OTAY REGIONAL TRAIL ALIGNMENT STUDY

Photo location: Northeastern Otay Valley River Park, Photo Credit: Cailin Lyons

Final 2020

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Contents

FIGURES

TABLES

ATTACHMENTS

Acronyms and Abbreviations

ACEC	Areas of Critical Environmental Concern
BLM	Bureau of Land Management
CBP	United States Customs and Border Protection
CCP	Comprehensive Conservation Plan
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFD	Community Facilities District
CRHR	California Register of Historical Resources
ESA	Federal Endangered Species Act
ESL	Environmentally Sensitive Lands
GIS	Geographic Information System
GDP/SRP	City of Chula Vista Otay Ranch General Development Plan and the County of San Diego Otay Subregional Plan Phase 2
HCWA	Hollenbeck Canyon Wildlife Area
HLIT	Habitat Loss and Incidental Take
HMA	Habitat Management Area
HOA	Homeowners Association
JEPA	Joint Exercise of Powers Agreement
LMP	Land Management Plan
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
NEPA	National Environmental Policy Act
OMER	Otay Mountain Ecological Reserve
OVRP	Otay Valley Regional Park
OWD	Otay Water District
RJER	Rancho Jamul Ecological Reserve
RMP	Resource Management Plan
SDG&E	San Diego Gas & Electric
SDNWR	San Diego National Wildlife Refuge
SPA	Sectional Planning Area
Study or Plan	Otay Regional Trail Alignment Study
USFWS	United States Fish and Wildlife Service

Executive Summary

This Trail Alignment Study (hereafter referred to as study or plan) provides recommendations for a new public trail system in southern San Diego County. The study identifies 13 new trail alignments totaling approximately 80.5 linear miles of hiking, biking, riding, and wheelchair accessible pathways and trails. The selection of trail alignments was completed with extensive stakeholder outreach and strives to protect sensitive environmental resources while providing the region's growing communities with better connections to nearby open spaces and a variety of new recreational opportunities.

The proposed trail system is located within a 72,523-acre area spanning lands within the County of San Diego, City of San Diego and City of Chula Vista, and includes nine distinct ecological preserves and habitat management areas. Preparation of this study was a joint effort between the seven different governments and agencies who manage lands within the study area, including the County of San Diego, cities of San Diego and Chula Vista, the United States Fish and Wildlife Service, California Department of Fish and Wildlife, Bureau of Land Management, and the Otay Water District.

The trail alignments identified in this study are corridors within which the establishment of a public trail has been determined to be feasible and to meet plan objectives, policies, and guidelines. The trail alignments proposed in this study are conceptual, and have not yet been approved for use. This study is intended as a planning document to guide future decisions concerning the trail system, including providing policies to determine the best location of each trail within suggested alignments.

Chapter 1: Plan Overview

This plan is the result of a multi-agency effort to identify a coordinated and sustainable trail system in southern San Diego County. The plan designates approximately 80.5 linear miles of trails and pathways within a 72,523-acre study area (Figure 1). Within this area, nine separate ecological preserves and habitat management areas are managed by seven agencies including the County of San Diego (County), cities of San Diego and Chula Vista, United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), Bureau of Land Management (BLM), and Otay Water District (OWD).

The trail system is designed to connect the communities of Eastlake, Otay Ranch, Rolling Hills Ranch, Bella Lago, San Miguel Ranch and Jamul, as well as provide connections to preserved areas and regional trails. Plan implementation would provide trail connections from the Otay Ranch Preserve to regional trails including trails within the Otay Valley Regional Park (OVRP), Sweetwater Loop Trail, public trail systems in the City of Chula Vista, and trails within lands owned by the San Diego National Wildlife Refuge (SDNWR), CDFW, BLM, and the City of San Diego.

