



# M2 Natural Community Conservation Plan/Habitat Conservation Plan– First Annual Report

2019

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# **M2 NATURAL COMMUNITY CONSERVATION PLAN/HABITAT CONSERVATION PLAN – FIRST ANNUAL REPORT**

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## Acronyms and Definitions

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ACOE – Army Corps of Engineers

CAC – Citizen Advisory Committee

Caltrans – California Department of Transportation

CCC – California Coastal Commission

CCF – California Community Foundation

CDFW – California Department of Fish and Wildlife

CEs – Conservation Easements

CHSP – Chino Hills State Park

CNDDDB – California Natural Diversity Database

COI – Certificate of Inclusion

ECR – Environmental Commitment Report

EFM – Endowment Fund Manager

EMP – Environmental Mitigation Program

EOC – Environmental Oversight Committee. The EOC is made up of two OCTA Board members and representatives from Caltrans, the Wildlife Agencies, ACOE, environmental groups, and the public. The EOC makes recommendations on the allocation of environmental freeway mitigation funds and monitors the execution of a master agreements between OCTA and state and federal resource agencies.

ESA – Endangered Species Act

FMP – Fire Management Plan

GIS – geographic information system

GLA – Glen Lukos Associates

HCP – Habitat Conservation Plan

HMMP – Habitat Mitigation Monitoring Plan

I – Interstate

IA – Implementing Agreement

IRC – Irvine Ranch Conservancy

ISHB – Invasive shot hole borer

ISMP – Invasive Species Management Plan

M2 – The renewed Measure M (or Measure M2)

M2 NCCP/HCP – OCTA M2 Natural Communities Conservation Plan / Habitat Conservation Plan adopted on November 2017. Also referred as Plan.

NCC – Natural Communities Coalition

NCCP – Natural Community Conservation Plan

NCCPA – Natural Community Conservation Plan Act

OC – Orange County

OC Parks – Orange County Parks

OCTA – Orange County Transportation Authority

RMP – Resource Management Plan

SARP – Santa Ana River Mainstem Project

SCAG – Southern California Association of Governments

SR – State Route

TCA – Transportation Corridor Agencies

TOC – Taxpayer Oversight Committee

UCI – University of California Irvine

USFS – United States Forest Service

USFWS – U.S. Fish and Wildlife Service

Wildlife Agencies – the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Wildlife Agencies

# Executive Summary

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This is the first Annual Report for the Orange County Transportation Authority (OCTA) M2 Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP or Plan), covering all activities up to December 31, 2018. This report summarizes the tracking of impacts associated with covered freeway improvement projects and other management and monitoring activities on Preserves (Covered Activities), status and activities on the OCTA Preserves, progress on the implementation of OCTA-funded restoration projects, and additional Plan administration and public outreach activities. This Annual Report has been reviewed and approved by the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Wildlife Agencies. In addition, this Annual Report is presented to the OCTA Environmental Oversight Committee (EOC) and is available for a public review.

## Tracking Impacts from Covered Activities

OCTA keeps an accounting of the Plan-to-date impacts on habitat types from all covered freeway improvement projects to ensure impacts stay within the caps established within the Plan. To date, a total of **7.5 acres of habitat impacts have been authorized relative to a cap of 141.0 acres**. In addition, OCTA uses a consistency determination checklist to evaluate how and when avoidance and minimization measures are implemented on covered freeway improvement projects. Four projects (C1, B, L1, M) had consistency determinations drafted, modified, or completed within the timeframe of this Annual Report. Other tracking requirements include:

- *Tracking for Covered Plant Species Policy* – OCTA tracks the credits for covered plant species protection (on Preserves) and restoration/enhancement (restoration projects) relative to allowable impacts. The Plan-to-date balance for each plant species is net positive (intermediate mariposa lily [+963], many-stemmed dudleya [+60], southern tarplant [+1,513]).
- *Tracking Impacts on Habitat Types Resulting from Covered Activities within Preserves* – The Plan establishes a cap that no more than 13 acres (approximately 1%) of the natural habitat within the OCTA Preserves will be impacted by Preserve management activities. To date, no measurable permanent impacts have been recorded on the Preserves.
- *Maintaining Rough Proportionality* – The Plan requires implementation of conservation measures roughly proportional in time and extent to impacts on natural communities and Covered Species. To date, two restoration projects, Big Bend and City Parcel, have received sign-off from the Wildlife Agencies as meeting their success criteria and have achieved conservation credits that keeps the Plan ahead of allowable impacts.

## OCTA Preserves

OCTA acquired seven properties resulting in the protection of 1,236<sup>1</sup> acres of natural habitat (see Figure 1). In all instances, the seven Preserves are located within priority conservation areas and immediately adjacent to other protected lands. These Preserves add to the protection of large blocks of natural open space in areas important for regional conservation. OCTA has completed Resource Management Plans (RMPs) for each Preserve that includes Preserve-specific goals and objectives and define an appropriate level of public access and trail use consistent with protection of biological resources. It is anticipated that Conservation Easements will be completed and recorded in the near future. Currently each Preserve is being managed by OCTA, with the exception of the Eagle Ridge Preserve, which is being managed by Chino Hills State Park (CHSP) under an interim land management agreement. OCTA is working to identify and transition to long-term Preserve Managers in the near future. OCTA has contracted with the following consulting firms to support Preserve management: (1) Glenn Lukos Associates to provide biological monitoring, prepare invasive species management plans, and assist with public outreach events, (2) RECON Environmental to support general Preserve stewardship including maintenance of access roads, tree trimming, and control of public access, (3) Wildland Res Mgt to complete Fire Management Plans (FMPs), and (4) ICF to assist with completion of RMPs and preparation of the Annual Report. OCTA has hosted numerous Preserve-specific outreach events to educate the public about property value and access and plans to continue this process in the near term as part of a managed access approach. To date, a 1.5-acre fire occurred on the Eagle Ridge Preserve. The fire was extinguished quickly by Brea County Fire Department, and the burn area has been recovering with no additional management actions. No other fires or major events have occurred on the Preserves, although a level of trespassing and vandalism continues to occur requiring ongoing monitoring and enforcement.

## OCTA-Funded Restoration Projects

OCTA has approved funding for 11 restoration projects and a check dam removal project that will result in over 350 acres of restored habitats and improvement to habitat functions for Covered Species. The restoration projects occur throughout the Plan Area in core habitat areas and within key habitat linkages and riparian corridors (see Figure 1). The restoration projects are on lands that are currently managed and will enhance habitat for Covered Species. OCTA is working with the restoration project sponsors to complete implementation and monitoring of the restoration activities and achieve sign-off from the Wildlife Agencies that the restoration projects meet their success criteria. Each restoration project is at different stages of the process. To date, 2 of the 11 restoration projects have obtained sign-off.

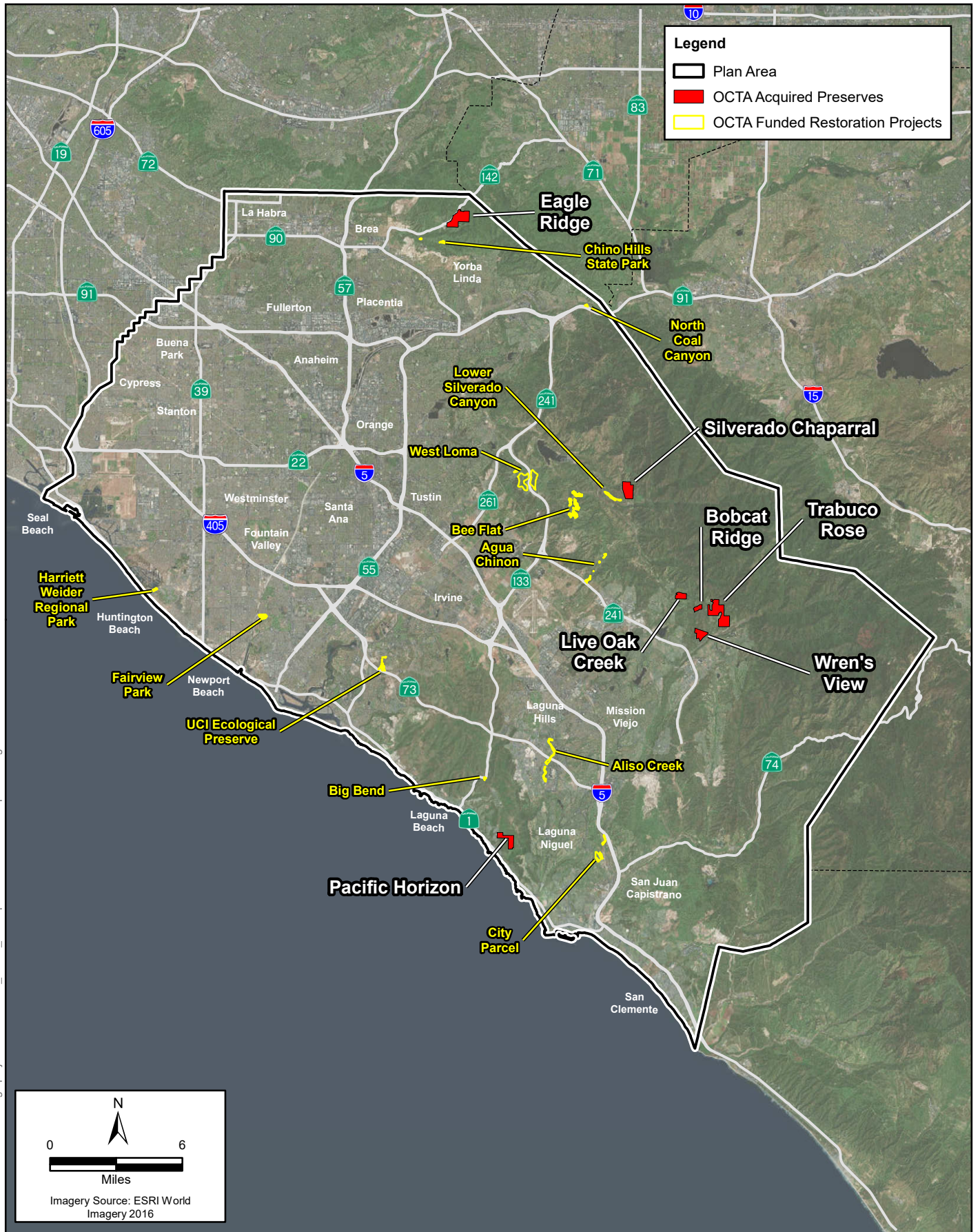
## Additional Conditions for Coverage

As part of the Conservation Analysis (Chapter 6) in the Plan, there were two Covered Species, arroyo chub and many-stemmed dudleya, noted for additional conditions for coverage above and beyond

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<sup>1</sup> The acreage of natural habitat preserved is based on best available information using during the preparation of RMPs and may be slightly different from acreages reported in the M2 NCCP/HCP.

\\PDC\ITRDS\GIS\1\San\_Diego\projects\OCTA\RMP\_00399\_15\mapdoc\RMPs\AnnualReport\2 Figure 1-1 HCP Preserves and Restoration.mxd Date: 12/1/2018 34:153



**Figure 1-1**  
**OCTA M2 NCCP/HCP Preserves and Restoration Projects**  
**M2 NCCP/HCP Annual Report**



the acquisition of the OCTA Preserves and funding of restoration projects. In 2017, the EOC and Wildlife Agencies approved OCTA to fund the United States Forest Service Dam Removal restoration project that, when complete, will satisfy the conditions for coverage of arroyo chub. OCTA is currently taking steps to protect and enhance an existing population of many-stemmed dudleya on the Pacific Horizon Preserve with the hope that it will expand to help meet or will meet the criteria needed to achieve coverage for many-stemmed dudleya.

## Public Outreach

OCTA has been committed to transparency in how the M2 funds have been and are being used to implement the Plan and the broader Environmental Mitigation Program (EMP). OCTA has conducted a variety of public outreach activities aimed at informing and engaging the public on the overall EMP as well as Preserve-specific issues and events. These have included public meetings during the preparation of the Preserve RMPs, maintaining a website with information and documents related to the program, and engaging in various outreach efforts and encouraging volunteer programs. Between 2009 and 2018, OCTA participated in 67 EMP public outreach events and meetings and 39 Preserve-specific public outreach events.

## Plan Funding

The primary source of funding for the Plan will derive from the M2 transportation sales tax designed to raise money to improve Orange County's transportation system. As part of the M2 sales tax initiative, at least 5% of the revenues from the freeway program will be set aside for the M2 EMP revenues. There are sufficient funds available through the M2 EMP to cover the development and implementation of the Plan. OCTA is currently in a 10–12 year process to accumulate and establish an endowment that will provide a long-term funding source to cover ongoing Preserve management and monitoring, adaptive management, and responses to changed circumstances, in perpetuity. In the short-term, the current M2 EMP revenue stream is used to cover Plan implementation and administration.

## Plan Administration

OCTA is responsible for implementing the Plan and staffing an NCCP/HCP Administrator position. OCTA has designated Lesley Hill as the NCCP/HCP Administrator. Her role includes overseeing Preserve management and monitoring, coordinating with restoration project sponsors, serving as the primary point of contact with the Wildlife Agencies, ensuring avoidance and minimization measures are implemented pursuant to the Plan, tracking impacts and conservation, assisting with public outreach, and preparing this Annual Report.

The Plan outlines how modifications, Minor Amendments, and Major Amendments can be made to the Plan. This Annual Report summarizes Plan modifications that have been made in collaboration with the Wildlife Agencies that address revisions to restoration project design plans and sponsors, minor Preserve boundary adjustments, and approval of a new restoration project since Plan approval. No Minor or Major Amendments are proposed.

## **1.1 Background**

In 2006, Orange County voters approved the renewal of Measure M, effectively extending the half cent sales tax to provide funding for transportation projects and programs in the county. As part of the renewed Measure M (or Measure M2), a portion of the M2 freeway program revenues were set aside for the M2 Environmental Mitigation Program (EMP) to provide funding for programmatic mitigation to offset impacts from the freeway projects in the 13 freeway segments covered by Measure M2. The Orange County Transportation Authority (OCTA) prepared a Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP or Plan) as a mechanism to offset potential project-related effects on threatened and endangered species and their habitats in a comprehensive manner. The Plan achieves higher-value conservation than what would be expected through project-by-project mitigation in exchange for a streamlined project review and permitting process for the Measure M2 freeway program as a whole.

## **1.2 Introduction**

The purpose of this document is to provide an update on the status of the Plan implementation activities that have occurred during the reporting period for this Annual Report. Since this is the first Annual Report, it includes all Plan implementation undertaken to date up to December 31, 2018. Subsequent Annual Reports will only cover the timeframe of a single calendar year. The information in this report will be used in compliance monitoring to determine if OCTA is properly implementing the M2 NCCP/HCP pursuant to relevant regulations and permit conditions. Annual tracking and reporting of the Plan implementation activities is required by Section 8.4 of the Plan; Section 10.1 of the Implementing Agreement, dated November 2016; the Federal Fish and Wildlife 10(a)(1)(B) Permit No. TE32842C-0, dated June 19, 2017; and the NCCP Permit No. 2835-2017-001-05, dated June 19, 2017.

## **1.3 Compliance Matrix**

To satisfy the terms and conditions of the state and federal take authorization, OCTA is required to fulfill the obligations outlined in the Plan and Implementing Agreement (IA). Implementation tasks associated with these regulations are completed or ongoing, as described in Table 1-1. This table summarizes the compliance actions, identifies the Plan sections, briefly describes the compliance requirement, and summarizes the steps OCTA is currently taking. The compliance actions are described in greater detail later in this report.

**Table 1-1. M2 NCCP/HCP Compliance Matrix**

<b>Compliance Action</b>	<b>Plan Section Reference</b>	<b>Description</b>	<b>Summary of OCTA Compliance</b>	<b>Annual Report Section Reference</b>
<b><i>Tracking Impacts</i></b>	5.8.1, 7.1	The NCCP/HCP Administrator will be responsible for collecting and maintaining information that tracks impacts on natural resources resulting from covered freeway improvement projects and other management and monitoring activities on Preserves (Covered Activities) to ensure that the amount of impacts that ultimately occur under the Plan stays below the amount of impacts estimated during Plan development.	OCTA has developed procedures and approaches to track project impacts to ensure they are consistent with the Plan.	Chapter 2
<b>Freeway Improvement Projects</b>	5.8.1.1	The NCCP/HCP Administrator will be responsible for tracking the status of covered freeway improvement projects.	OCTA maintains a table summarizing the status of the M2 freeway improvement projects.	2.1.1
<b>Habitat Types</b>	5.8.1.1, Appendix F	OCTA will record the acres of direct and temporary impacts to natural communities using detailed vegetation mapping completed as part of pre-construction field surveys. The detailed vegetation mapping will be cross-walked and aggregated into the major vegetation types using the Plan. Impacts on natural communities from covered	OCTA has established methods to track the amount of habitat impacts from each covered freeway improvement project. The spreadsheet tracks the cumulative amount of habitat types relative to caps established under the M2 NCCP/HCP.	2.1.2



Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		freeway improvement projects will be measured against caps on impacts on individual habitat types and overall habitat.		
<b>Avoidance and Minimization Measures</b>	5.8.1.1	Based on the project-specific biological surveys, OCTA will ensure covered freeway improvement projects include avoidance and minimization measures into project design per guidelines and criteria included in the Plan.	OCTA has developed a consistency determination checklist used to evaluate how and when avoidance and minimization measures are implemented on covered freeway improvement projects. These checklists are submitted to the Wildlife Agencies for review and approval and measures are then included in the Certificate of Inclusion for the project.	2.1.3
<b>Covered Plant Species</b>	5.6.2.2, 5.8.1.2	To ensure any actual impacts on covered plant species are properly addressed, OCTA will implement a Covered Plant Species Policy that will involve the evaluation of impacts based on project-specific field surveys. The policy will also set forth mitigation of impacts using credits determined through field surveys of Preserves and actions taken to enhance, restore, and create populations of covered plant species as part of restoration projects approved for funding	OCTA has established a ledger to track credits and debits for covered plant species.	2.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		by OCTA. This policy will require OCTA to maintain a ledger-type accounting system to track credits and debits.		
<b>Preserve Management</b>	5.8.1.3	The Plan establishes that no more than 13 acres (approximately 1%) of the natural habitat within the Preserves will be impacted by Preserve management activities. OCTA and Preserve Managers will track any activities resulting in more than 0.1 acre of new direct effects on natural habitat within the Preserves and record this information in a ledger that will be submitted to the Wildlife Agencies as part of the Plan’s Annual Report.	OCTA has established a process to track and monitor any Preserve management activities that would result in permanent impacts more than 0.1 acres. A ledger has been created. To date, no permanent impacts have been recorded on the Preserves.	2.3
<b>Maintain Rough Proportionality</b>	5.8.2	The Plan specifies that conservation measures must be implemented roughly proportional in time and extent to the impacts on habitat authorized under the Plan. Conservation measures are measured once conservation easements are recorded on Preserves and when restoration projects are signed off as meeting their success criteria.	OCTA is tracking the progress of the implementation of conservation measures relative to impacts associated with Covered Activities. The Big Bend and City Parcel restoration projects have been signed off, and the habitat credits from these restoration projects are sufficient to be ahead of impacts to date.	2.4

<b>Compliance Action</b>	<b>Plan Section Reference</b>	<b>Description</b>	<b>Summary of OCTA Compliance</b>	<b>Annual Report Section Reference</b>
<b><i>Oversight of M2 Preserve Management and Monitoring</i></b>	5.4, 7.1, 7.2			Chapter 3
<b>Acquisition</b>	5.4	The acquisition of habitat Preserves was a key component of the Plan conservation strategy. Prior to the Plan being completed, OCTA selected and acquired seven Preserves with approximately 1,236 <sup>a</sup> acres of natural habitat. The locations of the Preserves across the Plan Area are shown on Figure 1. The selection of the Preserves, completed in coordination with the Environmental Oversight Committee (EOC) and Wildlife Agencies, was designed to meet the biological goals and objectives of the Plan while also contributing to the collective goals of the existing regional network of protected areas within the Plan Area.	The collection of Preserves acquired by OCTA in the Trabuco Canyon area has created a substantial block of conservation in an area that did not previously exist as protected open space. The Preserves in Laguna Beach (Pacific Horizon), Brea (Eagle Ridge), and Silverado Canyon area (Silverado Chaparral) add to blocks of existing protected open space in Orange County. These Preserves provide for the protection of diverse habitats across the Plan Area.	3.2
<b>Initial Reconnaissance and Baseline Surveys</b>	7.2.7.4	Baseline monitoring establishes conditions at a given point in time. It is a one-time event that characterizes the status of conserved resources, as well as threats and stressors, for planning or future comparisons.	For each of the seven Preserves, OCTA contracted with Bonterra Psomas to complete baseline biological surveys that included detailed vegetation mapping and focused surveys of Covered Species.	3.2
<b>Preparation of RMPs</b>	7.2.4	A Resource Management Plan (RMP) will be developed for	OCTA has completed RMPs for all seven Preserves (five	3.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		<p>each Preserve that will include Preserve-specific goals and objectives relating to natural communities, Covered Species, and other ecosystem function(s), which demonstrate how the Preserve supports the overall goals and objectives of the OCTA NCCP/HCP.</p>	<p>were finalized in 2017 and two were finalized in 2018). Each RMP was reviewed and approved by the Wildlife Agencies. Draft RMPs were circulated for public review and OCTA held public workshops to obtain input. The Final RMPs are posted on the OCTA EMP website. The RMPs will be reviewed every 5 years and updated as necessary to prioritize management actions based on the changing Preserve needs.</p>	
<p><b>Recording of Conservation Easements (CEs)</b></p>	<p>7.2.4.1</p>	<p>Conservation easements will be recorded for each Preserve that will provide a legal mechanism to ensure each Preserve is maintained and managed in perpetuity as a habitat Preserve. Conservation easements will be recorded not later than 2 years from permit issuance. Conservation easements for each Preserve will be held by appropriate entities, depending upon the Preserve Manager.</p>	<p>OCTA is currently working on the preparation of conservation easements for each Preserve and anticipates these will be finalized in the near future.</p>	<p>3.2</p>
<p><b>Identification of Preserve Manager</b></p>	<p>8.2.1.2</p>	<p>For each Preserve, a long-term Preserve Manager will be identified.</p>	<p>OCTA is currently serving as the Preserve Manager for each Preserve. OCTA has contracted with firms (RECON and Glenn Lukos</p>	<p>3.2</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
			<p>Associates [GLA]) to provide Preserve management and monitoring assistance. In addition, OCTA has an interim agreement with Chino Hills State Park (CHSP) to help with the management of the Eagle Ridge Preserve. OCTA will transition to a long-term Preserve Manager for each Preserve in the near future.</p>	
<p><b>General Stewardship and Preserve Management</b></p>	<p>7.2.5</p>	<p>The M2 NCCP/HCP includes guidelines for management of Preserves. These guidelines are meant to describe the range of management activities that could be needed, depending on a variety of Preserve-specific conditions.</p>	<p>OCTA has completed RMPs for each Preserve that define the Preserve-specific management activities. OCTA is currently serving as the Preserve Manager for each Preserve and has contracted with firms (RECON and GLA), and CHSP to provide Preserve management assistance.</p>	<p>3.2, Appendix B</p>
<p><b>Public Access Policy and Enforcement</b></p>	<p>7.2.5.7, 7.2.5.8</p>	<p>The primary purpose of acquiring the Preserves is to meet the biological requirements of the NCCP/HCP; however, the Preserves provide additional benefits, such as opportunities for passive recreation. Passive recreational use in the Preserves will be managed to be consistent with the protection and enhancement of biological resources.</p>	<p>For each Preserve, a public access approach was developed for the RMPs that addressed recreation and allowable uses that are compatible with the biological goals and objectives of the Plan. The RMPs were reviewed and approved by the Wildlife Agencies. OCTA conducts public hikes and equestrian</p>	<p>3.2, 6.1.2</p>

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
			rides at designated Preserves.	
<b>Invasive Species Control Plan and Implementation</b>	7.2.5.1	The control of invasive nonnative plant species is one of the most important components of Preserve management because these species can aggressively out-compete native species, thereby reducing habitat quality within a Preserve.	OCTA has contracted with GLA to complete Invasive Species Management Plans for each Preserve. These Plans include detailed mapping for existing invasive species and prioritization for invasive species treatment actions and are coordinated with the Wildlife Agencies. These plans will be completed in 2019. OCTA has initiated invasive species control actions on the Trabuco Rose Preserve.	3.2, Appendix B
<b>Fire Management Plan and Fire Response</b>	7.2.5.9	The Plan outlines the requirement for the preparation of a Fire Management Plans (FMPs) for each Preserve.	OCTA has contracted with Wildland Res Mgt to complete a FMP for each Preserve. Draft FMPs are scheduled to be completed by 2020. The FMPs will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. On July 4, 2016, there was a 1.5-acre fire on the Eagle Ridge Preserve. The fire was extinguished quickly by Brea County Fire and the burn area has been recovering with no additional	3.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
			management actions. No fires within the other OCTA Preserves have occurred during the period covered by this Annual Report.	
<b>Biological (Effectiveness) Monitoring</b>	7.2.7.4 Table 7-1	Effectiveness monitoring assesses status and trends, as well as threats and stressors, and requires biological expertise. Effectiveness monitoring will be completed following the frequency and survey protocols listed in Table 7-1 of the M2 NCCP/HCP in perpetuity.	OCTA has been completing surveys for Covered Species and their habitat within the Preserves based on schedules set forth in the RMPs.	3.2, Appendix C
<b>Adaptive Management</b>	7.2.7	The Plan sets forth the expectation and outlines an approach for the Preserves to be managed using an adaptive management strategy. Adaptive management provides a strategy to improve future management actions through monitoring to evaluate management effectiveness.	For each Preserve, OCTA has identified key issues for a focused adaptive management approach as part of the RMP development. These key issues are included as tasks in the monitoring and management of the Preserves.	3.2
<b>Changed Circumstances</b>	8.6.2	Changed Circumstances are defined as those events (flood; fire; drought; invasion by exotic species or disease; toxic spills, vandalism, encroachment, and other illegal human activity; and listing of non-Covered Species) that may affect a species or geographic area	The Plan outlines how Changed Circumstances will be addressed should they occur. During the time period covered by this Annual Report, no events warranting a Changed Circumstance has occurred.	3.2

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		covered by this Plan that can reasonably be foreseen by OCTA and the Wildlife Agencies during planning and development of the Plan.		
<b>Bi-annual Meeting of Preserve Managers</b>	7.1, 7.2.7.6	OCTA will host bi-annual meetings involving the Preserve Managers, Monitoring Biologists, the NCCP/HCP Administrator, and the Wildlife Agencies where implementation, policy, and technical issues of Preserve management will be addressed.	Because OCTA is functioning as the Preserve Manager each of the Preserves, the bi-annual meetings have not been initiated to date. OCTA has been coordinating closely with the Wildlife Agencies on Preserve activity.	N/A
<b>Regional Monitoring</b>	7.2.2	OCTA is not responsible for conducting regional monitoring outside of their specific Preserves but will contribute monitoring data collected at OCTA Preserves in a format that can be integrated with regional monitoring databases as appropriate.	OCTA is continuing to coordinate and collaborate other regional management and monitoring programs to stay abreast of regional monitoring issues. OCTA has shared monitoring results with other regional entities.	6.1.3
<b><i>Tracking and Facilitation of M2 Restoration Project Implementation</i></b>	5.5, 7.1	A key component of the M2 NCCP/HCP conservation strategy was OCTA funding restoration projects throughout the Plan Area. OCTA has funded 11 restoration projects, totaling approximately 357 acres of restored habitats, and a dam removal project. The restoration projects will	OCTA has been providing oversight of the Restoration Project sponsors to ensure the restoration projects meet the following criteria: (1) the restored habitat meets success criteria identified in final restoration plans approved by the Wildlife Agencies; (2) the restoration project area is conserved	4.1, 4.2



Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		enhance habitat for Covered Species.	through a conservation easement, deed restriction, or other mechanism approved by the Wildlife Agencies; and (3) the restoration site will be managed long-term in accordance with an existing management plan that defines the role for managing the biological values of the restoration project location.	
<b>'Lessons learned' monitoring of restoration projects</b>	7.3	As warranted and in consultation with the Wildlife Agencies, OCTA will conduct follow-up monitoring of restoration projects (approximately every 5 to 10 years) to evaluate the success of the restoration projects and apply 'lessons learned' to future restoration activities.	To be completed at a later date after restoration projects have been completed.	To be presented in subsequent annual reports
<b><i>Additional Conditions for Coverage</i></b>	6.5	As part of the Conservation Analysis (Chapter 6) in the M2 NCCP/HCP, there were two Covered Species, arroyo chub and many-stemmed dudleya, noted for additional conditions for coverage above and beyond the acquisition of the seven OCTA Preserves and funding of restoration projects.	OCTA has been working with the Wildlife Agencies to identify and implement actions to achieve coverage for arroyo chub and many-stemmed dudleya.	Chapter 5
<b>Arroyo Chub</b>	6.5	OCTA will implement a future restoration project focused on	OCTA has initiated the U.S. Forest Service (USFS) Dam Removal restoration project	5.1.1, 4.2.12

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		improving habitat conditions for arroyo chub.	to provide conservation for arroyo chub. In 2017, the EOC and Wildlife Agencies approved moving forward with USFS Dam Removal project and OCTA has contracted with USFS to remove 14 dams. The restoration activities began in 2018 and are anticipated to be completed in 2020. When this project has been signed off, this condition will have been met.	
<b>Many-stemmed Dudleya</b>	6.5	OCTA will protect, enhance, and/or establish a major population (i.e., 500 individuals) of many-stemmed dudleya.	There is a known population (four occurrences with 60 individuals) identified on the Pacific Horizon Preserve. OCTA is implementing ongoing Preserve management actions to improve habitat suitability (e.g., reduction of invasive species and minimizing recreational impacts) and will monitor results to determine if the existing population can be expanded to meet the threshold.	5.1.2, 3.2.4
<b>Plan Funding</b>	8.3	Both the Natural Community Conservation Plan Act (NCCPA) and Endangered Species Act (ESA) require that a conservation plan approved pursuant to the respective state or federal law must	The primary source of funding for the Plan implementation is the M2 transportation sales tax initiative, which included at least 5% for the revenues for the EMP.	Chapter 7

<b>Compliance Action</b>	<b>Plan Section Reference</b>	<b>Description</b>	<b>Summary of OCTA Compliance</b>	<b>Annual Report Section Reference</b>
		assure availability of adequate funding to implement the Plan’s conservation actions.		
<b>Preserve Management</b>	8.3.3	OCTA will establish an endowment to provide a secure and permanent funding source to cover the Preserve management (including adaptive management) cost in perpetuity.	OCTA has established a strategy to accumulate funds for an endowment to cover Preserve management over an estimated period of 8–10 years. During this accumulation phase, funding for ongoing Preserve management is covered through the M2 sales tax revenue stream.	7.1, 7.2
<b>Effectiveness Biological Monitoring</b>	8.3.3	OCTA will establish an endowment to provide a secure and permanent funding source to cover the effectiveness biological monitoring on the Preserves in perpetuity.	OCTA has established a strategy to accumulate funds for an endowment to cover Preserve management over an estimated period of 8–10 years. During this accumulation phase, funding for ongoing effectiveness monitoring is covered through the M2 sales tax revenue stream.	7.1, 7.2
<b>Program Management</b>	8.3.3	OCTA will establish an endowment to fund program management through the permit term.	OCTA will fund program management using the M2 revenue stream until 2041. Between 2041 and 2051 (end of permit term), OCTA will set aside a subfund to continue funding program management.	7.1, 7.2
<b>Changed Circumstances</b>	8.3.3	OCTA will establish an endowment to provide a secure and permanent	OCTA has established a strategy to accumulate funds for an endowment to cover	7.1, 7.2

<b>Compliance Action</b>	<b>Plan Section Reference</b>	<b>Description</b>	<b>Summary of OCTA Compliance</b>	<b>Annual Report Section Reference</b>
		funding source to cover the responses to Changed Circumstances on the Preserves in perpetuity.	Preserve management over an estimated period of 8–10 years. During this accumulation phase, funding for ongoing effectiveness monitoring is covered through the M2 sales tax revenue stream.	
<b><i>Plan Administration</i></b>				Chapter 8
<b>NCCP/HCP Administrator</b>	8.2.1.1	OCTA is responsible for implementing the M2 NCCP/HCP and staffing an NCCP/HCP Administrator position.	The NCCP/HCP is being implemented and administered by OCTA staff.	8.1
<b>Minor Modifications</b>	8.5.2	The Plan allows for minor modifications to the Plan, permits, and implementing agreement if the modifications are non-substantive and do not meet the threshold of a Minor and Major Amendment.	OCTA has coordinated with the Wildlife Agencies to identify several minor modifications up through 2018.	8.2
<b>Minor or Major Amendments</b>	8.5.3, 8.5.4	The Plan outlines circumstances in which Minor or Major Amendments to the Plan, permits, and Implementing Agreement could be proposed by OCTA and implemented in collaboration with the Wildlife Agencies.	No Minor and Major Amendments have been proposed or implemented during the timeframe of this Annual Report.	8.3
<b>Changed Circumstances</b>	8.6.2	Changed Circumstances are defined as those events that may affect a species or geographic area covered by this Plan that can reasonably be foreseen by OCTA and the	No events meeting the criteria of a Changed Circumstance occurred during the timeframe of this Annual Report.	8.4

Compliance Action	Plan Section Reference	Description	Summary of OCTA Compliance	Annual Report Section Reference
		Wildlife Agencies during development of the Plan. Changed Circumstances for this Plan include the following reasonably foreseeable events: flood; fire; extended period of reduced precipitation; invasion by exotic species or disease; toxic spills, vandalism, encroachment, and other illegal human activity; and listing of non-Covered Species.		
<b>Annual Reporting</b>				
<b>Annual Report</b>	8.4	OCTA will prepare an Annual Report summarizing activities over the reporting year (January 1 to December 31). Annual reporting will involve report submittal to the Wildlife Agencies by March 1 of each calendar year (or other date as agreed upon by OCTA and the Wildlife Agencies).	This is the first Annual Report and covers all activities up to December 31, 2018.	
<b>Public Meeting</b>	8.4	A public meeting on the report will be held within 60 days of the report submittal or in conjunction with EOC meetings.	A public meeting will be held in July of 2019 to review the Annual Report, and this document will be posted on the OCTA EMP website.	

<sup>a</sup> The acreage of natural habitat preserved is based on best available information using during the preparation of RMPs and may be slightly different from acreages reported in the M2 NCCP/HCP.

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# Chapter 2

## Tracking Impacts from Covered Activities

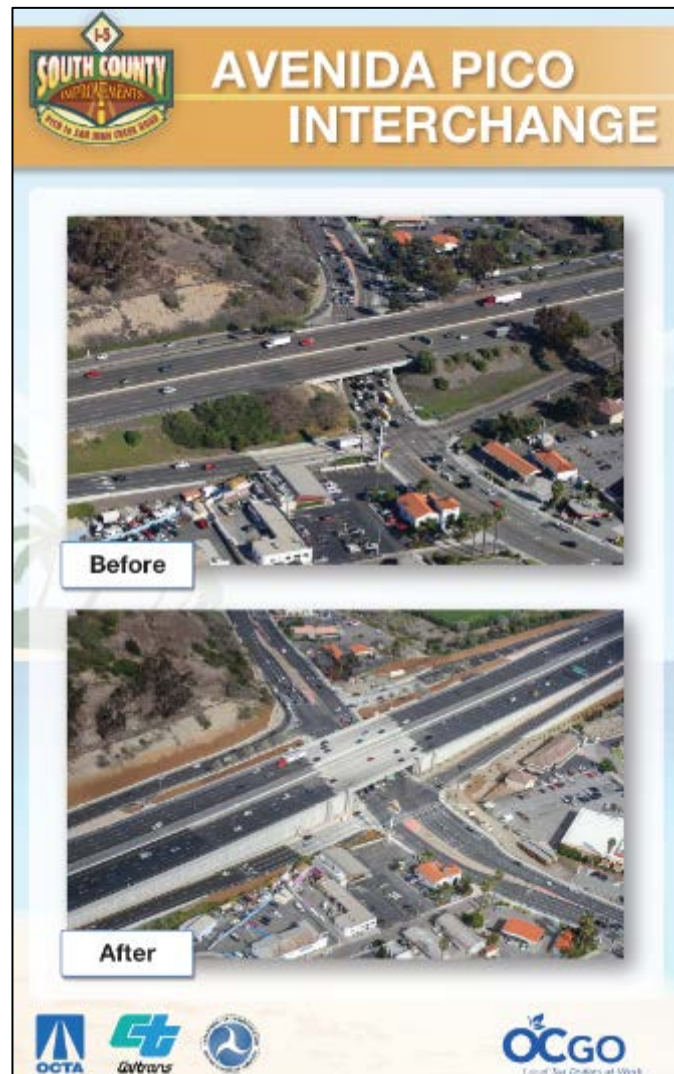
The primary goal of the Plan is to obtain authorization for take of Covered Species under the Natural Community Conservation Plan Act (NCCPA) and Endangered Species Act (ESA) for the implementation of covered freeway improvement projects and other management and monitoring activities on Preserves (Covered Activities). This chapter provides tracking of impacts associated with Covered Activities to ensure implementation stays within the impact caps and procedures outlined in the Plan.

### 2.1 Covered Freeway Improvement Projects

#### 2.1.1 Status of OCTA M2 Freeway Improvement Projects

Freeway improvement projects covered by this Plan are defined to include all habitat or ground-disturbing impacts resulting from the M2 transportation planning and project implementation process. There are 13 discrete proposed freeway project areas in which freeway segments have been identified for coverage under the Plan. These proposed projects are designed to reduce congestion, increase capacity, and improve traffic flow of Orange County's important transportation infrastructure. The freeway improvement projects are, in all instances, along existing freeways and will include lane additions, interchange improvements, and associated facility upgrades. These freeway improvement projects do not include the construction of new freeways.

Table 2-1 summarizes the current status of the OCTA M2 freeway improvement projects. As the planning and implementation of the OCTA M2 freeway improvement projects progresses, the grouping and organization of segments may be adjusted. The list of segments may be slightly different than the set of projects and segments included in the M2 NCCP/HCP.



**Table 2-1. OCTA M2 Freeway Improvement Projects Status**

<b>Project</b>	<b>Location</b>	<b>2018 Phase</b>	<b>Expected Construction Start Date</b>	<b>Anticipated Completed Construction</b>	<b>NCCP/HCP Notes</b>
<i>Ongoing:</i>					
<b>Project A</b>	I- 5, SR-55 to SR-57	Design	Late 2018	Early 2021	No Covered Species No 1602 Permit Anticipated
<b>Project B</b>	I-5, I-405 to SR-55	ENV	TBD	No schedule past ENV	NCCP/HCP Consistency Determination Checklist (Checklist) and Certificate of Inclusion (COI) complete 1602 Permit anticipated
<b>Projects C and D <sup>a</sup></b>	I-5, Oso Pkwy to Alicia/La Paz Rd Interchange <i>Segment 2</i>	Ad/Award/Design	Early 2019	October 2023	NCCP/HCP Checklist and COI complete 1602 Permits per segment
	I-5, Alicia Pkwy to El Toro Rd <i>Segment 3</i>	Ad/Award/Design	2019/2020	June 2024	Same as above
	I-5, SR-73 to Oso Pkwy/Avery Pkwy Interchange <i>Segment 1</i>	Ad/Award/Design	2019/2020	October 2024	Same as above
<b>Project D</b>	I-5, I-5/El Toro Interchange	ENV	TBD	No schedule past ENV	No Covered Species No 1602 Permit anticipated
<b>Project F</b>	SR-55, I-405 to I-5	Ad/Award/Design	2021	August 2025	Natural Environment Study (NES)(Minimal) pending
<b>Project G</b>	SR-57 (NB), Orangewood Ave to Katella Ave	ENV	No schedule past ENV	No schedule past ENV	NCCP/HCP Checklist and COI Pending



<b>Project</b>	<b>Location</b>	<b>2018 Phase</b>	<b>Expected Construction Start Date</b>	<b>Anticipated Completed Construction</b>	<b>NCCP/HCP Notes</b>
	SR-57 (NB), Lambert to Tonner Canyon	ENV (Expected to begin – 2020)	No schedule past ENV	No schedule past ENV	Pending
<b>Project I</b>	SR-91, SR-57 to SR-55	ENV (1/2015–8/2019)	No schedule past ENV	No schedule past ENV	NCCP/HCP Checklist and COI Pending 1602 Permit Anticipated
<b>Project J</b>	SR-91, SR-241 to Riverside County Line <sup>2</sup>	ENV (9/2007–10/2012)	TBD (contingent upon future widening in Riverside County)	No schedule past ENV	Full build out not yet scheduled
<b>Project K</b>	I-405, I-605 to SR-73	Construction	On-going	May 2023	All permits obtained
<b>Project L</b>	I-405, I-5 to SR-55	ENV (12/2014–late 2018)	No schedule past ENV	No schedule past ENV	NCCP/HCP Checklist and COI complete 1602 Permit anticipated
<b>Project M</b>	I-605, I-605/Katella Interchange	ENV (8/2016 – 11/2018)	No schedule past ENV	No schedule past ENV	NCCP/HCP Checklist and COI complete 1602 Permit anticipated
<b>Completed:</b>					
<b>Project C</b>	I-5, Vista Hermosa to PCH	Completed		July 2017	
<b>Project D</b>	I-5, I-5/Ortega Interchange	Completed		January 2016	
<b>Project E</b>	SR-22 Access Improvements	Completed		December 2014	
<b>Project G</b>	SR-57 (NB), Katella to Lincoln	Completed		April 2015	

<sup>2</sup> This project extends to the I-15. The OCTA NCCP/HCP only covers those anticipated impacts within Orange County (to the County line).

<b>Project</b>	<b>Location</b>	<b>2018 Phase</b>	<b>Expected Construction Start Date</b>	<b>Anticipated Completed Construction</b>	<b>NCCP/HCP Notes</b>
	SR-57 (NB), Orangethorpe to Yorba Linda	Completed		November 2014	
	SR-57 (NB), Yorba Linda to Lambert	Completed		May 2014	
<b>Project H</b>	SR-91 (WB), I-5 to SR-57	Completed		June 2016	
<b>Project I</b>	SR-91 (WB), Tustin Interchange to SR-55	Completed		July 2016	
<b>Project J</b>	SR-91, SR-55 to SR-241	Completed		March 2013	
	SR-91 (EB), SR-241 to SR-71	Completed		January 2011	

<sup>a</sup> Project C and portions of Project D were combined. This included Project C: (I-5, south of El Toro “Y” Area to Avenida Pico) and Project D: (I-5 between SR-73 and El Toro Road through Lake Forest, Laguna Hills, Laguna Niguel, Laguna Woods, Mission Viejo, and San Juan Capistrano)

I- = Interstate; SR- = State Route; ENV = Environmental; TBD = to be determined; PCH = Pacific Coast Highway; NB = northbound; WB = westbound; EB = eastbound

## 2.1.2 Tracking of Habitat Impacts from Covered Freeway Improvement Projects

OCTA has implemented a process to track habitat impacts resulting from covered freeway improvement projects that includes the following steps:

1. Biological field surveys are completed as part of project-specific environmental compliance (California Environmental Quality Act/National Environmental Policy Act). This involves vegetation mapping based on field surveys typically using detailed vegetation categories. The detailed vegetation categories are cross-walked to the broad habitat types addressed in the Plan.
2. Grasslands anticipated to be impacted by the freeway improvement projects are in most cases maintained and composed of nonnative grass species. Due to the largely compromised value of this habitat type, an additional assessment is made to determine if impacts on nonnative grassland should be counted against the Plan's allotted impact caps. If it can be shown that the nonnative grassland areas meet all of the following criteria, impacts on nonnative grassland will **not** be counted:
  - a) The nonnative grassland is within the median or interchanges (between on and off-ramps and the freeway or contained within clover leaves) OR within the narrow (i.e., less than 100-foot wide) strips between the freeway and adjacent development or ornamental landscaping;
  - b) The nonnative grassland is regularly maintained; and
  - c) The nonnative grassland does not provide live-in habitat or is not located within a significant dispersal corridor for Covered Species.

This determination is made on a project-by-project basis using project-specific biological surveys that will be further assessed in collaboration with OCTA and the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Services (USFWS) (collectively, the Wildlife Agencies). The final impact acreages will be included in the NCCP/HCP Annual Report and tracking spreadsheet.

3. For each individual freeway improvement project, OCTA completes a quantification of impacts (both permanent and temporary) on each habitat type by overlaying the impact footprint with the vegetation mapping. Temporary impacts, which will require revegetation to previous conditions per restoration plans reviewed and approved by the Wildlife Agencies, are still included in this impact tracking because the impacts estimate in the Plan included both permanent and temporary impacts.

OCTA keeps an accounting of the Plan-to-date impacts on habitat types for all freeway improvement projects included under the Plan to ensure impacts stay within the caps listed in Table 5-7 of the Plan. Table 2-2 provides a program-to-date overview of habitat types impacted by OCTA M2 freeway improvement projects in comparison to caps established within the Plan. A detailed table of habitat impacts for each individual covered freeway project is included in Appendix A.

**Table 2-2. OCTA M2 Freeway Improvement Project Program-to-Date Habitat Impact Tracking Sheet<sup>a</sup>**

<b>Plan Vegetation Types</b>	<b>Plan Caps</b>	<b>Impacts (Program to Date)<sup>b</sup></b>	<b>Balance</b>
Chaparral	5.0	-	5.0
Coniferous Forest	-	-	-
Grassland	108.1	6.460	101.7
Riparian	5.0	0.957	4.0
Scrub	10.0	0.015	10.0
Water	0.4	0.100	0.3
Wet Meadow/Marsh	2.5	-	2.5
Woodland	10.0	-	10.0
<b>TOTALS</b>	<b>141.0</b>	<b>7.5</b>	<b>133.5</b>

<sup>a</sup> Values are in acres.

<sup>a</sup> See Appendix A for summary of impacts from each individual covered freeway project.

### 2.1.3 Consistency Determinations for Covered Freeway Improvement Projects

OCTA has developed a consistency determination checklist to evaluate how and when avoidance and minimization measures and restoration of temporary impacts are implemented on covered freeway improvement projects. These consistency determinations are forwarded to the Wildlife Agencies for review and approval. The avoidance and minimization measures are then incorporated into the project-level Environmental Commitment Record (ECR) as well as the OCTA/California Department of Transportation (Caltrans) Certificate Of Inclusion (COI). The ECR is a document utilized to track a project’s environmental commitments from design to post-construction. The COI enables OCTA to extend the incidental take authorization of Covered Species to Caltrans. Table 2-3 includes a summary of the consistency determinations that have been drafted, modified, or completed within the timeframe of this Annual Report.

**Table 2-3. OCTA M2 Freeway Improvement Project Consistency Determinations**

<b>Project ID</b>	<b>Date of Biologist Review</b>	<b>Incorporated into ECR?</b>	<b>COI Signed?</b>	<b>Wildlife Agency Concurrence?</b>	<b>Restoration of Temporary Impacts Anticipated?</b>
Project C EA 0K0200	5/30/18	Yes	Yes	Yes	Yes
Project B EA 0K6700	7/9/18	Yes	Yes	Yes	No
Project L EA 0K710K	1/29/18	Yes	Yes	Yes	Yes
Project M EA 0K8700	6/7/18	Yes	Yes	Yes	No

## 2.2 Tracking for Covered Plant Species Policy

The OCTA M2 NCCP/HCP includes three plant species (intermediate mariposa lily, many-stemmed dudleya, southern tarplant) on the Covered Species list. These covered plant species are narrow endemics that have highly restrictive habitat requirements, localized soil requirements, or other ecological factors that limit their distribution. To ensure any actual impacts on covered plant species are properly addressed, the M2 NCCP/HCP established the Covered Plant Species Policy (see Section 5.6.2.2 of the M2 NCCP/HCP). This policy requires the evaluation of impacts on the covered plant species be based on project-specific field surveys and sets forth a process to track mitigation of impacts using credits determined through field surveys of Preserves and actions taken to enhance, restore, and create populations of covered plant species as part of restoration projects funded by OCTA. OCTA has been implementing a process to maintain a ledger-type accounting system to track credits and debits.

### 2.2.1 Covered Plant Species Credits/Debits Ledger

OCTA has developed a process to track credits for covered plant species protection (on Preserves) and restoration/enhancement (restoration projects). Each covered activity must include an assessment of the potential for covered plant species to occur and complete focused surveys as appropriate. Table 2-4 provides a ledger of covered plant species credits and debits as of December 31, 2018.



Intermediate Mariposa Lily



Many-stemmed Dudleya



Southern Tarplant

**Table 2-4. Covered Plant Species Credits and Debits Ledger <sup>a</sup>**

Plant	Credits	Impacts <sup>b</sup>	Debits <sup>c</sup>	Balance	Year Surveyed	Project Element	Source
Intermediate Mariposa Lily	151			+151	2015	Pacific Horizon (Aliso Canyon) Preserve	Baseline surveys (Bonterra Psomas 2015a)
	69			+220	2013	Trabuco Rose (Ferber Ranch) Preserve	Baseline surveys (Bonterra Consulting 2013)
	74			+294	2013	Bobcat Ridge (Hafen) Preserve	Baseline surveys (Bonterra Consulting 2013)
	18			+312	2015	Silverado Chaparral (MacPherson) Preserve	Baseline surveys (Bonterra Psomas 2015b)
	283			+595	2013	Wren’s View (O’Neill Oaks) Preserve	Baseline surveys (Bonterra Consulting 2013)
	2			+597	2013	Live Oak Creek (Saddle Creek South)	Baseline surveys (Bonterra Consulting 2013)
	356			+953	2013 - 2018	Monitoring at Trabuco Rose Preserve	Biological monitoring of the Trabuco Rose Preserve between 2013 and 2018 resulted in 85 new locations with a population of 356 intermediate mariposa lily plants being identified. California Native Diversity Database (CNDDDB) forms were completed and submitted (GLA 2019a).
	10			+963	2018	Monitoring at Bobcat Ridge Preserve	Biological monitoring of the Bobcat Ridge Preserve in 2018 resulted in 10 new observations of intermediate mariposa lily plants (GLA 2019b).
		0	0	+963			No impacts from Covered Activities to date.
<b>Current Balance:</b>				<b>+963</b>			
Many-stemmed Dudleya	60			+60	2017	Pacific Horizon (Aliso Canyon) Preserve	Baseline surveys (Bonterra Psomas 2017)
	40			+100			Biological monitoring of the Pacific Horizon Preserve in 2018 observed a population of 100 individuals (GLA 2019b).
		0	0	+100			No impacts from Covered Activities to date.
<b>Current Balance:</b>				<b>+100</b>			

Plant	Credits	Impacts <sup>b</sup>	Debits <sup>c</sup>	Balance	Year Surveyed	Project Element	Source
Southern Tarplant	1,513			+1,513	2018	Harriett Wieder Restoration Project	The Bolsa Chica Conservancy began seeding activities as part of the restoration project in early January 2018. Surveys in August 2018 totaled 1,513 plants of southern tarplant (Bolsa Chica Conservancy 2018).
		0	0	+1,513			No impacts from Covered Activities to date.
Current Balance:				<b>+1,513</b>			

<sup>a</sup> Credits and debits measured in number of individual plants.

<sup>b</sup> Cumulative impacts cap is 500.

<sup>c</sup> The amount of debits required is calculated using a 3:1 mitigation ratio.

### 2.2.1.1 Documents Referenced for Covered Plant Species Credits and Debits

Bolsa Chica Conservancy. 2018. *Harriett Wieder Regional Park Habitat Restoration Project: Southern Tarplant Survey 2018*.

BonTerra Consulting. 2013. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. December.

Bonterra Psomas. 2015a. *Baseline Biological Surveys Technical Report for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October.

BonTerra Psomas. 2015b. *Baseline Biological Surveys Technical Report for the MacPherson Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. September.

Glenn Lukos Associates (GLA). 2019a. *Annual Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose Preserve*. Prepared for OCTA. February.

Glenn Lukos Associates (GLA). 2019b. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

## 2.3 Tracking Impacts on Habitat Types Resulting from Covered Activities within Preserves

The M2 NCCP/HCP establishes that no more than 13 acres (approximately 1%) of the natural habitat within the acquired Preserves will be impacted by Preserve management activities that will result in new permanent impacts on habitat. The 13 acres of anticipated impacts within the Preserves may be concentrated within a few of the Preserves or be spread evenly throughout each of the Preserves. Potential impacts include activities such as construction of new trails, access roads, recreation facilities, and maintenance structures. OCTA and Preserve Managers have been tracking any activities resulting in more than 0.1 acre of new direct effects on natural habitat within the Preserves and will record this information in a ledger to be included in this Annual Report.

OCTA will ensure that the overall cap across all Preserves is not exceeded. If degraded habitat and/or existing developed areas (e.g., roads and trails) within the Preserves are restored and converted to native habitat, OCTA will also be able use credits from these activities, subject to review and approval by the Wildlife Agencies, to offset impacts within the Preserves. OCTA will track impacts and credits within the Preserves for each of the individual habitat types, but will be held to a cap only for the overall amount of natural habitat impacted.

To date, no impacts or credits for habitat creations have been recorded on the Preserves.

## 2.4 Maintaining Rough Proportionality

Under the NCCPA, conservation measures in an approved NCCP must be roughly proportional in time and extent to the impact on habitat or Covered Species authorized under the plan. Similarly, the USFWS HCP Policy Handbook provides that mitigation for project impacts should generally occur prior to or concurrent with the impacts.

Implementation of conservation measures roughly proportional in time and extent to impacts on natural communities and Covered Species will be measured as follows: (1) for habitat acquired, the date of recordation of a conservation easement (CE) or other approved site protection mechanism; and (2) for restoration projects, the date on which the restoration projects have met their success criteria. For the purpose of maintaining rough proportionality, OCTA will ensure that a minimum 2:1 mitigation ratio for direct impacts will be maintained for each vegetation community, with the exception of grassland, which will be maintained at a minimum 1:1 ratio. Thus, for each acre of chaparral, riparian vegetation, scrub, and woodland that is directly impacted, at least 2 acres will have been conserved or restored before the impacts take place. For each acre of grassland that is directly impacted, at least 1 acre will have been conserved or restored before the impacts take place. If OCTA has not conserved or restored enough grassland habitat acreage to offset grassland impacts, it can offset grassland impacts with “out-of-kind” habitat at a 2:1 ratio. Compliance with the requirement to maintain rough proportionality will be monitored by OCTA and will be reported on an annual basis as part of the Annual Report.

Because OCTA was able to accelerate the implementation of conservation actions (Preserve acquisitions and restoration projects) through the early action plan, it is expected that most or all of



the conservation actions under the Plan will be completed (i.e., CEs recorded for OCTA Preserves and restoration projects signed off as meeting their success criteria) within 10 years after permit issuance. This will be prior to when a substantial percentage of the impacts from Covered Activities occur. To ensure that rough proportionality will be maintained during the first few years of the Plan, OCTA will either record a CE for at least one Preserve or be able to demonstrate that one or more restoration projects have received sign-off from the Wildlife Agencies as meeting their success criteria within 2 years of permit issuance.

Through the time period covered in this Annual Report, two restoration projects, Big Bend and City Parcel, have received sign-off from the Wildlife Agencies as meeting their success criteria.

