPA; therefore, the Program is consistent with this guideline.

- *All new development for utilities and facilities within or crossing the MHPA shall be planned, designed, located, and constructed to minimize environmental impacts. All such activities must avoid disturbing the habitat of MSCP covered species, and wetlands. If avoidance is infeasible, mitigation will be required.*

  The Program is limited to the long-term, routine maintenance of existing infrastructure and facilities and does not propose the new development of utilities or additional facilities; therefore, the Program is consistent with this guideline.

- *Temporary construction areas and roads, staging areas, or permanent access roads must not disturb existing habitat unless determined to be unavoidable. All such activities must occur on existing agricultural lands or in other disturbed areas rather than in habitat. If temporary habitat disturbance is unavoidable, then restoration of, and/or mitigation for, the disturbed area after project completion will be required.*

  The Program will utilize existing access roads, trails, and footpaths to access the dam, and associated infrastructure and temporary work areas. No temporary widening of existing access features is proposed as part of the Program. Existing parking lots, staging and material storage areas, and disturbed areas will be utilized for staging areas. Unavoidable impacts to sensitive biological resources associated with routine maintenance activities shall be mitigated in accordance with the City's Biology Guidelines and MSCP SAP as detailed in Section 8.0. Any temporary impacts that may occur within the MHPA during future maintenance activities will be restored following the completion of activities.

- *Construction and maintenance activities in wildlife corridors must avoid significant disruption of corridor usage. Environmental documents and mitigation monitoring and reporting programs covering such development must clearly specify how this will be achieved, and construction plans must contain all the pertinent information and be readily available to crews in the field. Training of construction crews and field workers must be conducted to ensure that all conditions are met. A responsible party must be specified.*

  The Program consists of the long-term, routine maintenance of existing dams and associated infrastructure. Several of these facilities are located within BCLAs and the MHPA, located within existing wildlife habitat linkage and movement corridors. Maintenance activities could temporarily impact the use of corridors due to the presence of machinery, human activity, and construction noise. However, disruptions are expected to be short in duration as maintenance activities would be conducted during a limited period of time (typically less than one week). Wildlife may temporarily avoid portions of the corridor that occur adjacent to the maintenance areas when work activities are occurring but would be expected to move back into the area once work is completed; thus, the maintenance activities are not expected to result in significant disruptions. Maintenance activities conducted under the Program are expected to occur during daylight hours when wildlife movement is limited and will adhere to the MHPA LUAGs as detailed below. If maintenance must occur at night, artificial lighting would be shielded and directed down.

- *Maintenance activities would follow the protocols established under the Program to avoid and minimize impacts to sensitive resources. Standard protection requirements provided as conditions of approval would also be implemented, such as biological monitoring and environmental training. Roads in the MHPA will be limited to those identified in Community Plan Circulation Elements, collector streets essential for area circulation, and necessary maintenance/emergency access roads. Local streets should not cross the MHPA except where needed to access isolated development areas.*

  The Program does not propose the construction of new roads within the MHPA. Program activities within the MHPA are restricted to existing facilities, access paths, and roads, minimizing intrusion and disturbance within the MHPA.

- *Development of roads in canyon bottoms should be avoided whenever feasible. If an alternative location outside the MHPA is not feasible, then the road must be designed to cross the shortest length possible of the MHPA in order to minimize impacts and fragmentation of sensitive species and habitat. If roads cross the MHPA, they should provide for fully-functional wildlife movement capability. Bridges are the preferred method of providing for movement, although culverts in selected locations may be acceptable. Fencing, grading and plant cover should be provided where needed to protect and shield animals, and guide them away from roads to appropriate crossings.*

  The Program does not propose the construction of new roads within the MHPA; therefore, the Program is consistent with this guideline.

- *Where possible, roads within the MHPA should be narrowed from existing design standards to minimize habitat fragmentation and disruption of wildlife movement and breeding areas. Roads must be located in lower quality habitat or disturbed areas to the extent possible.*

  The Program does not propose the construction of new roads within the MHPA; therefore, the Program is consistent with this guideline.

- *For the most part, existing roads and utility lines are considered a compatible use within the MHPA and therefore will be maintained. Exceptions may occur where underutilized or duplicative road systems are determined not to be necessary as identified in the Framework Management Section 1.5.*

  Existing access roads and trails are compatible for use within the MHPA, and maintenance of such roads is a covered maintenance activity.

Fencing, Lighting, and Signage

- *Fencing or other barriers will be used where it is determined to be the best method to achieve conservation goals and adjacent to land uses incompatible with the MHPA. For example, use chain link or cattle wire to direct wildlife to appropriate corridor crossings, natural rocks/boulders or split rail fencing to direct public access to appropriate locations, and chain link to provide added protection of certain sensitive species or habitats (e.g., vernal pools).*

  The dams, Dulzura Conduit, and associated infrastructure are essential public facilities that contain access gates and existing perimeter fencing, in select areas, to prevent public access from neighboring properties and open space areas. Existing access gates and fencing, portions of which occur within the MHPA, are managed and maintained by the City. Additional fencing is not proposed under the Program.

- *Lighting shall be designed to avoid intrusion into the MHPA and effects on wildlife. Lighting in areas of wildlife crossings should be of low-sodium or similar lighting. Signage will be limited to access and litter control and educational purposes.*

  No new lighting resources would be installed as part of the Program. Maintenance activities are anticipated to occur during daylight hours. However, if maintenance must occur at night, lighting would be shielded and directed down. Installation of temporary signage will be limited and will primarily be aimed at discouraging public access into the work areas during maintenance activities.

Materials Storage

- *Prohibit storage of materials (e.g., hazardous or toxic, chemicals, equipment, etc.) within the MHPA and ensure appropriate storage per applicable regulations in any areas that may impact the MHPA, especially due to potential leakage.*

  Long-term materials storage (e.g., hazardous or toxic, chemicals, equipment, etc.) will not occur within the MHPA. Storage may occur, if necessary, temporarily during maintenance activities, pursuant to applicable regulations, and only within designated staging areas. Best management practices will be used, as needed, to protect habitat within the MHPA.

Flood Control

- *Flood control should generally be limited to existing agreements with resource agencies unless demonstrated to be needed based on a cost benefit analysis and pursuant to a restoration plan. Floodplains within the MHPA, and upstream from the MHPA if feasible, should remain in a natural condition and configuration in order to allow for the ecological, geological, hydrological, and other natural processes to remain or be restored.*

  The Program is limited to the routine maintenance of existing infrastructure and facilities and does not propose maintenance of floodways or floodplains; therefore, the Program is consistent with this guideline. Operation of the dams and reservoirs will continue to be conducted pursuant to existing agreements and regulations.

- *No berming, channelization, or man-made constraints or barriers to creek, tributary, or river flows should be allowed in any floodplain within the MHPA unless reviewed by all appropriate agencies, and adequately mitigated. Review must include impacts to upstream and downstream habitats, flood flow volumes, velocities and configurations, water availability, and changes to the water table level.*

  The Program is limited to the routine maintenance of existing infrastructure and facilities to prevent deterioration and failure of critical infrastructure pursuant to DSOD requirements and recommendations. The Program does not propose additional berming, channelization, or barriers to existing creeks, rivers, and drainages beyond those that are currently in place. The City will obtain the appropriate regulatory permits with the appropriate agencies prior to the commencement of maintenance activities that would result in impacts to jurisdictional waters and wetlands. Compensatory mitigation for impacts to waters and wetlands subject to the jurisdiction of the Regulatory Agencies (USACE, RWQCB, and CDFW) will be completed in accordance with the appropriate permits and applicable requirements.

- *No riprap, concrete, or other unnatural material shall be used to stabilize river, creek, tributary, and channel banks within the MHPA. River, stream, and channel banks shall be natural, and stabilized where necessary with willows and other appropriate native plantings. Rock gabions may be used where necessary to dissipate flows and should incorporate design features to ensure wildlife movement.*

  The Program is limited to the routine maintenance of existing infrastructure and facilities to prevent deterioration and failure of critical infrastructure pursuant to DSOD requirements and recommendations. Existing riprap, concrete, and creek stabilization structures shall be maintained in

their current condition. The Program does not propose construction or expansion of current facilities beyond those currently in place. Therefore, the Program is consistent with this guideline.

6.4 LAND USE ADJACENCY GUIDELINES – SECTION 1.4.3 OF THE MSCP

The City's MSCP SAP (City 1997) addresses indirect impacts to preserve areas from adjacent development in Section 1.4.3, LUAGs. The LUAGs provide requirements for land uses adjacent to the habitat preserve in order to minimize indirect impacts from drainage, toxics, lighting, noise, barriers, invasive species, brush management, and grading to the sensitive resources contained therein. Projects that are within or adjacent to the MHPA must demonstrate compliance with the LUAGs.

Portions of the Program area are located within and adjacent to the MHPA. The Program's compliance with the City's LUAGs is summarized below:

Drainage

- *All new and proposed parking lots and development areas in and adjacent to the preserve must not drain directly into the MHPA.*

  The Program is limited to the routine maintenance of existing infrastructure and does not propose the creation of any parking lots or new developed areas that would drain directly into the MHPA.

- *All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the MHPA.*

  The Program is limited to the routine maintenance of existing infrastructure and does not include the construction of newly developed or paved areas. Best Management Practices (BMPs) would be implemented during Program activities, as necessary, in order to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, and other elements into the MHPA. Furthermore, the Program would strictly prohibit and would not introduce exotic plant materials into any restoration or revegetation area that could drain into the MHPA. With the incorporation of BMPs and restrictions, the Program would not degrade or harm the natural environment or ecosystem processes within the MHPA.

Toxins

- *Land uses, such as recreation and agriculture, that use chemicals or generate by-products such as manure, that are potentially toxic or harmful to wildlife, sensitive species, habitat, or water quality need to incorporate measures to reduce impacts caused by the application and/or drainage of such materials into the MHPA.*

  The Program does not involve agriculture or the creation of recreational areas, such as playing fields, or any other uses that would introduce new toxins, chemicals, or by-products within the MHPA.

Lighting

- *Lighting of all developed areas adjacent to the MHPA should be directed away from the MHPA. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the MHPA and sensitive species from night lighting.*

  No new lighting sources would be installed as part of the Program. Maintenance activities are anticipated to take place during daylight hours. However, if night work must occur during Program activities, any artificial lighting required to complete activities would be shielded and directed down or away from the MHPA to protect resources in the MHPA from artificial night lighting.

Noise

- *Uses in or adjacent to the MHPA must be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas, recreational areas, and any other use that may introduce noises that could impact or interfere with wildlife utilization of the MHPA.*

  Temporary noise generated during the implementation of maintenance activities that require the use of heavy equipment (e.g., road maintenance, vegetation clearing, dredging, and spillway clearing) could adversely and temporarily impact local wildlife potentially present within the adjacent MHPA. Wildlife would be expected to temporarily avoid portions of the MHPA that occur adjacent to the maintenance areas, but the work is not expected to interfere with the overall use of the MHPA based on the small maintenance footprints and extensive open space areas surrounding these facilities (both within and outside of the MHPA) that would remain undisturbed and available for use. The Program would not result in an adverse noise impact on wildlife use of the MHPA area.

- *Excessively noisy uses or activities adjacent to breeding areas must incorporate noise reduction measures and be curtailed during the breeding season of sensitive species. Adequate noise reduction measures should also be incorporated for the remainder of the year.*

  Temporary noise generated during the implementation of maintenance activities that require the use of heavy equipment (e.g., road maintenance, vegetation clearing, dredging, and spillway clearing) could adversely and temporarily impact sensitive avian species, such as CAGN, LBVI, and SWFL, if activities were to occur within or adjacent to occupied habitat during the species' breeding season (which is defined by the City as March 1 to August 15 for CAGN; March 15 through September 15 for LBVI; and May 1 through August 30 for SWFL). To comply with the City's LUAGs and avoid potential indirect impacts to these species in the MHPA, maintenance activities requiring heavy machinery within or adjacent to the MHPA will be implemented outside of the CAGN, LBVI, and SWFL breeding seasons where possible.

  If maintenance activities requiring heavy machinery within or adjacent to the MHPA are unable to be avoided during the breeding season for CAGN, LBVI and SWFL, USFWS protocol surveys would be conducted in suitable habitat prior to the implementation of such activities to determine species presence/absence. If protocol surveys are not conducted, the presence of the species would be assumed, and the implementation of noise attenuation and biological monitoring would be required during the respective breeding seasons for CAGN/LBVI/SWFL if construction would generate noise levels higher than 60 decibels (dBA) hourly average (L_{EQ}) or ambient (whichever is higher). The

Program would also be required to implement standard protection requirements provided as conditions of approval that would ensure conformance with this policy. Furthermore, the implementation of species-specific mitigation measures for LBVI and SWFL presented in Section 8.0 would ensure that no significant and adverse indirect noise impacts on breeding LBVI or SWFL within the MHPA occur.

Barriers

- *New development adjacent to the MHPA may be required to provide barriers (e.g., non-invasive vegetation, rocks/boulders, fences, walls, and/or signage) along MHPA boundaries to direct public access to appropriate locations and reduce domestic animal predation.*

  This guideline is not applicable as the Program would not include any new development within or adjacent to the MHPA. Existing infrastructure, facilities, staging areas, access roads, and footpaths would be maintained in their current, as-built conditions. Minor improvements would only be completed to prevent deterioration or failure of critical infrastructure, and would not involve the creation or expansion of the dams, Dulzura Conduit, associated infrastructure, or access roads. There would be no intrusion into the MHPA beyond the existing developed and disturbed areas. New barriers are not proposed, as existing perimeter or protective fencing and access to the Program area, are restricted and controlled.

Invasive Species

- *No invasive non-native plant species shall be introduced into areas adjacent to the MHPA.*

  The Program would not result in the introduction of non-native species into native habitats. Implementation of appropriate BMPs during maintenance activities would include measures to avoid the introduction of invasive plants into the Program area by equipment. No landscaping is proposed that would introduce non-native invasive species into the MHPA. Any restoration or revegetation activities that may occur as part of the Program, within or adjacent to the MHPA, would prohibit the use of invasive species (Cal-IPC 2021).

Brush Management

- *New residential development located adjacent to and topographically above the MHPA (e.g., along canyon edges) must be set back from slope edges to incorporate Zone 1 brush management areas on the development pad and outside of the MHPA. Zones 2 and 3 will be combined into one zone (Zone 2) and may be located in the MHPA upon granting of an easement to the City (or other acceptable agency) except where narrow wildlife corridors require it to be located outside of the MHPA.*

  This is not applicable as the Program does not include any new residential development or brush management.

Grading/Land Development

- *Manufactured slopes associated with site development shall be included within the development footprint for projects within or adjacent to the MHPA.*

  This is not applicable as the Program does not propose the construction of manufactured slopes.

6.5 GENERAL MANAGEMENT DIRECTIVES – SECTION 1.5.2 OF THE MSCP

The following general management directives apply to the project, as outlined in Section 1.5.2 of the City's MSCP SAP (City 1997). The Program will comply with these general management directives as outlined below:

Mitigation

- *Mitigation, when required as part of project approvals, shall be performed in accordance with the City's Environmentally Sensitive Lands Ordinance and Biology Guidelines.*

  Proposed biological mitigation for the Program will be conducted in accordance with the City ESL and Biology Guidelines (City 2018) and is discussed further in Section 8.0 below. Mitigation is anticipated to consist of the allocation of available mitigation credits at existing PUD mitigation sites.

Restoration

- *Restoration or revegetation undertaken in the MHPA shall be performed in a manner acceptable to the City. Where covered species status identifies the need for reintroduction and/or increasing the population, the covered species will be included in restoration/revegetation plans, as appropriate. Restoration or revegetation proposals will be required to prepare a plan that includes elements addressing financial responsibility, site preparation, planting specifications, maintenance, monitoring and success criteria, and remediation and contingency measures. Wetland restoration/revegetation proposals are subject to permit authorization by federal and state agencies.*

  Unavoidable impacts to sensitive biological resources associated with routine maintenance activities shall be mitigated in accordance with the City's Biology Guidelines, as detailed in Section 8.0. All proposed mitigation would be subject to the approval of the City, as well as state and federal agencies, as applicable. Though no on-site restoration or revegetation is anticipated, if any areas are temporarily impacted by maintenance activities they will be restored to pre-project conditions, or a level of higher biological value, following completion of maintenance activities in accordance with an approved revegetation plan.

Public Access, Trails, and Recreation

- *Locate trails, view overlooks, and staging areas in the least sensitive areas of the MHPA.*

  Existing access roads and trails, staging and material storage areas, parking lots, and disturbed areas shall be utilized as staging areas for any equipment required to complete maintenance activities. No new trails, overlooks, or staging areas would be created under the Program.