1.1 Plan Purpose and Objectives

The purpose of this plan is to formalize the results and recommendations of a multi-year planning and public outreach process to identify planned trail alignments and connections within the 72,523-acre study area (see Figure 1). Through the planning process, three key objectives were identified.

Plan Objectives

1. **Provide quality recreational trail connections to the Otay Ranch Preserve and other public lands.**
2. **Provide opportunities for a variety of recreational activities including hiking, biking, and horseback riding.**
3. **Protect sensitive environmental resources including biological resources, cultural resources, scenic resources, and water quality.**

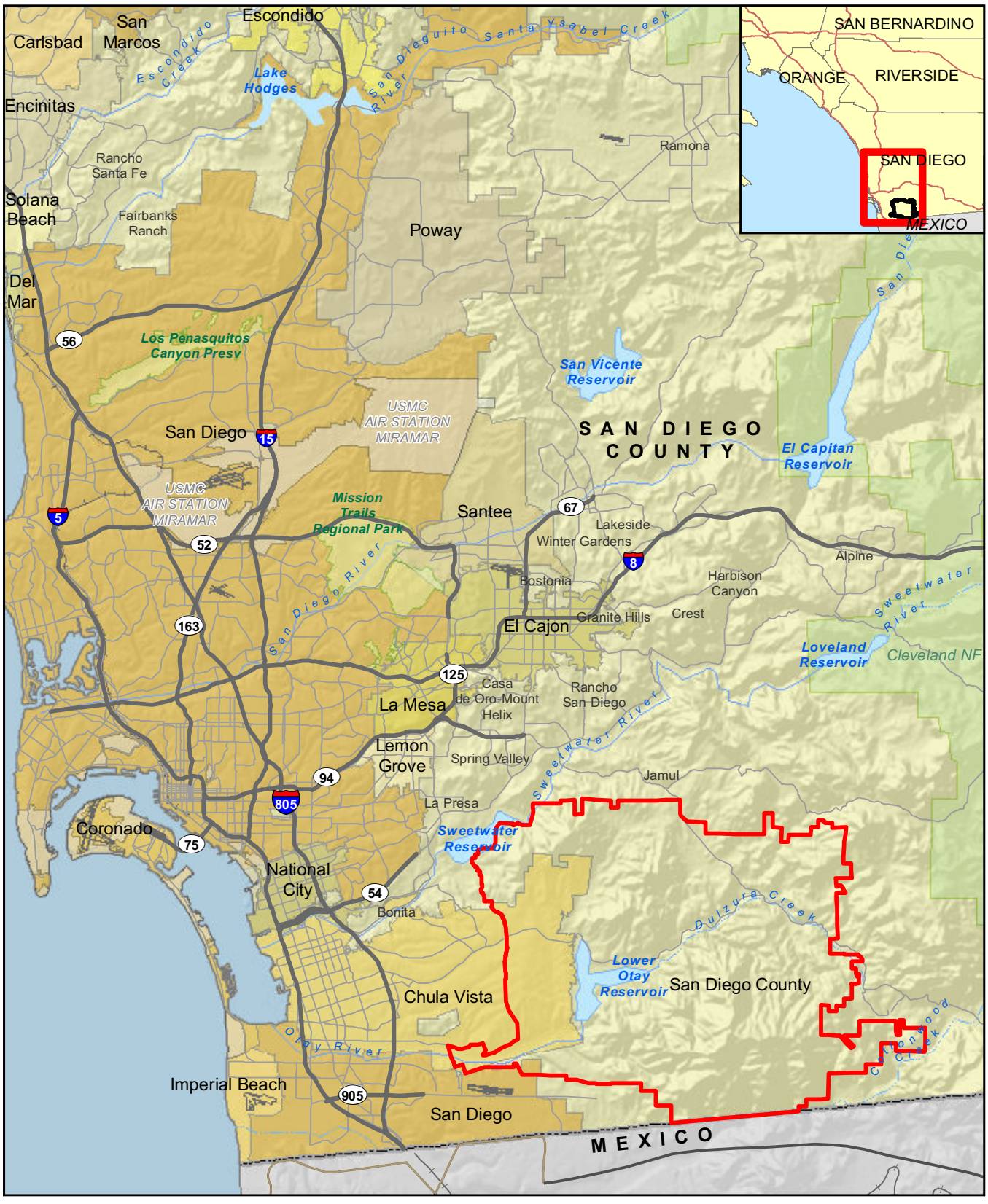

FIGURE 1
Regional Location

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Steering Committee Members

County of San Diego

City of Chula Vista

City of San Diego

Bureau of Land Management

California Department of Fish and Wildlife

Otay Water District

United States Fish and Wildlife Service

United States Customs and Border Protection

Stakeholder Participation

San Diego Mountain Biking Association

SoCal Hiking Sisters

Backcountry Riders

Bonita Bikers

Bonita Valley Horsemen

Sierra Club

South Bay Rod and Gun Club

Jackson Pendo

Baldwin & Sons

OVRP Citizen Advisory Committee

Jamul Trail Bonita Bikers

Tijuana River Valley Equestrian Association

RH Consulting Group

Friends of OVRP

Friends of San Diego Wildlife Refuges

Southwest Wetland Interpretive Association

1.2 Steering Committee

Extensive agency coordination was involved in preparation of this trail alignment study. A Steering Committee was formed involving agencies with jurisdiction, ownership, or other management responsibilities within the study area. Steering Committee members included representatives from the County of San Diego, the cities of Chula Vista and San Diego, BLM, CDFW, OWD, USFWS, and United States Customs and Border Protection (CBP). The Steering Committee managed and guided the process of developing the proposed trail alignments through a series of steering committee meetings.

1.3 Stakeholder Engagement

A variety of stakeholders were engaged early in the trail planning process. Public workshops were held in Chula Vista on March 14, 2017, and June 20, 2018. A total of 72 members from the general public and local interest groups, as well as 10 additional agency representatives, attended the first workshop. A total of 65 members from the general public and local interest groups, as well as approximately 25 additional agency representatives, attended the second public workshop. Stakeholder groups that attended the meeting included local community planning groups, user groups, private developers, and environmental organizations.