Table 2-5 provides a ledger of the balance of credits achieved and habitat impacts as of December 31, 2018. Table 2-6 lists the conservation credits that have been achieved to date.



Upland-transitional restoration transect photo point for Big Bend Restoration Project.



Upland portion of City Parcel Restoration Project. Signed off in 2018.

**Table 2-5. Rough Proportionality of Impacts and Conservation Credits Ledger<sup>a</sup>**

Habitat Type	Habitat Impacts Permitted to Date <sup>b</sup>	Rough Proportionality Requirements <sup>c</sup>	Habitat Credits Achieved to Date <sup>d</sup>	In-Kind Habitat Balance <sup>e</sup>	Out-of-Kind Credits Used <sup>f</sup>	Current Balance
Chaparral	--	--	--	--	--	--
Coniferous Forest	--	--	--	--	--	--
Grassland	6.5	6.5	--	- 6.5	+ 6.5	0.0
Riparian	1.0	2.0	13.1	+ 11.1	--	+ 11.1
Scrub	0.1	0.2	43.2	+ 43.0	- 13.0	+ 30.0
Water	0.1	0.2	0.4	+ 0.2	--	+0.2
Wet Meadow/Marsh	--	--	--	--	--	--
Woodland	--	--	--	--	--	--

<sup>a</sup> Values are in acres.

<sup>b</sup> See Table 2-2.

<sup>c</sup> Based on a 2:1 ratio for all habitats except grasslands, which is 1:1.

<sup>d</sup> See Table 2-6.

<sup>e</sup> Habitat credits minus rough proportionality requirements.

<sup>f</sup> Negative balance of grassland habitat can be offset with a 2:1 use of “out-of-kind” credits from another habitat type.

**Table 2-6. Conservation Credits Achieved to Date<sup>a</sup>**

Conservation Action	Total	Chaparral	Coniferous Forest	Grassland	Riparian	Scrub	Water	Wet Meadows/ Marsh	Woodland
<b>Total Conservation Credits to Date:</b>	<b>46.7</b>	--	--	--	<b>13.1</b>	<b>43.2</b>	<b>0.4</b>	--	--
Big Bend Restoration Project	3.7	--	--	--	0.5	3.2	--	--	--
City Parcel Restoration Project <sup>b</sup>	43.0	--	--	--	12.6	40.0	0.4	--	--

<sup>a</sup> Values are in acres.

<sup>b</sup> A calculation of the amount of “open water” at the City Parcel Restoration Project was determined by the project sponsor (per email from Jordan Wills dated January 14, 2019), which was subtracted from the acreage of restored riparian habitat.

## 3.1 Introduction

The acquisition of Preserve lands was a primary component of the M2 NCCP/HCP conservation strategy. The selection of the Preserves was designed to meet the biological goals and objectives of the Plan while also contributing to the collective goals of the existing regional network of protected areas within the Plan Area. OCTA has acquired seven properties as part of the M2 NCCP/HCP. The locations of the M2 Preserves are shown in Figure 1 and the acreage totals are listed in Table 3-1.

**Table 3-1. OCTA Preserves**

OCTA Preserves	Location	Total Acres <sup>a</sup>	Acres of Natural Habitat
<b>Bobcat Ridge (formerly Hafen)</b>	Trabuco Canyon	48.0	47.9
<b>Eagle Ridge (formerly Hayashi)</b>	City of Brea	301.1	296.1
<b>Live Oak Creek <sup>b</sup> (formerly Saddle Creek South)</b>	Trabuco Canyon	82.8	51.3
<b>Pacific Horizon (formerly Aliso Canyon)</b>	City of Laguna Beach	151.9	148.3
<b>Silverado Chaparral (formerly MacPherson)</b>	Silverado Canyon	203.5	200.0
<b>Trabuco Rose (formerly Ferber Ranch)</b>	Trabuco Canyon	395.7	380.4
<b>Wren's View (formerly O'Neill Oaks)</b>	Trabuco Canyon	116.1	112.4
<b>Totals</b>		<b>1,299.1</b>	<b>1,236.4</b>

<sup>a</sup> These acreages are based on best available information used during preparation of RMPs and may be slightly different from acreages reported in the M2 NCCP/HCP.

<sup>b</sup> Live Oak Creek Preserve was purchased, in part, with funding provided by the National Fish and Wildlife Foundation. OCTA receives a percentage of the available credits based on the percentage of the total cost of acquiring and managing the Preserve contributed by OCTA (75.36%).

The M2 NCCP/HCP establishes guidelines for the management and monitoring of the Preserves to ensure the long-term health and viability of species and ecological values within the Preserves. Each Preserve has had Preserve-specific Resource Management Plans (RMPs) developed. Appendix B summarizes various Preserve maintenance and stewardship activities, including invasive species management, tree evaluations, and general maintenance activities.

## 3.2 Preserves Status

The following sections provide a status summary for each M2 Preserve.

### 3.2.1 Bobcat Ridge (Hafen) Preserve

Action	Bobcat Ridge (Hafen) Preserve Status
<b>Acquisition</b>	Acquired in May 2011.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	A conservation easement for the Bobcat Ridge Preserve is being prepared and is anticipated to be recorded in the near future.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by OCTA, but a long-term Preserve Manager is anticipated to be in place in the near future. Between 2015 and 2017, OCTA contracted with the Audubon Society to serve as Preserve Manager.
<b>General Stewardship and Preserve Management</b>	OCTA staff, with assistance from Preserve Management contractor RECON, implement routine and ongoing property management and maintenance activities. A description and inventory of general stewardship and Preserve management activities is included in Section 3.3.2, <i>Preserve Maintenance Activities</i> , and Appendix B.
<b>Public Access Policy and Enforcement</b>	Based on an evaluation of biological resources, safety concerns, and local land use/parking constraints conducted as part of the preparation of the Bobcat Ridge (Hafen) RMP, it was determined that public access cannot be accommodated on this Preserve at this point in time.
<b>Invasive Species Control Plan and Implementation</b>	OCTA has contracted Glenn Lukos Associates (GLA) to serve as a Restoration Ecologist and prepare an Invasive Species Management Plan (ISMP). This ISMP has been provided to the Wildlife Agencies for review and approval. It is anticipated that this document will be finalized early in 2019.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete a Fire Management Plan (FMP). A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
<b>Biological (Effectiveness) Monitoring</b>	Biological monitoring for covered bird species was completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement is scheduled to be completed in 2019. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
<b>Adaptive Management</b>	The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management: <ul style="list-style-type: none"> <li>• <b>Vegetation Control around Cactus Patches.</b> Research current approaches for vegetation management around cactus patches to</li> </ul>

Action	Bobcat Ridge (Hafen) Preserve Status
	determine if this is needed at the Bobcat Ridge (Hafen) Preserve to protect and/or improve cactus wren populations. Focused monitoring efforts to address these adaptive management issues are scheduled within a few years.
<b>Changed Circumstances</b>	No events occurred that meet the Changed Circumstances requirements during this period.
<b>General Comments / Concerns</b>	OCTA will continue to monitor the recovery of habitat at the southern boundary of the Preserve in response to a neighbor’s unauthorized impact and will consider the installation of additional signs, cameras, and/or posts to increase Preserve protection.

### 3.2.1.1 Management and Monitoring Summary

Effectiveness monitoring completed during the timeframe of this Annual Report included focused surveys for covered bird species in 2017 (CDFW 2017). No cactus wren or coastal California gnatcatcher were detected at Bobcat Ridge Preserve during the effectiveness monitoring surveys, even though cactus wren had previously been documented during the biological baseline surveys (Bonterra Consulting 2013). Suitable habitat is present on the Bobcat Ridge Preserve for both species, and conditions have not changed in 5 years so it is uncertain why cactus wren and coastal California gnatcatchers were not detected in 2017.



Intermediate mariposa lily during 2012 baseline surveys (photograph courtesy of M. Couffer).

Bobcat Ridge is one of three OCTA Preserves being monitored by Audubon Starr Ranch as part of a 5-year project to qualitatively and quantitatively monitor plant communities to assess stability of vegetation cover (see Section 3.3.1, *Vegetation Cover Quantitative and Qualitative Monitoring*). In the most recent monitoring report, it was noted that overall the vegetation mosaics on the Bobcat Ridge Preserve appear generally stable with dynamics expected (e.g., low subshrub species such as *Isacoma manziesii* colonizing grassland) for the region (Audubon Starr Ranch 2018).

Glenn Lukos Associates (GLA) conducted a detailed mapping of cactus patches on the Preserve in 2018. The data and summary of the cactus patch mapping will be completed in 2019. This data will be beneficial for future decision making regarding recommended vegetation management of this Preserve. This mapping will also be utilized in the Bobcat Ridge Preserve Fire Management Plan (FMP) that is currently being drafted.

Additional biological monitoring conducted by GLA biologists during general stewardship monitoring resulted in observations of multiple intermediate mariposa lily occurrences throughout the Preserve, including locations that had been documented during previous baseline surveys and approximately 10 new occurrences that have been incorporated into the geographic information system (GIS) database (GLA 2019).

As part of general stewardship monitoring, GLA staff documented impacts of coastal sage scrub at the Bobcat Ridge Preserve in 2017 resulting from an adjacent neighbor intentionally clearing a path along the southern border of the Preserve to access an adjacent area of their land (GLA 2019). The neighbor did not obtain a permit from the County for this clearing and has been ordered to restore the disturbance, but to date the restoration has not been completed. OCTA is monitoring this ground disturbance and it is expected that the area will recover in time as there is ample seed input from the surrounding habitat. It is anticipated this impact will be temporary. Additional signage and fencing may be necessary on this property boundary, and continued monitoring is particularly critical along this southern boundary.



January 2017 photo depicting unauthorized graded trail on the southern edge of the Bobcat Ridge Preserve.

A draft Invasive Species Management Plan (ISMP) has been prepared for the Bobcat Ridge Preserve and is currently being reviewed by the Wildlife Agencies. As part of the ISMP preparation, the distribution of invasive plant species on the Preserve were mapped in 2018.

### 3.2.1.2 Planned Actions for 2019

Planned actions and priorities for 2019 include:

- Continue monitoring the southern boundary (specifically for intermediate mariposa lily) closely. Determine if additional signs and new posts are needed along the southern boundary.
- Install wildlife cameras for monitoring of covered mammal species and wildlife movement.
- Finalize the ISMP and begin implementation of priority actions for control of invasive species.
- Continue monitoring known populations of intermediate mariposa lily during blooming periods to detect potential trends in population growth or decline. Document additional locations in the Preserve not previously documented.
- Continue preparation of the Bobcat Ridge Preserve FMP.
- Continue preparation of a CE and coordinate with Wildlife Agencies for review and approval of the CE.

### 3.2.1.3 Related Documents and References

Audubon Starr Ranch. 2018. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren's View, and Live Oak Creek*. Operating Agreement 3-5-3711. August 2018.

BonTerra Consulting. 2013. *Baseline Biological Surveys Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Prepared for OCTA. December.

California Department of Fish and Wildlife (CDFW). 2017. *California Gnatcatcher and Cactus Wren Presence / Absence Surveys on Five Orange County Transportation Authority Preserves, Orange County, California*. APNs: Aliso Canyon-056-240-66; Ferber Ranch-842-041-08, 842-051-13, 842-011-28, 842-011-27; Hafen-856-042-18; O'Neill Oaks-125-035-33; and Saddle Creek South-856-021-26, 856-021-27. Prepared by Christine Beck. July 27.

Glenn Lukos Associates (GLA). 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

### 3.2.2 Eagle Ridge (Hayashi) Preserve

Action	Eagle Ridge (Hayashi) Preserve Status
<b>Acquisition</b>	Acquired in 2011.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was completed in September 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2018. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	A CE for the Eagle Ridge Preserve is being prepared and is anticipated to be recorded in the near future.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by staff of the CHSP, through a short-term contract with OCTA. OCTA also contracts with both GLA and RECON to supplement CHSP as needed. A long-term Preserve Manager is anticipated to be in place in the near future.
<b>General Stewardship and Preserve Management</b>	CHSP staff patrolled the property, conducted a property survey, installed a fence line, made fence line repairs, completed Environmental Scientist visits, conducted cattle removal coordination, and mowed nonnative grasses on the upper ridge road (California State Parks 2018). OCTA biological monitors completed invasive species mapping and installed wildlife cameras (GLA 2019).
<b>Public Access Policy and Enforcement</b>	Due to the combination of a lack of staging areas, biological sensitivity, and other constraints, OCTA determined public access on the Preserve will be very limited. It may be possible to hold a small structured event with the help of adjacent landowners for staging and/or parking. If an event is set to occur, public access would adhere to roads and trails designated for Preserve management.
<b>Invasive Species Control Plan and Implementation</b>	OCTA has contracted with GLA to serve as a Restoration Ecologist and prepare an ISMP that is scheduled to be completed in Q1 of 2019.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. On July 4, 2016, there was a 1.5-acre fire on the Eagle Ridge Preserve. The fire ignition occurred along Carbon Canyon Road and is believed to have been ignited by fireworks. The fire was extinguished quickly by Brea County Fire, and the burn area has been recovering with no additional management actions. (California State Parks 2016)
<b>Biological (Effectiveness) Monitoring</b>	Camera monitoring for covered mammal species and wildlife movement began in 2018. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
<b>Adaptive Management</b>	The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management: <ul style="list-style-type: none"> <li>● <b>Riparian Habitat Enhancement along Soquel Canyon.</b> Collect photo monitoring of the riparian habitat enhancement with the removal of</li> </ul>



Action	Eagle Ridge (Hayashi) Preserve Status
	<p>grazing to determine if passive restoration was successful. If not, determine if active restoration is needed.</p> <ul style="list-style-type: none"> <li>● <b>Evaluation of the Potential for Western Pond Turtle to Expand into Preserve.</b> Research and survey the area between the Eagle Ridge Preserve and where nearby occurrence records have shown western pond turtle to be located to see if there are barriers to dispersal that could be addressed.</li> </ul> <p>OCTA and CHSP have been coordinating for the best approach in the removal of the cattle. OCTA anticipates that a solution for removing the cattle will be determined in 2019. Focused monitoring efforts to address these adaptive management issues are scheduled to begin over the next few years.</p>
<p><b>Changed Circumstances</b></p>	<p>No events occurred that meet the Changed Circumstances requirements during this period.</p>
<p><b>General Comments / Concerns</b></p>	<p><i>Cattle Trespass.</i> Cattle have been identified trespassing on the Eagle Ridge parcel before its acquisition. New fencing was installed, but cattle trespass continues to be a problem that is being addressed by CHSP.</p>

### 3.2.2.1 Management and Monitoring Summary

Public access is not currently authorized at the Eagle Ridge Preserve. However, three wildlife cameras were installed in 2018 and have detected multiple occurrences of unauthorized access, including mountain biking and hiking. In addition, cattle are heavily using the property, and have been detected on multiple site visits by OCTA, CHSP staff, and GLA biologists, as well as by the wildlife cameras. The wildlife cameras have also documented the following wildlife: coyote, skunk, bobcat, and mule deer.

A draft ISMP is currently being prepared for the Eagle Ridge Preserve and will be sent to the Wildlife Agencies for review and approval in 2019. As part of the ISMP preparation, the distribution of invasive plant species on the Preserve was mapped in 2018.

OCTA began drafting the Eagle Ridge Preserve FMP in 2018.



Wildlife camera photos from 2018 of bobcat, mule deer, and cattle.

### 3.2.2.2 Planned Actions for 2019

Planned actions and priorities for 2019 include:

- Continue to develop solutions to remove the cattle from the Preserve (OCTA and CHSP). This will be the highest priority for 2019.
- Continue to monitor the site to document unauthorized access and activities (CHSP staff and GLA's monitoring team). As part of GLA's efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to unauthorized activity. Wildlife camera photos will also be reviewed for this purpose.
- Continue to monitor wildlife cameras to evaluate presence of covered mammal species and wildlife movement.
- Finalize the ISMP and begin implementation of priority actions for control of invasive species.
- Continue preparation of Eagle Ridge Preserve FMP.
- Continue preparation of CE and coordinate with Wildlife Agencies for review and approval of the CE.

### 3.2.2.3 Related Documents and References

BonTerra Consulting. 2013. *Baseline Biological Surveys Technical Report for the Hayashi (Eagle Ridge) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. March.

California State Parks. 2016. *Public Safety Report*. Summary of fire response to a 1.5 acre fire on Hayashi Preserve on July 4, 2016.

California State Parks. 2018. *Report of State Park Activities/ Actions on Orange County Transportation Authority (OCTA) Mitigation Property – Eagle Ridge, FY 17/18*.

Glenn Lukos Associates (GLA). 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

### 3.2.3 Live Oak Creek (Saddle Creek South) Preserve

Action	Live Oak Creek (Saddle Creek South) Preserve Status
<b>Acquisition</b>	Acquired in April 2011.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	The CE for the Live Oak Creek Preserve is being prepared and is anticipated to be recorded in the near future.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by OCTA. OCTA contracts with multiple consultants to implement patrol, management and monitoring tasks. This Preserve was managed by the Transportation Corridor Agencies (TCA) from 2011–2014 with contracts with NewFields (2011–2013) and LandIQ (2013–2014). A long-term Preserve Manager is anticipated to be in place in the near future.
<b>General Stewardship and Preserve Management</b>	OCTA staff currently manages this Preserve, with assistance from contractors RECON and GLA, to implement routine and ongoing property management and maintenance activities. An inventory of Preserve maintenance activities is included in Section 3.3.2 and Appendix B.
<b>Public Access Policy and Enforcement</b>	Due to the combination of the lack of staging areas, biological sensitivity, and other constraints, OCTA determined public access on the Live Oak Creek Preserve will be very limited. It may be possible to hold a small structured event with the help of adjacent landowners for staging and/or parking. If an event is set to occur, public access would adhere to roads and trails designated for Preserve management.
<b>Invasive Species Control Plan and Implementation</b>	OCTA has contracted with GLA to serve as a Restoration Ecologist and prepare an ISMP that is scheduled to be completed early in 2019.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
<b>Biological (Effectiveness) Monitoring</b>	Biological monitoring for covered bird species was completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement began in 2018. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
<b>Adaptive Management</b>	The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management: <ul style="list-style-type: none"> <li>• <b>Covered Plants and Vegetation Management.</b> Closely monitor the response of covered plant species (e.g., intermediate mariposa lily) to vegetation management actions along the side of access roads.</li> </ul>

Action	Live Oak Creek (Saddle Creek South) Preserve Status
	<ul style="list-style-type: none"> <li>● <b>Trails Revegetation.</b> Collect photo monitoring of the revegetation of closed trails to determine if passive restoration was successful. If not, determine if active restoration is needed.</li> <li>● <b>Vegetation Control around Cactus Patches.</b> Research current approaches for vegetation management around cactus patches to determine if this is needed at the Saddle Creek South Preserve to protect and/or improve cactus wren populations. Detailed mapping of cactus patches was completed in 2018.</li> </ul> <p>Monitoring efforts were focused on these needs and are summarized below.</p>
<b>Changed Circumstances</b>	No events occurred that meet the Changed Circumstances requirements during this period.
<b>General Comments / Concerns</b>	None.

### 3.2.3.1 Management and Monitoring Summary

Effectiveness monitoring completed during the timeframe of this Annual Report included focused surveys for covered bird species in 2017 (CDFW 2017). Two cactus wren territories/use areas were detected at the Live Oak Creek Preserve. Male and female wren (i.e., pairs) were observed as well as fledglings. No coastal California gnatcatcher were detected. Cactus wren were documented during the biological baseline surveys of this Preserve (Bonterra Consulting 2013). Suitable, high quality cactus scrub is present on the Live Oak Creek Preserve, and conditions have not changed since baseline surveys.

GLA timed biological monitoring visits in Spring 2017 to coincide with the blooming periods of intermediate mariposa lily. GLA did not detect new populations of intermediate mariposa lily (GLA 2019). It is recommended to continue to monitor known populations of intermediate mariposa lily during spring blooming periods to detect potential trends in population growth or decline.

GLA conducted comprehensive invasive species mapping and is preparing an ISMP consistent with the RMP. The invasive species data was integrated into the biological monitoring GIS database. Once the ISMP is approved by the Wildlife Agencies, invasive species removal will be scheduled.

The team arborist conducted Invasive Shot Hole Borer (ISHB) evaluations in 2017. ISHB was not detected within the Live Oak Creek Preserve; however, an unknown species of Botryosphaeria was detected, which is a fungal pathogen also known to be carried by the ISHB. GLA will further consult with the team arborist as needed for recommendations to monitor trees within the Preserve, and to track/control any documented infestations.

No new unauthorized trails were documented (GLA 2019). The trails and roads documented in the RMP exist and are being utilized for management on this Preserve. Monitoring will continue to document any unauthorized trail use. The Preserve RMP refers to a section of chain link fencing that demarcates the boundary between the Preserve and an adjoining property (19071 Live Oak Canyon Road). The RMP recommends to further coordinate with the adjoining landowner to identify alternate solutions that would not affect the functions of the waterway while maintaining a barrier with the adjoining property.

GLA mapped cactus patches on the Preserve in 2018. The data and summary of the cactus mapping will be completed in 2019. This data will be beneficial for future decision making regarding recommended vegetation management of this Preserve. This mapping will also be utilized in the Live Oak Creek Preserve FMP that is currently being drafted.

Live Oak Creek is one of three OCTA Preserves being monitored by Audubon Starr Ranch as part of a 5-year project to qualitatively and quantitatively monitor plant communities to assess stability of vegetation cover (see Section 3.3.1). In the most recent monitoring report, it was noted that overall the vegetation mosaics on the Live Oak Creek Preserve appear generally stable in 2018 compared to 2017 qualitative observations, but with relatively low cover of nonnative mustards (*H. incana*, *B. nigra*) due to lower rainfall (Audubon Starr Ranch 2018).



Photo monitoring of scrub habitat on Live Oak Creek Preserve

### 3.2.3.2 Planned Actions for 2019

- Coordinate with the landowner at 19071 Live Oak Canyon Road regarding the section of fencing identified in the RMP.
- Continue to evaluate the status and threat of ISHB and other fungal pathogens.
- Install wildlife cameras for monitoring of covered mammal species and wildlife movement.
- Finalize the ISMP and begin implementation of priority actions for control of invasive species.
- Continue monitoring known populations of intermediate mariposa lily during blooming periods to detect potential trends in population growth or decline. Document additional locations in the Preserve not previously documented.
- Continue preparation of the Live Oak Creek Preserve FMP.
- Continue preparation of CE and coordinate with Wildlife Agencies for review and approval of the CE.

### 3.2.3.3 Related Documents and References

Audubon Starr Ranch. 2018. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren's View, and Live Oak Creek*. Operating Agreement 3-5-3711. August 2018.

BonTerra Consulting. 2013. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. December.

Glenn Lukos Associates (GLA). 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

Land IQ. 2014. *Saddle Creek South Land Management, 2013-2014 Summary Report and Interim Management Recommendations*. June. Prepared for Transportation Corridor Agencies.

NewFields. 2012. *Saddle Creek South Land Management 2011-2012 Summary Report and Interim Management Recommendations*. July. Prepared for Transportation Corridor Agencies.

NewFields. 2013. *Saddle Creek South Land Management 2012-2013 Summary Report and Interim Management Recommendations*. July. Prepared for Transportation Corridor Agencies.

### 3.2.4 Pacific Horizon Preserve

Action	Pacific Horizon Preserve Status
<b>Acquisition</b>	Acquired in April 2015.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2015 by Bonterra Psomas and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2018. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	A Conservation Easement for the Pacific Horizon Preserve is being prepared and is anticipated to be recorded in the near future.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by OCTA. OCTA contracts with multiple consultants to implement patrol, management and monitoring tasks. A long-term Preserve Manager is anticipated to be in place in the near future.
<b>General Stewardship and Preserve Management</b>	OCTA staff, with assistance from contractors RECON and GLA, implement routine and ongoing property management and maintenance activities. An inventory of Preserve maintenance activities is included in Section 3.3.2 and Appendix B.
<b>Public Access Policy and Enforcement</b>	The Pacific Horizon RMP establishes a public access policy that identifies appropriate recreational opportunities within the Preserve that are compatible with the protection of biological resources. Through an evaluation of biological resources and site conditions, as well as coordination with the Wildlife Agencies, a set of existing trails within the Preserve have been identified for managed public access and other trail segments planned for decommissioning. The current configuration of OCTA approved trails connects to other existing trails on County of Orange open space lands managed by Orange County Parks (OC Parks) as well as the City of Laguna Beach. OCTA will continue to coordinate with adjacent property owners, California Coastal Commission (CCC), and City of Laguna Beach to document a formalized regional trails strategy that involves public access connections to and across the Pacific Horizon Preserve.
<b>Invasive Species Control Plan and Implementation</b>	OCTA contracted with GLA to serve as a Restoration Ecologist and prepare an ISMP. The Pacific Horizon Preserve ISMP was completed in 2018 and approved by the Wildlife Agencies. Invasive species removal is anticipated to begin in 2019 pending approvals from the CCC.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
<b>Biological (Effectiveness) Monitoring</b>	Biological monitoring for covered bird species were completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement is scheduled to be completed in 2019. The installation of cameras will require the installation of some posts and will require

Action	Pacific Horizon Preserve Status
	approval/potential permits from the CCC. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP, as well as during public hiking events.
<b>Adaptive Management</b>	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> <li>● <b>Covered Plants and Vegetation Management.</b> Closely monitor the response of covered plant species (e.g., many-stemmed dudleya) to trail use and future closures. Newly created bike jumps, and berms were removed in 2018 in areas recorded as many-stemmed dudleya habitat. Signs were also placed to help educate the public about the Preserve.</li> <li>● <b>Trails Revegetation.</b> A coastal development permit is required for proposed trail closures at this Preserve. Once this is obtained, photo monitoring of the revegetation of closed trails will be conducted to determine if passive restoration was successful. If not, determine if active restoration is needed.</li> </ul> <p>Focused efforts to address these adaptive management issues are scheduled to begin in 2019.</p>
<b>Changed Circumstances</b>	No events occurred that meet the Changed Circumstances requirements during this period.
<b>General Comments / Concerns</b>	Obtain CCC approvals to install cameras, remove invasive plant species, and close sections of trails supporting covered plant species.

### 3.2.4.1 Management and Monitoring Summary

Effectiveness monitoring completed during the timeframe of this Annual Report included focused surveys for covered bird species in 2017. No coastal California gnatcatcher or cactus wren were detected. One male gnatcatcher was observed by CDFW and OCTA staff in 2015 (CDFW 2017). Suitable, coastal sage scrub is present on the Pacific Horizon Preserve, and conditions have not changed since the 2015 surveys.

Monitoring visits have confirmed that public access is occurring at the Pacific Horizon Preserve. To better understand the level of access, GLA has recommended the placement of cameras, which will also help document wildlife species and movement on the site. OCTA and RECON installed signs on the Preserve in 2018. These signs will help to better educate the public on the ecological sensitivity of the Pacific Horizon Preserve, which should help with the protection of the Preserve. Coastal Development Permits will be needed to place cameras and potentially mend fencing to better control some of the public access activities.

GLA timed biological monitoring to coincide with the blooming periods of the covered plant species, specifically many-stemmed dudleya and intermediate mariposa lily. GLA was directed by OCTA to determine the approximate population size of many-stemmed dudleya. GLA detected approximately 100 dudleya individuals. GLA will continue to monitor known populations of many-stemmed dudleya and intermediate mariposa lily during spring blooming periods to detect potential trends in population growth or decline, recognizing rainfall needs of this species. GLA will document additional locations in the Preserve not previously documented. For the many-stemmed dudleya, GLA will continue to survey areas within the Preserve with the greatest potential to support the dudleya as a function of both soil suitability and topography.