Litter/Trash and Materials Storage

- *Prohibit permanent storage of materials (e.g., hazardous and toxic chemicals, equipment, etc.) within the MHPA and ensure appropriate storage per applicable regulations in any areas that may impact the MHPA, due to potential leakage.*

The Program would not produce litter, trash, or store hazardous materials in the MHPA. Equipment and materials required for maintenance activities shall not be permanently stored within the MHPA. Temporary staging and storing of equipment and materials during maintenance activities shall occur within existing parking lots and disturbed areas and will be removed from the area following completion of maintenance activities.

Invasive Exotics Control and Removal

- *Do not introduce invasive non-native species into the MHPA.*

  Introduction of invasive and non-native species into the MHPA is not expected to occur from the implementation of maintenance activities under the Program. The Program has been designed to incorporate and adhere to the City LUAGs, as detailed above. Appropriate BMPs would be implemented during maintenance activities that would include measures to avoid the introduction of invasive plants into the Program area by equipment. No landscaping is proposed that would introduce non-native invasive species into the MHPA. Any restoration or revegetation activities that may occur as part of the Program, within or adjacent to the MHPA, would prohibit the use of invasive species (Cal-IPC 2021).

Flood Control

- *Perform standard maintenance, such as clearing and dredging of existing flood channels, during the non-breeding or nesting season of sensitive bird or wildlife species utilizing the riparian habitat. For the least Bell's vireo, the non-breeding season generally includes mid-September through mid-March.*

  Maintenance activities under the Program that involve the clearing of riparian vegetation or dredging work that involves removal or disturbance to riparian vegetation shall occur outside of the breeding season for sensitive riparian bird species such as LBVI (March 15 through September 15) and SWFL (May 1 through August 30). If clearing or dredging of riparian vegetation must occur between March 15 to September 15, focused surveys for LBVI and SWFL would be conducted in suitable habitat prior to the work to avoid direct impacts to either species. Furthermore, the implementation of species-specific mitigation measures for LBVI and SWFL presented in Section 8.0 would ensure that no significant and adverse impacts occur to breeding LBVI or SWFL within the MHPA.

6.6 AREA SPECIFIC MANAGEMENT POLICIES AND DIRECTIVES

This section presents Area Specific Management Directives (ASMDs) from the City's MSCP SAP for each planned area of the MHPA that occurs within the Program area. Portions of the Program are located within the following MHPA Planning Areas: Urban Habitat Lands, Northern Area, Lake Hodges, and other Cornerstone Lands. The Program's conformance with the applicable ASMDs is discussed below.

Urban Habitat Lands – Section 1.5.7 of the MSCP

The following Program facilities are located within or adjacent to Urban Habitat Lands of the MHPA: Chollas Dam and Murray Dam. The City's MSCP SAP does not include any specific management policies and directives for Urban Habitat Lands.

Northern Area – Section 1.5.8 of the MSCP

The following Program facilities are located within or adjacent to the Northern Area of the MHPA: Black Mountain Dam and Miramar Dam.

Black Mountain Dam is located within the Black Mountain Park Area of the MHPA. The two directives relating to this area are listed below, along with the Program's consistency with the directives:

1. *Provide clearly marked access areas and well-demarcated trails and post signage to prevent off-trail access and use. Where sensitive or covered species are present, close trails during the breeding and nesting seasons if necessary.*

   Perimeter chain-link fencing surrounds Black Mountain Dam, and the facility is accessed via a gated paved access road from Carmel Valley Road, preventing off-trail access and use of the area. There are no public trails to or from the facilities.

2. *Regularly assess overuse of open space areas in and surrounding the park (as determined by the Park and Recreation Department). Repair trails, and restore off-trail use areas and areas affected by erosion as soon as feasible.*

   The facility is located outside of Black Mountain Open Space Park and does not include public use trails.

The City's MSCP SAP does not include any specific management policies and directives for MHPA lands at Miramar Reservoir.

Lake Hodges and the San Pasqual Valley – Section 1.5.9 of the MSCP

The following Program facilities are located within or adjacent to the Lake Hodges/San Pasqual Valley area of the MHPA: Hodges Dam. The six Priority 1 directives and two Prior 2 directives relating to the area west of Interstate 15 are listed below, along with the Program's consistency with the directives:

Priority 1:

1. *Due to the topography and sensitivity of the south side of Lake Hodges, restrict public use of the steep slopes. Any trail system developed on the south side of the lake should use the existing utility road and minimize impacts on sensitive resources. Provide signage identifying appropriate trails and take necessary measures to protect habitat and direct access to approved use areas.*

   No new trails would be created under the Program. There are multiple access gates and signage along the access roads to Hodges Dam restricting public use of the area. Existing trails, access gates and fencing (where present), and signage will continue to be maintained by City PUD and Parks and Recreation Department.

2. *Direct public access to identified trails through the coastal sage scrub and habitat areas within the Bernardo Bay and Piedras Pintadas area of the Rancho Bernardo community, located west of the Rancho Bernardo Community Park and Water Department facility and north of the Westwood Community. Provide signage in several locations to interpret the importance of this area for the gnatcatcher and other covered species (in addition to the cultural resources*

interpretation), and to deter off-trail use. Clearly mark all trails and keep well maintained to discourage off trail use and to control erosion. Trail fencing or other aesthetic barriers should be installed when security and/or protection of sensitive resources is required. A patrol of the area may be necessary to monitor off-trail use and illegal dumping.

This directive is not applicable to the Program as facilities covered under the Program are located outside of the specified areas.

3. *Manage public use of mitigation lands on the slopes north of the reservoir in a manner consistent with the habitat function and mitigation requirements. Split rail or wire fencing may be constructed adjacent to the roadside and public areas to accommodate wildlife movement.*

   This directive is not applicable to the Program as facilities covered under the Program are located outside of the specified area.

4. *Direct public access to authorized trails with signage and barriers.*

   There are multiple access gates and signage along the access roads to Hodges Dam, restricting public use of the area. Existing trails, access gates and fencing (where present), and signage will continue to be maintained by City PUD and Parks and Recreation Department.

5. *Regularly monitor and maintain the shores and uplands of Lake Hodges for litter and exotic invasive plant species, and off-trail use including motorized vehicle activity. Remove and dispose of the litter and invasive plants as soon as possible.*

   City PUD and Parks and Recreation Department currently perform routine maintenance of existing recreational and public facilities at Hodges Reservoir. Typical management activities regular patrolling; removal of trash and other refuse; maintenance of existing facilities, access roads, and public use trails; and vegetation management. Implementation of the Program would not interfere with or otherwise disrupt these activities.

6. *Utilize the existing fire maintenance road along the north shore of the reservoir as the trail system, and avoid cutting new trails through native habitats, especially between the marina area and I-15.*

   No new trails, overlooks, or staging areas would be created under the Program. Access to the Program facilities would occur via existing access roads and trails.

Priority 2:

1. *Use non-impactive erosion control methods (e.g., mulching with noninvasive plant materials) as necessary to repair areas experiencing erosion. Reseed and restore these areas as soon as feasible.*

   Appropriate BMPs would be implemented during maintenance activities that would include measures to avoid the introduction of invasive plants into the Program area. Any areas temporarily impacted by maintenance activities will be restored to pre-project conditions, or a level of higher biological value, following completion of maintenance activities. All proposed revegetation would be subject to approval of the City as well as state and federal agencies, as

applicable.

2. *Over the long term, replace non-native trees and shrubbery along the access road leading from Del Dios to the marina on the north side of Lake Hodges with native vegetation, including coastal sage scrub, native grasslands, and riparian and oak woodlands, in order to provide habitat and encourage wildlife movement between the slopes north of the road and the reservoir.*

   This directive is not applicable to the Program as facilities covered under the Program are located outside of the specified area.

6.6.1 Other Cornerstone Lands – Section 1.5.10 of the MSCP

The following Program facilities are located within or adjacent to Cornerstone Lands of the MHPA: Hodges Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam. The City's MSCP SAP does not include any specific management policies and directives for Cornerstone Lands. These lands are currently maintained and managed by the City (PUD and Parks and Recreation Department) in accordance with the MSCP. Typical management activities conducted at the reservoirs include, but are not limited to, the following:

- Patrolling for debris and dump sites with removal to landfills or on-site disposal/storage.
- Patrolling for pollution/nuisance type activities and for public protection.
- Brush management for fire protection of PUD facilities.
- Private property, road, trail, and parking lot maintenance.
- Maintenance of weather monitoring stations.
- Access for watershed surveys, management, and monitoring.
- Field reviews for construction plan checks of other agencies and developers on properties adjacent to City property.
- Maintenance around reservoir keepers' residences, water wells, and waste disposal facilities.
- Maintenance of leach fields servicing water treatment plants, public parks and recreational facilities.
- Maintenance of public pedestrian access, hiking, and bicycling paths, horse trails, fishing, and hunting as permitted by the City.
- Maintenance and operation of groundwater recharge, extraction, and conveyance facilities.
- Maintenance and operation of flood control and surface water conservation facilities.
- Maintenance and monitoring of siltation and erosion control facilities, water quality control basins, diversion ditches, and other facilities.
- Operation and maintenance of existing water and sewer pipeline and pump station facilities across reservoir properties.
- Maintenance of utility access roads.
- Access for land management of easements and leases of PUD-owned properties.

- Vegetation control immediately around dams for dam safety.

6.7 CONDITIONS OF COVERAGE FOR COVERED SPECIES

A total of 16 MSCP-covered species were observed within the Program area, and an additional 12 MSCP-covered species were determined to have a high potential to occur, as follows:

- Plants:
  - Observed (3): San Diego goldenstar, San Diego barrel cactus, and wart-stemmed ceanothus;
  - High Potential to Occur (9): San Diego ambrosia, thread-leaved brodiaea, Orcutt's brodiaea, Dunn's mariposa lily, slender-pod jewelflower, Lakeside ceanothus, San Miguel savory, variegated dudleya, and small-leaved rose;

- Invertebrates: None

- Amphibians:
  - Observed (1): ARTO

- Reptiles:
  - Observed (2): Belding's orange-throated whiptail and Blainville's (San Diego) horned lizard

- Birds:
  - Observed (9): bald eagle, Canada goose, coastal cactus wren, CAGN, Cooper's hawk, LBVI, peregrine falcon, southern California rufous-crowned sparrow, and western bluebird.
  - High Potential to Occur (2): golden eagle and northern harrier

- Mammals:
  - Observed (1): mule deer
  - High Potential to Occur (1): mountain lion

The MSCP includes conditions for coverage for these species. Each of these species is listed below along with a summary of the MSCP conditions of coverage and the Program's consistency with these conditions. Subsequent project-level review will require additional project site and species-specific analysis to ensure project conformance with conditions of coverage.

San Diego Goldenstar

- *Area specific management directives must include monitoring of transplanted populations, and specific measures to protect against detrimental edge effects to this species.*

  Implementation of the Program would not impact this species as it was observed outside of the maintenance footprint; thus, no impacts are anticipated to occur to the species, and no transplantation is expected. If the species was found to occur within the maintenance footprint in the future, project-level analysis for maintenance activities would include the implementation of appropriate mitigation measures (including transplantation or planting of the species) if impacts to the species could not be avoided as described in Section 8.0. The maintenance and operation of existing facilities (i.e., dams, Dulzura Conduit, and associated infrastructure) already result in numerous areas of interface between development and adjacent habitats in the MHPA that

contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area.

San Diego Barrel Cactus

- *Area specific management directives must include measures to protect this species from edge effects, unauthorized collection, and include appropriate fire management/control practices to protect against a too frequent fire cycle.*

  Maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area. Areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which includes regular patrolling and limiting public access in the MHPA (i.e., fencing along trails and appropriate signage), thus guarding against the unauthorized collection of this species and reducing the risk of unauthorized fires.

Wart-stemmed Ceanothus

- *Revegetation efforts within appropriate habitats must include restoration of this species. Area specific management directives for the protected populations must include specific measures to increase populations. Area specific management directives must include specific management measures to address the autecology and natural history of the species and to reduce the risk of catastrophic fire. Management measures to accomplish this may include prescribed fire. Any newly found populations should be evaluated for inclusion in the preserve strategy through acquisition, like exchange, etc.*

  Implementation of the Program would not impact this species as it was observed outside of the maintenance footprint. If the species was found to occur within the maintenance footprint in the future, project-level analysis for maintenance activities would include implementation of appropriate mitigation measures (including transplantation or planting of the species) if impacts to the species could not be avoided as described in Section 8.0). Areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which include measures to reduce the risk of unauthorized fires (such as regular patrolling, fencing along trails, and appropriate signage). No prescribed fires would be implemented under the Program as these areas are located within existing preserves that abut, or are in close proximity to, residential housing that would create a risk to private property and human safety.

Thread-leaved Brodiaea

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that 88 percent of the vernal pool habitat and 38 percent of grassland habitat that are potential habitat for this species would be conserved. Thread-leaved brodiaea was determined to have a high potential to occur only at one location: Black Mountain Dam. However, no vernal pools were

mapped within the study area, and no thread-leaved brodiaea were documented during rare plant surveys for the Program. As such, no impacts are anticipated to occur to this species. If the species was found to occur within the maintenance footprint in the future, project-level analysis for maintenance activities would include implementation of appropriate mitigation measures (including translocation or plantings) if impacts to the species could not be avoided as described in Section 8.0); therefore, the Program is consistent with the MSCP.

Orcutt's Brodiaea

- *Area specific management directives must include specific measures to protect against detrimental edge effects.*

  Orcutt's brodiaea was determined to have a high potential to occur at five locations: El Capitan Dam, Hodges Dam, San Vicente Dam, Savage Dam, and Upper Otay Dam. However, the species was not observed during biological surveys conducted for the Program, and no impacts are anticipated to occur to this species. As previously stated, the maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area.

Dunn's Mariposa Lily

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that 100 percent of the major populations would be conserved. The Program does not occur near any of the major populations of Dunn's mariposa lily; therefore, the Program is consistent with the MSCP. Dunn's mariposa lily was determined to have a high potential to occur at five locations: Barrett Dam, El Capitan Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit. However, the species was not observed during biological surveys conducted for the Program, and no impacts are anticipated to occur to this species. If the species was found to occur within the maintenance footprint in the future, project-level analysis for maintenance activities would include the implementation of appropriate mitigation measures (including translocation or plantings) if impacts to the species could not be avoided as described in Section 8.0).

Slender-pod Jewelflower

- *Area specific management directives must include specific management measures to address the autecology and natural history of the species and to reduce the risk of catastrophic fire. Management measures to accomplish this may include prescribed fire.*

  Slender-pod jewelflower was determined to have high potential to occur at eight locations: Barrett Dam, El Capitan Dam, Hodges Dam, Morena Dam, San Vicente Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit. However, the species was not observed during biological surveys conducted for the Program, and no impacts are anticipated to occur to this species. As stated above, areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which includes fire management and control measures to reduce the risk of unauthorized fires (such as regular patrolling, fencing along trails, and appropriate signage).

No prescribed fires would be implemented under the Program as these areas are located within existing preserves that abut, or are in close proximity to, residential housing that would create a risk to private property and human safety.

Lakeside Ceanothus

- *Area specific management directives must include specific management measures to address the autecology and natural history of the species and to reduce the risk of catastrophic fire. Management measures to accomplish this may include prescribed fire.*

  Lakeside ceanothus was determined to have a high potential to occur at two locations: El Capitan Dam and San Vicente Dam. However, the species was not observed during biological surveys conducted for the Program, and no impacts are anticipated to occur to this species. As stated above, areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which includes fire management and control measures to reduce the risk of unauthorized fires (such as regular patrolling, fencing along trails, and appropriate signage). No prescribed fires would be implemented under the Program as these areas are located within existing preserves that abut, or are in close proximity to, residential housing that would create a risk to private property and human safety.

San Miguel Savory

- *Area specific management directives must include specific management measures to address the autecology and natural history of the species and to reduce the risk of catastrophic fire. Management measures to accomplish this may include prescribed fire.*

  San Miguel savory was determined to have a high potential to occur at three locations: San Vicente Dam, Savage Dam, and Upper Otay Dam. However, the species was not observed during biological surveys conducted for the Program, and no impacts are anticipated to occur to this species. As stated above, areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which measures to reduce the risk of unauthorized fires (such as regular patrolling, fencing along trails, and appropriate signage). No prescribed fires would be implemented under the Program as these areas are located within existing preserves that abut, or are in close proximity to, residential housing that would create a risk to private property and human safety.

Variegated Dudleya

- *Area specific management directives must include species-specific monitoring and specific measures to protect against detrimental edge effects to this species, including effects caused by recreational activities*.