The workshops included presentations providing an overview of trail planning efforts and the proposed trail concept plan followed by an open house format where input from attendees was sought at interactive trail planning stations. Attendees provided both verbal and written comments and participated in a survey of preferred recreational uses, trail design preferences, and transportation needs. Following each public workshop, all public comments were summarized and key recommendations were identified. The Steering Committee considered all public comments and key recommendations during development of the conceptual trail alignments and concept plan.

1.4 Sensitive Environmental Resources

A principal purpose of this study is to plan for recreation opportunities while avoiding impacts to sensitive environmental resources, as many of the lands within the study area were acquired or dedicated into preserve systems for biological conservation purposes. Guiding principles were developed and helped inform the siting and design criteria provided in Section 4.3 (RECON 2017a).

Guiding Principles

1. Avoid sensitive ecological areas.
2. Develop trails in areas already influenced by human activity.
3. Provide buffers to protect sensitive ecological resources.
4. Develop appropriately when trails do intersect with sensitive areas.
5. Integrate trail connections with private developments.

1.4.1 Data Review and Constraints Analysis

During development of this plan, a geographic information systems (GIS) mapbook was created to identify the locations of known sensitive resources and assist with planning for conceptual trail alignments (Attachment 1). While the mapbook covers the entire study area, it is based solely on available data sources and does not represent the location of all sensitive biological resources. Additional surveys would be required to verify the location of resources prior to implementation of trail alignments. The mapbook contains the estimated locations and cover of 34 different vegetation communities and land use types, as well as known species observations, critical habitat, potential jurisdictional resources, soil erodibility, slope, and potential land use conflicts. Using this data to understand the range of resources likely present in the study area, a Resource Avoidance Mapping Methodology was developed to provide avoidance and impact minimization measures for known sensitive resources during the siting of preliminary trail alignments (Attachment 2). The methodology for developing avoidance and minimization measures for specific species and resources is provided in Attachment 2. These sensitive resources considered in the Resource Avoidance Mapping Methodology were separated into four groups. Group 1 includes those resources that lack coverage in