GLA completed the Pacific Horizon Preserve ISMP (GLA 2018) and OCTA obtained approval from CDFW and USFWS in 2018. Invasive species were mapped, and priorities for removal have been set. OCTA will need to coordinate with the California Coastal Commission (CCC) to implement the ISMP tasks, as a coastal development permit will be needed for some of the proposed actions. Coordination with Orange County Parks (OC Parks) is also recommended as invasive species are entering the Preserve from County owned lands.

GLA began mapping cactus patches to help evaluate covered species (cactus wren) needs on the Preserve as well as to improve the quality of data for the fire management plans (currently in development by OCTA). The cactus data can be used in the future to evaluate more fine scale habitat changes and to help inform management actions.

GLA documented several areas of trail modification from unauthorized mountain bike use, including taking photographs and measuring the area of disturbance. The information was provided to OCTA. OCTA obtained a CCC waiver and was able to restore these areas. Monitoring and reporting is recommended to continue to focus on these unauthorized activities.



Unauthorized bike jumps within Pacific Horizon Preserve in 2018.

GLA documented that due to the public-use trail in the northern portion of the Preserve, the monitoring of authorized versus unauthorized uses along the trail is challenging. Pursuant to the OCTA RMP, two existing trail access points at the northern boundary are proposed to be decommissioned through further coordination between OCTA, OC Parks, and CCC. The southern Preserve boundary with The Ranch will be monitored for unauthorized activities, including maintenance crews associated with the golf course.

### 3.2.4.2 Planned Actions for 2019

- Continue monitoring of unauthorized trail use, particularly in the northern portion of the Preserve and near known populations of many-stemmed dudleya.
- Continue monitoring known populations of many-stemmed dudleya during blooming periods to detect potential trends in population growth or decline.
- Coordinate with CCC to install and monitor wildlife cameras to evaluate presence of covered mammal species and wildlife movement.
- Coordinate with the CCC to obtain authorizations, as appropriate, to begin implementation of priority actions for control of invasive species and trail decommissioning.
- Continue preparation of the Pacific Horizon Preserve FMP.
- Continue preparation of CE and coordinate with Wildlife Agencies for review and approval of the CE.

### 3.2.4.3 Related Documents and References

Bonterra Psomas. 2015. *Baseline Biological Surveys Technical Report for the Aliso Canyon (Pacific Horizon) Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation in Orange County, California*. October.

California Department of Fish and Wildlife (CDFW). 2017. *California Gnatcatcher and Cactus Wren Presence / Absence Surveys on Five Orange County Transportation Authority Preserves, Orange County, California*. APNs: Aliso Canyon-056-240-66; Ferber Ranch-842-041-08, 842-051-13, 842-011-28, 842-011-27; Hafen-856-042-18; O'Neill Oaks-125-035-33; and Saddle Creek South-856-021-26, 856-021-27. Prepared by Christine Beck. July 27.

Glenn Lukos Associates (GLA). 2018. *Invasive Species Management Plan for OCTA M2 Preserves – Pacific Horizon Preserve*. Prepared for OCTA. December.

GLA. 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

### 3.2.5 Silverado Chaparral (MacPherson) Preserve

Action	Silverado Chaparral (MacPherson) Preserve Status
<b>Acquisition</b>	Acquired in December 2014.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2015 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was completed in August 2017 and was available for public review for a 90-day period through December 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	Draft CE for the Silverado Chaparral Preserve is being prepared and is anticipated to be recorded in the near future.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by OCTA. OCTA contracts with multiple consultants to implement patrol, management and monitoring tasks. A long-term Preserve Manager is anticipated to be in place in the near future.
<b>General Stewardship and Preserve Management</b>	OCTA staff, with assistance from the Preserve Management contractor RECON, implement routine and ongoing property management and maintenance activities. An inventory of Preserve management activities is included in Appendix B.
<b>Public Access Policy and Enforcement</b>	OCTA will be implementing a managed public access approach for the Silverado Chaparral Preserve in coordination with the adjoining OC Parks lands.
<b>Invasive Species Control Plan and Implementation</b>	OCTA has contracted with GLA to serve as a Restoration Ecologist and prepare an ISMP that is scheduled to be completed early in 2019.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
<b>Biological (Effectiveness) Monitoring</b>	Biological monitoring for Covered Birds were completed in 2017. Camera monitoring for Covered Mammals and wildlife movement is scheduled to be completed in 2019. OCTA has developed new signage and has strategized camera placement locations which will be set up in 2019. Posts will be needed to safely mount the wildlife cameras. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
<b>Adaptive Management</b>	The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management: <ul style="list-style-type: none"> <li>• <b>Public Access and Wildlife Activity.</b> Use wildlife movement cameras to monitor and gauge wildlife activity to evaluate changes in the MacPherson Preserve public access policies. This monitoring would be</li> </ul>

Action	Silverado Chaparral (MacPherson) Preserve Status
	<p>collected while the levels of public access are being reviewed and potentially changed.</p> <ul style="list-style-type: none"> <li>● <b>Covered Plants and Vegetation Management.</b> Closely monitor the response of covered plant species (e.g., intermediate mariposa lily) to vegetation management actions along the side of access roads.</li> <li>● <b>Trails Revegetation.</b> Collect photo monitoring of the revegetation of closed trails to determine if passive restoration was successful. If not, determine if active restoration is needed.</li> <li>● <b>Vegetation Control around Cactus Patches.</b> Research current approaches for vegetation management around cactus patches to determine if this is needed at the Silverado Chaparral Preserve to protect and/or improve cactus wren populations.</li> </ul> <p>Focused monitoring efforts to address these adaptive management issues are scheduled to begin in 2019.</p>
<b>Changed Circumstances</b>	No events occurred that meet the Changed Circumstances requirements during this period.
<b>General Comments / Concerns</b>	None.

### 3.2.5.1 Management and Monitoring Summary

Public access is not currently authorized at the Silverado Chaparral Preserve. During monitoring visits, GLA observed active and ongoing disturbance of existing unmapped and mapped trails for mountain bike use. GLA mapped the location of disturbance and notified OCTA. The site will continue to be monitored to document unauthorized access and activities, including by OCTA’s private security company and GLA’s monitoring team. As part of GLA’s efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. The Preserve is large with multiple trails extending through both ridgelines and canyons, providing considerable opportunity for camera use. GLA will recommend camera locations to assist with documenting unauthorized activities related to mountain bike use. GLA recommends the placement of additional signage at key locations in the Preserve. In addition, GLA recommends fencing or other measures to block access to newly cut trails, fencing or other methods of demarcating property boundaries, and cameras to capture images of unauthorized access.

OCTA staff has been coordinating with the County of Orange and staff at Irvine Ranch Conservancy for the placement of signs and cameras as this Preserve is located adjacent to County managed lands that are experiencing similar issues. OCTA has created signs and is coordinating with the County to have RECON install signs and cameras, and restore the mountain biking disturbed areas. Due the relative remoteness of the Silverado Chaparral Preserve and the observation of unauthorized activities related to mountain bike use, ongoing monitoring is critical. Public outreach is recommended to educate the public regarding allowable and unauthorized uses. OCTA is working with Irvine Ranch Conservancy to begin guided tours of this Preserve in 2019.

GLA timed a biological monitoring visit to coincide with the blooming periods of the OCTA M2 covered plant species, specifically many-stemmed dudleya and intermediate mariposa lily. GLA did not detect many-stemmed dudleya or new occurrences of intermediate mariposa lily at the property. Silverado Chaparral Preserve has the potential to support many-stemmed dudleya, so monitoring of the site during the blooming period for that species is recommended and scheduled

for 2020. GLA will continue the monitoring of these species during routine visits during the appropriate blooming period.

A draft ISMP is being prepared for the Silverado Chaparral Preserve and will be reviewed by the Wildlife Agencies. As part of the ISMP preparation, the distribution of invasive plant species on the Preserve was mapped in 2018.

Due to the unauthorized trail use, revegetation assessment of trails has not been conducted. For the trails to revegetate, the unauthorized use will need to cease. OCTA is coordinating with OC Parks and GLA to identify the most effective locations to install signs, cameras, and fencing/strategic plantings to deter trail use. GLA will continue to monitor the trail use and any vegetation changes on the trails (or new trails) within the Preserve.

### 3.2.5.2 Planned Actions for 2019

- Continue monitoring unauthorized trail use activity (particularly mountain biking). Coordinate and collaborate with County of Orange and staff at Irvine Ranch Conservancy to address this issue. Install and utilize cameras to document activity and determine appropriate barriers, signage, and enforcement activities.
- Install wildlife cameras for monitoring of covered mammal species and wildlife movement.
- Finalize the ISMP and begin implementation of priority actions for control of invasive species.
- Continue monitoring for covered plant species (many-stemmed dudleya and intermediate mariposa lily) during blooming periods to detect potential trends in population growth or decline.
- Continue preparation of the Silverado Chaparral Preserve FMP.
- Continue preparation of the CE and coordinate with Wildlife Agencies for review and approval of the CE.

### 3.2.5.3 Related Documents and References

BonTerra Psomas. 2015. *Baseline Biological Surveys Technical Report for the MacPherson Property, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. September.

Glenn Lukos Associates (GLA). 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren’s View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.

### 3.2.6 Trabuco Rose (Ferber Ranch) Preserve

Action	Trabuco Rose (Ferber Ranch) Preserve Status
<b>Acquisition</b>	Acquired in May 2011.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was released in November 2015 and was available for public review for a 90-day period through February 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	Draft CEs for the Trabuco Rose Preserve are being prepared and are anticipated to be recorded in the near future. There will be two CEs for this Preserve. One will cover the portion (1.6 acres) of the Preserve that provides mitigation under the U.S. Army Corps of Engineers (ACOE) permit and has been structured to follow the CE template from the ACOE. A second CE utilizing the CDFW template will cover the rest of the Preserve.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by OCTA. OCTA contracts with multiple consultants to implement patrol, management and monitoring tasks. A long-term Preserve Manager is anticipated to be in place in the near future.
<b>General Stewardship and Preserve Management</b>	OCTA staff, with assistance from Preserve Management contractor RECON, implement routine and ongoing property management and maintenance activities. An inventory of Preserve maintenance activities is included in Section 3.3.2 and Appendix B.
<b>Public Access Policy and Enforcement</b>	The Trabuco Rose (Ferber Ranch) RMP establishes a public access policy that identifies appropriate recreational opportunities within the Preserve that are compatible with the protection of biological resources. Through an evaluation of biological resources and site conditions, as well as coordination with the Wildlife Agencies, a set of existing trails within the Preserve have been identified for managed public access and other trail segments planned for decommissioning. OCTA has held multiple public access events on the Trabuco Rose (Ferber Ranch) Preserve (see Table 6-2).
<b>Invasive Species Control Plan and Implementation</b>	OCTA contracted with GLA to serve as a Restoration Ecologist and prepare an ISMP that was completed and approved by the Wildlife Agencies in 2018. Invasives species eradication began in 2018. These efforts will continue into 2019. ISHB surveys were also conducted in 2017 and 2018. Recommendations were to remove eight infected trees and continue to monitor the sycamores on site. After further coordination between OCTA and the Wildlife Agencies, it was determined to prune some of the infected trees and continue to monitor. OCTA will work with RECON in early 2019 to complete any necessary tree work before the flight season occurs for ISHB. OCTA is also working out an ongoing monitoring strategy for these pests which will include the use of sticky traps.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire

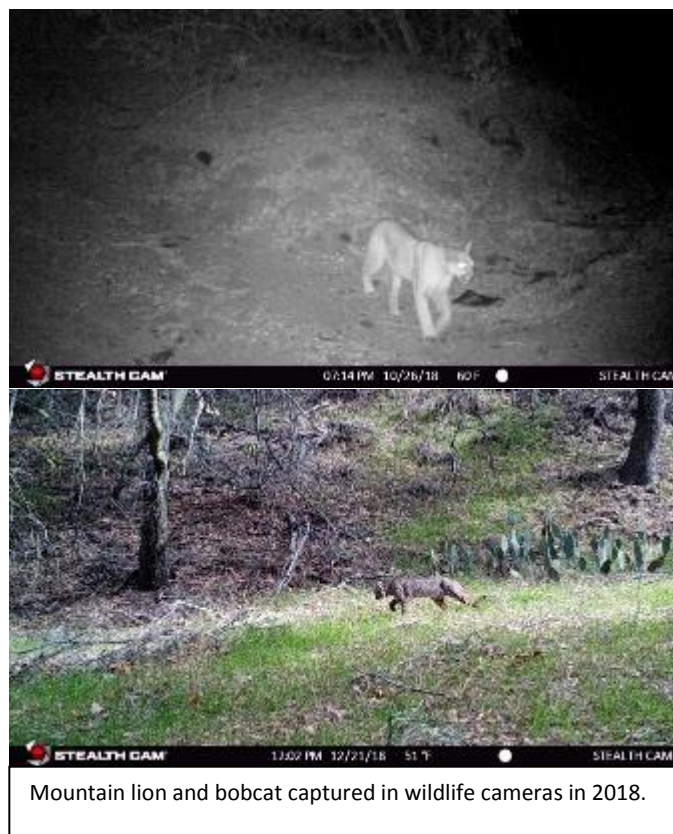
Action	Trabuco Rose (Ferber Ranch) Preserve Status
	suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.
<b>Biological (Effectiveness) Monitoring</b>	Biological monitoring for Covered Birds were completed in 2017. Camera monitoring for Covered Mammals and wildlife movement has been occurring since 2016. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP. In addition, public access occurs on a regular basis during the scheduled hikes and rides on this Preserve.
<b>Adaptive Management</b>	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> <li>• <b>Covered Plants and Vegetation Management.</b> Monitor effectiveness of methods to protect Covered Plants from vegetation management activities along access roads. Monitoring included areas of documented intermediate mariposa lily and suitable habitat along access roads where maintenance occurs, to confirm that the maintenance activities are not adversely affecting intermediate mariposa lily populations. The potential effect of road maintenance on intermediate mariposa lily could not be properly evaluated in 2018 due to the below-normal rainfall, i.e. the lack of detections along roads where previously documented could not be used to consider an associated result between maintenance activities and species absence. Monitoring for these species will continue for further assessment.</li> <li>• <b>Trails Revegetation.</b> On August 23, 2018, GLA staff inspected and evaluated all the trails identified in the Preserve RMP for “passive restoration.” GLA reviewed 13 trails or trail segments. Of the 13 trails, 10 were noted by GLA as adequately restoring passively on their own, and no action is required for active restoration. However, for 3 of the trails, it was noted that active restoration may be required at some point. These trails will continue to be monitored and if necessary, actively restored.</li> </ul>
<b>Changed Circumstances</b>	No events occurred that meet the Changed Circumstances requirements during this period.
<b>General Comments / Concerns</b>	Ongoing trespassing is the major concern for this Preserve due to its proximity to local rural development and history as a property with adjacent neighbor access. OCTA is continuing to monitor unauthorized access and working to address the problem through enforcement actions, public engagement and education, and hosting managed access events.

### 3.2.6.1 Management and Monitoring Summary

Effectiveness monitoring completed during the timeframe of this Annual Report included focused surveys for covered bird species in 2017 (CDFW 2017). Seven cactus wren territories/use areas were detected at the Trabuco Rose Preserve. Male and female wren (i.e., pairs) were observed. Cactus wren were documented during the biological baseline surveys of this Preserve (Bonterra Consulting 2013). Suitable, high quality cactus scrub is present on the Trabuco Rose Preserve, and conditions have not changed since baseline surveys. A pair of coastal California gnatcatcher were observed in 2017, which was similar to the level of occupancy recorded during baseline surveys. GLA continued to operate and monitor wildlife cameras at various stations in 2017 and 2018. As

with past monitoring, GLA observed a range of wildlife with the cameras, including mountain lion, bobcat, mule deer, coyote, gray fox, and raccoon.

While performing general stewardship biological monitoring, GLA generally watched for Covered Species, including the coastal California gnatcatcher, coastal cactus wren, orangethroat whiptail, and coast horned lizard. For any species detected incidentally, its location was recorded. GLA biologist did not detect coastal California gnatcatcher within the Preserve but did confirm the cactus wren in several of the areas noted by CDFW. GLA also detected an orangethroat whiptail during monitoring visits. GLA timed biological monitoring visits in Spring 2017 to coincide with the blooming period of covered plant species, specifically many-stemmed dudleya and intermediate mariposa lily. GLA did not detect any many-stemmed dudleya but did document several additional intermediate mariposa lily locations that had not been previously documented (see Section 2.2, *Tracking for Covered Plant Species Policy*).



OCTA sponsored a number of docent hikes on the Trabuco Rose Preserve (see Section 6.1.2, *Preserve-Specific Public Outreach Events*). OCTA will continue to implement a managed public access approach along authorized trail segments. GLA noted multiple occurrences of unauthorized public use at the Preserve documented by the wildlife cameras, including hiking and mountain bikes. In some instances, the hikers brought dogs into the Preserve, which is prohibited. Trespassing has been documented by the OCTA private security company and warnings were issued. The site will continue to be monitored by OCTA private security as well as OC Sheriff officers to document unauthorized access and activities, including by OCTA's private security company and GLA's monitoring team.

GLA completed the ISMP (GLA 2017) and it was reviewed and approved by CDFW and the USFWS. RECON began implementation of the ISMP in the fall of 2018. All of the Priority 1 invasive species and some of the Priority 2 invasive species were targeted for removal during this fall season. In addition to all of the Priority 1 areas, there were also six Priority 2 areas that were treated due to their proximity to fire roads and to Priority 1 areas. Additionally, there were eight new areas, observed by the RECON biological monitor and not mapped by GLA, that had invasive species present which were also treated. The dominant invasive species that was treated was artichoke thistle/cardoon (*Cynara cardunculus*); however, pampas grass (*Cortaderia selloana*), and salt cedar (*Tamarix* spp.) were also treated. A summary of RECON's report (RECON 2018) is included as Appendix B.



In 2017, ISHB was positively identified within O’Neill Regional Park in Trabuco Canyon, California, and due to the park’s proximity to the Trabuco Rose Preserve, presence/absence surveys were conducted by Dudek arborists. The surveys were conducted in summer 2017 and occurred in riparian-, oak-, and sycamore-dominated woodland areas within the Preserve. These surveys confirmed the presence of ISHB and other pests. More specific surveys were conducted in 2018, due to the 2017 positive results. Based on the results of the 2017 and 2018 surveys and associated lab analyses, a total of eight trees exhibited signs and symptoms of ISHB. ISHB is considered active within the Preserve, although in the early stages. Dudek’s recommendations included removal of the eight infected trees and an active monitoring and removal program (Dudek 2018). OCTA provided this initial input to the Wildlife Agencies and regional ISHB working group. The collaborative recommendation was to continue to monitor the infested riparian trees and incorporate the use of sticky traps, as well as to remove selective branches of high or moderately infested trees. OCTA will be working with RECON and GLA to implement these recommendations in 2019.

GLA mapped the cactus patches on the Preserve in 2018. This data will be beneficial for future decision making regarding recommended vegetation management of this Preserve. This mapping will also be utilized in the fire management plans that are currently being drafted. The data and summary of the cactus mapping will be completed in 2019.

On August 15, 2018, GLA biologists noted a new vegetation break along the western boundary of the Preserve south of Rose Canyon. The vegetation break was created by the adjacent landowner and appeared to have been created as a potential fire break during the period of the Holy Fire. The vegetation break was mostly on the adjoining property but appeared to have slightly impacted the western edge of the Preserve, where in some cases the vegetation break straddled the boundary. The vegetation clearing removed coastal sage scrub and cactus scrub, both sensitive habitat types with the potential to support both coastal California gnatcatcher and cactus wren. In addition, GLA monitored some minor vegetation trampling in the western portion of the Preserve north of Rose Canyon, where an individual apparently accessed the Preserve from an adjacent property. GLA will continue to monitor adjacent properties for signs of unauthorized access/encroachment.



Vegetation break created by adjacent land owner, east of the Trabuco Rose Preserve off of Rose Canyon Road (photo from August 2018).



Eroded gully near the main gate of the Trabuco Rose Preserve.

Erosion continues to be an issue in between the main gate and the Preserve access road entering east into the Preserve. There is a large eroded gully that continues to increase with larger rain systems. The main access road into the Preserve is at risk due to the growing size of this gully. In addition, OCTA is considering to place a structure to span Hickey Creek near the main gate to help avoid repetitive maintenance of the current road/creek crossing. These tasks are anticipated to include engineering and will require the assistance of contractors. OCTA intends to assess and work with the Wildlife Agencies and Regulatory Agencies to develop long-term solutions to secure the slopes of this gully and provide safe access through the Preserve.



Hickey Creek road crossing which serves as the Preserves' main access and requires that emergency access be maintained.

### 3.2.6.2 Planned Actions for 2019

- Coordinate with contractors to develop a long-term solution for the gully near the main gate, as well as the potential placement of a bridge or structure over Hickey Creek.
- Continue monitoring for unauthorized trail use.
- Conduct docent lead field trips as part of managed public access program.
- Implement recommendations for ISHB infestation and continue to evaluate the status and threat of ISHB. Complete the recommended management actions necessary in relation to the ISHB infestations. Continue to monitor and collaborate with other scientists regarding the ISHB presence and impacts to this Preserve.
- Monitor wildlife cameras for covered mammal species and wildlife movement.
- Continue to implement the ISMP recommendations.
- Continue monitoring known populations of covered plant species (e.g., intermediate mariposa lily) during blooming periods to detect potential trends in population growth or decline. Document additional locations in the Preserve not previously documented. Continue to monitor the intermediate mariposa lily populations along the access roads to determine if road management activities need to be altered
- Continue preparation of the Trabuco Rose Preserve FMP.
- Continue preparation of the CEs and coordinate with Wildlife and Regulatory Agencies for review and approval of the CEs.
- The adjacent neighbor on Rose Canyon Road created a vegetation break in 2018 during the Holy Fire. Monitor this fire break to ensure that invasive weeds do not colonize which could impact the OCTA adjacent high-quality habitat. Continue to monitor adjacent land uses and potential impacts to the Preserve.

### 3.2.6.3 Related Documents and References:

BonTerra Consulting. 2013. *Draft Biological Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Irvine, CA. December.

Dudek. 2018. *Letter Report Summarizing Invasive Shot Hole Borer Extent Evaluations – Wren’s View and Trabuco Rose Preserves, Orange County, California*. September 21.

Glenn Lukos Associates (GLA). 2017. *Invasive Species Management Plan for OCTA M2 Preserves – Trabuco Rose Preserve*. Prepared for OCTA. November.

Glenn Lukos Associates (GLA). 2019. *Annual Biological Monitoring Report for OCTA M2 Preserves – Trabuco Rose Preserve*. Prepared for OCTA. February.

RECON. 2018. *Progress Report for Invasive Species Control at Trabuco Rose*. November 19.

### 3.2.7 Wren's View (O'Neill Oaks) Preserve

Action	Wren's View (O'Neill Oaks) Preserve Status
<b>Acquisition</b>	Acquired in May 2011.
<b>Baseline Surveys</b>	Baseline surveys were completed in 2013 by BonTerra Consulting and results documented in the Baseline Survey Technical Report. This report is included as an appendix to the RMP.
<b>Preparation of Resource Management Plan</b>	Draft RMP was released in November 2016 and was available for public review for a 90-day period through February 2017. Final RMP was completed and posted on OCTA EMP website in September 2017. <a href="http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/">http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Resource-Management-Plans/</a>
<b>Recording of Conservation Easement</b>	Draft CE for the Wren's View Preserve is being prepared and is anticipated to be recorded in the near future.
<b>Identification of Preserve Manager</b>	Currently the Preserve is being managed by OCTA. OCTA contracts with multiple consultants to implement patrol, management and monitoring tasks. A long-term Preserve Manager is anticipated to be in place in the near future.
<b>General Stewardship and Preserve Management</b>	OCTA contracted with the County of Orange (OC Parks) to help manage the day-to-day management of this Preserve from April 2012 to April 2016, as this Preserve is directly adjacent to O'Neill Regional Park. OCTA staff currently manages this Preserve, with assistance from contractor RECON to implement routine and ongoing property management and maintenance activities. An inventory of Preserve maintenance activities is included in Section 3.3.2 and Appendix B.
<b>Public Access Policy and Enforcement</b>	The Wren's View (O'Neill Oaks) RMP establishes a public access policy that identifies appropriate recreational opportunities within the Preserve that are compatible with the protection of biological resources. Through an evaluation of biological resources and site conditions, as well as coordination with the Wildlife Agencies, a set of existing trails within the Preserve have been identified for managed public access and other trail segments planned for decommissioning. OCTA has held multiple public access events on the Wren's View Preserve (see Section 6.1.2).
<b>Invasive Species Control Plan and Implementation</b>	OCTA has contracted with GLA to serve as a Restoration Ecologist and prepare an ISMP. A draft of the Wren's View ISMP has been completed and expected to be reviewed and approved by the Wildlife Agencies early in 2019. Implementation will begin in 2019. ISHB surveys were also conducted in 2017 and 2018. Orange County Parks has been monitoring for ISHB at O'Neill Regional Park and has found a high level of infested trees. Based on surveys, initial recommendations were to remove eight infected trees and continue to monitor the sycamores on site at the Wren's View Preserve. After further coordination between OCTA and the Wildlife Agencies, it was decided to remove one highly infected sycamore, prune some of the infected trees, and continue to monitor.
<b>Fire Management Plan and Fire Response</b>	OCTA has contracted with Wildland Res Mgt to complete an FMP. A draft FMP is scheduled to be completed in 2020. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. No fires within the Preserve have occurred during this period.

Action	Wren's View (O'Neill Oaks) Preserve Status
<b>Biological (Effectiveness) Monitoring</b>	Biological monitoring for covered bird species were completed in 2017 (CDFW 2017). Camera monitoring for covered mammal species and wildlife movement was initiated in 2018 and will continue in 2019. See the Effectiveness Monitoring Schedule in Appendix C.
<b>Public Outreach / Education</b>	OCTA has conducted public outreach and education as part of the preparation of the Draft and Final RMP.
<b>Adaptive Management</b>	<p>The RMP has identified the following key issues for a focused adaptive management approach to address uncertainties of Preserve management:</p> <ul style="list-style-type: none"> <li>• <b>Public Access and Wildlife Activity.</b> Use wildlife movement cameras to monitor and gauge wildlife activity to evaluate changes in the O'Neill Oaks Preserve public access policies. This monitoring would be collected while the levels of public access are being reviewed and potentially changed. Wildlife cameras were installed in 2018.</li> <li>• <b>Covered Plants and Vegetation Management.</b> Closely monitor the response of covered plant species (e.g., intermediate mariposa lily) to vegetation management actions along the side of access roads.</li> <li>• <b>Trails/Grazed Areas Revegetation.</b> Collect photo monitoring of the revegetation of closed trails and degraded habitat areas due to past grazing to determine if passive restoration was successful. If not, determine if active restoration is needed.</li> <li>• <b>Vegetation Control around Cactus Patches.</b> Research current approaches for vegetation management around cactus patches to determine if this is needed at the O'Neill Oaks Preserve to protect and/or improve cactus wren populations. Detailed mapping of cactus patches was completed in 2018.</li> </ul> <p>Focused monitoring efforts to address these adaptive management issues are scheduled to begin in 2019.</p>
<b>Changed Circumstances</b>	No events occurred that meet the Changed Circumstances requirements during this period.
<b>General Comments / Concerns</b>	Continue to monitor and collaborate with other scientists regarding the ISHB presence and impacts on this Preserve.

### 3.2.7.1 Management and Monitoring Summary

Effectiveness monitoring completed during the timeframe of this Annual Report included focused surveys for covered bird species in 2017 (CDFW 2017). Two cactus wren territories/use areas were detected at the Wren's View Preserve. Male and female wren (i.e., pairs) were observed as well as fledglings. Cactus wren were documented during the biological baseline surveys of this Preserve (Bonterra Consulting 2013). Suitable, high quality cactus scrub is present on the Wren's View Preserve, and conditions have not changed since baseline surveys. A pair of coastal California gnatcatcher had previously been documented during the biological baseline surveys, but none were detected in 2017. Suitable habitat is still present on the Preserve and it is unclear why this species was not detected.