  Variegated dudleya was determined to have a high potential to occur at one location: Black Mountain Dam. However, the species was not observed during biological surveys conducted for the Program, and no impacts are anticipated to occur to this species. As previously stated, the maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing

facilities. As such, the implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area. Areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP. This includes limiting public access in the MHPA (i.e., fencing along trails and appropriate signage), thus protecting the species from recreational activities that occur within the MHPA, and species-specific monitoring where populations are present, though this species was not detected within the Program area during the 2020 biological surveys.

Small-leaved Rose

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that the only known occurrence on Otay Mesa near Dennery Canyon would be conserved. The species has been reported to occur within the Otay Ranch Preserve, over one mile east of Savage Dam (Dudek 2010). These individuals would continue to be conserved within the Preserve, which is managed by the County of San Diego and the City of Chula Vista. Small-leaved rose was determined to have a high potential to occur at two locations, Savage Dam and Upper Otay Dam, though the species was not documented during rare plant surveys conducted for the Program. As such, no impacts are anticipated to occur to this species. If the species was found to occur within the maintenance footprint in the future, project-level analysis for maintenance activities would include the implementation of appropriate mitigation measures (including plantings) if impacts to the species could not be avoided as described in Section 8.0); therefore, the Program is consistent with the MSCP.

Arroyo Toad

- *Area specific management directives must address the maintenance of Arroyo toad through control of non-native predators, protection and maintenance of sufficient suitable low gradient sandy stream habitat (including appropriate water quality) to meet breeding requirements, and preservation of sheltering and foraging habitat within 1 km of occupied breeding habitat within preserved lands. Area specific management directives must include measures to control human impacts to the species within the preserve (e.g., public education, patrol, etc.).*

  Implementation of the Program would be limited to maintenance of existing infrastructure and would not involve the construction or expansion of additional facilities. Low-gradient sandy stream habitat was not detected within any of the ARTO survey areas, and proposed maintenance at the dam sites is not expected to impact any suitable breeding habitat, based either on the absence of such areas or avoidance of adjacent suitable breeding habitat. The Program would reduce potential impacts to the species through avoidance of maintenance activities during the arroyo toad breeding season where possible. Standard protection requirements provided as conditions of approval would also be implemented, such as biological monitoring and environmental training, ensuring conformance with this policy. Furthermore, the implementation of species-specific mitigation measures for ARTO presented in Section 8.0 would ensure that no significant and adverse impacts occur to ARTO within the MHPA.

  Program areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which include measures to control non-native predator populations and control human impacts within the preserve (i.e., regular patrolling, fencing along trails, and appropriate signage).

Belding's Orange-Throated Whiptail

- *Area specific management directives must address potential edge effects.*

  As previously stated, the maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, the implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area.

Blainville's (San Diego) Horned Lizard

- *Area specific management directives must include specific measures to maintain native ant species, discourage the Argentine ant, and protect against detrimental edge effects to this species.*

  Maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, the implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area. Container plants or other plant materials brought on-site for restoration or revegetation activities would be inspected by the landscape specialist/biologist prior to installation for the presence of Argentine ants (*Linepithema humile*), diseases, weeds, and other pests. Plants or planting materials containing pests, weeds, or diseases would not be installed. Further, areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP.

Bald Eagle

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that 89 percent of its potential foraging habitat (5,719 acres of wetlands) would be conserved, and impacts to wetlands would be subject to no net loss of functions and values. The Program would impact wetland habitat, but would mitigate for those impacts in accordance with the City's Biology Guidelines; therefore, the Program is consistent with the MSCP.

Canada Goose

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that 8,200+ acres of its potential habitat would be conserved, and impacts to wetlands would be subject to no net loss requirements. The Program would impact wetland habitat but would mitigate for those impacts in accordance with the City's Biology Guidelines; therefore, the Program is consistent with the MSCP.

Coastal Cactus Wren

- *Area specific management directives must include restoration of maritime succulent scrub habitat, including propagation of cactus patches, active/adaptive management of cactus wren habitat, monitoring of populations within preserves and specific measures to reduce or eliminate detrimental*

edge effects. No clearing of occupied habitat may occur from the period February 15 through August 15.

Implementation of the Program would not result in impacts to maritime succulent scrub habitat as this habitat type was not mapped within the Program area. Therefore, restoration of this habitat type within the Program area is not proposed or anticipated to occur as part of Program activities. Maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, the implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area.

To ensure conformance with the MSCP and avoid potential direct and indirect impacts to sensitive avian species, maintenance activities within or adjacent to the MHPA will be implemented outside of the bird breeding season where possible. However, if activities are unable to be avoided during the breeding season, pre-construction nesting surveys would be conducted in suitable habitat prior to the implementation of such activities to determine the presence/absence. If active nests are detected, the Program would implement the appropriate nest avoidance buffers. The Program would also be required to implement standard protection requirements provided as conditions of approval that would ensure conformance with this policy.

Program areas within the MHPA will also continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, including management and monitoring of coastal cactus wren habitat and populations, where present.

Coastal California Gnatcatcher

- *Area specific management directives must include measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. Additionally, no clearing of occupied habitat within the City MHPA or County's Biological Core Resource Areas between March 1 and August 15.*

  Maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, the implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area.

  To ensure conformance with the MSCP and avoid potential direct and indirect impacts to coastal California gnatcatcher, maintenance activities within or adjacent to the MHPA will be implemented outside of the gnatcatcher breeding season where possible. However, if activities are unable to be avoided during the breeding season, protocol surveys would be conducted in suitable habitat prior to the implementation of such activities to determine the presence/absence. If gnatcatchers are detected nesting within 300 feet of the maintenance footprint, the Program would implement the appropriate nest avoidance buffers and noising attenuation measures (as necessary). The Program

would also be required to implement standard protection requirements provided as conditions of approval that would ensure conformance with this policy.

Program areas within the MHPA will also continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, including measures to maintain or improve the habitat quality of coastal sage scrub and protect from unplanned fire (such as regular patrolling, fencing along trails, and appropriate signage).

Cooper's Hawk

- *Area specific management directives must include 300-foot impact avoidance areas around the active nests, and minimization of disturbance in oak woodlands and oak riparian forests.*

  The Program would avoid conducting maintenance activities within or adjacent to the MHPA during the bird breeding season where possible. However, if activities are unable to be avoided during the breeding season, pre-construction nesting surveys would be conducted in suitable habitat prior to the implementation of such activities to determine the presence/absence. If any active Cooper's hawk nests are found to occur, a 300-foot construction setback would be established. Compliance with this ASMD would be required as a condition of approval.

  Proposed maintenance associated with the Program has been designed to be the minimum necessary to achieve the Program goals, thereby minimizing disturbance to oak woodlands and oak riparian forests to only those areas that are immediately adjacent to the Program facilities and subject to DSOD regulation.

Least Bell's Vireo

- *Area specific management directives must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Additionally, clearing of occupied habitat must occur between September 15 and March 15 (i.e., outside of the nesting period).*

  Maintenance and operation of existing facilities already result in numerous areas of interface between development and adjacent habitats in the Program area that contribute to potential edge effects. The Program would not create new facilities or expand existing facilities, and maintenance activities conducted under the Program would be limited to areas immediately surrounding existing facilities. As such, the implementation of the Program would not substantially add to edge effects already present in the existing condition in the Program area.

  To ensure conformance with the MSCP and avoid potential direct and indirect impacts to least Bell's vireo, maintenance activities within or adjacent to the MHPA will be implemented outside of the vireo breeding season where possible. However, if activities are unable to be avoided during the breeding season, protocol surveys would be conducted in suitable habitat prior to the implementation of such activities to determine the presence/absence. If vireos are detected nesting within 300 feet of the maintenance footprint, the Program would implement the appropriate nest avoidance buffers and noising attenuation measures (as necessary). The Program would also be required to implement standard protection requirements provided as conditions of approval that would ensure conformance with this policy. Furthermore, the implementation of species-specific mitigation measures for LBVI presented in Section 8.0 would ensure that no significant or adverse

impacts occur to breeding LBVI within the MHPA.

Program areas within the MHPA will also continue to be monitored by the City per the monitoring and management components of the MSCP SAP, including measures to maintain riparian habitat and upland buffers around all known LBVI locations and control of brown-headed cowbird (*Molothrus ater*), a nest parasite of LBVI, populations (as necessary). The Program would not create conditions attractive to cowbirds, such as the creation of pastures with horses or cattle.

Peregrine Falcon

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that more than 89,000 acres of its potential foraging habitat (southern coastal saltmarsh, saltpan, freshwater marsh, open water, natural flood channel, coastal sage scrub, and grassland) would be conserved, and impacts to wetlands would be subject to no net loss of functions and values. The Program would mitigate for impacts to sensitive vegetation communities; therefore, the Program is consistent with the MSCP.

Southern California Rufous-crowned Sparrow

- *Area specific management directives must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components.*

  Areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which include measures to maintain existing habitats within the MHPA and protect from unplanned fire (such as regular patrolling, fencing along trails, and appropriate signage). No prescribed fires would be implemented under the Program as these areas are located within existing preserves that abut, or are in close proximity to, residential housing that would create a risk to private property and human safety.

Western Bluebird

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that more than 15,000 acres of its potential habitat (oak riparian forest, oak woodland, and grassland) would be conserved, and impacts to wetlands would be subject to no net loss of functions and values. The Program would mitigate for impacts to sensitive vegetation communities; therefore, the Program is consistent with the MSCP.

Golden Eagle

- *Area specific management directives for areas with nest sites must include measures to avoid human disturbance while the nest is active, including establishing a 4,000-foot disturbance avoidance area within preserve lands. Area specific management directives must also include monitoring of nest sites to determine use/success.*

  Implementation of the Program is not expected to result in disturbance to active golden eagle nests as activities are limited to routine maintenance at the existing facilities. The Program would not result in the construction of new facilities or expansion to existing uses. All activities would occur within a small maintenance footprint that is restricted to existing structures. The Program facilities are located at reservoirs, or within open space areas, which are already subjected to recreational

use and frequent human visitation. Several of the facilities are also located within close proximity to existing developments. As such, implementation of the Program would not result in a significant human disturbance to eagle nest sites that may be located within 4,000 feet of the Program facilities. Nonetheless, the City will coordinate with the wildlife agencies to ensure that human disturbance to any known active eagle nests within 4,000 feet of the Program area (if present) are avoided.

Program areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, which includes monitoring of any known eagle nest sites.

Northern Harrier

- *Area specific management directives must: manage agricultural and disturbed lands (which become part of the preserve) within four miles of nesting habitat to provide foraging habitat; include an impact avoidance area (900 foot or maximum possible within the preserve) around active nests; and include measures of maintaining winter foraging habitat in preserve areas in Proctor Valley, around Sweetwater Reservoir, San Miguel Ranch, Otay Ranch east of Wueste Road, Lake Hodges, and San Pasqual Valley. The preserve management coordination group shall coordinate efforts to manage for wintering northern harriers' foraging habitat within the MSCP preserves*.

  The Program would avoid conducting maintenance activities within or adjacent to the MHPA during the bird breeding season where possible. However, if activities are unable to be avoided during the breeding season, pre-construction nesting surveys would be conducted in suitable habitat prior to the implementation of such activities to determine the presence/absence. If any active northern harrier nests are found to occur, a 900-foot construction setback would be established. Compliance with this ASMD would be required, as provided as conditions of approval that would ensure conformance with this policy. Program areas within the MHPA will continue to be managed by City PUD and Parks and Recreation Department in accordance with the MSCP, including measures to maintain potential foraging and wintering habitat for the species within the preserves. Maintenance activities conducted under the Program are limited to areas immediately surrounding existing facilities and would not result in the destruction or removal of substantial blocks of wintering and foraging habitat for the species. Wintering and foraging habitat within the MHPA will continue to remain available to the species.

Mule Deer

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that 81 percent of core areas (105,000+ acres) that support its habitat will be conserved. Maintenance activities conducted under the Program are limited to areas immediately surrounding existing facilities and would not result in impacts to substantial blocks of foraging habitat for the species; therefore, the Program is consistent with the MSCP.

Mountain Lion

There are no conditions for coverage for this species. The MSCP's rationale for identifying the species as covered was that 81 percent of core areas (105,000+ acres) that support its habitat will be conserved. Maintenance activities conducted under the Program are limited to areas immediately surrounding existing facilities and would not result in impacts to substantial blocks of foraging habitat for the species; therefore, the Program is consistent with the MSCP.

6.8 VERNAL POOL HABITAT CONSERVATION PLAN CONSISTENCY

The Program area does not occur within or adjacent to the VPHCP preserve areas; therefore, compliance with the VPHCP is not applicable to the project.

7.0 ANALYSIS OF PROJECT IMPACTS

This section presents a programmatic analysis of anticipated direct and indirect impacts to biological resources associated with the implementation of the Program. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts consist of secondary effects of a project, including drainage and toxins (water quality), lighting, noise, and invasive plant species. Overall, cumulative impacts are also addressed.

7.1 CRITERIA FOR DETERMINING IMPACT SIGNIFICANCE

The following guidance (Appendix I, City Biology Guidelines 2018) is used to determine the potential significance of impacts on biological resources pursuant to the City's Significance Determination Thresholds (City 2018). A project would result in a significant or potentially significant biological resource impact if it would result in:

(1) A substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in the MSCP, VPHCP, or other local or regional plans, policies or regulations, or by the CDFW or USFWS.

(2) A substantial adverse impact on any Tier I, Tier II, Tier IIIA, or Tier IIIB habitats as identified in the City's Biology Guidelines of the Land Development manual or other sensitive natural community identified in local or regional plans, policies, regulations, or considered sensitive by CDFW or USFWS.

(3) A substantial adverse impact on wetlands (including, but not limited to, marsh, vernal pool, riparian, etc.) through direct removal, filling, hydrological interruption, or other means.

(4) Interfering substantially with the movement of any native resident or migratory fish or wildlife species or with an established native resident or migratory wildlife corridors, including linkages identified in the MSCP Plan, VPHCP, or impede the use of native wildlife nursery sites.

(5) A conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan, either within the MSCP or VPHCP plan area or in the surrounding region.

(6) Introducing land use within an area adjacent to the MHPA that would result in adverse edge effects.

(7) A conflict with any local policies or ordinances protecting biological resources.

(8) An introduction of invasive species of plants into a natural open space area.

Proposed impacts resulting from the implementation of the Program are evaluated in terms of significance, and the corresponding determinations are provided below.

7.2 DIRECT IMPACTS

Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Impacts were analyzed and quantified by overlaying the proposed boundaries of maintenance activities associated with the Program onto the baseline biological maps.

7.2.1 Impacts to Vegetation Communities

Implementation of the overall Program is anticipated to result in direct impacts to 95.40 acres of habitat (Table 7, *Program Impacts to Vegetation and Land Cover Types*; Figures 14a through 14n, *Vegetation and Sensitive Biological Resources/Impacts*). These include permanent impacts to 10.90 acres of wetlands and non-wetland resources, and 19.9 acres of Tier I, II, IIIA, and IIIB sensitive uplands. The remaining 64.6 acres of permanent impacts would be to non-sensitive Tier IV uplands and developed land. Impacts to wetland habitat (with the exception of arundo-dominated riparian) and sensitive uplands would be considered significant and would require mitigation at ratios prescribed by the City's Biology Guidelines (2018). Impacts to arundo-dominated riparian habitat would be limited to the removal of a monotypic stand of giant reed at the Dulzura Conduit and would not involve grading or other alteration of wetlands; therefore, the impact is considered to be less than significant and would not require mitigation.

Maintenance activities would occur over an extended period; therefore, the overall Program impacts would not occur all at once. Impacts presented in Table 7 account for all the Program's known and potential impacts within the defined maintenance footprint, and there are currently no additional impacts anticipated to occur. If any future maintenance or repair activity were required to occur outside of the defined maintenance footprint, a project-level analysis would be submitted to DSD for an SCR process to determine if the planned maintenance activity deviating from the maintenance footprint is consistent with the SDP and applicable mitigation measures and conditions included in that permit. Impacts to vegetation would occur as part of the following maintenance activities: dredging; clearing of vegetation within 10 feet of the dams, spillways, and appurtenant structures and five feet of Dulzura conduit; and removal of eucalyptus and palm trees.

The following activities are not anticipated to result in impacts to vegetation: maintenance and repair of the dams, spillways, Dulzura Conduit, and appurtenant structures; maintenance and repairs to outlet towers and trash racks; slope maintenance; access road maintenance; and geotechnical investigations. Maintenance and repair of the dams, spillways, Dulzura Conduit, and appurtenant structures would occur within the existing developed footprint of the structure. Work areas associated with these activities would be limited to developed and disturbed areas and accessed using existing access roads, trails, and footpaths. Any equipment required to complete the activities would be staged within developed and disturbed areas, including on the structure itself.

Maintenance and repair of the outlet towers and trash racks would also be limited to the currently developed footprints of the structures, which would be accessed using existing access roads, trails, and footpaths. Temporary staging of equipment and materials storage would be limited to existing developed and disturbed areas.