an Multiple Species Conservation Program (MSCP) subarea and/or would require permits if impacted. Group 2 are plant species subject to the narrow endemic plant protections in each jurisdiction's MSCP Subarea Plan. Group 3 are resources subject to specific avoidance areas per the MSCP. Group 4 are remaining federally-listed, state-listed and/or narrow endemic wildlife. Avoidance and minimization measures were identified for each group and were used to inform trail alignments.

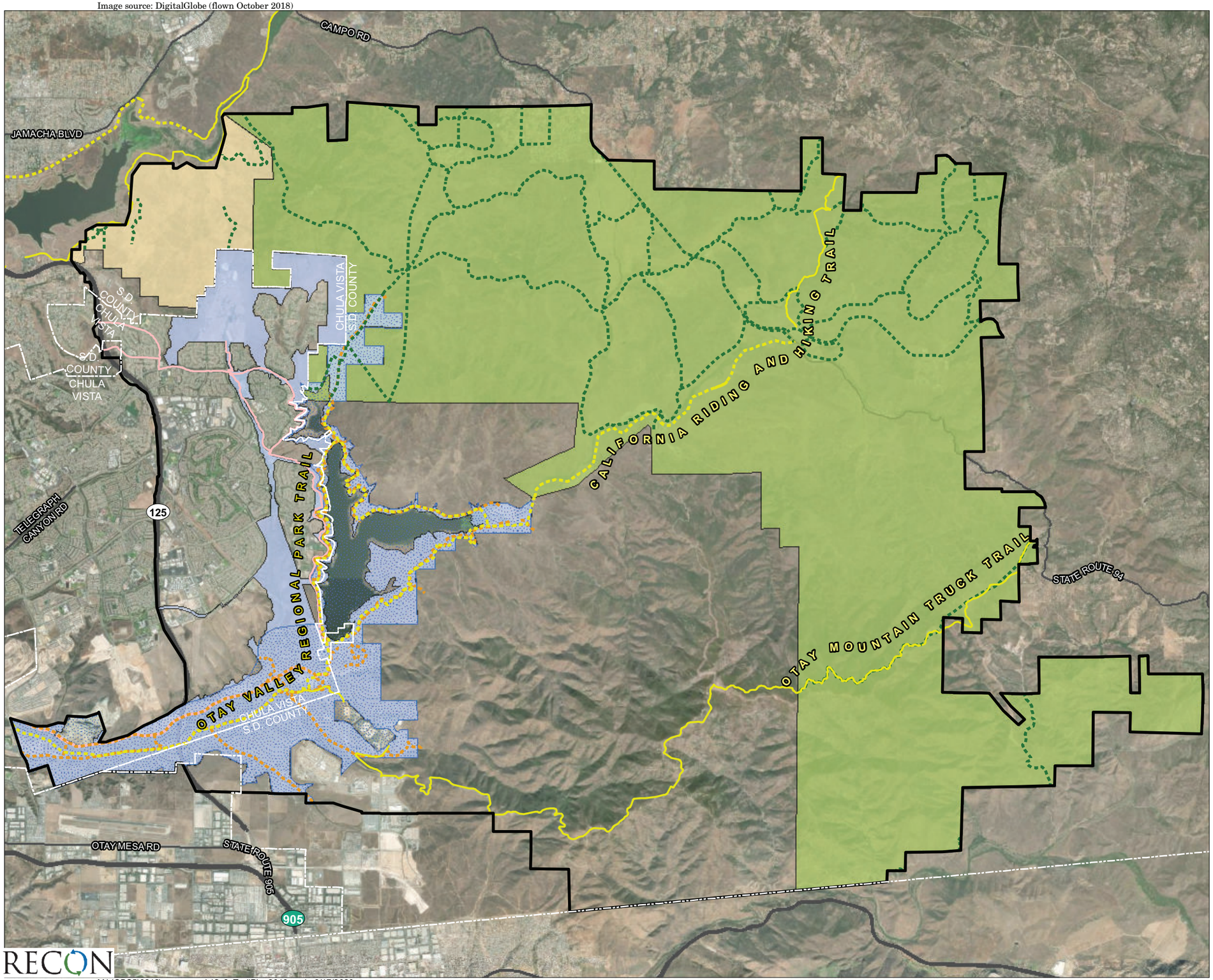
A biological constraints report was prepared to document the sensitive biological resources present or potentially present within a 100-foot-wide area along the conceptual trail alignments, and to determine the biological constraints to be considered in the design and construction of the trails (Attachment 3). Six of the thirteen conceptual trail alignments were surveyed by RECON biologists, who documented eleven sensitive vegetation communities, fourteen sensitive plant species, eleven sensitive wildlife species, several ephemeral drainages capable of supporting riparian or wetland habitats, and areas serving as wildlife corridors. The report identifies constraints and considerations specific to the relevant special status species, as well as to riparian habitats, other sensitive natural communities, and jurisdictional waters. No constraints were identified related to wildlife movement and nursery sites, nor to local ordinances, policies, and adopted plans. Recommendations outlined in the report informed the Biological Policies provided in Section 4.2.