GLA has initiated camera monitoring for covered mammal species and wildlife movement in 2018 and will continue camera monitoring into 2019. Wildlife detected at the camera stations include deer, coyote, and gray fox.

While performing general stewardship biological monitoring, GLA generally watched for Covered Species, including the coastal California gnatcatcher, coastal cactus wren, orangethroat whiptail, and coast horned lizard. For any species detected incidentally, its location was recorded. GLA biologists have detected cactus wrens in the same area (2017 and 2018) corresponding to one of the territories noted during the focused surveys. No gnatcatchers were detected during GLA’s monitoring visits. GLA also detected an orangethroat whiptail during monitoring visits. The coast horned lizard has not yet been detected at this Preserve.



Cactus wren habitat depicted in 2016. 2017 focused surveys confirmed the utilization of this area by cactus wrens.

The Wren’s View Preserve has the potential to support many-stemmed dudleya, and GLA will continue to monitor the site during the blooming period for this species to determine presence. GLA timed biological monitoring visits in Spring 2017 and 2018 to coincide with the blooming periods of intermediate mariposa lily. GLA did not detect new populations of intermediate mariposa lily.



Camera monitoring photo from 2018.

OCTA sponsored a number of docent hikes on the Wren’s View Preserve (see Section 6.1.2). OCTA will continue to implement a managed public access approach along authorized trail segments. GLA did not observe any new trail cuts or evidence of unauthorized access; however, trespassing through the property has been a common daytime and nighttime occurrence, in part due to the location of the former home site to the northeast of the Preserve. Trespassing has been documented by the OCTA private security company and warnings were issued. The site will continue to be monitored to document unauthorized access and activities, including by OCTA’s private security company, OC Sheriff officers, and GLA’s monitoring team. As part of GLA’s efforts, the biological monitors will periodically check any evidence of habitat disturbance within the Preserve due to human activity. The three wildlife cameras may also provide the secondary benefit of documenting unauthorized activities.

Internal barbed wire (and a small section of chain link) fencing has been mapped and is recommended for removal. Livestock no longer reside on the property to the west, and coordination with the new property owner should continue in order to determine if the barbed wire fencing can be modified to better promote wildlife movement.

GLA conducted comprehensive invasive species mapping and has prepared a draft ISMP that is currently being reviewed by CDFW and the USFWS. OCTA will begin implementing the finalized ISMP based on priorities outlined in the plan.

In 2017, ISHB was positively identified within O'Neill Regional Park in Trabuco Canyon, California, and due to the park's proximity to the Wren's View Preserve, presence/absence surveys were conducted by Dudek arborists. The surveys were conducted in summer 2017 and occurred in riparian-, oak-, and sycamore-dominated woodland areas within the Preserve. These surveys focused on collecting information that could be used to determine the presence or absence of ISHB and assist in determining recommendations for the short- and long-term management of the woodlands and pests. More specific surveys were conducted in 2018, due to the 2017 positive results. Based on the results of the 2017 and 2018 surveys and associated lab analyses, ISHB is considered active within the Preserve; however, it is within the early stages of infestation. Dudek's recommendations included removal of the 13 infected trees and an active monitoring and removal program (Dudek 2018). OCTA provided this initial input to the Wildlife Agencies and regional ISHB working group. The collaborative recommendation was to continue to monitor the other infested riparian trees and incorporate the use of sticky traps, as well as to remove one highly infested tree and select branches (as applicable) of moderately infested trees. OCTA will be working with RECON and GLA to implement these recommendations in 2019.

Audubon Starr Ranch has been conducting quantitative and qualitative monitoring of vegetation cover at three OCTA Preserves, including Wren's View (see Section 3.3.1). Special attention has been focused on a portion of the Wren's View Preserve woodland habitat that was previously disturbed from cattle grazing. Woodland understories were stable with nonnative annual grasses and forbs dominating under the relatively open tree canopy of the cattle-disturbed Wren's View woodland (Audubon Starr Ranch 2018).

GLA mapped the cactus patches on the Preserve in 2018. This data will be beneficial for future decision making regarding recommended vegetation management of this Preserve. This mapping will also be utilized in the fire management plans that are currently being drafted. The data and summary of the cactus mapping will be completed in 2019.

### **3.2.7.2 Planned Actions for 2019**

- Continue monitoring for unauthorized trail use.
- Conduct docent lead field trips as part of managed public access program.
- Implement recommendations for ISHB infestation and continue to evaluate the status and threat of ISHB.
- Monitor wildlife cameras for covered mammal species and wildlife movement.
- Finalize the ISMP and begin implementation of priority actions for control of invasive species.
- Continue monitoring known populations of covered plant species (e.g., intermediate mariposa lily) during blooming periods to detect potential trends in population growth or decline. Document additional locations in the Preserve not previously documented.
- Continue preparation of the Wren's View Preserve FMP.

- Continue preparation of the CE and coordinate with Wildlife Agencies for review and approval of the CE.

### 3.2.7.3 Related Documents and References

Audubon Starr Ranch. 2018. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren's View, and Live Oak Creek*. Operating Agreement 3-5-3711. August 2018.

BonTerra Consulting. 2013. *Baseline Biological Surveys Technical Report for the South County Properties, Measure M2 Freeway Environmental Mitigation Program Acquisition Properties Evaluation*. Prepared for OCTA. December.

California Department of Fish and Wildlife (CDFW). 2017. *California Gnatcatcher and Cactus Wren Presence / Absence Surveys on Five Orange County Transportation Authority Preserves, Orange County, California*. APNs: Aliso Canyon-056-240-66; Ferber Ranch-842-041-08, 842-051-13, 842-011-28, 842-011-27; Hafen-856-042-18; O'Neill Oaks-125-035-33; and Saddle Creek South-856-021-26, 856-021-27. Prepared by Christine Beck. July 27.

Dudek. 2018. *Letter Report Summarizing Invasive Shot Hole Borer Extent Evaluations – Wren's View and Trabuco Rose Preserves, Orange County, California*. September 21.

Glenn Lukos Associates (GLA). 2019. *Biological Monitoring Report for OCTA M2 Preserves – Pacific Horizon, Bobcat Ridge, Silverado Chaparral, Wren's View, Live Oak Creek, and Eagle Ridge*. Prepared for OCTA. March.



## 3.3 OCTA Preserve-Wide Actions

The following sections provide a status of actions undertaken and coordinated across multiple OCTA Preserves.

### 3.3.1 Vegetation Cover Quantitative and Qualitative Monitoring

Audubon Starr Ranch, with direction and support from OCTA, has undertaken a 5-year project to qualitatively and quantitatively monitor plant communities to assess stability of vegetation cover on three OCTA Preserves: Bobcat Ridge (Hafen), Wren's View (O'Neill Oaks), and Live Oak Creek (Saddlecreek South). Baseline sampling occurred in April 2016, followed by annual monitoring in April 2017 and April 2018.

During April 2016, Audubon Starr Ranch field crew completed baseline quantitative monitoring. Baseline sampling has indicated that longtime absence of two major disturbance types, grazing and fire, was likely associated with the healthy, intact nature of much of the vegetation on the three properties. Overall, the shrublands and most of the woodland vegetation of the Hafen, O'Neill Oaks, and Saddlecreek South properties are representative of increasingly uncommon pristine, undisturbed natural landscapes in Southern California.

In April 2017 Starr Ranch completed the first season of qualitative monitoring on the three OCTA Preserves. Vegetation at all three properties was generally stable in 2017 compared to 2016 qualitative observations, but with relatively higher cover of nonnative annual grasses and mustards (*H. incana*, *B. nigra*). Above average precipitation during 2016–2017 during cooler winter months most likely explains higher occurrences of nonnative grasses and mustards. However, overall OCTA vegetation mosaics appear generally stable with expected dynamics for the region.

In April 2018 Starr Ranch completed the second season of qualitative monitoring on the three OCTA Preserves. Vegetation at the Bobcat Ridge, Wren's View, and Live Oak Creek Preserves was generally stable in 2018 compared to 2017 qualitative observations, but with relatively lower cover of nonnative mustards (*H. incana*, *B. nigra*). OCTA vegetation mosaics appear generally stable with dynamics expected for the region. The changing climate will likely bring shifts in vegetation in the coming years.

#### 3.3.1.1 Related Documents and References

Audubon Starr Ranch. 2016. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Hafen, O'Neill Oaks, and Saddlecreek South*. Operating Agreement 3-5-3711. September 2016.

Audubon Starr Ranch. 2017. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Hafen, O'Neill Oaks, and Saddlecreek South*. Operating Agreement 3-5-3711. July 2017.

Audubon Starr Ranch. 2018. *Vegetation Monitoring on Three Orange County Transportation Authority Preserves: Bobcat Ridge, Wren's View, and Live Oak Creek*. Operating Agreement 3-5-3711. August 2018.

### 3.3.2 Preserve Maintenance Activities

OCTA has contracted with RECON Environmental, Inc. to implement routine and ongoing property management and maintenance activities at multiple Preserves (Trabuco Rose, Wren's View, Live Oak Creek, Bobcat Ridge, Silverado Chaparral, and Pacific Horizon Preserves). Other entities providing Preserve maintenance activities at OCTA Preserves have included Chino Hills State Parks at Eagle Ridge Preserve, OC Parks at Wren's View Preserve (until 2015), and Transportation Corridor Agencies (TCA) subcontractors at Live Oak Creek Preserve (until 2014). The types of activities have included:

- Access/fire road maintenance
- Fence installation
- Fence removal
- Fence repair/maintenance/extension
- Gate installation/repairs/maintenance
- Sign installation
- Signs and posts repair/update/maintenance
- New signs addition to post and gates
- Cactus salvage/planting/install
- Plants flagging
- Arborist support (tree assessment and evaluation, onsite direction)
- Invasive beetle assessments
- Public safety tasks (such as work at Hickey Creek crossing for safe ingress/egress, tree pruning/removal near residents' homes and public roads, and fence installation for safety)
- Biomass removal/vegetation maintenance (thinning and/or removing vegetation; and removal of tree limbs (within streams) and debris within fuel modification zones)
- Trash/human-made materials removal
- Wildlife ramp built out of human-made mine pit
- Trail maintenance in preparation of equestrian rides
- Erosion control
- Land survey and staking property boundaries
- Removal of homeless encampment
- Removal of bike jumps/bike trails

Tables B-1 and B-2 in Appendix B summarize the dates these activities were completed at each of the Preserves.

# Chapter 4

## OCTA-Funded Restoration Projects

### 4.1 Introduction

As part of their commitments to deliver more effective mitigation for the M2 freeway projects, OCTA allocated funds towards habitat restoration projects. Potential habitat restoration properties were evaluated based on biological and non-biological criteria, a process that included a prioritization process to select restoration programs that would be funded by OCTA. There were two separate rounds of funding for restoration, totaling over \$10 million. The restoration projects are being implemented by various cities and non-profit entities within Orange County. Project sponsors are required to prepare annual monitoring reports to track progress towards meeting success criteria and updates on implementation status. Table 4-1 lists the OCTA-funded restoration projects, with summaries of each following.

**Table 4-1. OCTA-Funded Restoration Projects – Rounds 1 and 2**

Round	Project	Sponsor	Description	Signed Off
1	Agua Chinon/ Bee Flat Canyon	Irvine Ranch Conservancy	90.1 acres of restoration consisting of chaparral, grassland, coastal sage scrub, elderberry scrub, oak woodland, and riparian	
	Big Bend	Laguna Canyon Foundation	3.7 acres of restoration consisting of coastal sage scrub and riparian woodland to enhance wildlife connectivity	√
	City Parcel	City of San Juan Capistrano	53 acres of restoration consisting of riparian and coastal sage scrub within Trabuco Creek Wildlife Linkage	√
	Fairview Park	City of Costa Mesa	23 acres of restoration consisting of wetlands, grasslands, coastal sage scrub, and riparian	
	UCI Ecological Preserve	Nature Reserve of Orange County	8.5 acres of restoration consisting of cactus scrub	
2	Aliso Creek	Laguna Canyon Foundation	55 acres of restoration consisting of riparian and transitional habitat	
	Chino Hills State Park	Pending	13.5 acres of riparian restoration and 6 acres of cactus scrub restoration	
	Harriett Weider Regional Park	Bolsa Chica Conservancy	8.2 acres of restoration consisting of grassland, coastal sage scrub, and riparian habitat	
	Lower Silverado Canyon	Irvine Ranch Conservancy	28.4 acres of restoration consisting of riparian and coastal sage scrub habitat	
	North Coal Canyon	Pending	5.5 acres of restoration consisting of coastal sage scrub habitat within a key wildlife connectivity linkage area	

Round	Project	Sponsor	Description	Signed Off
	West Loma	Irvine Ranch Conservancy	62.47 acres of restoration consisting of grassland, coastal sage scrub, and riparian habitat	
2016	USFS Dam Removal	U.S. Forest Service	Removal of 14 dams along San Juan Creek to improve hydrologic functions	

## 4.2 Restoration Project Status

### 4.2.1 Agua Chinon/Bee Flat Canyon

Action	Agua Chinon/Bee Flat Canyon Status
<b>Sponsor</b>	Irvine Ranch Conservancy
<b>OCTA Funding</b>	\$1,497,160
<b>Location</b>	Irvine
<b>Acreage</b>	90.1 acres
<b>General Habitat Types</b>	Chaparral, coastal sage scrub, coast live oak/sycamore, oak woodland, native grassland, riparian
<b>Restoration Design Plans</b>	Approved in 2010. <sup>3</sup>
<b>Restoration Installation</b>	Implementation began in 2011 and is ongoing.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring is ongoing. Monitoring shows the project is on track to meet the success criteria by the year projected.
<b>Land Protection Mechanism</b>	Lands are deed restricted for open space and conservation purposes as the result of the transfer of land from the Irvine Company to the County of Orange. Lands still under the Irvine Company are subject to an Irrevocable Offer of Dedication to the City of Irvine (Preservation Area R).
<b>Long-Term Management of Restoration Site</b>	The project area is owned in fee by the County of Orange, with portions of Agua Chinon owned by the Irvine Company. The Orange County Parks Department and the Irvine Company are responsible for their long-term stewardship subject to the terms and conditions of the Central-Coastal NCCP/HCP.
<b>General Comments / Concerns</b>	None.

#### 4.2.1.1 Project Summary

The Agua Chinon/Bee Flat Canyon restoration project is being completed by The Irvine Ranch Conservancy (IRC) and includes restoration of 90.1 acres of natural habitat in the San Diego Creek watershed, within the sub-watersheds of Agua Chinon and Bee Flat Canyon. The sites include disturbed coastal sage scrub, grassland, and chaparral, as well as woodland and riparian habitat. The OCTA-funded restoration project will add to the other ongoing restoration projects in the same

<sup>3</sup> The USFWS and CDFW approved the restoration plan framework for this project in 2010. A more detailed plan was drafted and approved by USFWS and CDFW in 2011. To also obtain mitigation credit from the ACOE, the restoration plan for the Agua Chinon subwatershed was developed further into a Habitat Mitigation Monitoring Plan to comply with the Environmental Protection Agency 2008 Final Mitigation Rule.

watershed that are being funded by other entities. The project site is within the Central-Coastal NCCP/HCP Central Reserve system, but the restoration proposed for this project is above and beyond the requirements of the Central-Coastal NCCP/HCP.

The long-term goal of the restoration is to facilitate habitat restoration and enhancement for the purpose of increasing landscape-scale ecosystem resilience and resistance to disturbance, primarily from catastrophic wildfire and invasive species. Sub-watershed-wide weed targets also will be controlled. The restoration success criteria include the reduction of nonnative cover of grasslands to native cover. Performance monitoring data from Bee Flat was most recently recorded in 2017 and show that most active restoration sites are successful with respect to cover of native vegetation. However, some sites need increased control of annual grasses to meet success criteria for nonnative vegetation. Performance monitoring at Agua Chinon, most recently performed in 2018, indicates that restoration efforts have been highly successful in establishing native vegetation and controlling nonnative weeds. Field data indicates that all of the sites within the project except polygon L3 meet all success criteria for vegetation. The lack of success in polygon L3 may be due to severe drought, which affected the numbers of observed species.

#### **4.2.1.2 Related Documents and References**

Irvine Ranch Conservancy. 2011a. *Restoration Plan Framework for Bee Flat Canyon Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. Report dated July 8, 2011.

Irvine Ranch Conservancy. 2011b. *Annual Status Report, January-December 2011: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2012. *Annual Status Report, January-December 2012: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2013. *Annual Status Report, January-December 2013: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2014. *Annual Status Report, January-December 2014: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2015. *Annual Status Report, January-December 2015: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2016. *Annual Status Report, January-December 2016: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2017a. *Annual Status Report, January-December 2017: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2017b. *Habitat Mitigation and Monitoring Plan: Agua Chinon Subwatershed, Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. Report dated September 2017.

Irvine Ranch Conservancy. 2018. *Annual Status Report, January-December 2018: Renewed Measure M Freeway Mitigation and Resource Protection Program, Bee Flat and Agua Chinon Riparian Corridor*. Agreement No. C-1-2384 between OCTA and IRC. Irvine, CA.

## 4.2.2 Big Bend

Action	Big Bend Status
<b>Sponsor</b>	Laguna Canyon Foundation
<b>OCTA Funding</b>	\$87,500
<b>Location</b>	Laguna Beach
<b>Acreage</b>	3.7 acres
<b>General Habitat Types</b>	Coastal sage scrub, riparian woodland
<b>Restoration Design Plans</b>	Approved in 2011.
<b>Restoration Installation</b>	Implemented in 2011.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring was initiated in 2011 and 5 years of monitoring complete. The project was signed off in 2017.
<b>Land Protection Mechanism</b>	A deed restriction is expected to be recorded for the property to ensure long-term land use consistent with the project's restoration and mitigation intent.
<b>Long-Term Management of Restoration Site</b>	The City of Laguna Beach owns the property and is obligated to manage it to perpetuate the benefits of the restoration project. It is anticipated that the project site will be incorporated into an Orange County Parks management agreement.
<b>General Comments / Concerns</b>	Work with the City of Laguna Beach to record the restoration areas land protection document.

### 4.2.2.1 Project Summary

The Big Bend restoration project is located in the City of Laguna Beach. Since its purchase by the City a decade ago, the site has been used as an informal trailhead to access the 20,000-acre South Coast Wilderness System. The project site was degraded by invasive species and human activity. Over the past 10 years, the City of Laguna Beach has worked with the Laguna Canyon Foundation to preserve more than 250 acres adjacent to the proposed restoration area, which is now under City ownership and managed by OC Parks. This restoration site, however, is not part of the Central-Coastal NCCP/HCP Coastal Reserve.

The project restored 3.2 acres of disturbed coastal sage scrub and approximately 0.5 acre of riparian habitat to benefit local species and increase the wildlife corridor's local and regional effectiveness. Restoration included the removal of invasive nonnative species and debris, planting of native species, and maintenance/improvement of flood conveyance patterns across the site to enhance water quality for this important coastal watershed (the San Juan watershed). The project achieved the success criteria in January 2017. The project sponsor has continued to work with the City to draft a deed restriction. This deed restriction is anticipated to be completed and executed in early 2019.

## 4.2.2.2 Related Documents and References

Laguna Canyon Foundation. 2011. *Restoration and Enhancement Plan: Big Bend Property*. Laguna Beach, CA. Report dated May 10, 2011.

Laguna Canyon Foundation. 2012. *2011 Annual Report Status: Big Bend Restoration Project, 3.7 Acres*. Laguna Beach, CA. Report dated May 31, 2012.

Laguna Canyon Foundation. 2013. *2012 Annual Status Report: Big Bend Habitat Restoration, 3.7 Acres*. Laguna Beach, CA. Report dated January 31, 2013.

Laguna Canyon Foundation. 2014. *2013 Annual Status Report: Big Bend Habitat Restoration, 3.7 Acres*. Laguna Beach, CA. Report dated January 31, 2014.

Laguna Canyon Foundation. 2015. *2014 Annual Status Report: Big Bend Habitat Restoration, 3.7 Acres*. Laguna Beach, CA. Report dated January 31, 2015.

## 4.2.3 City Parcel

Action	City Parcel Status
<b>Sponsor</b>	City of San Juan Capistrano
<b>OCTA Funding</b>	\$1,500,000
<b>Location</b>	City of San Juan Capistrano (within Trabuco Creek Wildlife Linkage)
<b>Acreage</b>	53 acres
<b>General Habitat Types</b>	Riparian corridor, coastal sage scrub, oak woodland, native grassland
<b>Restoration Design Plans</b>	Approved in 2011.
<b>Restoration Installation</b>	Implemented in 2011.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2011 and 5 years of monitoring complete. The project was signed off as of October 2018.
<b>Land Protection Mechanism</b>	The City of San Juan Capistrano recorded a Declaration of Covenants and Restrictions in the fall of 2013 to ensure long-term land use consistent with the project's restoration and habitat management intent.
<b>Long-Term Management of Restoration Site</b>	The City of San Juan Capistrano owns and manages the entire property of this restoration site as part of the Northwest Open Space.
<b>General Comments / Concerns</b>	None

### 4.2.3.1 Project Summary

The City Parcel (2C Ranch Trabuco Canyon) is located within the San Juan Creek (Trabuco Creek) watershed in the City of San Juan Capistrano. This project has been completed and restored 13 acres of riparian and 40 acres of coastal sage scrub habitats.

Restoration included the removal and control of invasive, nonnative plants across the entire restoration area, followed by the planting of native riparian and upland species. This has established a more diverse habitat structure that is conducive to supporting an array of native plants and wildlife. California Natural Diversity Database (CNDDDB) occurrence records for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher intersect with the restoration site. The project site is not within the Plan Area of the Central-Coastal NCCP/HCP or the Orange

County Southern Subregion HCP but within the City’s designated Northwest Open Space. This open space area provides an important connection between these two landscape-level planning areas. This project restored a gap linking gnatcatcher habitat and improved a corridor between the Coastal and Central NCCP/HCP areas.

The project achieved the set success criteria in October 2018. This project employed over 30 disadvantaged San Juan Capistrano youth, removed over 25,000 pounds of illegally dumped concrete and trash, and removed an additional 15,000 pounds of debris. It is estimated that over 200,000 invasive weeds were removed and over 60,000 native plants and trees were planted. The project sponsor successfully recorded a restricted covenant of the restored area in 2013. All required commitments for the project have been satisfied.

### 4.2.3.2 Related Documents and References

City of San Juan Capistrano. 2011. *Restoration and Enhancement Plan: 2C Ranch/Trabuco Creek Restoration*. San Juan Capistrano, CA. Report dated April 15, 2011.

City of San Juan Capistrano. 2012. *2011 Annual Status Report: 2C Ranch/Trabuco Creek (City Parcel) Restoration Project, 53 Acres*. San Juan Capistrano, CA. Report dated January 31, 2012.

City of San Juan Capistrano. 2013a. *2012 Annual Status Report: 2C Ranch/Trabuco Creek (City Parcel) Restoration Project, 53 Acres*. San Juan Capistrano, CA. Report dated January 31, 2013.

City of San Juan Capistrano. 2013b. *Declaration of Covenants and Restrictions: 2C Ranch/Trabuco Creek Habitat Restoration Project*. San Juan Capistrano, CA. Report dated August 20, 2013.

City of San Juan Capistrano. 2014. *2013 Annual Status Report: 2C Ranch/Trabuco Creek (City Parcel) Restoration Project, 53 Acres*. San Juan Capistrano, CA. Report dated January 31, 2014.

City of San Juan Capistrano. 2015. *2014 Annual Status Report: 2C Ranch/Trabuco Creek (City Parcel) Restoration Project, 53 Acres*. San Juan Capistrano, CA. Report dated January 31, 2015.

City of San Juan Capistrano. 2016. *2015 Annual Status Report: 2C Ranch/Trabuco Creek (City Parcel) Restoration Project, 53 Acres*. San Juan Capistrano, CA. Report dated January 31, 2016.

Dudek. 2016a. *City of San Juan Capistrano – 2C Ranch/Trabuco Creek Restoration Project 2016 Wildlife Summary*. San Juan Capistrano, CA. Report dated November 2016.

Dudek. 2016b. *City of San Juan Capistrano – 2C Ranch/Trabuco Creek Restoration and Enhancement Quantitative Data Collection and Analysis Report – Year Six*. San Juan Capistrano, CA. Report dated December 2016.

Sevrens, Gail K. 2018. Response to Request for Sign-off on the 2C Ranch/Trabuco Creek Restoration Project included in the Orange County Transportation Authority NCCP/HCP. Received by Lesley Hill, October 9, 2018. (Sign Off Letter)

### 4.2.4 Fairview Park

Action	Fairview Park Status
Sponsor	City of Costa Mesa
OCTA Funding	\$2,000,000



<b>Action</b>	<b>Fairview Park Status</b>
<b>Location</b>	Costa Mesa
<b>Acreage</b>	23 acres
<b>General Habitat Types</b>	Wetlands, native grassland, coastal sage scrub, willow scrub, oak woodland
<b>Restoration Design Plans</b>	Approved in 2010.
<b>Restoration Installation</b>	Implemented in 2011.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2012 and 5 years of monitoring complete.
<b>Land Protection Mechanism</b>	A CE was recorded in 2008 for the Orange County Public Works in favor of the Orange County Flood Control District that currently protects the site.
<b>Long-Term Management of Restoration Site</b>	The City of Costa Mesa will maintain the restored wetlands and riparian habitat project site in-perpetuity. Improvements and restoration are guided by the Fairview Park Master Plan approved by the Costa Mesa City Council in 1998.
<b>General Comments / Concerns</b>	None

#### 4.2.4.1 Project Summary

The City of Costa Mesa restored 23 acres of native grassland, coastal sage scrub, wet meadow/marsh, and riparian habitats within the northwest portion of this public park. The purpose was to create native habitat for riparian birds and animals by increasing native plant diversity within 10 feet of the constructed wetlands and stream channels. The project includes the creation of wetland ponds and a water delivery irrigation system to establish and support the native habitat. This restoration site is within the Santa Ana River watershed. The project site is within the Plan Area of the Central-Coastal NCCP/HCP but is not part of the Reserve. There was a previous mitigation project at this location (for the Santa Ana River Mainstem Project Lower Santa Ana River Reach 2 Channel Excavation), but the restoration project approved for funding by OCTA is above and beyond the requirements of the previous project.

Occurrences of coastal California gnatcatcher, least Bell's vireo, and California least tern have been observed at the restoration site. In addition, successful revegetation efforts for southern tarplant have been implemented at the restoration site. As of 2018, project conditions meet the minimum success criteria for a self-sustaining and successful restoration project.

#### 4.2.4.2 Related Documents and References

City of Costa Mesa. 2010. *City of Costa Mesa Fairview Park Wetlands and Riparian Habitat Project Restoration Plan*. Costa Mesa, CA. Report dated November 3, 2010.

City of Costa Mesa. 2012. *Phase II: Fairview Park Riparian Mitigation Year 1 Maintenance Report*. San Juan Capistrano, CA. Report dated December 29, 2012.

City of Costa Mesa. 2014. *Fairview Park Riparian Mitigation Project Phase II: Vegetation Survey Fall 2014*. San Juan Capistrano, CA.

City of Costa Mesa. 2015. *Fairview Park Phase II: Year 3 Maintenance Report, Inspection for March Quarterly Monitoring*. San Juan Capistrano, CA. Report dated March 26, 2015.

City of Costa Mesa. 2016. *Fairview Park Phase II: Year 5 Maintenance Report, Inspection for March Quarterly Monitoring*. San Juan Capistrano, CA. Report dated March 23, 2016.