Slope maintenance activities, as detailed under *Vegetation Clearing* in Section 1.2.1, involve the maintenance of vegetation on slopes surrounding Black Mountain Dam and Rancho Bernardo Dam. Existing shrubs and herbaceous vegetation within these areas would be maintained in the current condition, but trees would not be allowed to establish on the slopes. Any existing trees, or saplings that may attempt to establish, would be removed through cut and treat methods. No other vegetation would be removed during slope maintenance and tree removal activities.

Access road maintenance would be restricted to the existing road right-of-way and would involve minor repairs, improvements, and resurfacing, as needed. No expansion or temporary widening of the access road or trails is proposed under the Program. As such, vegetation would not be removed during access road maintenance activities. Minor trimming of vegetation along existing access roads, trails, and paths may occur as part of access road maintenance activities to prevent deterioration and keep critical access features in a useable condition. However, trimming activities would be limited to overhanging branches and individual limbs and would not result in ground disturbance or the removal of sensitive vegetation.

Geotechnical investigations, including conditions assessments, would occur within existing developed and disturbed areas, primarily on the structures themselves. Geotechnical activities would avoid any adjacent native vegetation areas. Collection of silt samples and other data in areas surrounding the dams, outlet towers, and other structures would be completed from a barge launched at the nearby boat ramp. No sensitive vegetation would be removed during geotechnical investigations, including condition assessments.

Table 7 provides a breakdown of Program impacts within and outside the MHPA by maintenance activities that would result in the removal of vegetation or other ground disturbances. A detailed summary of impacts by Program facility is included as Appendix M, *Program Impacts and Mitigation Requirements by Program Facility*.

Table 7
PROGRAM IMPACTS TO VEGETATION AND LAND COVER TYPES

Vegetation/Land Cover	Habitat Tier	Impacts (acres)[1]										
		Dredging		Vegetation Clearing		Eucalyptus Removal[2]		Slope Maintenance[3]		Total		
		Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Total
Wetlands/Non-wetland												
Southern Riparian Forest	N/A	0	0	0.49	1.00	0	0	0	0	0.49	1.00	**1.49**
Southern Coast Live Oak Riparian Forest	N/A	0	0	0	0	0	0	0	0	0	0	**0**
Riparian Woodland	N/A	0	0	0.03	0.05	0	0	0	0	0.03	0.05	**0.08**
Mule Fat Scrub	N/A	0	0	0	0	0	0	0	0	0	0	**0**
Southern Willow Scrub	N/A	0	0	0.27	0	0	0	0	0	0.27	0	**0.27**
Arrowweed Scrub	N/A	0	0	0	0	0	0	0	0	0	0	**0**
Tamarisk Scrub	N/A	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater Marsh	N/A	0	0	0.78	0.27	0	0	0	0	0.78	0.27	**1.05**
Disturbed Wetland	N/A	0	0	0	0.02	0	0	0	0	0	0.02	**0.02**
Unvegetated Habitat/Lakeshore Fringe	N/A	0	0	0	0.49	0	0	0	0	0	0.49	**0.49**
Non-vegetated Channel	N/A	0	0	0	0.06	0	0	0	0	0	0.06	**0.06**
Non-native Riparian	N/A	0	0	0.06	0	0	0	0	0	0.06	0	**0.06**
Arundo-Dominated Riparian	N/A	0	0	0	0.02	0	0	0	0	0	0.02	**0.02**
Open Water/Freshwater Lake	N/A	0.82	0.68	2.42	3.44	0	0	0	0	3.24	4.12	**7.36**
Wetlands/Non-wetlands Subtotal	**-**	***0.82***	***0.68***	***4.05***	***5.35***	***0***	***0***	***0***	***0***	***4.87***	***6.03***	***10.90***
Sensitive Uplands												
Tier I												
Native Grassland - Disturbed	I	0	0	0	0	0	0	0	0	0	0	**0**
Coast Live Oak Woodland	I	0	0	0	0.1	0	0	0	0	0	0.1	**0.1**
Engelmann Oak Woodland	I	0	0	0	0	0	0	0	0	0	0	**0**
Mixed Oak Woodland	I	0	0	0	0	0	0	0	0	0	0	**0**
Scrub Oak Chaparral	I	0	0	0	0.1	0	0	0	0	0	0.1	**0.1**
Tier I Total	**-**	***0***	***0***	***0***	***0.2***	***0***	***0***	***0***	***0***	***0***	***0.2***	***0.2***
Tier II												
Diegan Coastal Sage Scrub – including Disturbed, Sparse, Laurel Sumac Dominated, and Baccharis Dominated	II	0	0	2.6	5.3	0	0	0	0	2.6	5.3	**7.9**
Flat-topped Buckwheat Scrub	II	0	0	0	0	0	0	0	0	0	0	**0**

Vegetation/Land Cover	Habitat Tier	Impacts (acres)[1]										
		Dredging		Vegetation Clearing		Eucalyptus Removal[2]		Slope Maintenance[3]		Total		
		Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	Total
Coastal Sage-Chaparral Scrub – including disturbed	II	0	0	0	1.2	0	0	0	0	0	1.2	**1.2**
Tier II Total		***0***	***0***	***2.6***	***6.5***	***0***	***0***	***0.0***	***0.0***	***2.6***	***6.5***	***9.1***
Tier IIIA												
Southern Mixed Chaparral (37120) – including Ceanothus Dominated	IIIA	0	0	0.1	0.0	0	0	0	0	0.1	0.0	**0.1**
Granitic Southern Mixed Chaparral – including disturbed	IIIA	0	0	0	3.1	0	0	0	0	0	3.1	**3.1**
Granitic Northern Mixed Chaparral – including Sparse	IIIA	0	0	0	0.4	0	0	0	0	0	0.4	**0.4**
Chamise Chaparral	IIIA	0	0	0	0.2	0	0	0	0	0	0.2	**0.2**
Tier IIIA Total	**-**	***0***	***0***	***0.1***	***3.7***	***0***	***0***	***0***	***0***	***0.1***	***3.7***	***3.8***
Tier IIIB												
Non-native Grassland	IIIB	0	0	2.5	4.3	0	0	0	0	2.5	4.3	**6.8**
Tier IIIB Total	**-**	***0***	***0***	***2.5***	***4.3***	***0***	***0***	***0***	***0***	***2.5***	***4.3***	***6.8***
Sensitive Uplands Subtotal	**-**	***0***	***0***	***5.2***	***14.7***	***0***	***0***	***0***	***0***	***5.2***	***14.7***	***19.9***
Non-Sensitive Uplands												
Non-native Vegetation	IV	0	0	0.4	3.6	0	0	0	0	0.4	3.6	**4.0**
Eucalyptus Woodland	IV	0	0	0.5	0.7	0.6	0.5	0	0	1.1	1.2	**2.3**
Unvegetated Habitat/Bedrock	IV	0	0	0.9	0.7	0	0	0	0	0.9	0.7	**1.6**
Unvegetated Habitat/Talus Slope	IV	0	0	0	0.7	0	0	0	0	0	0.7	**0.7**
Disturbed Habitat	IV	0	0	1.1	10.8	0	0	0	0	1.1	10.8	**11.9**
Developed	-	0	0	10.2	33.9	0	0	0	0	10.2	33.9	**44.1**
Non-Sensitive Uplands Subtotal	**-**	***0***	***0***	***13.1***	***50.4***	***0.6***	***0.5***	***0***	***0***	***13.7***	***50.9***	***64.6***
	TOTAL	**0.82**	**0.68**	**22.35**	**70.45**	**0.60**	**0.50**	**0**	**0**	**23.77**	**71.63**	**95.40**

[1] Acreages rounded to the nearest 0.1 acre for uplands and 0.01 acre for wetlands; total reflects rounding.

[2] Eucalyptus removal activities will be restricted to removing eucalyptus trees within 50 feet of the dams and associated infrastructure through cut and treat methods. Removal of and disturbance to native habitats within the area would not occur as part of Program activities.

[3] Slope maintenance activities will be restricted to maintaining the slopes surrounding Black Mountain and Rancho Bernardo Dams so that only herbaceous vegetation and low-growing shrubs occur; no trees shall be permitted to establish. Removal of and disturbance of native habitats within the area would not occur as part of Program activities.

7.2.2 Impacts to Special Status Species

Several special status plant and animal species were observed in the Program area during biological surveys. The Program is specifically limited to routine maintenance and repairs of critical infrastructure as directed by the DSOD. Program impacts would primarily occur in existing developed and disturbed areas associated with the dams, appurtenant structures, and existing access roads, trails, and footpaths (Figures 14a-14n). However, portions of the proposed maintenance footprint extend into adjacent native habitats, including wetland and riparian habitats and sensitive uplands habitats, where special status plant and animal species have been detected or have the potential to occur. Potential Program effects on special status plant and animal species are described below.

7.2.2.1 Special Status Plant Species

Implementation of the Program has the potential to result in direct impacts to nine special status plant species: Dean's milk vetch, San Diego County sunflower, delicate clarkia, San Diego barrel cactus, pride of California, Cooper's rein orchid, Engelmann oak, ashy spike-moss, and rush-like bristleweed (Figures 14a-14n). Such impacts would be a result of maintenance impacts involving the removal of vegetation. These impacts are described below.

Federally or State Listed Plant Species

No impacts would occur to federally and/or state listed plant species as none were documented within the Program area.

CRPR 1 or 2 Plant Species

Generally, impacts to plant species with a CNPS CRPR of 1 or 2 are considered potentially significant due to their higher sensitivity status, and the impact analysis evaluates substantial adverse effects to these species. Implementation of the Program is anticipated to result in direct impacts to the following special status plant species with a CRPR of 1 or 2: Dean's milk vetch, delicate clarkia, and San Diego barrel cactus.

Dean's Milk Vetch

Approximately 10 individuals of Dean's milk vetch are located within the proposed maintenance footprint at Dulzura Conduit near Flume 7, and between Trail 1 and Trail 2. Maintenance activities proposed in this area include the clearing of vegetation within five feet of the conduit and maintenance of access roads, trails, and footpaths.

Potential impacts to 10 individuals would be considered less than significant because of the low number of individuals that would be affected, the presence of the species within the surrounding area, and such impacts would not jeopardize the status of the species in the region or result in a future elevated listing of the species.

Delicate Clarkia

Approximately 17 delicate clarkia plants are located within the proposed maintenance footprint at Barrett, 100 plants are located within the proposed maintenance footprint at El Capitan Dam, and another 1,114 plants are located within the proposed maintenance footprint for Dulzura Conduit.

Maintenance activities proposed in these areas include the clearing of vegetation within 10 feet of Barrett Dam, El Capitan Dam, and appurtenant structures; clearing of vegetation within 5 feet of Dulzura Conduit; and maintenance of access roads, trails, and footpaths.

Potential impacts to delicate clarkia would be less than significant based on the large number of individuals that would be avoided and the prevalence of species within the surrounding area, as illustrated by the high number of individuals observed within the study area footprint and additional suitable habitat present in the vicinity (such as along Cottonwood Creek). Program impacts would not jeopardize the status of the species in the region or result in a future elevated listing of the species.

San Diego Barrel Cactus

Approximately 43 individuals of San Diego barrel cactus are located within the proposed maintenance footprint at Savage Dam. Maintenance activities proposed in this area include the clearing of vegetation within 10 feet, and the removal of eucalyptus trees within 50 feet, of the dam and appurtenant structures, and maintenance of access roads, trails, and footpaths. Maintenance activities are not anticipated to result in direct impacts to San Diego barrel cactus, as these activities would be limited to the above ground cutting of vegetation and eucalyptus trees. If direct impacts to San Diego barrel cactus are determined to be unavoidable, such impacts would be less than significant based on the small number of individuals likely to be affected, the prevalence of the species within the surrounding area, and because such impacts would not jeopardize the status of the species in the region or result in a future elevated listing of the species.

CRPR 3 or 4 Plant Species

CRPR 3 and 4 species are relatively widespread, and impacts to such species would not substantially reduce their populations in the region and are not significant. Implementation of the Program is anticipated to result in direct impacts to the following special status plant species with a CRPR of 3 or 4: ashy spike-moss, Cooper's rein orchid, Engelmann oak, pride of California, San Diego County sunflower, and rush-like bristleweed.

Ashy Spike-Moss

A single small patch of ashy spike-moss is located within the proposed maintenance footprint at Savage Dam. Maintenance activities proposed in this area include the clearing of vegetation within 10 feet, and removal of eucalyptus trees within 50 feet, of the dam and appurtenant structures, and maintenance of access roads, trails, and footpaths.

Direct impacts to this species are not anticipated to occur, as the single occurrence within the proposed maintenance footprint is located within an area designated for the removal of eucalyptus trees. These activities are limited to above-ground cutting of vegetation and would not involve grubbing or other ground disturbance activities. As such, potential impacts would be less than significant due to the low sensitivity of the species, low number of individuals with the potential to be affected, general prevalence within the vicinity, and preservation within adjacent lands located in the MHPA, including City PUD cornerstone lands surrounding Upper and Lower Otay Reservoirs.

Cooper's Rein Orchid

Approximately two Cooper's rein orchid plants are located within the proposed maintenance footprint at the Dulzura Conduit near Trail 3. Maintenance activities proposed in this area include the clearing of vegetation within five feet of the conduit and maintenance of access roads, trails, and footpaths.

Impacts to Cooper's rein orchid would be less than significant based on the low number of individuals with the potential to be impacted and the low sensitivity of the species.

Engelmann Oak

A single Engelmann oak tree is located within the proposed maintenance footprint at Dulzura Conduit within the discharge channel at the western end of the conduct alignment at Community Building Road. Maintenance activities proposed in this area include the clearing of vegetation within five feet of the discharge channel and maintenance of access roads, trails, and footpaths.

Maintenance activities are not anticipated to result in direct impacts or removal of the Engelmann oak tree, as the oak is located at the periphery of the maintenance boundary in an upslope area outside of the discharge channel and does not impede flows within the channel. Though minor trimming of the oak tree is not anticipated, trimming may occur if overhanging branches are found to impede safe access to the channel or cause damage to the perimeter fencing surrounding the discharge channel. Minor trimming of vegetation would only be implemented on an as-needed basis and would be the minimum amount necessary. Impacts from minor trimming of vegetation would be less than significant due to the negligible area involved and the selective nature of the trimming. As such, potential impacts to Engelmann oak would be less than significant.

Pride of California

Approximately six pride of California plants are located within the proposed maintenance footprint at Dulzura Conduit near Trail 3. Maintenance activities proposed in this area include the clearing of vegetation within five feet of the conduit and maintenance of access roads, trails, and footpaths.

Impacts to pride of California would be less than significant based on the low number of individuals with the potential to be impacted, continued presence within the surrounding area, and the low sensitivity of the species.

San Diego County Sunflower

San Diego County sunflower shrubs are located within the proposed maintenance footprint of several of the Program components as scattered individuals, small patches, and a dominant shrub component within vegetation. Potential impacts to San Diego County sunflower include 0.05 acre at Miramar Dam, 0.03 acre at Murray Dam, 1.2 acres at San Vicente Dam, approximately 386 shrubs at Savage Dam, and approximately 8,826 shrubs at Dulzura Conduit. Maintenance activities proposed in these areas include the clearing of vegetation within 10 feet of the dams and appurtenant structures, removal of eucalyptus trees within 50 feet of Savage Dam and appurtenant structures, clearing of vegetation within five feet of Dulzura Conduit, and maintenance of access roads, trails, and footpaths.

Program impacts to San Diego County sunflower would be less than significant, as the local long-term survival of the species would not be impacted as this relatively widespread species is known to occur

elsewhere in the Program vicinity. The impacted individuals are not part of a population at the periphery of the species' range, located in an area where the taxon is especially uncommon, or occurring on unusual substrates. Lastly, there are numerous documented occurrences of this species within the Program area and throughout the region, including on MHPA lands, indicating that the Program does not represent a geographically significant population.

Rush-like Bristleweed

Approximately 230 individuals of rush-like bristleweed are located within the proposed maintenance footprint at Dulzura Conduit near Tunnel 14, between SR-94 and Tunnel 12, and between Trail 2 and Trail 3. Maintenance activities proposed in this area include the clearing of vegetation within five feet of the conduit and maintenance of access roads, trails, and footpaths.

Although 230 individuals of rush-like bristleweed are located within the proposed maintenance footprint at Dulzura Conduit, individuals with the potential to be impacted are not part of a population at the periphery of the species' range, located in an area where the taxon is especially uncommon, or occurring on unusual substrates. Additionally, this species is relatively common in the surrounding area, with populations documented north of Barrett Reservoir within the Cleveland National Forest and east of the conduit within Hollenbeck Ranch Preserve (Calflora 2021), indicating that the Program area does not represent a geographically significant population. Therefore, potential Program impacts to rush-like bristleweed would be less than significant, as impacts would not jeopardize the status of the species in the region or result in a future elevated listing of the species.

Other Special Status Plant Species

Implementation of the proposed Program is not anticipated to result in impacts to other special status plant species known from, or with high potential to occur, in the Program area. These species are expected to be avoided by Program activities due either to the species' location being outside of the proposed maintenance footprint, or the lack of suitable conditions (habitat, soils, hydrology, elevations, etc.) within the maintenance footprint. However, due to the long-term nature of the Program, there are potential additional or new populations of special status plant species to be discovered in the future, including City Narrow Endemic species. Program impacts to special status plant species may be considered significant depending on the species, sensitivity, and the number of plants to be impacted. Significant impacts to special status plant species, if determined to occur, would require mitigation, including species-specific mitigation, consistent with the City's Biology Guidelines (City 2018).

7.2.2.2 Special Status Wildlife Species

Implementation of the Program would result in direct impacts to habitats occupied or suitable for special status wildlife species. These habitats include wetland and riparian habitats, open water/lake, oak woodlands, various chaparral communities, Diegan coastal sage scrub and various subtypes of this habitat, coastal sage-chaparral scrub, and non-native grassland. Such impacts would be a result of maintenance activities such as vegetation removal, eucalyptus removal, and dredging conducted under the Program, which could cause loss of habitat and/or direct injury or mortality to individuals. These impacts are described below.

Federally or State Listed Animal Species

Implementation of the Program would impact locations where the following five listed animal species have been documented within the Program area or have high potential to occur: QCB, Hermes copper butterfly, ARTO, CAGN, and LBVI; additional information is provided below.

Quino Checkerspot Butterfly

Implementation of the Program would result in impacts to QCB from the removal of 0.76 acre of potentially occupied QCB habitat (including 0.03 acre of host plants) at Savage Dam and 3.80 acres of potentially occupied QCB habitat (including 0.28 acre of host plants) at Dulzura Conduit. These impacts are considered significant. Indirect impacts to QCB could also occur through surface disturbance to occupied host plant patches during maintenance activities. These impacts are described in more detail below.

Seven QCB individuals (spread across three locations) were observed in the Savage Dam study area approximately 430 feet east of the proposed maintenance footprint (Figure 14k). The following maintenance activities at Savage Dam would impact would result in impacts to approximately 0.76 acre of potentially occupied QCB habitat containing 0.03 acre of host plants at Savage Dam (Figure 19a, *QCB Potentially Occupied Habitat – Savage Dam*): clearing of vegetation within 10 feet, and removal of eucalyptus trees within 50 feet (if the understory below the eucalyptus is disturbed), of Savage Dam and appurtenant structures, and maintenance of access roads, trails, and footpaths.

QCB individuals at Dulzura Conduit were observed along dirt roads adjacent to the conduit, along access Trail 4, and perched within the conduit. The following maintenance activities associated with the Dulzura Conduit would result in impacts to approximately 3.80 acres of potentially occupied QCB habitat containing 0.28 acre of host plants within the Dulzura Conduit study area (Figures 19b to 19d, *QCB Potentially Occupied Habitat – Dulzura Conduit*): clearing of vegetation within 5 feet of the conduit and maintenance of access roads, trails, and footpaths.

Implementation of the Program would also result in impacts to 2.9 acres of USFWS-designated critical habitat for the species at Savage Dam comprised of 0.6 acre of Diegan coastal sage scrub (including laurel sumac dominated), 0.3 acre of open water/freshwater lake, 0.01 acre of freshwater marsh, 0.02 acre of southern willow scrub, 0.6 acre of eucalyptus woodland, 0.3 acre of non-native grassland, and 1.1 acres of developed land. The 0.3 acre of open water/freshwater lake, 0.01 acre of freshwater marsh, 0.02 acre of southern willow scrub, 0.6 acre of eucalyptus woodland, and 1.1 acres of developed land do not contain the physical or biological features that are essential for the species, as defined by USFWS (USFWS 2009c). Therefore, the Program would only impact 0.9 acre of designated critical habitat that contains the physical or biological features essential for QCB. Program impacts to QCB and USFWS-designated critical habitat would require consultation with the USFWS.

Hermes Copper Butterfly

Potentially suitable habitat for Hermes copper is present within the Program area at Barrett Dam and Dulzura Conduit, where the species' larval host plant, spiny redberry, was observed in close proximity to California buckwheat. The species has a high potential to occur within the maintenance footprint at these based on the presence of core and non-core occurrences areas along the northern portion of the Barrett Dam access road and surrounding area, according to the Species Status Assessment (USFWS

2021a). Impacts to occupied Hermes copper butterfly habitat and Hermes copper butterfly, if found to occur, would be considered significant and require mitigation.

USFWS-designated critical habitat for the species occurs along the northern portion of the Barrett Dam access road (Figure 5a). Maintenance activities proposed along the Barrett Dam north access road would be limited to the existing road right-of-way, which is developed and does contain physical or biological features that are essential for the species, as defined by USFWS (2021b). Therefore, the implementation of the Program would not result in direct impacts to USFWS-designated critical habitat with the potential to support the species. Program impacts to Hermes copper butterfly and USFWS-designated critical habitat would require consultation with the USFWS.

Arroyo Toad

Implementation of the Program is not anticipated to result in direct impacts to ARTO as the majority of the Program area is located outside of the known distribution of ARTO and does not contain suitable riparian habitat, sandy soils, and adjacent upland terraces required by the species. Furthermore, the Program is restricted to the long-term maintenance of existing dams which, by design, disrupt the hydrological regime of the existing creeks and rivers that have been impounded and alter existing habitats and soils so that they are less conducive to ARTO use and occupation. However, ARTO was observed at one dam location (Sutherland Dam) and has the potential to occur at three other facilities (Barrett Dam, El Capitan Dam, and Dulzura Conduit). Potential Program impacts to ARTO at these facilities are presented below.

A single transient ARTO was observed at Sutherland Dam on the rock-lined portion of the dam spillway. Maintenance activities that would occur at Sutherland Dam include the clearing of vegetation within 10 feet of the dam and appurtenant structures, spillway maintenance and repair, and maintenance of access roads, trails, and footpaths. These activities would not result direct impacts to arroyo toad breeding habitat as no riparian habitat along Santa Ysabel Creek would be impacted, and no suitable breeding habitat was found to occur at Sutherland Dam. The habitat within the Sutherland Dam maintenance areas consists of the concrete dam, concrete and bedrock associated with the spillway, and small areas of non-native grassland and coastal sage scrub within vegetation clearing areas, which were characterized as low quality for ARTO and unsuitable for breeding (Rocks 2021). These areas lack sandy substrates and shallow pools that are required to support breeding toads. The non-native grassland and coastal sage scrub within the maintenance areas are not considered suitable upland arroyo toad habitat because these areas occur immediately surrounding the developed footprint of the dam and lack sandy soils suitable for burrowing. Though maintenance activities would not result in direct impacts to breeding ARTO habitat, there is potential for ARTO to be present within the proposed maintenance footprint during maintenance activities, as one toad was observed during project surveys. Direct impacts to ARTO, if toads were harmed, would be considered significant and require mitigation.

Though ARTO was not detected at Barrett Dam or El Capitan Dam, USFWS-designated critical habitat for the species and potentially suitable riparian and upland habitats occur at both facilities, and there is potential for toads to be present in these areas during maintenance activities. Impacts to suitable ARTO habitat and direct impacts to ARTO, if toads were harmed, would be considered and require mitigation.

USFWS-designated critical habitat for ARTO also occurs within the Dulzura Conduit study area. However, these areas occur within upland areas situated outside of Cottonwood Creek and do not contain suitable breeding habitat. The conduit itself is located between 600 and 2,700 feet upslope of mapped critical

habitat areas and is separated from ARTO breeding habitat by a steep hillside that would preclude ARTO access for foraging or aestivating. Furthermore, ARTO found along Cottonwood Creek are unlikely to cross Barrett Lakes Road to reach these upland areas. As such, maintenance activities along Dulzura Conduit and associated access roads would not result in direct impacts to the species.

Implementation of the Program would result in impacts to USFWS-designated critical habitat for the species as follows: 0.3 acre at Barrett Dam (comprised of 0.04 acre of non-vegetated channel, 0.2 acre of southern riparian forest, and 0.07 acre of granitic southern mixed chaparral); 0.7 acre at Dulzura conduit (comprised of 0.1 acre of granitic southern mixed chaparral, 0.05 acre of Diegan coastal sage scrub, 0.2 acre of disturbed habitat, and 0.4 acre of developed land); and 4.76 acres at El Capitan Dam (comprised of 0.73 acre of southern riparian forest, 0.01 acre of coastal live oak woodland, 0.65 acre of Diegan coastal sage scrub, 0.47 acre of non-native grassland, 0.04 acre of eucalyptus woodland, 0.03 acre of non-native vegetation, 0.11 acre of disturbed habitat, and 2.72 acres of developed land). Program impacts to arroyo toad and USFWS-designated critical habitat would require consultation with the USFWS.

Coastal California Gnatcatcher

Implementation of the Program would result in impacts to CAGN from the removal of 7.9 acres of Diegan coastal sage scrub (including disturbed, sparse, laurel sumac dominated, and Baccharis dominated) and 1.2 acres of coastal sage-chaparral scrub within the Program area. Impacts to occupied and potential CAGN habitat within the Program area are considered significant and would require mitigation.

If construction activities were to occur during the gnatcatcher breeding season (March 1 through August 15) and impact occupied CAGN habitat, direct impacts to nesting CAGN would be considered significant and would require mitigation. Additionally, indirect impacts to CAGN would occur if construction activities were to take place during the gnatcatcher breeding season and were to generate noise greater than 60 dBA, or exceeding ambient noise levels if greater than 60 dBA, within occupied CAGN habitat within the MHPA.

Implementation of the Program would also result in impacts to 3.65 acres of USFWS-designated critical habitat for CAGN at El Capitan Dam. These impacts would be comprised of 0.62 acre of Diegan coastal sage scrub (including disturbed), 0.02 acre of southern mixed chaparral, 0.14 acre of non-native grassland, 0.73 acre of southern riparian forest, 0.04 acre of coast live oak woodland, 0.04 acre of eucalyptus woodland, 0.56 acre of non-native vegetation, 0.08 acre of disturbed habitat, and 1.42 acres of developed land. However, it should be noted that only Diegan coastal sage scrub, southern mixed chaparral, non-native grassland, and southern riparian forest contain the physical or biological features that are essential for the species, as defined by the USFWS (USFWS 2007). Therefore, the Program would only impact 1.51 acres of designated critical habitat that contains the physical or biological features that are essential for CAGN. Program impacts to USFWS-designated critical habitat would require consultation with the USFWS.

Least Bell's Vireo

Implementation of the Program would result in impacts to LBVI from the removal of 1.49 acres of southern riparian forest, 0.08 acre of riparian woodland, and 0.27 acre of southern willow scrub within the Program area. Impacts to occupied and potential LBVI habitat within the Program area are considered significant and would require mitigation.

If construction activities were to occur during the vireo breeding season (March 15 through September 15) and impact occupied LBVI habitat, direct impacts to nesting LBVI would be considered significant and would require mitigation. Additionally, indirect impacts to LBVI would occur if construction activities were to take place during the vireo breeding season and were to generate noise levels greater than 60 dBA, or exceed ambient noise levels if greater than 60 dBA, within occupied LBVI habitat.

Other Special Status Animal Species

Implementation of the Program has the potential to result in impacts to the following 23 special status animal species that have been documented to occur within the Program area: western spadefoot, Belding's orange-throated whiptail, San Diegan tiger whiptail, San Diego banded gecko, Blainville's horned lizard, red diamond rattlesnake, two-striped gartersnake, WIFL, bald eagle, golden eagle, osprey, peregrine falcon, white-tailed kite, Cooper's hawk, coastal cactus wren, southern California rufous-crowned sparrow, Costa's hummingbird, oak titmouse, yellow-breasted chat, yellow warbler, western bluebird, double-crested cormorant, San Diego black-tailed jackrabbit, and mule deer. In addition, the Program could also result in impacts to the following 27 special status animal species with high potential to occur: large-blotched ensatina, San Diegan legless lizard, Coronado skink, California glossy snake, Baja California coachwhip, coast patch-nosed snake, golden eagle, northern harrier, prairie falcon, Bell's sparrow, loggerhead shrike, Lawrence's goldfinch, gray vireo, least bittern, Canada goose, Caspian tern, redhead, Townsend's big-eared bat, western mastiff bat, western red bat, western yellow bat, California leaf-nosed bat, pocketed free-tailed bat, ringtail, Dulzura pocket mouse, Northwestern San Diego pocket mouse, San Diego Bryant's (formerly desert) woodrat, and mountain lion. Potential impacts to species not covered by the MSCP would result from the removal of 10.90 acres of wetland and riparian habitats, 19.9 acres of sensitive upland habitats, and 6.3 acres of non-sensitive upland habitats that may support these species. Species not covered under the City's MSCP SAP include western spadefoot, San Diego banded gecko, large-blotched ensatina, San Diegan legless lizard, Coronado skink, red diamond rattlesnake, two-striped gartersnake, California glossy snake, Baja California coachwhip, coast patch-nosed snake, osprey, white-tailed kite, prairie falcon, Costa's hummingbird, oak titmouse, Bell's sparrow, loggerhead shrike, Lawrence's goldfinch, gray vireo, yellow-breasted chat, yellow warbler, least bittern, Caspian tern, redhead, double-crested cormorant, Townsend's big-eared bat, western mastiff bat, western red bat, western yellow bat, California leaf-nosed bat, pocketed free-tailed bat, San Diego black-tailed jackrabbit, ringtail, Dulzura pocket mouse, Northwestern San Diego pocket mouse, and San Diego Bryant's (formerly desert) woodrat. These impacts would be less than significant due to the small number of individuals that would potentially be affected, the relatively small amount of habitat to be impacted at each facility, and the large amount of suitable habitat in the Program area that would be avoided by activities and would continue to be preserved within the MHPA and other adjacent conserved lands.

Implementation of the Program would result in impacts to the following MSCP-covered species: Belding's orange-throated whiptail, San Diegan tiger whiptail, Blainville's horned lizard, WIFL/SWFL, bald eagle, golden eagle, peregrine falcon, Cooper's hawk, northern harrier, coastal cactus wren, southern California rufous-crowned sparrow, western bluebird, Canada goose, mule deer, and mountain lion. Impacts would occur through the removal of 10.90 acres of wetland and riparian habitats, 19.9 acres of sensitive upland habitats, and 6.3 acres of non-sensitive upland habitats that may support these species. A total of 6.03 acres (55 percent) of the 10.90 acres of Program impacts to wetland and riparian habitats, and 14.7 acres of the 19.9 acres (74 percent) of the Program impacts to sensitive upland habitats would occur outside the MHPA. Impacts to MSCP-covered species would be less than significant based on adequate species coverage and suitable habitats protected under the MSCP within the MHPA.

No Impacts

Implementation of the Program is not anticipated to result in impacts to the following special status animal species that have been documented to occur, or have high potential to occur, within the Program area: Monarch butterfly, olive-sided flycatcher, American white pelican, California gull, and sharp-shinned hawk. No overwintering populations of Monarch butterflies were documented within the Program; as such, the Program would not result in impacts to Monarch butterfly. Though olive-sided flycatcher, American white pelican, California gull, and sharp-shinned hawk were documented within the study areas, the Program is located outside of the species' breeding range. Individuals would occur only as overwintering or migrating birds and would not be expected to nest within the Program area. As such, no impacts would occur to these three species.

7.3 JURISDICTIONAL WATERS AND WETLANDS

Implementation of the Program would result in direct impacts to jurisdictional wetland and non-wetland waters, streambed, and riparian habitat, including City wetlands. Impacts would occur as a result of the following maintenance activities: dredging; clearing of vegetation within 10 feet of the dams, and appurtenant infrastructure and five feet of Dulzura conduit; and maintenance (removal of vegetation, sediment, and debris) of leakage, seepage, and other discharges paths. Repeatable temporary impacts to jurisdictional wetland and non-wetland waters and streambed areas would also occur due to dredging activities around the outlet towers and low-level outlet tunnels. Impacts to the wetland and non-wetland waters may require the issuance of a CWA Section 404 permit from the USACE, a CWA Section 401 Water Quality Certification or State Porter-Cologne Water Quality Control Act WDRs from the RWQCB, and/or a Streambed Alteration Agreement from CDFW. Only the USACE, RWQCB, and CDFW can make a final determination of jurisdictional boundaries.