City of Costa Mesa. 2017a. *Fairview Park Riparian Mitigation Project Phase II: Annual Report 2017*. San Juan Capistrano, CA.

City of Costa Mesa. 2017b. *Fairview Park Riparian Mitigation Wetlands Project: Final Report 2018*. San Juan Capistrano, CA.

## 4.2.5 UCI Ecological Reserve

Action	UCI Ecological Reserve Status
<b>Sponsor</b>	Nature Reserve of Orange County
<b>OCTA Funding</b>	\$325,000
<b>Location</b>	Irvine
<b>Acreage</b>	8.5 acres
<b>General Habitat Types</b>	Cactus scrub
<b>Restoration Design Plans</b>	Approved in 2010.
<b>Restoration Installation</b>	Implemented in 2011.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2012 and 5 years of monitoring complete. The site is very close to meeting the set success criteria but experienced a high amount of nonnative grasses in 2017. Monitoring will continue until 2019, at which time it is expected that the nonnative cover will meet the projects' set criteria.
<b>Land Protection Mechanism</b>	The Preserve is designated for conservation and habitat management by University of California (UC) Irvine's long-range development plan and pursuant to the Central-Coastal NCCP/HCP.
<b>Long-Term Management of Restoration Site</b>	The Preserve is managed by the UC Irvine Office of Natural Resources, for the School of Biological Science.
<b>General Comments / Concerns</b>	None

### 4.2.5.1 Project Summary

The Natural Communities Coalition has been responsible for the planning and implementation (completed in November 2011) of the restoration and enhancement of 8.5 acres of cactus scrub in a mosaic of native grassland at the University of California (UC) Irvine Ecological Preserve, located in the San Joaquin Hills. The goal of the project was to increase breeding habitat for coastal California gnatcatcher and cactus wren. Even at the early stages of establishment, both cactus wrens and coastal California gnatcatchers were observed using the restoration area. Coastal California gnatcatchers were observed moving through the restoration site in pairs and family groups, foraging in native shrubs that were at the site prior to restoration and in native forbs that have developed since the restoration began. With respect to cactus wrens, the southern half of the restoration site was used by a family group. Cactus wrens were observed foraging in the restoration site, and a juvenile cactus wren was observed calling from planted prickly pear cactus clumps (Natural Communities Coalition 2017). The project site is within the Central-Coastal NCCP/HCP Coastal

Reserve, but the proposed restoration is above and beyond the requirements of the Central-Coastal NCCP/HCP.

The project site is doing well, having met most of the set success criteria. Due to the high amount of nonnative grasses, the site will continue to be qualitatively monitored in 2018 and then quantitatively measured in 2019.

## 4.2.5.2 Related Documents and References

Griswald, M. 2012. *Annual Progress Review – Measure M Cactus Scrub Restoration Project for the University of California Irvine Ecological Preserve*. Memo dated September 8, 2012.

Griswald, M. and Mitrovich, M. 2018. *RE: Measure M – UC Irvine Cactus Scrub Restoration*. Email correspondence. December 28, 2018.

Griswald, M., Preston, K., and Bowler, P. 2010. *Measure M Cactus Scrub Restoration Plan for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated December 2, 2010.

Nature Reserve of Orange County. 2014. *2014 Performance Monitoring Report, Year 2: Measure M Cactus Scrub Restoration for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated October 2014.

Natural Communities Coalition (formerly Nature Reserve of Orange County). 2015. *2015 Performance Monitoring Report, Year 3: Measure M Cactus Scrub Restoration for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated December 2015.

Natural Communities Coalition. 2016. *2016 Performance Monitoring Report, Year 4: Measure M Cactus Scrub Restoration for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated September 2016.

Natural Communities Coalition. 2017. *2017 Performance Monitoring Report, Year 5: Measure M Cactus Scrub Restoration for the University of California Irvine Ecological Preserve*. Irvine, CA. Report dated June 2017.

## 4.2.6 Aliso Creek

Action	Aliso Creek Status
<b>Sponsor</b>	Laguna Canyon Foundation
<b>OCTA Funding</b>	\$1,105,000
<b>Location</b>	Laguna Niguel
<b>Acreage</b>	55 acres
<b>General Habitat Types</b>	Riparian and transitional habitats
<b>Restoration Design Plans</b>	Approved in 2014 <sup>4</sup> .
<b>Restoration Installation</b>	Implemented in 2015.

<sup>4</sup> The USFWS and CDFW approved the restoration plan for this project in 2014. To also obtain mitigation credit from the ACOE, the restoration plan was developed further into a Habitat Mitigation Monitoring Plan (HMMP) to comply with the Environmental Protection Agency 2008 Final Mitigation Rule. Implementation began while the HMMP was being developed with the ACOE.

Action	Aliso Creek Status
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2015 and 3 years of monitoring complete.
<b>Land Protection Mechanism</b>	The County of Orange is currently drafting a restrictive covenant that will cover the entire 55-acre restoration project area.
<b>Long-Term Management of Restoration Site</b>	Orange County Parks owns and manages this land as part of Aliso and Wood Canyons Wilderness Park, in conjunction with the Aliso and Wood Canyon RMP.
<b>General Comments / Concerns</b>	None

### 4.2.6.1 Project Summary

Laguna Canyon Foundation restored 55 acres of riparian habitat along Aliso Creek, in the City of Laguna Niguel. The project included removing nonnative invasive plants and planting willow and mulefat scrub and transitional riparian-upland habitats. It has added to other restoration projects in the same watershed funded by other entities. The site is in the San Juan watershed and within the boundaries of the Aliso and Wood Canyons Wilderness Park, but outside of the Central-Coastal NCCP/HCP Reserve boundaries.

The restoration of riparian habitat along Aliso Creek benefits Covered Species such as the least Bell's vireo, southwestern willow flycatcher, western pond turtle, and bobcat. Known occurrences of least Bell's vireo, southwestern willow flycatcher, and western pond turtle have been recorded at this restoration site. The restoration plan includes specific actions to benefit and improve western pond turtle habitat. As of 2018, native growth has been excellent and is on track to meet success criteria, despite vandalism and lingering effects of the 5-year drought. In addition, both western pond turtle and least Bell's vireo were documented within the restoration area in 2018. The site was reported as transforming from an arundo-dominated habitat to a functioning native riparian habitat that will promote better hydrology and high-quality habitat for wildlife.

### 4.2.6.2 Related Documents and References

Laguna Canyon Foundation. 2016. *Aliso Creek Habitat Mitigation and Monitoring Plan Annual Report for Year 1 (2015) of Project Implementation Aliso and Wood Canyons Wilderness Park*. Aliso Viejo, CA. Report dated January 1, 2016.

Laguna Canyon Foundation. 2017a. *Aliso Creek Habitat Mitigation and Monitoring Plan Annual Report for Year 2 (2016) of Project Implementation Aliso and Wood Canyons Wilderness Park*. Aliso Viejo, CA. Report dated January 1, 2017.

Laguna Canyon Foundation. 2017b. *Habitat Mitigation and Monitoring Plan: OCTA Measure M – Aliso Creek*. Aliso Viejo, CA. Report dated September 2017.

Laguna Canyon Foundation. 2019. *Aliso Creek Habitat Mitigation and Monitoring Plan Annual Report for Year 4 (2018) of Project Implementation Aliso and Wood Canyons Wilderness Park*. Aliso Viejo, CA. Report dated February 1, 2019.

## 4.2.7 Chino Hills State Park

Action	Chino Hills State Park Status
<b>Sponsor</b>	Pending (see Section 8.2.5 regarding process being undertaken by OCTA to change sponsor for this restoration project)
<b>OCTA Funding</b>	\$193,000
<b>Location</b>	Yorba Linda
<b>Acreage</b>	11 acres
<b>General Habitat Types</b>	Cactus scrub
<b>Restoration Design Plans</b>	Approved in 2017.
<b>Restoration Installation</b>	Pending.
<b>Restoration Monitoring of Success Criteria</b>	Pending.
<b>Land Protection Mechanism</b>	The property is owned in fee title and is permanently conserved by the California Department of Parks and Recreation.
<b>Long-Term Management of Restoration Site</b>	The park is managed according to the Chino Hills State Park General Plan (California Department of Parks and Recreation 1999).
<b>General Comments / Concerns</b>	Work with new project sponsor to implement this project.

### 4.2.7.1 Project Summary

CHSP is composed of 14,102 acres in the hills of Santa Ana Canyon, with portions of the park found in Orange, Riverside, and San Bernardino Counties. Ranging from 430 to 1,781 feet above mean sea level, the park straddles the north end of the Santa Ana Mountains and the southeast portion of the Puente-Chino Hills, which together form the northern end of the Peninsular Ranges in southern California. The restoration site is outside the Central-Coastal NCCP/HCP Plan Area.

The original CHSP restoration project proposed to enhance 21 acres of riparian, woodland, and cactus scrub habitats. It was later determined that a more intensive cactus scrub restoration project within CHSP would provide better ecological benefits. This project change was coordinated with and approved by the Wildlife Agencies and is discussed in greater detail in Section 8.2.4, *Chino Hills State Park and North Coal Canyon Restoration Project Modification*. The resulting project is an intensive restoration of 11 acres of cactus scrub within CHSP on the slope overlooking Yorba Linda south of the junction of Southridge Trail and Diemer Trail. The 11-acre cactus scrub restoration project will help return this area to its previous condition and benefit the OCTA M2 Covered Species coastal California gnatcatcher and cactus wren. Due to contractual delays, this project has not begun implementation, but is expected to begin in 2019.

### 4.2.7.2 Related Documents and References

California State Parks. 2017. *Cactus Scrub Restoration, Northeast Preserve, Chino Hills State Park*. Perris, CA. Report dated January 10, 2017.

## 4.2.8 Harriet Weider Regional Park

Action	Harriet Weider Regional Park Status
<b>Sponsor</b>	Bolsa Chica Conservancy
<b>OCTA Funding</b>	\$475,000
<b>Location</b>	Huntington Beach
<b>Acreage</b>	9.65 acres
<b>General Habitat Types</b>	Native grassland, coastal sage scrub, riparian
<b>Restoration Design Plans</b>	Pending.
<b>Restoration Installation</b>	Implemented in 2016.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2016 and 2 years of monitoring complete.
<b>Land Protection Mechanism</b>	The County of Orange has drafted a restrictive covenant. It is anticipated that this document will be executed in 2019.
<b>Long-Term Management of Restoration Site</b>	The Bolsa Chica Conservancy, in partnership with Orange County Parks, will be the long-term management entity.
<b>General Comments / Concerns</b>	None.

### 4.2.8.1 Project Summary

The Bolsa Chica Conservancy restoration project comprises 9.65 acres of grassland, coastal sage scrub, and riparian habitat in the Santa Ana watershed. The project area may attract least Bell's vireo, coastal cactus wren, coastal California gnatcatcher and burrowing owl. Harriett Weider Regional Park is to be established as a mixed-use passive park, with sections restored to native habitat. The restoration site is within the Plan Area for the Central-Coastal NCCP/HCP but is not part of the Reserve.

The Harriett Wieder Regional Park Restoration Project (sponsored by the Bolsa Chica Conservancy) was approved in the second round of restoration project funding in 2012. The original footprint occurred on County lands as well as private lands. To simplify the project, the Bolsa Chica Conservancy shifted the project area to County lands only. This shift also enabled the project to increase from 8.2 to 9.65 acres. The habitat types to be restored remain the same for the project (native grassland, coastal sage scrub, and riparian). This project modification was approved by the Wildlife Agencies and EOC. The restoration plan for this project was refined. The conservancy has successfully re-introduced southern tarplant to a site near the new interpretive center north of the park and included tarplant seed in the restoration plant palette.

The Bolsa Chica Conservancy was able to begin implementation (i.e., seed collection, plant propagation, installation of temporary irrigation, and seeding and plantings in some areas) of this project in 2016 while working out the details of the final success criteria and trail alignments with the Wildlife Agencies and OC Parks. To date, 1,513 individuals of southern tarplant have been documented within the restoration area. The project is doing well and is on track to meet its success criteria.

## 4.2.8.2 Related Documents and References

- Bolsa Chica Conservancy. 2016. *Harriett Wieder Regional Park (HWRP) Restoration Progress Report- Invoice Number 001 May 14, 2012 – October 25, 2016.*
- Bolsa Chica Conservancy. 2017a. *HWRP Activity Report: October 26, 2016 Through February 28, 2017.*
- Bolsa Chica Conservancy. 2017b. *HWRP Activity Report: May 1, 2017 Through June 30, 2017.*
- Bolsa Chica Conservancy. 2017c. *HWRP Activity Report: July 1, 2017 Through October 31, 2017.*
- Bolsa Chica Conservancy. 2017d. *Harriett Wieder Regional Park Activity Report: November 1 – November 30, 2017.*
- Bolsa Chica Conservancy. 2017e. *Harriett Wieder Regional Park Activity Report: December 1 – December 31, 2017.*
- Bolsa Chica Conservancy. 2017f. *Harriett Wieder Regional Park Habitat Restoration Project: Southern Tarplant Seed Trials 2017.*
- Bolsa Chica Conservancy. 2018a. *Harriett Wieder Regional Park Habitat Restoration Project: Southern Tarplant Survey 2018.*
- Bolsa Chica Conservancy. 2018b. *Harriett Wieder Regional Park Habitat Restoration Project Year 1 Annual Report 2018.*
- Bolsa Chica Conservancy. 2018c. *Harriett Wieder Regional Park Habitat Restoration Project Plant Installation Complete: May 10, 2018.*
- Bolsa Chica Conservancy. 2018d. *Harriett Wieder Regional Park Habitat Restoration Project Biweekly Monitoring Report: May 14 – May 25, 2018.*
- Bolsa Chica Conservancy. 2018e. *Harriett Wieder Regional Park Habitat Restoration Project Biweekly Monitoring Report: June 9 – June 22, 2018.*
- Bolsa Chica Conservancy. 2018f. *Harriett Wieder Regional Park Habitat Restoration Project Biweekly Monitoring Report: June 23 – July 6, 2018.*
- Bolsa Chica Conservancy. 2018g. *Harriett Wieder Regional Park Habitat Restoration Project: As-Built Report: August 2018.*
- Bolsa Chica Conservancy. 2018h. *Harriett Wieder Regional Park Habitat Restoration Project Biweekly Monitoring Report: August 4 – August 17, 2018.*
- Bolsa Chica Conservancy. 2018i. *Harriett Wieder Regional Park Habitat Restoration Project Biweekly Monitoring Report: August 18 – August 31, 2018.*
- Bolsa Chica Conservancy. 2018j. *Harriett Wieder Regional Park Habitat Restoration Project Monthly Monitoring Report: October 2018.*

## 4.2.9 Lower Silverado Canyon

Action	Lower Silverado Canyon Status
<b>Sponsor</b>	Irvine Ranch Conservancy
<b>OCTA Funding</b>	\$1,414,435
<b>Location</b>	County of Orange
<b>Acreage</b>	28.4 acres
<b>General Habitat Types</b>	Riparian
<b>Restoration Design Plans</b>	Approved in 2014.
<b>Restoration Installation</b>	Implemented in 2014.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2014 and 4 years of monitoring complete.
<b>Land Protection Mechanism</b>	The project site is subject to, and protected by, the permanent SilMod Conservation Easement Deed recorded in 2002 in favor of The Nature Conservancy. In addition, the lands are deed restricted for open space and conservation purposes under the wilderness park designation as the result of the transfer of land from the Irvine Company to the County of Orange.
<b>Long-Term Management of Restoration Site</b>	The project site is owned in fee by the County of Orange, and OC Parks is responsible for its long-term stewardship. IRC works under contract to the County of Orange under the supervision of OC Parks to manage this area and has existing formal permission to conduct restoration projects here. Broad management of the site, consistent with the terms of the Conservation Easement Deed, is guided by the Resource Plan for the 2009 SilMod Conservation Easement Property. The Integrated Adaptive Management Framework for the North Irvine Ranch Wildlands (Noss 2011) is the umbrella management framework that applies to all management units in the North Irvine Ranch regardless of ownership or mechanism of land protection.
<b>General Comments / Concerns</b>	None.

### 4.2.9.1 Project Summary

The IRC has implemented both active and passive restoration of 20.6 acres of riparian habitat and 7.8 acres of coastal sage scrub along Silverado Creek, a tributary to Santiago Creek (total of 28.4 acres). The project location is within the Santa Ana watershed. The degraded habitat that has been restored lies within a landscape mosaic containing patches of intact habitat. Restoring degraded patches within the mosaic has improved continuity to further benefit habitat quality of both restored and intact components. The project site is within the plan area for the Central-Coastal NCCP/HCP, but it is not currently part of the Reserve. However, the land will remain as conserved open space due to the recordation of conservation easements dedicated to The Nature Conservancy.

The Lower Silverado Canyon restoration project is now in its fifth year of active management but in its second year of planting. As of 2017, vegetation performance monitoring indicated that restoration efforts at Silverado have been largely successful thus far, with clear increases in native cover, native functional groups, native species richness, and native vertical density. Arthropod performance monitoring results are more varied but are expected to improve as the project progresses. Performance monitoring was not conducted in 2018 because it is only required in years



1, 3, and 5 after planting. Some additional seeding and planting was conducted in areas with limited native plant establishment in February of 2018.

## 4.2.9.2 Related Documents and References

Irvine Ranch Conservancy. 2014. *Annual Status Report, January-December 2014: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2015. *Annual Status Report, January-December 2015: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2016. *Annual Status Report, January-December 2016: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2017. *Annual Status Report, January-December 2017: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2018a. *Annual Status Report, January-December 2018: Renewed Measure M Freeway Mitigation and Resource Protection Program, Lower Silverado Canyon*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2018b. *Habitat Mitigation and Monitoring Plan: Lower Silverado Canyon Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. February 2018.

Irvine Ranch Conservancy. 2018c. *Summary of Activities under Agreement No. C-3-1774 Between OCTA and IRC for the Measure M2 Environmental Mitigation Program Lower Silverado Canyon*. Irvine, CA. October-December 2018.

Noss, R. F. 2011. *Integrated Adaptive Management Framework for the North Irvine Ranch Wildlands*. Prepared for Orange County Parks.

Orange County Transportation Authority (OCTA). 2015. *Addendum to HMMP for Lower Silverado Canyon (Agreement no. C-3-1774)*. June 2015.

## 4.2.10 North Coal Canyon

Action	North Coal Canyon Status
<b>Sponsor</b>	Pending (see Section 8.2.5, <i>North Coal Canyon and Chino Hills Restoration Project Sponsor Change</i> , regarding the process being undertaken by OCTA to change sponsor for this restoration project)
<b>OCTA Funding</b>	\$247,500
<b>Location</b>	Yorba Linda
<b>Acreage</b>	5.5 acres
<b>General Habitat Types</b>	Riversidean alluvial fan, coastal sage scrub
<b>Restoration Design Plans</b>	Approved in 2015.

Action	North Coal Canyon Status
Restoration Installation	Pending.
Restoration Monitoring of Success Criteria	Pending.
Land Protection Mechanism	The property is owned in fee title and is permanently conserved by the California Department of Parks and Recreation.
Long-Term Management of Restoration Site	The park is managed according to the Chino Hills State Park General Plan (California Department of Parks and Recreation 1999).
General Comments / Concerns	Work with new project sponsor to implement this project.

### 4.2.10.1 Project Summary

The North Coal Canyon property is owned by California State Parks and is within CHSP. This property is a vital link between the surrounding Puente-Chino Hills to the north and the Cleveland National Forest and the Santa Ana Mountains on the south. The proposed restoration project will enhance and restore 5.5 acres of coastal sage scrub/Riversidian alluvial fan sage scrub on the north side of SR-91. The project is expected to improve wildlife movement by making habitat north of SR-91 more attractive to wildlife and will complete the restoration of the entire Coal Canyon parcel by connecting three other restoration projects being funded by other entities. This bio-corridor is the only remaining link that allows dispersal of wildlife between CHSP and the more diverse Santa Ana Mountains. Coal Canyon provides habitat for the movement of OCTA M2 Covered Species such as mountain lion and bobcat and provides high quality habitat for coastal California gnatcatcher as well as foraging habitat for the least Bell's vireo. Due to contractual delays, this project has not begun implementation, but is expected to begin in 2019.

### 4.2.10.2 Related Documents and References

California Department of Parks and Recreation Southern Service Center. 1999. *Chino Hills State Park General Plan*.

California State Parks. 2015. *Coastal Sage Scrub Restoration, North Coal Canyon, Chino Hills State Park*. Perris, CA. Revised August 13, 2015.

Irvine Ranch Conservancy. 2016. *Project Summary of IRC/OCTA Measure M2 Coal Canyon Undercrossing Wildlife Connectivity Improvements*. Irvine, CA. Report dated October 27, 2016.

### 4.2.11 West Loma

Action	West Loma Status
Sponsor	Irvine Ranch Conservancy
OCTA Funding	\$1,322,800
Location	County of Orange
Acreage	62.47 acres
General Habitat Types	Scrub, riparian
Restoration Design Plans	Approved in 2013.

Action	West Loma Status
<b>Restoration Installation</b>	Implemented in 2013.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2013 and 4 years of monitoring complete.
<b>Land Protection Mechanism</b>	A portion of the land is under conservation easement held by The Nature Conservancy, and the other portion is deed restricted exclusively for open space by the County of Orange and is dedicated as part of the reserve lands in the Central-Coastal NCCP/HCP.
<b>Long-Term Management of Restoration Site</b>	OC Parks is responsible for long-term stewardship subject to the terms and conditions of the Orange County Central-Coastal NCCP/HCP and the East Orange Conservation Easement, as well as the management plans developed under these agreements.
<b>General Comments / Concerns</b>	None.

### 4.2.11.1 Project Summary

IRC has restored 62.47 acres of grassland, coastal sage scrub, and riparian habitat and realigned existing wildlife fencing at the West Loma site. The restoration site is in the Santa Ana watershed. The degraded habitat that has been restored lies within a landscape mosaic containing patches of intact habitat. Restoring degraded patches within the mosaic has improved contiguity to further benefit habitat quality of both restored and intact components. The original restoration project design included realignment of fencing along the 241 Toll Road to improve wildlife movement, but it was determined this was not feasible (see Section 8.2.1). In place of realigning fencing, this project also includes the placement of plantings and wildlife cameras at the SR-91 Coal Canyon undercrossing and culvert. The plantings were installed to help entice more wildlife to utilize the existing potential crossing structures (freeway underpass and culvert). Cameras were installed to document wildlife movement through these structures. This project also capitalizes on a large-scale restoration project that is currently taking place within the same watershed. The project site intersects with CNDDDB occurrence records for many-stemmed dudleya, orangethroat whiptail, and coastal California gnatcatcher. A portion of the project site is within the Central-Coastal NCCP/HCP Reserve, but the restoration is above and beyond the requirements of the Central-Coastal NCCP/HCP.

As of 2018, vegetation performance monitoring indicates that restoration efforts at West Loma have been largely successful and show clear increases in native cover, native functional groups, native species richness, and native vertical density as well as decreases in cover of nonnative species.

### 4.2.11.2 Related Documents and References

Irvine Ranch Conservancy. 2013. *Annual Status Report 2013: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Watershed*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2014. *Annual Status Report, January-December 2014: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Watershed*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2015. *Annual Status Report, January-December 2015: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Watershed*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Orange County Transportation Authority (OCTA). 2015. *Addendum to HMMP for West Loma Subwatershed (Agreement no. C-3-1774)*. June 2015.

Irvine Ranch Conservancy. 2017a. *Annual Status Report, January-December 2017: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Watershed*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2017b. *Annual Status Report, January-December 2014: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Watershed*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2018a. *Annual Status Report, January-December 2018: Renewed Measure M Freeway Mitigation and Resource Protection Program, West Loma Watershed*. Agreement No. C-3-1774 Between OCTA and IRC. Irvine, CA.

Irvine Ranch Conservancy. 2018b. *Habitat Mitigation and Monitoring Plan: West Loma Subwatershed Under the Renewed Measure M Freeway Mitigation and Resource Protection Program*. Irvine, CA. March 2018.

Irvine Ranch Conservancy. 2018c. *Damage estimate from 11 June 2018 brush fire to Mitigation Contract C-3-1775*. Irvine, CA. June 2018.

## 4.2.12 USFS Dam Removal

Action	USFS Dam Removal Status
<b>Sponsor</b>	United States Forest Service (Trabuco District)
<b>OCTA Funding</b>	\$185,000
<b>Location</b>	San Juan Creek
<b>Acreage</b>	Removal of 14 dams (acreage not measured)
<b>General Habitat Types</b>	Creek bed and riparian to benefit arroyo chub
<b>Restoration Design Plans</b>	Approved in 2016.
<b>Restoration Installation</b>	The first phase of dam removals (10) funded by OCTA was implemented in November 2018. Additional dam removals will be completed by 2020.
<b>Restoration Monitoring of Success Criteria</b>	Monitoring initiated in 2018. USFS biologist will monitor stream recovery for 3 years after dam removal.
<b>Land Protection Mechanism</b>	Project within the USFS protected lands. No other mechanisms are needed.
<b>Long-Term Management of Restoration Site</b>	To be completed by the USFS.
<b>General Comments / Concerns</b>	None.

### 4.2.12.1 Project Summary

The purpose of the Trabuco District Dam Removal Project is to enhance aquatic organism passage and stream habitat in Silverado, Holy Jim, Trabuco, and Upper San Juan Creeks. Removing human-made dams in these creeks is essential to supporting native aquatic species and providing suitable habitat for potential re-establishment of extirpated species including southern California steelhead trout. This will implement, in part, recovery plan goals for southern steelhead. Removal of fish passage barriers is one of the highest priority action items for the San Juan and Trabuco Creek watershed. A total of 81 dams are targeted for removal.

These dams presented partial or complete barriers to native fish and other aquatic organisms, especially during periods of low flow. Dams alter physical stream processes such as bed load and sediment transport, natural surface flows, and channel adjustment. This has negative effects on aquatic species, aquatic habitat, and downstream habitat. The ability to move up and down stream is essential for aquatic species in order to complete their life cycles and maintain viable populations. Facilitating aquatic organism passage and improving stream habitat will increase accessible stream habitat for existing and potential populations of native aquatic species.

The American Conservation Experience crew and USFS staff completed removal of San Juan dams 1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 in November 2018. With jackhammers and sledgehammers, dams were fully demolished or in some cases partially demolished to remove sections that were barriers to fish passage. Russell Barabe and Ken Sankary of CDFW assisted USFS with protection of arroyo chub below dam 1; this was done by using nets to partition the pool such that the fish were away from the immediate work area. The dam removal at these locations will be monitored to determine if any additional work is needed.

With the dams removed, fish and other aquatic organisms will be able to move more freely through the areas that were previously blocked by the dams. USFS has now removed 53 dams in total, including work funded by other partners. OCTA has funded the removal of 14 dams within San Juan Creek in order to fulfill the additional conditions for coverage required for arroyo chub under the NCCP/HCP (see Section 5.1.1, *Arroyo Chub*). All dam removal work is expected to be complete by approximately March 2020.

### 4.2.12.2 Related Documents and References

Orange County Transportation Authority (OCTA). *Collection Agreement Between U.S. Forest Service and OCTA: OCTA Agreement No. C-7-1629, Attachment A.*

Orange County Transportation Authority (OCTA). *Trabuco Dam Removal Project – 2018 Progress Report Introduction and Project Description.* Agreement number 18-CO-11050200-009.

Sevrens, Gail K. 2016. *Assurances Regarding Proposed Arroyo Chub Habitat Restoration Project for the Measure M2 Environmental Mitigation Program.* Received by Dan Phu, March 7, 2016.

Trabuco Ranger District. 2018. *Trabuco Ranger District Dam Removal and Aquatic Organism Passage Monitoring.* Cleveland National Forest. December 14, 2018.