The following activities are not anticipated to result in impacts to jurisdictional areas: maintenance and repair of the dams, spillways, Dulzura Conduit, and appurtenant structures; maintenance and repairs to outlet towers and trash racks; slope maintenance; access road maintenance; and geotechnical investigations. Maintenance and repair of the dams, spillways, Dulzura Conduit, and appurtenant structures would occur within the existing developed footprint of the structure. Work areas associated with these activities would be limited to developed and disturbed areas and accessed using existing access roads, trails, and footpaths. Any equipment required to complete the activities would be staged within developed and disturbed areas, outside of jurisdictional waters and wetlands, including on the structure itself.

Maintenance and repair of the outlet towers and trash racks would also be limited to the currently developed footprints of the structures, which would be accessed using existing access roads, trails, and footpaths. Temporary staging of equipment and materials storage would be limited to existing developed and disturbed areas, outside of jurisdictional waters and wetlands.

Slope maintenance activities involve the maintenance of vegetation on slopes surrounding Black Mountain Dam and Rancho Bernardo Dam. Existing shrubs and herbaceous vegetation would be maintained in the current condition, but tree species would not be allowed to establish on the slopes. Tree species that may attempt to establish would be removed through cut and treat methods. No other vegetation would be removed during slope maintenance and tree removal activities, and no impacts would occur to jurisdictional waters and wetlands as none were found to occur within these areas.

Access road maintenance would be restricted to the existing road right-of-way and would involve minor repairs, improvements, and resurfacing, as needed. No expansion or temporary widening of the access road or trails is proposed under the Program. As such, vegetation, including jurisdictional wetland and riparian habitats, would not be removed during access road maintenance activities. Existing drainage crossings would be maintained in their current condition; no improvements or other alterations, such as the construction of Arizona crossings, would occur at existing drainage crossings. Minor trimming of vegetation along existing access roads, trails, and paths may occur as part of access road maintenance activities to prevent deterioration and keep critical access features in a usable condition. However, trimming activities would be limited to overhanging branches and individual limbs and would not result in ground disturbance or the removal of jurisdictional wetlands and riparian habitat.

Geotechnical investigations, including conditions assessments, would occur within the existing developed and disturbed areas, primarily on the structures themselves. Geotechnical activities would avoid any adjacent native vegetation areas. Collection of silt samples and other data in areas surrounding the dams, outlet towers, and other structures would be completed from a barge launched at the nearby boat ramp. No jurisdictional wetlands or riparian habitat would be removed during geotechnical investigations, including condition assessments, and no impacts to jurisdictional waters would occur.

7.3.1 Waters of the U.S.

The Program would impact a total of 11.13 acres of wetland and non-wetland waters of the U.S. (Table 8, *Waters of the U.S. Impacts*; Figures 19a through 14l, *Waters of the U.S./Impacts*), comprised of 1.08 acres of wetland waters of the U.S. and 10.05 acres of non-wetland waters of the U.S.

Table 8
WATERS OF THE U.S. IMPACTS

Jurisdictional Resource	Total Impacts (acres)[1]		
	Dredging	Vegetation Clearing	Total
Wetland Waters of the U.S.			
Southern Riparian Forest	0	0.77	0.77
Southern Willow Scrub	0	0.24	0.24
Freshwater Marsh	0	0.06	0.06
Arundo-dominated Riparian	0	0.01	0.01
Subtotal	***0***	***1.08***	***1.08***
Non-wetland Waters of the U.S.			
Perennial Stream	0	0.02	0.02
Intermittent Stream	0	0.41	0.41
Concrete-lined Stream	0	0.01	0.01
Grouted Riprap Spillway	0	0.28	0.28
Open Water/Lake	1.51	7.82[2]	9.33
Subtotal	***1.51***	***8.54***	***10.05***
TOTAL	**1.51**	**9.62**	**11.13**

[1] Acres rounded to the nearest hundredth; totals reflect rounding.
[2] Open water/lake includes patches of freshwater marsh habitat located below the ordinary high water mark and as such are considered non-wetland waters of the U.S.

7.3.2 Waters of the State

The Program would impact a total of 11.19 acres of wetland and non-wetland waters of the State (Table 9, *Waters of the State Impacts*; Figures 16a through 16l, *Waters of the State/Impacts*), comprised of 2.13 acres of wetland waters of the State and 9.06 acres of non-wetland waters of the State.

Table 9
WATERS OF THE STATE IMPACTS

Jurisdictional Resource	Total Impacts (acres)[1]		
	Dredging	Vegetation Clearing	Total
Wetland Waters of the State			
Southern Riparian Forest	0	0.82	0.82
Southern Willow Scrub	0	0.24	0.24
Freshwater Marsh	0	1.06	1.06
Arundo-dominated Riparian	0	0.01	0.01
Subtotal	***0***	***2.13***	***2.13***
Non-wetland Waters of the State			
Perennial Stream	0	<0.01	<0.01
Intermittent Stream	0	0.38	0.38
Ephemeral Stream	0	0.04	0.04
Concrete-lined Stream	0	0.01	0.01
Grouted Riprap Spillway	0	0.28	0.28
Open Water/Lake	1.51	6.84	8.35
Subtotal	***1.51***	***7.55***	***9.06***
TOTAL	**1.51**	**6.68**	**11.19**

[1] Acres rounded to the nearest hundredth; totals reflect rounding.

7.3.3 California Department of Fish and Wildlife Jurisdiction

The Program would impact a total of 12.01 acres of CDFW-jurisdictional streambed and riparian habitat (Table 10, *CDFW Jurisdictional Areas Impacts*; Figures 17a through 17l, *CDFW Jurisdiction Areas/Impacts*), comprised of 8.99 acres of unvegetated streambed and 3.02 acres of riparian habitat.

Table 10
CDFW JURISDICTIONAL AREAS IMPACTS

Jurisdictional Resource	Total Impacts (acres)[1]		
	Dredging	Vegetation Clearing	Total
CDFW Riparian Habitat			
Southern Riparian Forest	0	1.50	1.50
Southern Coast Live Oak Riparian Forest	0	0	0
Coast Live Oak Woodland	0	0	0
Riparian Woodland	0	0.08	0.08
Southern Willow Scrub	0	0.27	0.27
Mule Fat Scrub	0	0	0
Arrowweed Scrub	0	0	0
Freshwater Marsh	0	1.05	1.05

Jurisdictional Resource	Total Impacts (acres)[1]		
	Dredging	Vegetation Clearing	Total
Disturbed Wetland	0	0.02	0.02
Non-Native Riparian	0	0.06	0.06
Arundo-dominated Riparian	0	0.04	0.04
Subtotal	***0***	***3.02***	***3.02***
CDFW Streambed			
Perennial Stream	0	<0.01	<0.01
Intermittent Stream	0	0.31	0.31
Ephemeral Stream	0	0.04	0.04
Concrete-lined Stream	0	0.01	0.01
Grouted Riprap Spillway	0	0.28	0.28
Open Water/Lake	1.51	6.84	8.35
Subtotal	***1.51***	***7.48***	***8.99***
TOTAL	**1.51**	**10.50**	**12.01**

[1] Acres rounded to the nearest hundredth; totals reflect rounding.

7.3.4 City Environmentally Sensitive Lands Wetlands

The Program would impact a total of 3.02 acres of City ESL wetlands (Table 11, *City ESL Wetlands Impacts*; Figures 18a through 18l, *City ESL Wetlands/Impacts*), comprised of 1.50 acres of riparian forest, 0.08 acre of riparian woodland, 0.27 acre of southern willow scrub, 1.05 acres of freshwater marsh, 0.02 acre of disturbed wetland, 0.06 acre of non-native riparian, and 0.04 acre of arundo-dominated riparian.

Table 11
CITY ESL WETLANDS IMPACTS

Jurisdictional Resource	Total Impacts (acres)[1]		
	Dredging	Vegetation Clearing	Total
City Wetlands			
Southern Riparian Forest	0	0.72	5.92
Southern Coast Live Oak Riparian Forest	0	0	0
Coast Live Oak Woodland	0	0	0
Riparian Woodland	0	0.08	0.08
Southern Willow Scrub	0	0.27	0.27
Mule Fat Scrub	0	0.01	0
Arrowweed Scrub	0	0	0
Freshwater Marsh	0	1.06	1.06
Disturbed Wetland	0	0.02	0.02
Non-Native Riparian	0	0.06	0.06
Arundo-dominated Riparian	0	0.04	0.04
TOTAL	**0**	**3.02**	**3.02**

[1] Acres rounded to the nearest hundredth.

Impacts to arundo-dominated riparian habitat would be limited to the removal of monotypic stands of giant reed and would not involve grading or any other alteration of wetlands. As such, impacts to 0.04 acre of arundo-dominated riparian would be less than significant and would not require mitigation.

7.3.4.1 City Environmentally Sensitive Lands Wetland Deviation

The City Biology Guidelines (City 2018) state that impacts to wetlands can be approved but require a deviation from ESL Regulations. Outside the Coastal Overlay Zone, requests to deviate from the ESL wetland regulations may be considered only if the proposed development falls within one of the three options as defined by City's Land Development Code Section 143.0510 (d): (1) Essential Public Projects Option, (2) Economic Viability Option, or (3) Biologically Superior Option.

It is not feasible for the Program to completely avoid impacts to City wetlands (approximately 3.02 acres of City wetland impacts are anticipated to occur from implementation of Program activities due to the existing landscape position of the Program facilities (i.e., along major rivers, drainages, and other wetland areas), and DSOD requirements for safety improvements; thus, the Program would require a deviation from ESL Regulations pertaining to wetlands.

Essential Public Project Option

The Program falls under the Essential Public Projects (EPP) deviation option. Deviation from ESL regulations on wetlands impacts under the EPP option must include a project design "where no feasible alternative exists that would avoid impacts to wetlands." Further, project classification as an EPP shall include one of the following four criteria: (1) be identified in an adopted land use plan or implementing document and identified on the EPP List adopted by Resolution No. [R-311507] as Appendix III to the City Biology Guidelines, or (2) be linear infrastructure, including but not limited to major roads and land use plan circulation element roads and facilities, or (3) be the maintenance of existing public infrastructure, or (4) be a state or federally mandated project.

Impacts to 3.02 acres of City wetlands, both within and outside of the MHPA, would result from the implementation of the Program. These impacts are associated with the clearing of vegetation within 10 feet of existing facilities that have the potential to damage critical infrastructure, and maintenance of discharge, seepage, and other drainage paths to keep areas free of debris and other flow obstructions that can interfere with safe operations. These maintenance activities have been mandated by the DSOD to improve dam safety and avoid dam failure, thus meeting the definition of both the maintenance of existing public infrastructure (criteria 2) and a state-mandated project (criteria 4), which does not allow for alternative compliance for this mandate. Thus, the Program falls under the EPP option for wetland deviation.

Since the Program would result in impacts to City ESL wetlands, the following alternatives are described below to meet the project alternative analysis requirement and assure that the proposed maintenance activities are the least environmentally damaging: no project alternative, a wetland avoidance alternative, and a wetland impact minimization alternative.

No Project Alternative

Under the No Project Alternative, no action would be taken, no impacts would occur to City wetlands, and long-term maintenance of the dams and associated infrastructure would not occur. However, this alternative would not meet the requirements of the DSOD mandate and the lack of long-term, routine maintenance may pose a significant and catastrophic risk to public safety if any of the dams failed. The 13-City owned dams and associated infrastructure covered under the Program are subject to the regulatory jurisdiction of the DSOD. Maintenance activities identified by the DSOD are required to maintain the facilities in the as-built conditions, prevent deterioration and failure of critical

infrastructure, protect the City's drinking water infrastructure, and ensure public safety. Under a No Project Alternative, the City would be subject to DSOD fines, water level restrictions, and liable for associated damages in the event that a dam failure occurred. Thus, a No Project Alternative is not feasible.

Wetlands Avoidance Alternative

Under a Wetlands Avoidance Alternative, maintenance activities would be limited to upland areas and aquatic resources not considered City ESL wetlands (such as open water/lake habitat). Though a number of long-term maintenance activities located outside City ESL wetlands would be permitted to occur under the Wetland Avoidance Alternative, removal of vegetation and long-term maintenance of existing facilities is critical to maintaining the dams and associated infrastructure in a safe condition and successfully achieving compliance with the DSOD mandate. As such, the Wetlands Avoidance Alternative was determined to be infeasible.

Wetland Impact Minimization Alternatives

There are no alternative project designs that would minimize impacts to City ESL wetlands further than those already proposed. The Program has already minimized impacts to City ESL wetlands by limiting the maintenance footprint and activities to only those areas and activities that have been deemed essential and necessary to ensure compliance with state requirements. Further minimization of impacts to City ESL wetlands would require that either the maintenance footprint is reduced (such as restricting vegetation clearing from 10 feet to 5 feet from all permanent structures) or that portions of the proposed maintenance footprint are removed from the Program area (such as removing maintenance of discharge channels). However, the reduction of the maintenance footprint or the removal of maintenance areas would not satisfy the DSOD mandate nor comply with safety recommendations made by the DSOD. Therefore, the Wetland Impact Minimization alternative was determined to be infeasible.

7.4 WILDLIFE MOVEMENT AND NURSERY SITES

Regionally identified wildlife corridors and habitat linkages occur within the Program area. However, the Program is limited to the long-term, routine maintenance of existing facilities, and would not result in the construction or expansion of new facilities and would not result in the introduction of new land uses within the MHPA and BCLAs. As such, implementation of the Program would not create any barriers to wildlife movement nor substantially alter current baseline conditions for local wildlife movement Program area. Similarly, the Program would not introduce new land uses or facilities that would impede the use of wildlife nursery sites. No impact would occur to wildlife corridors or linkages, or to wildlife nursery sites.

7.5 INDIRECT IMPACTS

Indirect impacts can be short-term or long-term and include areas and activities adjacent to the Program area (i.e., edge effects). Examples of short-term indirect impacts include construction-related noises, dust, increased human presence, and hydrology modifications. Long-term indirect impacts primarily result from anthropogenic disturbances by humans, such as noise, lighting, domesticated animals, spread of non-native ornamental and weedy plant species, and urban runoff (including potentially toxic or hazardous chemicals).

Implementation of the Program could result in significant indirect impacts to biological resources from construction-related noise affecting sensitive bird species during the nesting season, including nesting CAGN, LBVI, coastal cactus wren, Cooper's hawk, and northern harrier. However, Program conformance with the MSCP, implementation of standard protection requirements provided as conditions of approval in the Program's SDP, and implementation of the Program's Mitigation and Monitoring Reporting Program (MMRP) would ensure avoidance of indirect noise-related impacts to special status avian species.

Implementation of standard construction BMPs for erosion and sediment control (e.g., preservation of existing vegetation, mulching, hydroseeding, soil binding, silt fencing, fiber rolls, gravel bag berms, sweeping, sandbag barriers, storm drain inlet protection), conformance with State Construction General Permit requirements, where required, applicable requirements of the State Water Resources Control Board, and the City's Storm Water Standards Manual, including future updates, would address potential indirect impacts resulting from dust, hydrology modifications, and stormwater runoff.

7.6 CUMULATIVE IMPACTS

Adverse cumulative impacts are not expected from the implementation of the Dam Maintenance Program. Projects which adhere to the MSCP SAP are not expected to have significant cumulative impacts to resources regulated and covered by these plans. Cumulative impacts are not expected from the implementation of the Program, as the Program would comply with the City's MSCP SAP (including Biology Guidelines and ESL Regulations) and the MHPA LUAG requirements.

8.0 MITIGATION AND MONITORING REQUIREMENTS

8.1 MITIGATION

The following mitigation measures (MM) shall become part of the final environmental document and shall be implemented to reduce potential significant impacts resulting from the implementation of the Program to below a level of significance.

8.1.1 Mitigation for Sensitive Habitat Impacts

Implementation of the overall Program is anticipated to result in direct impacts to 95.40 acres of habitat (Table 7, *Program Impacts to Vegetation and Land Cover Types*; Figures 14a through 14n, *Vegetation and Sensitive Biological Resources/Impacts*). These include permanent impacts to 10.90 acres of wetlands and non-wetland resources, and 19.9 acres of Tier I, II, IIIA, and IIIB sensitive uplands. The remaining 64.6 acres of permanent impacts would be to non-sensitive Tier IV uplands and developed land. Impacts to vegetation would occur as part of the following maintenance activities: dredging; clearing of vegetation within 10 feet of the dams, spillways, and appurtenant structures and five feet of Dulzura conduit; and removal of eucalyptus and palm trees. Impacts to wetland habitats and sensitive uplands would be considered significant and would require mitigation at ratios prescribed by the City's Biology Guidelines (2018). It should be noted that maintenance activities would occur over an extended period; therefore, the overall Program impacts would not occur all at one time. Furthermore, the clearing of vegetation would continue to be conducted on a routine basis under the Program to keep the

maintenance areas free and clear of vegetation. Compensatory mitigation for impacts associated with routine, ongoing maintenance of wetland habitats and sensitive uplands would occur on a one-time basis, and would be accomplished in accordance with the mitigation framework described in this section. Anticipated habitat mitigation for the overall Program is quantified below in Table 12, *Mitigation for Significant Impacts to Sensitive Habitats*. A detailed summary of anticipated mitigation requirements by the Program facility is included as Appendix M. The City is in the process of evaluating mitigation opportunities at existing PUD lands (including allocation of mitigation credits at existing mitigation lands) and/or new lands, as appropriate. As detailed in the Program's mitigation framework, mitigation would be accomplished through one or more of the following: allocation of available mitigation credits at existing PUD mitigation sites; purchase of mitigation credits at an approved mitigation bank; habitat creation, restoration, and/or enhancement; and/or acquisition and preservation of specific land. Allocation of available credits is anticipated to occur at the following PUD mitigation sites: San Diego River (Stadium) Wetland Mitigation Project, Camino del Rio North – San Diego River Creation, Lake Murray, Rancho Mission Enhancement, and Marron Valley Cornerstone Lands Conservation Bank. Purchase of mitigation credits may occur at the future Homefed Otay River Mitigation Bank and/or future San Pasqual Valley Mitigation Bank. A mitigation plan(s) shall be prepared for any proposed habitat creation, restoration, and/or enhancement that will be completed to offset the Program's impacts and meet the Program's mitigation obligations as detailed in the mitigation framework below. A summary of required mitigation and proposed mitigation by each facility is also included in Appendix M.

Wetland mitigation required as part of any federal (USACE) or state (RWQCB/CDFW) wetland permit shall supersede, and not be in addition to, wetland mitigation identified in the final CEQA document for any waters and wetland areas covered under any federal or state wetland permit. Wetland habitat outside the jurisdiction of the federal and state permits, if present, shall be mitigated in accordance with the CEQA document.

Habitat Mitigation for Impacts to Wetlands

Impacts to wetland habitats shall be mitigated at ratios provided in Table 2A of the City's Biology Guidelines through one or a combination of the following: habitat creation, restoration, and/or enhancement; acquisition and preservation of specific land; purchase of mitigation credits at an approved mitigation bank; and/or allocation of available mitigation credits at an existing PUD mitigation site(s). In accordance with the City's Biology Guidelines, impacts to wetland must be mitigation "in-kind" and achieve a "no-net loss" of wetland function and values. Therefore, a minimum 1:1 mitigation ratio shall be provided in the form of creation and/or restoration in order to achieve the no-net loss requirement.

Mitigation locations for wetland impacts shall be selected using the following order of preference, based on the best mitigation value to be achieved:

1. Existing PUD mitigation site(s) (within approved service area).

2. Mitigation site(s) within the impacted watershed on City-owned lands or other publicly owned lands.

3. Approved mitigation bank with a primary service area that includes impacted watersheds.

4. Approved mitigation bank with a secondary service area that includes impacted watersheds.

5. Mitigation site(s) outside of impacted watersheds.

In order to mitigate for impacts in an area outside the limits of the watershed within which the impacts occur, it must be demonstrated that no suitable location exists within the impacted watershed to the satisfaction of the City Manager (or appointed designee) in consultation with the applicable Resource Agencies.

If mitigation is to occur through habitat creation, restoration, and/or enhancement, a Wetland Mitigation Plan shall be prepared in accordance with the City's Biological Guidelines and shall include the following information:

- Planting plan, including plant zones and target habitats;
- Timing;
- Irrigation and grading requirements (as necessary);
- Planting and seeding specifications, including plant and seed palettes;
- Monitoring and reporting program;
- Performance standards; and
- Long-term maintenance and preservation plan.

Mitigation which involves habitat acquisition and preservation shall include the following:

- Location of proposed acquisition;
- Description of the biological resources to be acquired, including support for the conclusion that the acquired habitat mitigates for the specific maintenance impact; and
- Documentation that the mitigation area would be adequately preserved and maintained in perpetuity.

Mitigation which involves the allocation of mitigation credits from an approved PUD mitigation site or purchase of mitigation credits from an approved mitigation bank shall include the following:

- Location of the mitigation site/mitigation bank;
- Description of the credits to be acquired, including support for the conclusion that the acquired habitat mitigates for the specific maintenance impact;
- Documentation that the credits are associated with the mitigation site/mitigation bank are available and have been approved by the appropriate Resource Agencies; and
- Documentation in the form of a current mitigation credit ledger.

Anticipated Program impacts to wetland habitats resulting from the implementation of the overall Program and mitigation requirements are summarized below, and further detailed in Table 12 and Appendix M:

- Impacts to 1.49 acres of southern riparian forest and 0.08 acre of riparian woodland will be provided at a 3:1 ratio for an anticipated combined mitigation obligation of 4.71 acres.

- Impacts to 0.27 acre of southern willow scrub, 1.05 acres of freshwater marsh, 0.02 acre of disturbed wetland, 0.06 acre of non-native riparian, 0.49 acre of unvegetated habitat/lakeshore fringe, and 0.06 acre of non-vegetated channel will be provided at a 2:1 ratio, for an anticipated combined mitigation obligation 3.90 acres.

- Mitigation for wetland impacts shall include a minimum 1:1 creation (establishment) or restoration (re-establishment) component to ensure no net loss of wetlands.

Habitat Mitigation for Impacts to Sensitive Uplands

Impacts to sensitive upland habitats shall be mitigated at ratios provided in Table 3 of the City's Biology Guidelines through one or a combination of the following: habitat creation, restoration, and/or enhancement; acquisition and preservation of specific land; purchase of mitigation credits at an approved mitigation bank; and/or allocation of available mitigation credits at an existing PUD mitigation site(s). In accordance with the City's Biology Guidelines, mitigation for impacts to Tier I habitat could either occur within the MHPA portion of Tier I (in Tier), or outside of the MHPA within the affected habitat type (in-kind). Mitigation for impacts to Tier II, IIIA, and IIIB habitats could either occur within the MHPA portion of Tier I-IIIB (out-of-kind) or occur outside of the MHPA within the affected habitat type (in-kind).

If mitigation is to occur through habitat creation, restoration, and/or enhancement, an Upland Mitigation Plan shall be prepared in accordance with the City's Biological Guidelines containing the following information shall be prepared:

- Planting plan, including plant zones and target habitats;

- Timing;

- Irrigation and grading requirements (as necessary);

- Planting and seeding specifications, including plant and seed palettes;

- Monitoring and reporting program;

- Performance standards; and

- Long-term maintenance and preservation plan.

Mitigation which involves habitat acquisition and preservation shall include the following:

- Location of proposed acquisition;
- Description of the biological resources to be acquired, including support for the conclusion that the acquired habitat mitigates for the specific maintenance impact; and
- Documentation that the mitigation area would be adequately preserved and maintained in perpetuity.

Mitigation which involves the allocation of mitigation credits from an approved PUD mitigation site or purchase of mitigation credits from an approved mitigation bank shall include the following:

- Location of the mitigation site/mitigation bank;
- Description of the credits to be acquired, including support for the conclusion that the acquired habitat mitigates for the specific maintenance impact;
- Documentation that the credits are associated with the mitigation site/mitigation bank are available and have been approved by the appropriate Resource Agencies; and
- Documentation in the form of a current mitigation credit ledger.

Anticipated Program impacts to sensitive upland habitats resulting from the implementation of the overall Program and mitigation requirements are summarized below, and further detailed in Table 12 and Appendix M:

- Impacts to 0.20 acre of Tier I habitat, including coast live oak woodland and scrub oak chaparral, shall be mitigated in accordance with ratios provided in Table 3 of the City's Biology Guidelines, for a mitigation obligation of 0.20 acre.
- Impacts to 9.1 acres of Tier II habitat, including Diegan coastal sage scrub (including disturbed, sparse, laurel sumac dominated, and Baccharis dominated) and coastal sage-chaparral scrub, shall be mitigated in accordance with ratios provided in Table 3 of the City's Biology Guidelines, for a mitigation obligation of 9.1 acres.
- Impacts to 3.8 acres of Tier IIIA habitat, including southern mixed chaparral (including Ceanothus dominated), granitic southern mixed chaparral (including disturbed), granitic northern mixed chaparral (including disturbed), and chamise chaparral, shall be mitigated in accordance with ratios provided in Table 3 of the City's Biology Guidelines, for a mitigation obligation of 2.0 acres.
- Impacts to 6.8 acres of Tier IIIB habitat, non-native grassland, shall be mitigated in accordance with ratios provided in Table 3 of the City's Biology Guidelines, for a mitigation obligation of 4.7 acres.

Table 12
SUMMARY OF MITIGATION FOR SIGNIFICANT PROGRAM IMPACTS TO WETLANDS

Vegetation/Land Cover	Anticipated Program Impacts (acres)[1]			Mitigation Ratio[2]	Anticipated Mitigation Requirements (acres)[1]		
	Inside MHPA	Outside MHPA	Total		Creation/ Restoration[3]	Creation/ Restoration/ Enhancement/ Preservation/ Credits[4]	Total
Southern Riparian Forest	0.49	1.00	**1.49**	3:1	1.49	2.98	4.47
Southern Coast Live Oak Riparian Forest	0	0	**0**		0	0	0
Riparian Woodland	0.03	0.05	**0.08**		0.08	0.16	0.24
Mule Fat Scrub	0	0	**0**	2:1	0	0	0
Southern Willow Scrub	0.27	0	**0.27**		0.27	0.27	0.54
Arrowweed Scrub	0	0	**0**		0	0	0
Tamarisk Scrub	0	0	**0**		0	0	0
Freshwater Marsh	0.78	0.27	**1.05**		1.05	1.05	2.10
Disturbed Wetland	0	0.02	**0.02**		0.02	0.02	0.04
Non-native Riparian	0.06	0	**0.06**		0.06	0.06	0.12
Unvegetated Habitat/Lakeshore Fringe	0	0.49	**0.49**		0.49	0.49	0.98
Non-vegetated Channel	0	0.06	**0.06**		0.06	0.06	0.12
Arundo-Dominated Riparian	0	0.02	**0.02**	0:1	0	0	0
Open Water/Freshwater Lake	3.24	4.12	**7.36**[5]		0	0	0
TOTAL	**4.87**	**6.03**	**10.90**	**-**	**3.52**	**5.09**	**8.61**

[1] Acreages rounded to the nearest 0.01 acre for wetlands; total reflects rounding.

[2] Wetland mitigation ratios are in accordance with Table 2A of the City's Biology Guidelines (2018).

[3] Mitigation for wetland impacts shall include a minimum 1:1 creation (establishment) or restoration (re-establishment) component to ensure no net loss of wetlands.

[4] Mitigation shall be achieved through one or a combination of the following: habitat creation, restoration, and/or enhancement; acquisition and preservation of specific land; purchase of mitigation credits at an approved mitigation bank; and/or allocation of available mitigation credits at an existing PUD mitigation site(s).

[5] Program impacts to open water/freshwater lake are restricted to dredging activities around the outlet towers, low-level outlets, and intake pipes, and routine clearing of debris. No habitat modification of open water/freshwater lake would occur.

Table 13
SUMMARY OF MITIGATION FOR SIGNIFICANT PROGRAM IMPACTS TO SENSITIVE UPLANDS

Vegetation/Land Cover	Anticipated Program Impacts (acres)[1]			Mitigation Ratio[2]	Anticipated Mitigation Requirements[3] (acres)[1]
	Inside MHPA	Outside MHPA	Total		
Tier I					
Native Grassland – Disturbed	0	0	**0**	2:1; 1:1*	0
Coast Live Oak Woodland	0	0.1	**0.1**		0.1
Engelmann Oak Woodland	0	0	**0**		0
Mixed Oak Woodland	0	0	**0**		0
Scrub Oak Chaparral	0	0.1	**0.1**		0.1
Tier I Total	***0***	***0.2***	***0.2***	-	***0.2***
Tier II					
Diegan Coastal Sage Scrub – including Disturbed, Sparse, Laurel Sumac Dominated, and Baccharis Dominated	2.6	5.3	**7.9**	1:1	7.9
Flat-topped Buckwheat Scrub	0	0	**0**		0
Coastal Sage-Chaparral Scrub – including disturbed	0	1.2	**1.2**		1.2
Tier II Total	***2.6***	***6.5***	***9.1***	-	***9.1***
Tier IIIA					
Southern Mixed Chaparral – including Ceanothus Dominated	0.1	0	**0.1**	1:1†; 0.5:1‡	0.1
Granitic Southern Mixed Chaparral – including disturbed	0	3.1	**3.1**		1.6
Granitic Northern Mixed Chaparral – including Sparse	0	0.4	**0.4**		0.2
Chamise Chaparral	0	0.2	**0.2**		0.1
Tier IIIA Total	***0.1***	***3.7***	***3.8***	-	***2.0***
Tier IIIB					
Non-native Grassland	2.5	4.3	**6.8**	1:1†; 0.5:1‡	4.7
Tier IIIB Total	***2.5***	***4.3***	***6.8***	-	***4.7***
TOTAL	**5.2**	**14.7**	**19.9**	-	**16.0**

[1] Acreages rounded to the nearest 0.1 acre for uplands; total reflects rounding.

[2] Upland mitigation ratios in accordance with Table 3 of the City's Biology Guidelines (2018) and assume mitigation will occur within MHPA boundaries.

[3] Mitigation shall be achieved through one or a combination of the following: habitat creation, restoration, and/or enhancement; acquisition and preservation of specific land; purchase of mitigation credits at an approved mitigation bank; and/or allocation of available mitigation credits at an existing PUD mitigation site(s); and/or through payment into the City's Habitat Acquisition Fund.

* A 1:1 mitigation ratio is for Tier I impacts outside the MHPA and mitigated inside the MHPA.

† A 1:1 mitigation ratio is for Tier IIIA/Tier IIIB impacts inside the MHPA and mitigated inside the MHPA.

‡ A 0.5:1 mitigation ratio is for Tier IIIA/Tier IIIB impacts outside the MHPA and mitigated inside the MHPA. Mitigation for Special Status Species Impacts.

8.1.2 Mitigation for Special Status Species Impacts

Rare Plant Avoidance and Mitigation

Prior to the clearing of vegetation within the Program area, a Qualified Biologist shall conduct a pre-construction survey for special status plant species previously observed or with high or moderate potential to occur within the affected areas, including a 20-foot buffer, to identify the location and number of any individuals present. Program activities shall avoid impacts to special status plant species found within the maintenance areas to the extent feasible (if present). The locations and/or boundaries of special status plant species to be avoided during maintenance activities shall be clearly delineated with flagging or temporary fencing that must remain in place for the duration of activities. If impacts cannot be completely avoided, then efforts shall be made to limit trimming any individual shrubs to the minimum amount necessary, including root disturbance, which will allow for individuals to resprout from the base.

If Program activities can avoid root disturbance, no additional mitigation would be required. If root disturbance cannot be avoided and removal of state/federally listed or City Narrow Endemic plant species is required, then impacts shall be mitigated at a minimum 1:1 ratio through one or a combination of the following actions: transplantation (when feasible) of impacted individuals to suitable habitat areas located outside of the maintenance footprint; installation of plantings within suitable habitat in the MHPA; and/or enhancement of suitable habitat outside of the maintenance footprint that supports the species through supplement seeding of the species.

Mitigation which involves relocation, planting, or enhancement of special status plant species shall include preparation of a species-specific Restoration or Revegetation Plan to ensure successful establishment to achieve a 1:1 replacement for individuals impacted. The Plan shall include the following information: planting and/or seeding specifications, temporary irrigation requirements (if determined to be necessary), monitoring and reporting program, and performance standards.

Quino Checkerspot Butterfly Avoidance and Mitigation

The City shall obtain take coverage for impacts to QCB and occupied QCB habitat and host plant patches through consultation with the USFWS. All Terms and Conditions and Conservation Measures specified by USFWS as part of the consultation process shall be adhered to, and any required habitat-based mitigation shall occur at mitigation ratios determined during the consultation process.

Mitigation for Program impacts to 4.56 acres of QCB occupied habitat (including 0.31 acre of QCB host plants) is anticipated to occur at a 1.5:1 ratio through habitat restoration and/or off-site acquisition/preservation of QCB occupied habitat. If mitigation is to occur through habitat restoration, the City shall prepare a Habitat Restoration Plan to describe the approach to a minimum five-year restoration program, maintenance and monitoring methods, performance criteria, adaptive management, and reporting requirements. The City will provide a copy of the Habitat Restoration Plan to USFWS for review prior to implementation. Upon successful completion of the restoration program, the restoration site will be managed by the City's Parks and Recreation Department, Public Utilities Department, or other qualified land/preserve manager. Funding for long-term management will be provided through the City's annual fiscal budget. If off-site acquisition/preservation of occupied QCB habitat is to occur, the off-site land shall be protected in perpetuity and managed to ensure long-term protection of the habitat and the habitat quality for QCB.