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## 5.1 Introduction

As part of the Conservation Analysis (Chapter 6) in the M2 NCCP/HCP, there were two Covered Species, arroyo chub and many-stemmed dudleya, noted for additional conditions for coverage above and beyond the acquisition of the seven OCTA Preserves and funding of restoration projects.

### 5.1.1 Arroyo Chub

The conservation actions included in the M2 NCCP/HCP provided a positive but marginal benefit for conservation of arroyo chub. To provide for a level of conservation required for coverage of arroyo chub under the NCCPA, OCTA will implement a future restoration project focused on improving habitat conditions for arroyo chub.

OCTA has initiated the USFS Dam Removal restoration project to provide conservation for arroyo chub required under the M2 NCCP/HCP (see Section 4.2.12, *USFS Dam Removal*). The following actions have been taken to achieve these conditions for arroyo chub:

- In 2017, the Environmental Oversight Committee (EOC) and Wildlife Agencies approved moving forward with the USFS Dam Removal project, and OCTA has contracted with USFS to remove 14 dams.
- The restoration project design has been approved.
- Restoration activities were initiated in November 2018 with the removal of 10 dams that were funded by OCTA. Additional dam removals will be completed by 2020.
- Monitoring began in 2018.
- When this project has been signed off, this condition will be met.

### 5.1.2 Many-stemmed Dudleya

To ensure that the M2 NCCP/HCP provides conservation and management for many-stemmed dudleya, OCTA will protect, enhance, and/or establish a major population (i.e., 500 individuals) of many-stemmed dudleya. This threshold can be accomplished through the protection, enhancement, and/or establishment of many-stemmed dudleya populations at multiple locations or at a single location. During baseline surveys of the Preserves, four occurrences with 60 individuals were identified on the Pacific Horizon (Aliso Canyon) Preserve. Ongoing Preserve management may improve habitat suitability (e.g., reduction of invasive species) that results in the expansion of the existing population on Pacific Horizon Preserve. If a minimum of 500 individuals are eventually identified on the Pacific Horizon Preserve within the 10 years from M2 NCCP/HCP adoption (by 2027), then this objective will be considered complete. If this objective cannot be met within the first 10 years as described, OCTA will select and oversee implementation of a restoration project designed to establish or expand a population of many-stemmed dudleya.

The following actions have been taken to achieve these conditions for many-stemmed dudleya:

- At the Pacific Horizon Preserve, OCTA directed GLA to conduct biological monitoring in 2018 to coincide with the blooming periods of the covered plant species, specifically many-stemmed dudleya. GLA detected approximately 100 dudleya individuals (GLA 2019).
- A Pacific Horizon Preserve ISMP was completed by GLA in 2018 and has been approved by the Wildlife Agencies. The ISMP specifically identifies actions to protect and enhance disturbed habitat in the proximity of the many-stemmed dudleya population at the Pacific Horizon Preserve. Invasive species removal is anticipated to begin in 2019 pending approvals from the California Coastal Commission.
- Newly created bike jumps and berms were discovered near the many-stemmed dudleya habitat at the Pacific Horizon Preserve, and OCTA took immediate action to remove these to protect the existing population of many-stemmed dudleya. This area will continue to be monitored.



## 6.1 Public Outreach Overview

In 2006, Orange County voters approved the renewal of Measure M, effectively extending the half cent sales tax to provide funding for transportation projects and programs in the county. As part of the renewed Measure M (or Measure M2), a portion of the M2 freeway program revenues were set aside for the M2 EMP to provide funding for programmatic mitigation to offset impacts from the freeway projects in the 13 freeway segments covered by Measure M2. OCTA has been committed to transparency in how the M2 funds have been and are being used to implement the EMP. OCTA has conducted a variety of public outreach activities aimed at informing and engaging the public on the overall EMP as well as Preserve-specific issues and events.

- Hold Public Meetings – OCTA held public meetings during the preparation of the RMPs and will hold an annual public meeting to present this Annual Report. In addition, the regularly scheduled Environmental Oversight Committee meetings are open to the public and Preserve-specific issues are addressed at these meetings.
- Maintain Website – OCTA currently maintains the OC-Go (M2) Environment Mitigation Program (EMP) website that includes Preserve-specific information, copies of the RMPs for download, and information on Preserve hiking and riding tours: [http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-\(2011-2041\)/Freeway-Mitigation/Environmental-Mitigation-Program-Overview/](http://www.octa.net/Projects-and-Programs/OC-Go/OC-Go-(2011-2041)/Freeway-Mitigation/Environmental-Mitigation-Program-Overview/).
- Develop Outreach and Volunteer Programs – OCTA has been working to develop a volunteer program that addresses education and management needs. OCTA is encouraging trail user groups to participate in “self-monitoring and policing” programs.

### 6.1.1 EMP Public Outreach Events and Meetings

Table 6-1 includes a list of events, workshops, and public meetings that OCTA has had to address the actions of the EMP and solicit public input.

**Table 6-1. EMP Public Outreach Events 2014–2018**

Date	Location	Stated Purpose
4/15/2009	OCTA	EOC Public Workshop for applicants to present their properties
9/23/2010	Newport Beach Public Library, 100 Avocado Avenue	Orange County Coastal Coalition Presentation
11/18/2010	OCTA	Orange County Council of Governments Presentation
12/15/2012	OCTA	NCCP/HCP Scoping Meeting
3/2/2011	Orange Public Library, 407 E. Chapman Avenue	County of Orange Measure M Funding Workshop Presentation

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
3/24/2011	OCTA	Orange County Council of Governments Presentation
Spring 2011	Throughout Orange County	Acquisition Property Tours
5/13/2011	19082 Santiago Canyon Road, Trabuco Canyon	Commemoration event to honor the first property purchase under the EMP – Live Oak Creek (Saddle Creek South) Preserve
6/18/2011	Chino Hills State Park Discovery Center 4500 Carbon Canyon Road, Brea	Environmental Coalition Celebration Event; celebrate achievement of EMP
7/14/2011	Fairview Park; Costa Mesa, CA	Fairview Park Groundbreaking Ceremony - Director Bates talked about OCTA funding the restoration project
11/29/2011	Meeting with Ferber Ranch Area Community 19562 Aliso View Circle, Trabuco Canyon	Meeting with Cheryl Hansen, Margaret Sanders, and other residents about Ferber Ranch area
3/27/2012	O'Neill Regional Park	District Staff Briefing Orange County State and Federal Delegations
4/17/2012	Scott's Seafood, 3300 Bristol Street, Costa Mesa	Professional Environmental Marketing Association Presentation
4/21/2012	Live Oak Creek (Saddle Creek South) Preserve/Live Oak Plaza	TCA sponsored hikes, includes TCA properties and OCTA's Live Oak Creek (Saddle Creek South) Preserve
5/1/2012	Santiago Oaks Regional Park, 2145 N. Windes Drive, Orange	Environmental Coalition Presentation
5/8/2012	Orange County Business Council, 2 Park Plaza, Irvine	Orange County Business Council Presentation
7/28/2012	Black Star Canyon	Celebrate 2nd anniversary of the Irvine Ranch Open Space. OCTA had a booth to educate the public about EMP
9/6/2012	SCAG Main Office, 818 W. 7th Street, 12th Floor, Los Angeles, CA 90017	Southern California Association of Governments and Environmental Engineering & Contracting, Inc. Presentation
11/12/2012	Trabuco Rose (Ferber Ranch) Preserve	FOCUS Conference Trabuco Canyon Hiking Tour
2/7/2013	San Giovanni Ristorante 31931 Dove Canyon Drive Trabuco Canyon, CA 92679	Saddleback Canyon Riders – Equestrian Trails, Inc. Community Meeting; Introduce EMP, address equestrian concerns regarding Ferber Ranch

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
3/20/2013	Fairview Park; Costa Mesa, CA	Fairview Park Ribbon Cutting Ceremony (Director Bates and Director Moorlach)
4/9/2013	Placentia City Hall 401 East Chapman Avenue Placentia, CA 92870	Environmental and Community Issues Presentation to “Teen Team”
7/13/2013	Irvine Ranch Natural Landmarks	Celebrate 3rd anniversary of the Irvine Ranch Open Space. OCTA had a booth to educate the public about EMP
11/16/2013	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hike & Equestrian Tour to educate the public about property restoration and access
2/11/2014	OCTA	EMP Update to the Taxpayer Oversight Committee
3/23/2014	Waterfront Beach Resort 21100 Pacific Coast Hwy Huntington Beach, CA 92648	Endangered Species and Wetland Permitting for OCTA’s M2 Projects Panel at 2014 AEP Conference
4/11/2014	Continuing Legal Education (CLE) International Conference San Diego	CLE International presentation on the Endangered Species Act
4/15/2014	OCTA	EMP Update to the Citizens Advisory Committee
4/17/2014	Renaissance ClubSport 50 Enterprise Aliso Viejo, CA 92656	OCTA EMP Presentation at 5th Annual Sustainability Forum
8/12/2014	OCTA	EMP Update to the Taxpayer Oversight Committee (TOC)
11/20/2014	OCTA	Draft NCCP/HCP Open House
12/3/2014	Rancho Santa Margarita City Hall 22112 El Paseo Rancho Santa Margarita, CA 92688	Draft NCCP/HCP Open House
3/19/2015	Southern California Association of Governments	OCTA EMP Presentation at the Open Space Conservation Working Group on NCCP/HCP Best Practices
4/21/2015	OCTA	EMP Update to the Citizens Advisory Committee
4/30/2015	Peter & Mary Muth Interpretive Center 2301 University Drive Newport Beach, CA 92660	RMP Public Access Focus Group Meeting #1
5/18/2015	OC Trails	EMP Update for trail users
5/20/2015	Peter & Mary Muth Interpretive Center	RMP Public Access Focus Group Meeting #2

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
6/18/2015	Center Club Costa Mesa	American Society of Civil Engineers – OC Environmental Panel Presentation
6/23/2015	Pacific Horizon (Aliso Canyon) Preserve	OCTA Teen Council Tour
6/24/2015	Peter & Mary Muth Interpretive Center 2301 University Drive Newport Beach, CA 92660	RMP Public Access Focus Group Meeting #3
7/29/2015	Pacific Horizon (Aliso Canyon) Preserve	VIP Tour (Director Donchak, LB Mayor Bob Whalen, Kelley Jimenez, and AV CM Dave Doyle)
8/11/2015	OCTA	EMP Update to the Taxpayer Oversight Committee
9/29/2015	HDR in Irvine	Caltrans Road Ecology Conference/OCTA presented about the EMP and streamlined permitting
10/26/2015	OCTA	EMP overview for the Chinese Delegation
11/21/2015	Rancho Santa Margarita City Hall 22112 El Paseo Rancho Santa Margarita, CA 92688	RMP Public Meeting
12/9/2015	Rancho Santa Margarita City Hall 22112 El Paseo Rancho Santa Margarita, CA 92688	RMP Public Meeting
1/19/2016	OCTA	CAC Meeting
1/27/2016	OCTA	Public Access Focus Group Meeting #4
2/9/2016	OCTA	TOC Meeting
11/8/2016	Seal Beach	Professional Environmental Marketing Association Conference
2/2/2017	M&C Sports Grill, Trabuco Canyon	Equestrian Trails Incorporated Meeting
2/14/2017	OCTA	TOC Meeting
3/14/2017	Trabuco Rose (Ferber Ranch) Preserve	Teen Council Hike
4/26/2017	OCTA	TOC Meeting
6/20/2017	O'Neill Regional Park	Environmental Conservation Plan Commemoration Event
7/27/2017	Laguna Niguel City Hall	5th District Mayor Forum
8/8/2017	OCTA	TOC Meeting
9/24/2017	Sacramento Convention Center	APA Conference
10/4/2017	OCTA	RMP Public Meeting

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
10/5/2017	Aliso and Woods Canyons Wilderness Park	RMP Public Meeting
10/25/2017	Brea Civic Center	RMP Public Meeting
2/13/2018	OCTA	TOC Meeting
2/20/2018	UCI	UCI Environmental Law and Policy Presentation
3/26/2018	Rancho Mirage	Association of Environmental Professionals Conference
5/8/2018	Irvine	Orange County Association of Environmental Professionals Luncheon
8/23/2018	Great Wolf Lodge, GG	Go Green Expo

## 6.1.2 Preserve-Specific Public Outreach Events

Each Preserve RMP identifies and outlines the need for public outreach and education as critical components to ensuring successful management and public support of the Preserve. A public that is informed of the Preserve's biological values, goals, and activity restrictions is more likely to respect and follow Preserve guidelines. Table 6-2 includes a list of events, riding, and hiking tours held to address Preserve-specific issues.

**Table 6-2. Preserve-Specific Public Outreach Events 2014–2018**

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
5/31/2014	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
6/7/2014	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
8/9/2014	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
8/16/2014	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
5/30/2015	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
6/6/2015	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
9/26/2015	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
10/17/2015	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
2/27/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
2/27/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
4/23/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
4/23/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
6/25/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
6/25/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
8/18/2016	Pacific Horizon (Aliso Canyon) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
8/28/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
10/29/2016	Wren's View (O'Neill Oaks) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
10/29/2016	Wren's View (O'Neill Oaks) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
11/19/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate public about property value and access
11/19/2016	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate public about property value and access
2/5/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
2/25/2017	Pacific Horizon (Aliso Canyon) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
4/8/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Family Hiking Tour to educate the public about property value and access

<b>Date</b>	<b>Location</b>	<b>Stated Purpose</b>
6/10/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
6/24/2017	Wren's View (O'Neill Oaks) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
8/19/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
8/20/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
11/11/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
11/26/2017	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
2/3/2018	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
2/24/2018	Wren's View (O'Neill Oaks) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
4/21/2018	Pacific Horizon (Aliso Canyon) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
4/29/2018	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
6/9/2018	Family Hike Trabuco Rose Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
6/30/2018	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
8/18/2018	Wren's View (O'Neill Oaks) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
8/26/2018	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access
11/17/2018	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Hiking Tour to educate the public about property value and access
11/18/2018	Trabuco Rose (Ferber Ranch) Preserve	Wilderness Preserve Equestrian Tour to educate the public about property value and access

### 6.1.3 Regional Coordination and Collaboration

The NCCP/HCP Administrator is responsible for coordinating with other regional management and monitoring programs to stay abreast of regional monitoring issues. Table 6-3 summarizes collaboration efforts, meetings, and activities undertaken by the OCTA staff (Lesley Hill and Dan Phu) during the timeframe of this Annual Report.

**Table 6-3. Collaboration with Regional Management and Monitoring Programs 2013–2018**

<b>Date</b>	<b>Group</b>	<b>Stated Purpose</b>
2013 – Current	County of Orange Area Safety Task Force (COAST)	A working group of (more than 35 organizations) decision makers and executives for fire departments, public utilities, transportation agencies, natural resource management agencies, landowners, non-profit groups, and other community members to jointly identify problems and propose solutions for wildfire prevention, and to work together to implement them.
2015 – Current	Orange County Invasive Tree Pests Group	A group of scientists/ professionals that share information pertaining to invasive tree pests including the Gold Spotted Oak Borer (GSOB) and the Polyphagous Shot Hole Borer (PSHB).
2013 – Current	Safe Trails Coalition	Participated in multiple meetings led by the Safe Trails Coalition to discuss various land management topics. Discussions focused on recreation and habitat conflicts. Various partnership opportunities were discussed to help with existing and future efforts.
N/A	Interagency Regional Working Group	This group includes landowners and private and public agencies throughout Southern California. The group began with a focus on wildlife connection concerns (mainly for mountain lion) and has evolved into a focus on natural resource issues that cross County boundaries through Southern California. Recent topics have included vegetation mapping methodologies,



Date	Group	Stated Purpose
		statewide connectivity mapping efforts, camera trapping, and suggestions for maintaining existing wildlife movement structures.
July 15, 2013, and September 20, 2018	Natural Communities Coalition (NCC)	General coordination meetings led by NCC. Meetings were focused at a general level. The first meeting was based around the evolution of the Nature Reserve of Orange County into the NCC. The second meeting was focused on discussions for how the NCC is performing and what different regional entities would recommend as a focus for NCC moving forward.
November 19, 2014; January 29, 2015; March 19, 2015; June 11, 2015; and September 28, 2017	Southern California Association of Governments (SCAG) – Sustainability Working Group	<p>OCTA participated in the following working group meetings established and steered by SCAG.</p> <ul style="list-style-type: none"> <li>• Open Space Conservation Working Group (11/19/2014, 1/29/15, 2/19/2015, 3/19/2015, 6/11/2015)</li> <li>• Natural Lands Conservation Working Group (9/28/2017)</li> </ul>
July 25, 2014, and August 22, 2014	Southern California Edison Advisory Mitigation Utility Group	OCTA participated in advisory group meetings established and steered by Southern California Edison.
March 13, 2014	2014 Coastal Cactus Wren Symposium	Participant at the Beckman Center, San Diego Zoo

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## 7.1 Summary of Endowment Process

OCTA has the responsibility to ensure the Preserves are protected and meet the NCCP/HCP commitments. Because management of the Preserves is not a primary function within OCTA's business operations, this obligation will be, and is in the process of being, formally transferred to appropriate and qualified third-party organizations. Until OCTA selects long-term managers for each of the Preserves, it is performing this role in an interim period, which is defined as 5 to 7 years after the Preserves have been acquired. The interim period consists of the finalization of the NCCP/HCP, placement of protective measures on the Preserves, and establishment of the endowment. During this time, OCTA is responsible for performing routine land management and maintaining the biological value of the Preserves.

OCTA is currently transitioning from the interim period to the next phase, the intermediate period, which was initiated after the NCCP/HCP was finalized in June 2017. During the intermediate period, OCTA begins to shift the Preserve management duties to the entities chosen to manage the Preserves subject to the NCCP/HCP standards. The intermediate period also entails the recording of conservation easements and the establishment of the endowment. This phase is expected to last approximately 10 to 15 years according to recent financial recommendations made by the EOC Ad Hoc committee. M2 funds will be used to sustain the management activities during the intermediate period.

Pursuant to the objectives of the NCCP/HCP, OCTA's goal is to ultimately transfer the long-term property title and management of the Preserves to other qualified entities (public or private non-profit). Based on preliminary estimates of management and monitoring costs, OCTA established a target of a \$46.2 million endowment to fund the long-term management of the Preserves, which was authorized by the OCTA Board of Directors in October 2014. Staff collaborated with the EOC, the Finance and Administration Committee, the Board, and other mitigation land owners to develop a set of comprehensive land management strategies. This approach enabled OCTA to determine financial recommendations for the establishment of the endowment that are efficient and have the potential to maximize economies of scale, and the selection process for the endowment fund manager (EFM). The guiding principles, long-term funding strategy, and potential expenditure options list were approved by the Board in May 2015.

Throughout the endowment funding period, the EMP funds will have specified allocations. Approximately \$3 million will be deposited in the endowment on an annual basis for up to 10 to 12 years, during which OCTA must also pay for the interim land management from the existing Measure M revenue source. The existing Measure M revenues will also be used for other expenditures, such as habitat restoration projects. The annual deposits are estimated to earn approximately \$11.7 million in investment returns, net of fund management fees over the duration of the establishment period.

The long-term management cost is a significant factor that will impact the target endowment amount. Additionally, it is possible the long-term land manager may also manage the endowment

that is tied to the Preserve, or the Preserve manager and the endowment manager may be separate entities. Therefore, the funding of the endowment consists of two phases:

1. The endowment funding phase, expected to be a 10- to 12-year period
2. After the endowment has been established, determination of whether the endowment is managed by a single or multiple entities

The EFM has several responsibilities:

- Manage the funds OCTA deposits in trust for the benefit of the Preserves.
- Accrue investment earnings over the establishment period.
- Work with OCTA to establish permanent endowment(s) to fund the management of the Preserves in perpetuity.
- Annually prepare and update a funding plan that describes annual deposits made by OCTA, historical and forecasted investment earnings, fees charged, target endowment value, and completion schedule.
- Provide quarterly and annual reports on the status of the endowment.
- Deliver updates periodically to OCTA and its designated committees.

In 2016, OCTA completed a selection process and contracted with the California Community Foundation (CCF), based in Los Angeles, California, to manage the endowment to fund the EMP.

## 7.2 Current Status of Endowment Funding

Pursuant to the responsibilities of the EFM, CCF releases a quarterly comprehensive report that includes the composition of the Endowment Pool and the performance and is reviewed for consistency with endowment objectives. It is then presented to the Board. Staff will continue to oversee and provide endowment updates to the Finance and Administration Committee and EOC on a regular basis. As of June 30, 2018, the balance in the endowment was \$6,241,770, which exceeds the projected balance of \$5,934,232 due to higher than projected investment earnings and lower than projected fees (OCTA 2018). The projected annualized cost for endowment services was 0.75% based on indications received during the due diligence process. The program is currently paying 0.35% fee on a sliding scale.

The final endowment funding requirements will be based on a Property Analysis Report (PAR) or PAR-like analysis that will be completed by OCTA within 5 to 7 years. This analysis will itemize and define the long-term obligations at each Preserve using Preserve specific information developed for the Preserve RMPs. It is expected that additional years of interim habitat management will provide a database and sounder basis for estimating the cost of long-term management. The final endowment funding level will be based upon actual negotiated long-term management contracts for each individual Preserve. OCTA will coordinate with the Wildlife Agencies and obtain the Wildlife Agencies' review and approval of the PAR analysis and determination of the permanent endowment funding requirements.

## **8.1 NCCP/HCP Administrator**

OCTA is responsible for implementing the M2 NCCP/HCP and staffing an NCCP/HCP Administrator position. The NCCP/HCP Administrator's role is to oversee and coordinate Plan implementation. The NCCP/HCP Administrator communicates regularly with Preserve Managers regarding the status of Preserve stewardship; the progress on conservation action implementation, monitoring, and management; and new or ongoing issues to be addressed. The NCCP/HCP Administrator is the primary point of contact for the Wildlife Agencies and for preparing the Annual Report demonstrating NCCP/HCP compliance.

OCTA has designated the following individual as the NCCP/HCP Administrator:

Lesley Hill  
(714) 560-5759  
lhill@octa.net

## **8.2 Minor Modifications to Plan, Permits, and Implementing Agreement**

The Plan allows for minor modifications to the Plan, permits, and Implementing Agreement if the modifications are non-substantive and do not meet the threshold of a Minor and Major Amendment. The following actions are noted as minor modifications to the Plan that have occurred during the timeframe addressed in this Annual Report.

### **8.2.1 West Loma Wildlife Crossing Component**

In 2012, the Board approved two habitat restoration projects (West Loma and Lower Silverado Canyon), which were sponsored by the IRC. The West Loma restoration project proposal consisted of approximately 62 acres of coastal sage scrub and riparian habitat, with a project budget of \$1,322,800. This project included a key wildlife connection component to improve movement (including large mammal) around the West Loma undercrossing at SR-241. This would have been achieved through realignment of existing fencing along SR-241 and habitat restoration within the Caltrans right-of-way. IRC earmarked approximately \$80,000 to complete this component of the project.

IRC was unable to move forward on the wildlife connectivity component as originally planned. Restoration within Caltrans right-of-way became unfeasible due to complications arising from deed restriction requirements and high land transfer fees. Additionally, the TCA extended high-quality wildlife fencing along the SR-241 toll road in the area bordering West Loma. IRC collaboratively assessed how the approved funding could be utilized to improve wildlife connectivity in a similar

manner that would have been achieved for the West Loma restoration project. Further improvements of the Coal Canyon undercrossing at SR-91 emerged as a preferred option.

Representatives from IRC, OCTA, the Wildlife Agencies, Caltrans, and UC Davis (Dr. Winston Vickers) met on site to discuss which options or tasks would be the most beneficial to enhance wildlife connectivity at the Coal Canyon undercrossing. Previous recommendations from Lisa Lyren, former United States Geological Survey wildlife biologist, were considered. Thus far, monitoring efforts have shown very limited use of the undercrossing by wildlife. This is likely due to the lack of cover immediately surrounding the undercrossing as well as noise and light disturbance associated with the freeway. A nearby box culvert is, however, used by bobcats and coyotes. There was also documentation of a mountain lion utilizing this culvert on one occasion.

Meeting participants discussed wildlife movement enhancement options for both the primary Coal Canyon undercrossing and the adjacent box culvert. It was determined to move forward on improvements to this important undercrossing within the originally budgeted amount. These improvements include the installation of cameras to monitor wildlife use of this area and strategically placed native plants to provide additional cover for wildlife. This project change was presented to and supported by the OCTA EOC on November 21, 2016.

## **8.2.2 United States Forest Service Dam Removal Project**

To provide for a level of conservation required for coverage of arroyo chub under the NCCPA, OCTA has funded a restoration project to remove dams located along San Juan Creek.

As part of the May 14, 2012 Board action to fund the second round of restoration projects, the Board also authorized staff to issue a call for projects and conduct general outreach to prospective entities that may be able to assist OCTA in fulfilling outstanding restoration needs. Through coordination with prospective entities, the USFS noted that they had been developing a dam removal project within San Juan Creek in Orange County that would provide benefits to the arroyo chub by enhancing aquatic organism passage and stream habitat.

OCTA staff presented the USFS San Juan Creek Restoration Project to the EOC, and the EOC endorsed the USFS project on May 4, 2016. An assurance letter from the Wildlife Agencies was obtained March 7, 2016. This letter supported OCTA in funding the removal of 19 dams located in arroyo chub-occupied habitat along San Juan Creek in the Cleveland National Forest, and the Wildlife Agencies agreed that it would serve as mitigation to help offset potential effects on arroyo chub and its habitat consistent with the then draft NCCP/HCP. Since then, the USFS has further defined the needs and budget of the restoration project. Subsequent coordination with the USFWS showed that only 14 dams needed funding to complete the removal of all the dams within the Cleveland National Forest in San Juan Creek. The USFS updated the project cost (\$185,000) for the removal of fewer dams. The OCTA Board approved the funding of this project in February 2017, and the project has been fully funded.

## **8.2.3 Eagle Ridge (Hayashi) Preserve Boundary Modification**

OCTA conducted a land survey in order to verify the property boundaries of Eagle Ridge Preserve in 2012. Upon completion of this survey, it was documented that the previous adjacent neighbor had encroached onto the Eagle Ridge Preserve property. The encroachment included structures and landscaping. Shortly after, OCTA staff contacted the new owner of this adjacent property to discuss

the encroachment. Through further discussions, OCTA and the adjacent property owner determined that a land exchange would be in the best interest for both property owners. The land exchange (finalized with the County Recorder's office in 2015) consisted of the following:

- Adjacent land owner deeding 4 acres of undisturbed native habitat to OCTA
- OCTA deeding over 2 acres of disturbed/landscaped land to the adjacent land owner

This land exchange resulted in 2 more acres to the original 299.0 acres for Eagle Ridge (Hayashi) Preserve that was included in the M2 NCCP/HCP. The adjusted total acreage of the Preserve (301 acres) was used for the Final Eagle Ridge RMP completed in September 2018. The additional 4 acres of habitat will need to be surveyed for biological resources. It appears to be in good condition and consistent with the adjacent habitat mapped (woodland and laurel sumac scrub). This additional field survey to complete the baseline monitoring effort will be conducted as part of the general stewardship monitoring of the Preserve and included in the future annual reporting for this Preserve. Regional vegetation information has been used to fill in the vegetation map for this area of the Preserve until field surveys are completed.

## **8.2.4 Chino Hills State Park and North Coal Canyon Restoration Project Modification**

The CHSP restoration project described in the NCCP/HCP included a 21-acre restoration project composed of 13.5 acres of riparian restoration and 6 acres of cactus scrub restoration. A restoration plan was developed for the CHSP project by State Parks staff. State Parks staff initially verified that the project could successfully be completed within the Board-approved budgeted amount of \$193,000. To accomplish the restoration project at this rate, State Parks had to be creative with its implementation strategy. State Parks coordinated with both the California Conservation Corps as well as the Orange County Conservation Corps to determine if the project was within their abilities. Specifically, the riparian component of the project would require attention to multiple vegetation types and a complex irrigation system. Through this coordination, it was determined that the scope of this project was beyond the abilities of both of these entities for the budgeted amount.