In addition, USFWS consultation and compensatory mitigation, the City shall implement the following Quino checkerspot butterfly measures for Program activities conducted at San Vicente Dam, Savage Dam, Upper Otay Dam, and Dulzura Conduit in order to avoid and/or minimize impacts to QCB.

A. Program activities that would result in the clearing and/or removal of vegetation shall not commence during the Quino checkerspot butterfly flight season (defined as the 3rd week of February through the 2nd Saturday in May) until the following requirements have been met to the satisfaction of the City Manager (or appointed designee):

    1. A Qualified Biologist shall be present to monitor all vegetation clearing activities and ensure that all flagged and mapped host plant locations planned for avoidance are avoided.

    2. The Qualified Biologist shall conduct environmental awareness training for all maintenance personnel prior to the commencement of individual maintenance activities with the potential to impact QCB and/or potential QCB habitat, and annually for ongoing routine annual maintenance activities.

    3. Access roads, access trail, and footpath trail maintenance within these facilities shall either occur outside of the Quino checkerspot butterfly flight season or be monitored by a Qualified Biologist.

    4. Any observations of Quino checkerspot butterfly shall be reported to the City and U.S. Fish and Wildlife Service within 24 hours.

Hermes Copper Butterfly Avoidance and Mitigation

The City shall obtain take coverage for impacts to Hermes copper butterfly and potential occupied habitat. All Terms and Conditions and Conservation Measures specified by USFWS as part of the consultation process shall be adhered to, and any required habitat-based mitigation shall occur at mitigation ratios determined during the consultation process.

In addition to the USFWS consultation, the City shall implement the following Hermes copper butterfly measures for Program activities conducted at Barrett Dam and Dulzura Conduit in order to avoid and/or minimize impacts to Hermes copper butterfly.

A. Program activities that would result in the clearing and/or removal of vegetation shall not commence during the Hermes copper butterfly flight season (defined as May through July) until the following requirements have been met to the satisfaction of the City Manager (or appointed designee):

    1. A Qualified Biologist shall conduct a pre-construction survey for Hermes copper butterfly and suitable Hermes copper habitat as defined in the Species Status Assessment for the Hermes Copper Butterfly as spiny redberry (*Rhamnus crocea*) occurring in close proximity to California buckwheat (*Eriogonum fasciculatum*) within the affected areas within one week prior to commencement of activities. If found, host plants will be flagged and avoided.

2. The Qualified Biologist shall present to monitor all vegetation clearing activities and ensure that all flagged and mapped host plant locations planned for avoidance are avoided.

3. The Qualified Biologist will conduct environmental awareness training for all maintenance personnel prior of individual maintenance activities with the potential to impact Hermes copper butterfly and/or potential habitat species, and annually for ongoing routine annual maintenance activities.

4. Access roads, access trail, and foot path trail maintenance within these facilities shall either occur outside of the Hermes copper butterfly flight season or be monitored by a Qualified Biologist.

5. Any observations of Hermes copper butterfly shall be reported to the City and U.S. Fish and Wildlife Service within 24 hours.

Arroyo Toad Avoidance and Mitigation

The following arroyo toad measures shall apply to Program activities conducted at Barrett Dam, El Capitan Dam, and Sutherland Dam.

A. Impacts to potential arroyo toad habitat shall be mitigated in-kind at ratios provided in Table 2A and Table 3 of the City's Biology Guidelines.

B. Program activities that would result in habitat removal or ground-disturbing activity, including spillway clearing and repair, within suitable arroyo toad breeding habitat shall not commence during the arroyo toad breeding season (March 15 through July 1) until the following requirements have been met to the satisfaction of the City Manager (or appointed designee):

    1. A Qualified Biologist shall conduct a pre-construction survey for arroyo toad for at least three consecutive nights within one week prior to commencement of activities to determine the presence or absence of arroyo toad within the 500 feet of the affected areas.

        I. If arroyo toads are determined to be absent, maintenance/construction activities shall occur under the supervision of the Qualified Biologist with the following requirements:

            a. The Qualified Biologist will conduct environmental awareness training for all maintenance personnel prior to the commencement of activities.

            b. Work activities will not occur immediately prior to or during rain events.

            c. Hours of work will be limited to daylight hours, except when nighttime work is necessary (i.e., for worker safety). If work must be done at night, construction lighting will be of the lowest illumination necessary, selectively placed, shielded, and directed away from natural habitats.

            d. The Qualified Biologist shall halt all work activities if any arroyo toads are found to be present within or adjacent to the work areas. Maintenance/construction

activities shall not resume until the City has consulted with the U.S. Fish and Wildlife Service to determine appropriate measures to complete activities.

II. If arroyo toads are found to occur within or adjacent to the work areas, maintenance/construction activities shall not occur until either after the arroyo toad breeding season, or until the City has consulted with the U.S. Fish and Wildlife Service to determine appropriate measures to complete activities.

2. All nighttime maintenance/construction activities will be avoided within or adjacent to occupied arroyo toad habitat during the arroyo toad breeding season or monitored by a Qualified Biologist.

3. Access roads, access trail, and footpath trail maintenance at these facilities shall either occur outside of the arroyo toad breeding season or be monitored by a Qualified Biologist.

4. Any observations of arroyo toad shall (including incidental excavation, capture and relocation, injury, or death of arroyo toads in association with Program activities) will be reported to the City and U.S. Fish and Wildlife Service within 24 hours.

Coastal California Gnatcatcher Avoidance

No clearing, grubbing, grading, or other maintenance/construction activities shall occur between March 1 through August 15, the breeding season of the coastal California gnatcatcher, until the following requirements have been met to the satisfaction of the City Manager (or appointed designee):

1. A Qualified Biologist (possessing a valid Endangered Species Act Section 10(a)(1)(A) Recovery Permit) shall survey those habitat areas within the MHPA that would be subject to maintenance/construction noise levels exceeding 60 decibels (dBA) hourly average, or exceeding ambient noise levels if greater than 60 dBA, for the presence of the coastal California gnatcatcher. Surveys for the coastal California gnatcatcher shall be conducted pursuant to the protocol survey guidelines established by the USFWS within the breeding season prior to the commencement of any maintenance/construction activities with the potential to directly or indirectly impact gnatcatcher. If gnatcatchers are present, then the following conditions must be met:

I. Between March 1 and August 15, no clearing, grubbing, or grading of occupied gnatcatcher habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; and

II. Between March 1 and August 15, no maintenance/construction activities shall occur within any portion of the Program area where activities would result in noise levels exceeding 60 dBA hourly average or ambient, whichever is higher, at the edge of occupied gnatcatcher habitat. An analysis showing that noise generated by maintenance/construction activities would not exceed 60 dBA hourly average or ambient (whichever is higher) at the edge of occupied habitat must be completed by a qualified acoustician (possessing a current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager (or appointed designee) at least two weeks prior to the commencement of maintenance/construction activities. Prior to the commencement

of maintenance/construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; or

III. At least two weeks prior to the commencement of maintenance/construction activities, under the direction of a qualified acoustician, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dBA hourly average or ambient (whichever is higher) at the edge of habitat occupied by the coastal California gnatcatcher. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dBA or ambient (whichever is higher) hourly average. If the noise attenuation techniques implemented are determined to be inadequate by the qualified acoustician or biologist, then the associated construction activities shall cease until such time that adequate noise attenuation is achieved or until the end of the breeding season (August 16).

**Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the maintenance/construction activity, to verify that noise levels at the edge of occupied habitat are maintained below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. If not, other measures shall be implemented in consultation with the biologist and the City Manager (or appointed designee), as necessary, to reduce noise levels to below 60 dB(A) hourly average or to the ambient noise level if it already exceeds 60 dB(A) hourly average. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.*

2. If coastal California gnatcatchers are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager (or appointed designee) and applicable Resource Agencies that demonstrates whether or not mitigation measures, such as noise walls, are necessary between March 1 and August 15 as follows:

   I. If this evidence indicates the potential is high for coastal California gnatcatcher to be present based on historical records or site conditions, then Condition III shall be adhered to as specified above.

   II. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

Least Bell's Vireo and Southwestern Willow Flycatcher Avoidance and Mitigation

A. Impacts to riparian habitat occupied by least Bell's vireo shall be mitigated in-kind at ratios provided in Table 2A of the City's Biology Guidelines.

B. No clearing, grubbing, grading, or other maintenance/construction activities shall occur within 500 feet of riparian habitat during the least Bell's vireo breeding season (March 15 through September 15) or southwestern willow flycatcher breeding season (May 1 through September 1) until the following requirements have been met to the satisfaction of the City Manager (or appointed designee):

1. A Qualified Biologist (possessing a valid Endangered Species Act Section 10(a)(1)(A) Recovery Permit when required) shall survey those habitat areas that would be subject to maintenance/construction noise levels exceeding 60 decibels (dBA) hourly average for the presence of the least Bell's vireo and southwestern willow flycatcher. Surveys for this species shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service within the breeding season prior to the commencement of maintenance/construction. If vireos or flycatcher are present, then Condition I and either II or III must be met:

    I. Between March 15 and September 15 for least Bell's vireo and May 1 through September 1 for southwestern willow flycatcher, no clearing, grubbing, or grading of occupied habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; AND

    II. Between March 15 and September 15 for least Bell's vireo and May 1 through September 1 for southwestern willow flycatcher, no maintenance/construction activities shall occur within any portion of the site where maintenance/construction activities would result in noise levels exceeding 60 dBA hourly average at the edge of occupied habitat. An analysis showing that noise generated by maintenance/construction activities would not exceed 60 dBA hourly average at the edge of occupied habitat must be completed by a Qualified Acoustician (possessing current noise engineer license or registration with monitoring noise level experience with listed animal species) and approved by the City Manager (or appointed designee) at least two weeks prior to the commencement of maintenance/construction activities. Prior to the commencement of any maintenance/construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a Qualified Biologist; OR

    III. At least two weeks prior to the commencement of maintenance/construction activities, under the direction of a qualified acoustician, noise attenuation measures shall be implemented to ensure that noise levels resulting from maintenance/construction activities will not exceed 60 dBA hourly average at the edge of occupied habitat.

2. If least Bell's vireos or southwestern willow flycatcher are not detected during the protocol survey, the Qualified Biologist shall submit substantial evidence to the City Manager (or appointed designee) and applicable Resource Agencies that demonstrates whether or not mitigation measures such as noise walls are necessary between March 15 and September 15 for least Bell's vireo, and/or May 1 through September 1 for southwestern willow flycatcher as follows:

    I. If this evidence indicates the potential is high for least Bell's vireo and/or southwestern willow flycatcher to be present based on historical records or site conditions, then Condition A.III shall be adhered to as specified above.

    II. If this evidence concludes that no impacts to this species are anticipated, no additional measures would be necessary.

Special Status Avian Species Protection Requirements

To avoid any direct impacts to any species identified as a listed, candidate, sensitive, or special status species in the MSCP, including but not limited to southwestern willow flycatcher, coastal cactus wren, Cooper's hawk, and northern harrier, removal of habitat that supports active nests in the proposed area of disturbance shall occur outside of the breeding season for these species (January 1 to July 15 for raptors; February 1 to September 15 for all other avian species). If Program activities that involve the clearing of vegetation must occur within the breeding season, a pre-construction survey shall be conducted by a Qualified Biologist no more than seven days prior to the commencement of the activities in areas supporting suitable habitat to determine the presence or absence of nesting birds or raptors within the proposed area of disturbance.

If the Qualified Biologist determines that no active nesting birds or raptors are present within the proposed area of disturbance, the activities shall be allowed to proceed. If the Qualified Biologist determines that an active bird or raptor nest is present, a letter report or mitigation plan in conformance with the City's Biology Guidelines and applicable state and federal law (i.e., appropriate follow-up surveys, monitoring schedules, appropriate nest setbacks, maintenance/construction, and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. Appropriate nest setbacks shall be implemented as determined by the City's Biology Guidelines, or by a Qualified Biologist if no defined setback is provided in the Biology Guidelines. City-defined avoidance setbacks within the MHPA are 300 feet for nesting Cooper's hawk and 900 feet for nesting northern harrier. No impacts shall occur within the setback area until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the Qualified Biologist. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City Manager (or appointed designee) and Qualified Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during applicable Program activities.

Bat Roost Avoidance

A. Program activities with the potential to impact suitable roosting habitat for bats, including but not limited to removal of trees or repair of cracks in cement or rocks at least six mm wide, shall not commence until the following requirements have been met to the satisfaction of the City Manager (or appointed designee):

    1. During the bat maternity season (April 15 through August 15), a Qualified Biologist with at least three years of experience conducting bat surveys and acoustic monitoring shall conduct a one-night emergence survey during suitable weather conditions (no rain or high winds, night temperatures above 55°F), or if conditions permit, physically examine potential roost sites for presence or absence of bats, within three days prior to the commencement of maintenance/construction activities.

        I. If bats are detected and determined to be roosting within the area proposed for maintenance, maintenance/construction activities within 100 feet of the roost site shall be avoided until after the maternity season (August 15) or when the young are self-sufficiently volant (able to fly).

II. If bats are not detected during the pre-construction survey or determined to be absent from the area proposed for maintenance, maintenance/construction activities shall be allowed to proceed, and no additional measures would be necessary.

2. Outside of the bat maternity season (August 16 through April 14), a Qualified Biologist with experience conducting day roosting surveys for bats will physically examine cavities and other potential roost sites, as conditions permit, for the presence or absence of bats within three days prior to the commencement of maintenance/construction activities.

   I. If bats are detected and determined to be roosting within the area proposed for maintenance during the winter months when bats are in torpor (October 31 through February 15), maintenance/construction activities within 100 feet of the roost site shall be avoided until after the winter season when bats are once again active.

   II. If bats are detected and determined to be roosting within the area proposed for maintenance outside of both the winter months and bat maternity season (i.e., maintenance activities conducted between August 16 through October 30, and February 16 through April 14), maintenance/construction activities within 50 feet of the roost site shall be avoided until bats are no longer determined to be roosting within the proposed area for maintenance as determined by the qualified bat biologist.

   III. If bats are not detected during the pre-construction survey or determined to be absent from the area proposed for maintenance, maintenance/construction activities shall be allowed to proceed, and no additional measures would be necessary.

8.2 MANAGEMENT ELEMENT

Restoration/revegetation/mitigation management for upland and wetland habitat shall be provided by the City PUD during the required mitigation and monitoring periods. Long-term management shall be provided by the City PUD, Parks and Recreation Department, or other qualified land/preserve manager following the success of the mitigation efforts. Funding for long-term management will be provided through the City's annual fiscal budget. If off-site acquisition/preservation of habitat is to occur, the off-site land shall be protected in perpetuity and managed to ensure long-term protection of the habitat. This report provides a mitigation framework for compensatory mitigation to be accomplished. Compensatory mitigation not addressed or already assigned in the report would be accomplished through subsequent environmental analyses that would provide project-specific mitigation based on this framework.

9.0 ACKNOWLEDGMENTS

The following people contributed to the preparation of this report:

Katie Bellon[2]	B.S., Biology, California State Polytechnic University, San Luis Obispo, 2009
Sean Bohac[1]	Certificate in GIS, San Diego Mesa College, 2003 B.S., Biology, The Evergreen State College, 1998
Linda Garcia[6]	M.A., English, National University, San Diego, 2012 B.A., Literatures in English, University of California, San Diego, 2003
Erica Harris[2,4]	B.S., Biology, emphasis in Zoology, San Diego State University, 2009
Shelby Howard[3,5]	M.S., Biology, San Diego State University, 2004 B.S., Biology, University of Texas, El Paso, 1999
Camille Lill[1]	M.S., Spatial Information Science, University of Adelaide, Australia, 2003 B.A., Geography, Emphasis in Techniques, University of Oregon, 2000
John Konecny[2]	B.S., Marine Biology, California State University, Long Beach, 1983
Amy Mattson[2]	M.S., Marine Biology, Scripps Institution of Oceanography, 1999 B.S., Biology, with a Marine Biology concentration, University of California, Los Angeles, 1994
Laura Moreton[2]	M.S., Biodiversity Survey, University of Sussex, 2007 B.S., Biology, San Diego State University, 2006 A.S., Biology, Southwestern College, 2004
Stacy Nigro[2]	B.S., Forest Resources and Conservation, Emphasis in Wildlife Ecology, University of Florida, 1994
Dane van Tamelen[2]	B.A., Environmental Studies, University of California at Santa Cruz, 2015
Sally Trnka[2]	M.S., Biology, emphasis Ecology, San Diego State University, 1998 B.S., Biological Sciences, University of California-Davis, 1992

[1]GIS Specialist; [2]Biologist; [3]Principal; [4]Primary Author; [5]Contributing Author; [6]Technical Editor

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