The original project area was located near the City of Brea and Yorba Linda and would have enhanced and restored up to Telegraph Canyon. The original CHSP restoration project proposed to enhance 21 acres (13.5 acres of riparian and 6.0 acres of cactus scrub) of habitat. It was later determined that a more intensive cactus scrub restoration project within CHSP would provide better ecological benefits. This project change was coordinated with and approved by the Wildlife Agencies. The resulting project is an intensive restoration of 11 acres of cactus scrub within CHSP on the slope overlooking Yorba Linda south of the junction of Southridge Trail and Diemer Trail. The 11-acre cactus scrub restoration project will help return this area to its previous condition and benefit OCTA Covered Species coastal California gnatcatcher and cactus wren. This scope change was also endorsed by the EOC in October 2016.

## **8.2.5 North Coal Canyon and Chino Hills Restoration Project Sponsor Change**

The North Coal Canyon and CHSP restoration projects were approved by the EOC and OCTA Board as part of the EMP's second round of restoration funding in 2012 and were incorporated into the M2

NCCP/HCP. Two agreements were subsequently executed with the California Department of Parks and Recreation (i.e., CHSP). Although the restoration plans have been approved, project activities have not yet occurred. As coordination to implement these projects progressed, it was determined the originally proposed contracting process was not feasible. This was due to limitations on the Department of Parks and Recreation contracting process.

CHSP had no other feasible contracting mechanism to implement these projects and thus dissolved the contracts with OCTA. They have assured OCTA that they fully support the restoration work and would allow another entity access to their park property to ultimately perform the restoration work.

Concurrently, staff has vetted this matter with its contracts department and the Wildlife Agencies to determine if it could continue to work with CHSP on the projects. Because the Board approved the restoration projects, budgets, and project sponsors, OCTA cannot reassign the contracts to another entity administratively. The Wildlife Agencies recommended that these projects remain within the CHSP and for OCTA to re-solicit prospective project sponsors to remain generally within the original budget given these projects have been integrated into the OCTA NCCP/HCP.

OCTA is currently administering a competitive bidding process to identify qualified entities to implement the North Coal Canyon and CHSP restoration projects. The competitive bidding process will be utilized to identify an entity that can perform the work and complete these restoration projects. The implementation of these restoration projects would be evaluated as two distinct projects resulting in two separate agreements. The restoration plans approved by the Wildlife Agencies are being utilized as the scopes of work. The selected entity will be a professional restoration consultant. Therefore, one or two separate entities may be chosen to complete the projects. CHSP supports and will allow access to the selected entity(ies) to implement these much-needed restoration projects.

OCTA is hopeful that implementation can begin in early 2019, with the support and approval from the Wildlife Agencies on minor project details.

### **8.3 Minor or Major Amendments to the Plan**

No Minor or Major Amendments to the Plan have been proposed during the timeframe of this Annual Report.

### **8.4 Changed Circumstances**

No events meeting the criteria of a Changed Circumstance occurred during the timeframe of this Annual Report.



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**Appendix A**  
**Covered Freeway Improvement Projects**  
**Habitat Tracking Ledger**

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**Table A-1. Covered Freeway Projects Habitat Impact Tracking Ledger<sup>a</sup>**

Project ID	Segment	Start Date	Total	Chaparral	Coniferous Forest	Grassland	Riparian	Scrub	Water	Wet Meadows/ Marsh	Woodland
<b>Totals to Date:</b>			<b>7.532</b>	--	--	<b>6.460</b>	<b>0.957</b>	<b>0.015</b>	<b>0.100</b>	--	--
Project C EA 0K0200	C1	5/30/18	0.722	--	--	--	0.707	0.015	--	--	--
Project B EA 0K6700	B	7/26/18	0.00	--	--	--	--	--	--	--	--
Project L EA 0K710K	L1	1/29/18	6.810	--	--	6.46	0.25	--	0.10	--	--
Project M EA 0K8700	M	6/7/18	0.00	--	--	--	--	--	--	--	--

<sup>a</sup> Values are in acres. Includes both permanent and temporary impacts.

**Table A-2. Summary of Applicable Avoidance and Minimization Measures and Status of Restoration Activities for Temporary Impacts from Covered Freeway Projects**

Project ID	Applicable Avoidance and Minimization Measures	Restoration for Temporary Impact Areas Status
Project C EA 0K0200	Sections 5.6.1, 5.6.2.1, 5.6.2.2, 5.6.2.3, 5.6.3, 5.6.4 and 5.6.5	As described in the NES, temporary impacts (staging, access, storage) will be contained outside of riparian/suitable habitat to the maximum extent practicable. All temporary impact areas adjacent to native habitats [i.e. coastal sage scrub, riparian (Oso Creek and Aliso Creek)] will be replanted with native plant species and approved by the Wildlife agencies. A plant establishment period of at least 3 years will be established. This will include the removal of litter and trash, weeding, water application, irrigation repair, replacement of plant material that dies, and other activities required to ensure the long-term survival of plant material to satisfy M2 HCP/NCCP obligations and permit conditions. Permittee shall restore all temporary impacts on site at a 1:1 ratio immediately following construction completion or, with written approval from CDFW, at the beginning of the next growing season.

<b>Project ID</b>	<b>Applicable Avoidance and Minimization Measures</b>	<b>Restoration for Temporary Impact Areas Status</b>
Project B EA 0K6700	Sections 5.6.1, 5.6.2.1, 5.6.3, 5.6.4 and 5.6.5	As described in the NES, areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. Restoration plans will be prepared during final design and included in the Plans, Specifications, and Estimates (PS&E) package. The revegetation plan will be prepared consistent with the California Department of Transportation (Caltrans) landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies (the California Department of Fish and Wildlife [CDFW] and the United States Fish and Wildlife Service [USFWS]). A temporary restoration plan will be developed as part of the design and construction phase of the project.
Project L EA 0K710K	Sections 5.6.1, 5.6.2.1, 5.6.2.3 and 5.6.3.	As described in the NES, construction will be implemented to minimize temporary impacts (intended to benefit Roosting Bats NES Section 5.6.3). In addition, as stated in the NES areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans' landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies. A temporary restoration plan will be developed as part of the design and construction phase of the project.
Project M EA 0K8700	Sections 5.6.1, 5.6.2.1, 5.6.3 and 5.6.4.	No natural habitat is found within the project area. Thus, no restoration of temporary impacts is needed.

## Appendix B

# Preserve Stewardship Activities

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This appendix summarizes various Preserve stewardship activities that have occurred on Orange County Transportation Authority (OCTA) Preserves during the timeframe covered by this Annual Report. Table B-1, at the end of this appendix summarizes the types of general Preserve maintenance activities and dates they were completed. In addition, this appendix summarizes more focused reports that were prepared for specific Preserve stewardship activities including tree evaluations, tree replacements, invasive species control, removal of bike jumps, and Invasive Shot Hole Borer (ISHB) extent evaluations.

### **Arborist Report for Orange County Transportation Authority Properties in Trabuco Canyon, Prepared by RECON Environmental Inc. (RECON), March 15, 2013**

In 2013, a RECON-certified arborist performed a cursory risk evaluation of trees located on OCTA property adjacent to major roadways and fire roads within Trabuco Canyon to assess the potential for risk to the public from tree failure. Surveys were conducted in the unincorporated community of Trabuco Canyon in Orange County, California. Survey locations included OCTA properties abutting Live Oak Canyon Road, Trabuco Canyon Road, and a series of fire roads occurring within the following OCTA Preserves: Ferber Ranch, Hafen, O’Neill Oaks, and Saddle Creek South. The tree assessment included species type and ocular observations of condition based on health, vigor, and structural stability. Sixteen trees were identified that may pose risk to the public traversing the roadways. Each tree was assigned a rank, from moderate chance of failure to very high probability of failure depending on severity of infliction and proximity to a major roadway. RECON provided recommendations to reduce or alleviate the risk of failure for each tree. This resulted in the removal of several dead sycamore trees, the pruning of several sycamore and oak trees, and a list of trees to monitor in the future.

### **Arborist Report for Orange County Transportation Authority Properties in Trabuco Canyon, Prepared by RECON, September 17, 2015**

OCTA requested that RECON perform a cursory risk evaluation of trees located adjacent to major roadways and fire roads near Trabuco Canyon within the following OCTA conservation properties: Ferber Ranch, Hafen, O’Neil Oaks, and Saddle Creek South. Drought conditions in California caused weakened conditions in trees making them more susceptible to insect predation and fungal infection, which poses a risk to the public traversing the roadways and fire access routes.

An initial evaluation was conducted in 2013. In 2015, OCTA contracted a follow-up evaluation with the objective of reevaluating initially identified trees and to identify trees that may pose the potential for risk to the public traversing the roadways and fire access routes. A total of 33 trees were identified in the field as posing a risk to the public traversing the roadways and ranked based on their probability of failure. Of these, 16 trees were ranked as *Very High* (i.e., in extremely poor condition) and are located along a main roadway. RECON recommended these trees be felled due to their high potential and imminent risk of failure. Ten of the trees were ranked as *High* (i.e., in poor condition); it is recommended these trees be pruned and monitored for continual decline as well as irrigated to aid in reducing stress factors. Seven trees were ranked as *Moderate* and should be monitored and/or pruned to reduce risk. In addition, RECON has recommended that a follow-up

tree survey be conducted in approximately 12 months to assess trees following the 2015/2016 winter season. This resulted in the removal of 12 oak trees and the pruning of 3 oak trees. Due to the proximity of the trees to the roads, some of the tree material was removed from the immediate location and placed in other areas of the Preserves.

**OCTA M2 Oak Tree Replacement/Management Plan for Orange County Transportation Authority Preserves in Compliance with Foothill-Trabuco Specific Plan, Prepared by Glen Lukos Associates (GLA), August 29, 2016**

To reduce an imminent safety hazard to the public, OCTA removed twelve dead/dying trees on OCTA Preserves located within the Foothill-Trabuco Specific Plan (FTSP), which were deemed a “very high risk” by a Certified Arborist. On January 25, 2016, the County issued a letter which stipulated that OCTA replace the removed dead/dying trees and develop a Tree Management/Preservation Plan, per the FTSP Resources Overlay Component. OCTA coordinated with the County and drafted the County of Orange FTSP and the OCTA Oak Tree Replacement/Management Plan. Implementation of the Oak Tree Management Plan calls for the removal of invasive plants and the planting of 30 1-gallon container coast live oak and direct seeding of 90 coast live oak acorns to be planted in place of removed invasives. This Management Plan was prepared in conjunction with an Invasive Species Management Plan (ISMP) developed for the Ferber Ranch Preserve, which entails the removal of several invasive species. The Management Plan was developed as an alternative, more effective mitigation proposal than installation of 122, 15-gallon oaks in OCTA’s Preserves, where chance of mortality is expected to be high.

Because oak trees are a taprooted species, planting is found to be most successful from direct seeding or small seedlings so that development of the extremely fragile taproot occurs in the ground, rather than in the container, subject to stresses associated with transplanting. Stress risk is also intensified the longer the rooted plant has been in a nursery before it is transferred to a natural setting without the benefits of irrigation, weather protection, and other controls it has become accustomed to—a condition known as “transplant shock.” Therefore, the rate of transplant shock is expected to be much higher for a 15-gallon container than a 1-gallon container or an acorn grown in a natural setting.

Implementation of this Management Plan is anticipated to occur in stages, starting with a full year of invasives removal beginning in 2018/2019. Once invasives are removed, planting would occur the following winter for the acorns, and the following spring for the oak seedlings. Maintenance will occur over a 5-year period to ensure survival of the planted oaks and acorns. The oak and acorn planting sites will be monitored for 5 years following the completion of installation. Monitoring will entail qualitative assessments and annual survivorship counts. Reporting will include a Post-Installation Report and a Five-Year Monitoring Report.

**Progress Report for Invasive Control at Trabuco Rose, Prepared by RECON, November 19, 2018**

RECON field crews conducted invasive species control at the Trabuco Rose (formerly Ferber Ranch) Preserve in accordance with the approved *Invasive Species Management Plan for OCTA M2 Preserves – Trabuco Rose Preserve*. Field crews treated 4 separate areas of pampas grass (*Cortaderia selloana*), 19 separate areas of artichoke thistle (*Cynara cardunculus*), and 6 separate areas of tamarisk (*Tamarix* spp.) from September 24 to October 11, 2018. The field crew also performed maintenance tasks, which included removal of fencing and downed oak tree branches. RECON has recommended follow-up treatments be performed in early spring 2019, with a foliar application with a glyphosate-

based herbicide applied to pampas grass and artichoke thistle resprouts and a foliar application with a triclopyr-based herbicide applied to tamarisk resprouts.

**Progress Report for Sign Installation and Bike Jump/Bike Trail Removal at Pacific Horizon Preserve, Prepared by RECON, November 19, 2018**

On October 8 and 15, 2018, RECON conducted maintenance activities at Pacific Horizon Preserve to remove unauthorized trail modifications, created by mountain bikers within the Preserve, and install new signage that does not directly impact native/sensitive vegetation. Additionally, prickly pear cactus (*Opuntia* sp.) cuttings were taken from surrounding areas and planted along the unauthorized bike trails to prevent future off-road use.

**Letter Report Summarizing Invasive Shot Hole Borer Extent Evaluations – Orange County Transportation Authority (OCTA) Lands, Orange County California, Prepared by Dudek, August 3, 2017**

In the Spring of 2017, invasive shot hole borer (ISHB; *Euwallacea* sp.) was positively identified in a park within proximity to OCTA-managed lands in Trabuco Canyon, California. In response, OCTA requested that Dudek conduct ISHB presence/absence surveys to determine if ISHB was on OCTA lands, consisting of five mitigation land Preserves: Ferber, Hafen, MacPherson, O'Neill, and Saddleback.

Dudek arborists evaluated 123 woodland and riparian areas within the five individual Preserves for the presence/absence of ISHB. Three of the five Preserve locations were found to have trees that exhibited sign and/or symptom of ISHB. Samples from these trees were sent for lab analysis at UCR for positive identification of ISHB and/or associated fungal pathogen *Fusarium euwallaceae*. UCR isolated and confirmed the presence of ISHB and/or *Fusarium euwallaceae* within O'Neill and Ferber Preserves. Based on these results, ISHB is considered to be active at within Ferber and O'Neill riparian woodlands. Because the extent of the site's infestations is unknown, Dudek has recommended that OCTA conduct ISHB extent surveys within the riparian woodlands found in Ferber and O'Neill Preserves. Dudek has also recommended that OCTA maintain an active ISHB monitoring program that focuses on high-priority areas located throughout OCTA-managed lands.

**Letter Report Summarizing Invasive Shot Hole Borer Extent Evaluations – Wren's View and Trabuco Rose Preserves, Orange County, California, Prepared by Dudek, September 21, 2018**

Invasive shot hole borer (*Euwallacea fornicatus*) (ISHB) was identified on OCTA-managed Wren's View and Trabuco Rose Preserves in Trabuco Canyon, California in 2017. In response, OCTA requested that Dudek perform extent surveys to determine the extent of ISHB infestation on these Preserves and provide recommendations for short- and long-term management of the woodlands and pests.

In July 2018, Dudek arborists evaluated 162 riparian trees within the two Preserves and found that 21 riparian trees showed signs and symptoms of ISHB in the early stages of infestation. Dudek recommended that the 21 riparian trees exhibiting signs and symptoms of ISHB be removed to maintain and limit the spread of ISHB throughout the remaining areas of Wren's View and Trabuco Rose Preserves. Following tree removal, high-priority areas identified by Dudek should be frequently monitored to allow OCTA land managers to identify ISHB quickly and to remove infested material before ISHB spreads to uninfested areas.

**Preserve Maintenance Activities**

OCTA has contracted with RECON Environmental, Inc. to implement routine and ongoing property management and maintenance activities at multiple Preserves (Trabuco Rose, Wren’s View, Live Oak Creek, Bobcat Ridge, Silverado Chaparral, and Pacific Horizon Preserves). Other entities providing Preserve maintenance activities at OCTA Preserves have included State Parks at Eagle Ridge Preserve, County of Orange at Wren’s View Preserve (until 2015), and Transportation Corridor Agencies (TCA) subcontractors at Live Oak Creek Preserve (until 2014). Tables B-1 and B-2 summarize the types of work and dates of Preserve maintenance activities that have occurred during the timeframe of this Annual Report.



**Table B-1. Preserve Maintenance Activities Completed by RECON**

<b>Work Description <sup>a</sup></b>	<b>Trabuco Rose</b>	<b>Wren's View</b>	<b>Live Oak Creek <sup>b</sup></b>	<b>Bobcat Ridge</b>	<b>Silverado Chaparral</b>	<b>Pacific Horizon</b>
<b>Access/Fire Road Maintenance</b>	February 7, 2013 May 8, 2013 May 9, 2013 May 10, 2013 May 13-15, 2013 June 17, 2013 December 2-6, 2013 March 5, 2014 May 7-9, 2014 May 27-30, 2014 June 2, 2014 June 5-6, 2014 June 9-12, 2014 January 14, 2015 February 9-10, 2015 April 22-24, 2015 April 27-28, 2015 June 26, 2015 August 5, 2015 October 1, 2015 November 5, 2015 April 29, 2016 May 18-19, 2016 January 20, 2016 April 29, 2016 August 3, 2016 August 23, 2016 March 27-30, 2017 April 3-7, 2017 April 10-11, 2017 April 17-18, 2017 July 5, 2017	June 2012 August 2014 November 5, 2015 March 28-April 1, 2016	November 7-11 2011 December 12, 2011 December 21, 2012 May 31, 2013 April 22-24, 2015 April 27-28, 2015 October 1, 2015 August 3, 2016 April 3-7, 2017 April 10-11, 2017 April 17-18, 2017 August 7-8, 2017			

<b>Work Description <sup>a</sup></b>	<b>Trabuco Rose</b>	<b>Wren's View</b>	<b>Live Oak Creek <sup>b</sup></b>	<b>Bobcat Ridge</b>	<b>Silverado Chaparral</b>	<b>Pacific Horizon</b>
<b>Fence Installation</b>	May 8, 2013 June 6, 2013 August 13–15, 2013 September 23–27, 2013 October 1–3, 2013 October 14–15, 2013 December 2–6, 2013 February 19–20, 2014 October 8–9, 2014 October 13–14, 2014	July, 2013	2013			
<b>Fence Removal</b>	December 2–6, 2013 September 2018					
<b>Fence Repair/ Maintenance/ Extension</b>	May 9, 2013 January 30, 2014 February 11, 2014 February 19–20, 2014 October 8–9, 2014 October 13–14, 2014 October 22, 2013 January 20, 2015 February 9, 2015 January 12–13, 2016 May 18–19, 2016 October 12, 2016 March 16, 2017 July 5–7, 2017 July 10–14, 2017		November 26, 2012 May 31, 2013 December 2013			

<b>Work Description <sup>a</sup></b>	<b>Trabuco Rose</b>	<b>Wren's View</b>	<b>Live Oak Creek <sup>b</sup></b>	<b>Bobcat Ridge</b>	<b>Silverado Chaparral</b>	<b>Pacific Horizon</b>
<b>Gate Installation</b>	December 2–6, 2013 December 9, 2013 February 10–14, 2014 May 23, 2014 March 28, 2017	June 1, 2013 September 2013				
<b>Gate Repairs/ Maintenance</b>	October 3, 2013 October 9, 2013 September 29, 2014 January 16, 2015 April 24, 2015 June 19, 2015 July 7, 2016 March 28, 2017 June 16, 2017	June 2012	June 2014			
<b>Sign Installation</b>	May 9 and 23, 2013 December 2–6, 2013 December 9, 2013 January 30, 2014 January 12–13, 2016	July 1, 2013 August 2013	October 2011 December 21, 2012		Nov 2014 (minimal signage to communicate to adjacent land owner)	October 8, 2018 October 15, 2018
<b>Signs and Posts Repair/Update/ Maintenance</b>	October 3, 2013 October 14–15, 2013 January 30, 2014 January 14, 2015		June 2014 April 22–24, 2015 April 27–28, 2015			
<b>Add New Signs to Posts and Gates</b>	February 19–20, 2014 January 20, 2015					
<b>Cactus Salvage/Planting/ Installation</b>	April 4, 16–17, 2013 May 23, 2013 June 13, 2013					

<b>Work Description <sup>a</sup></b>	<b>Trabuco Rose</b>	<b>Wren's View</b>	<b>Live Oak Creek <sup>b</sup></b>	<b>Bobcat Ridge</b>	<b>Silverado Chaparral</b>	<b>Pacific Horizon</b>
<b>Flag Plants</b>	May 8, 2013 May 10, 2013 May 7, 2014 February 9, 2015 April 29, 2016 March 27, 2017					
<b>Arborist Work (Tree Assessment and Evaluation, Onsite Direction)</b>	February 27, 2013 July 24, 2015 August 5, 2015 July 11, 2017	February 27, 2013 July 24, 2015	February 27, 2013 July 24, 2015	February 27, 2013 July 24, 2015		
<b>Invasive Beetle Assessments</b>	August 2017 September 2018	August 2017 September 2018	August 2017	August 2017	August, 2017	
<b>Tasks for Public Safety (including regrading work at Hickey Creek crossing for safe ingress/egress, tree pruning/removal near residents' homes and public roads, and fence installation for safety around old mining pit)</b>	May 15, 2013 February 2, 2015 September 2015 March 15, 2017 July 11, 2017 July 13-14, 2017	May 15, 2013 September 29, 2015	September, 2015	September 29, 2015		

<b>Work Description <sup>a</sup></b>	<b>Trabuco Rose</b>	<b>Wren's View</b>	<b>Live Oak Creek <sup>b</sup></b>	<b>Bobcat Ridge</b>	<b>Silverado Chaparral</b>	<b>Pacific Horizon</b>
<b>Biomass Removal/ Vegetation Management <sup>c</sup> (thinning and/or removing vegetation; and removal of tree limbs [within streams] and debris within fuel modification zones)</b>	May 15, 2013 June 6, 2013 September 5, 2013 May 2, 2014 May 7-9, 2014 May 12, 2014 May 19-20, 2014 May 23, 2014 June 2, 2014 June 5-6, 2014 October 22, 2014 January 20, 2015 April 27-28, 2015 June 11, 2015 June 26, 2015 July 23, 2015 August 5, 2015 September 8-9, 2015 September 30, 2015 October 1, 2015 October 20-21, 2015 January 12-13, 2016 May 2-4, 2016 May 9-13, 2016 August 3, 2016 August 23, 2016 December 5-6, 2016 March 16, 2017 July 5, 2017 July 10-12, 2017 July 17-19, 2017		December 12, 2011 May 31, 2013 April 27-28, 2015 September 8-9, 2015 October 1, 2015 May 12-13, 2016 August 3, 2016 July 17-19, 2017 April 17-18, 2017 August 7-8, 2017			

<b>Work Description <sup>a</sup></b>	<b>Trabuco Rose</b>	<b>Wren's View</b>	<b>Live Oak Creek <sup>b</sup></b>	<b>Bobcat Ridge</b>	<b>Silverado Chaparral</b>	<b>Pacific Horizon</b>
<b>Trash/Human-made Materials Removal</b>	March 18, 2013 October 28, 2013 January 20, 2015 May 18–19, 2016		May 1, 2015			November 6–7, 2017 October 8, 2018 October 15, 2018
<b>Build Wildlife Ramp Out of Human-made Mine Pit</b>	February 2, 2015					
<b>Trail Maintenance in Preparation for Equestrian Rides</b>	September 8, 2015 April 5–6, 2016 November 16, 2016 April 3–7, 2017 April 10–11, 2017 April 17–18, 2017 April 5, 2017					
<b>Erosion Control</b>	May 19–20, 2014 October 21, 2015 January 13, 2016 July 6–7, 2017		November 7–11, 2011 December 21, 2012 May 31, 2013 October 20–21, 2015 August 7–8, 2017 August 11, 2017			
<b>Land Survey and Stake Property Boundaries</b>	May 2011	January, 2013		February 2013	November, 2013	January, 2014
<b>Removal of Homeless Encampment</b>		June 2012				
<b>Removal of Bike Jumps/Bike Trails</b>						October 8, 2018 October 15, 2018

- a Prior to all maintenance tasks performed during bird breeding season, March 15–September 15, a biologist would check work areas for nesting birds, and proceed accordingly based on findings of survey.
- b Preserve maintenance activities were completed by TCA subcontractors from October 2011 through June 2014. RECON continues from that date until present date.
- c Some of the vegetation management work included removal of nonnative grasses/herbaceous species and nonnative perennial species, which has allowed for the natural recruitment of native species on site.

**Table B-2. Preserve Maintenance Activities Completed by State Parks and County of Orange**

<b>Work Description</b>	<b>Eagle Ridge</b>	<b>Wren's View</b>
State Parks: Land Survey and Stake Property Boundaries	May–July, 2012	
State Parks: Fence Installation	January–May, 2013	
State Parks: Sign Installation	January–May, 2013	
State Parks: Fire Response	July 4, 2016	
County of Orange: Start-up Services (perform boundary survey and stake property, install fences and gates)		February 14, 2013 July 3, 2013 August 1, 2013
County of Orange: Level 1 Management Services (maintenance, groundskeeping, patrols, inspections, etc.)		April 17, 2012–April 30, 2015
County of Orange: Road Grading Project (Mainstar)		June 23, 2014

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## Appendix C

# Annual Schedule for Effectiveness Monitoring

Table C-1. Annual Schedule for Effectiveness Monitoring on OCTA Preserves

Action	Frequency/ Schedule	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
<b>Adopt RMP</b>							BL ST W	P E																						
<b>Effectiveness Monitoring:</b>																														
Rare Plants	3 to 5 years	BE LT W			PS					BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W
Reptiles	4 years	BE LT W			PS					BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W
Birds	4 years	BE LT W			PS		BL PT W				BL PS T W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W			
Mammals <sup>a</sup>	4 years	BE LT W			P		S	P E		BL ST W		P E		BL ST W		P E		BL ST W		P E		BL ST W		P E		BL ST W		P E		BL ST W

Action	Frequency/ Schedule	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Natural Communities Quantitative <sup>b</sup>	4 years					BL W	BL W	BL W	BL W	BL W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W				BE LP ST W
Natural Communities Comprehensive	10 years	BE LT W			PS								BE LP ST W									BE LP ST W								

*Red Italics = Baseline Survey*

<sup>a</sup> Mammal monitoring is completed with wildlife cameras and is an on-going monitoring activity. Every 4 years an analysis of the data is completed to interpret mammal monitoring data.

<sup>b</sup> Methodologies to complete quantitative monitoring of natural communities are currently being reviewed with the other regional conservation entities and the Wildlife Agencies. A pilot program has been initiated at other OCTA Preserves. An agreed upon monitoring will be applied to the Preserves going forward once methodologies are finalized.

Key:

Letter ID	OCTA Preserve	Location
<b>B</b>	Bobcat Ridge (formerly Hafen)	Trabuco Canyon
<b>E</b>	Eagle Ridge (formerly Hayashi)	City of Brea
<b>L</b>	Live Oak Creek (formerly Saddle Creek South)	Trabuco Canyon
<b>P</b>	Pacific Horizon (formerly Aliso Canyon)	City of Laguna Beach
<b>S</b>	Silverado Chaparral (formerly MacPherson)	Silverado Canyon
<b>T</b>	Trabuco Rose (formerly Ferber Ranch)	Trabuco Canyon
<b>W</b>	Wren’s View (formerly O’Neill Oaks)	Trabuco Canyon