In addition to a biological constraints report, RECON conducted cultural surveys for the same six conceptual trail alignments, within a 100-foot-wide corridor. These surveys were used to determine if cultural resources are present near the proposed alignments, and to identify potential cultural resources constraints that would be considered in the ultimate selection of trail alignments within the conceptual corridor. A total of 48 cultural resources were identified within the survey areas. These include historic-era structures, multi-component sites, prehistoric isolated artifacts, and prehistoric sites. Cultural findings are further described in Section 3.7 and presented in detail in the Opportunities and Constraints Analysis (Attachment 4).

Chapter 2: Related Trail Planning Efforts

The study area spans the jurisdictional boundaries of the County, City of San Diego, and City of Chula Vista (see Figure 1). The parcels within the study area are composed of both private and public ownerships, and include conserved lands owned and managed by the County, City of San Diego, City of Chula Vista, BLM, USFWS, CDFW, and OWD. The County MSCP Subarea Plan, the City of Chula Vista MSCP Subarea Plan, and the City of San Diego MSCP Subarea Plan all have jurisdiction within the study area. Numerous documents related to trail planning have been approved or are in process for specific areas within the study area and contain specific guidance regarding trail siting and design and resource protection. In many instances, existing trail plans prepared by different jurisdictions overlap within the study area. Figure 2 identifies the trail planning areas for related trail planning efforts described in this section. Figure 3 identifies the MSCP and Otay Ranch General Development Plan/Subregional Plan boundaries, which are described in Section 3.2. Figure 4 identifies the locations and boundaries of conserved lands within the study area.

Image source: DigitalGlobe (flown October 2018)



Otay Trail Study Area

San Diego National Wildlife Refuge Draft Comprehensive Conservation Plan

Community Trails Master Plan

- Jamul-Dulzura Community Plan Area
- Existing Trails/Pathways
- Proposed Trails/Pathways
- Existing Regional Trails/Pathways
- Proposed Regional Trails/Pathways

Otay Valley Regional Park Concept Plan

- Otay Valley Regional Park Plan Area
- Proposed Trails/Pathways

Chula Vista Greenbelt Master Plan

- Chula Vista Greenbelt Master Plan
- Existing Trails/Pathways
- Proposed Trails/Pathways

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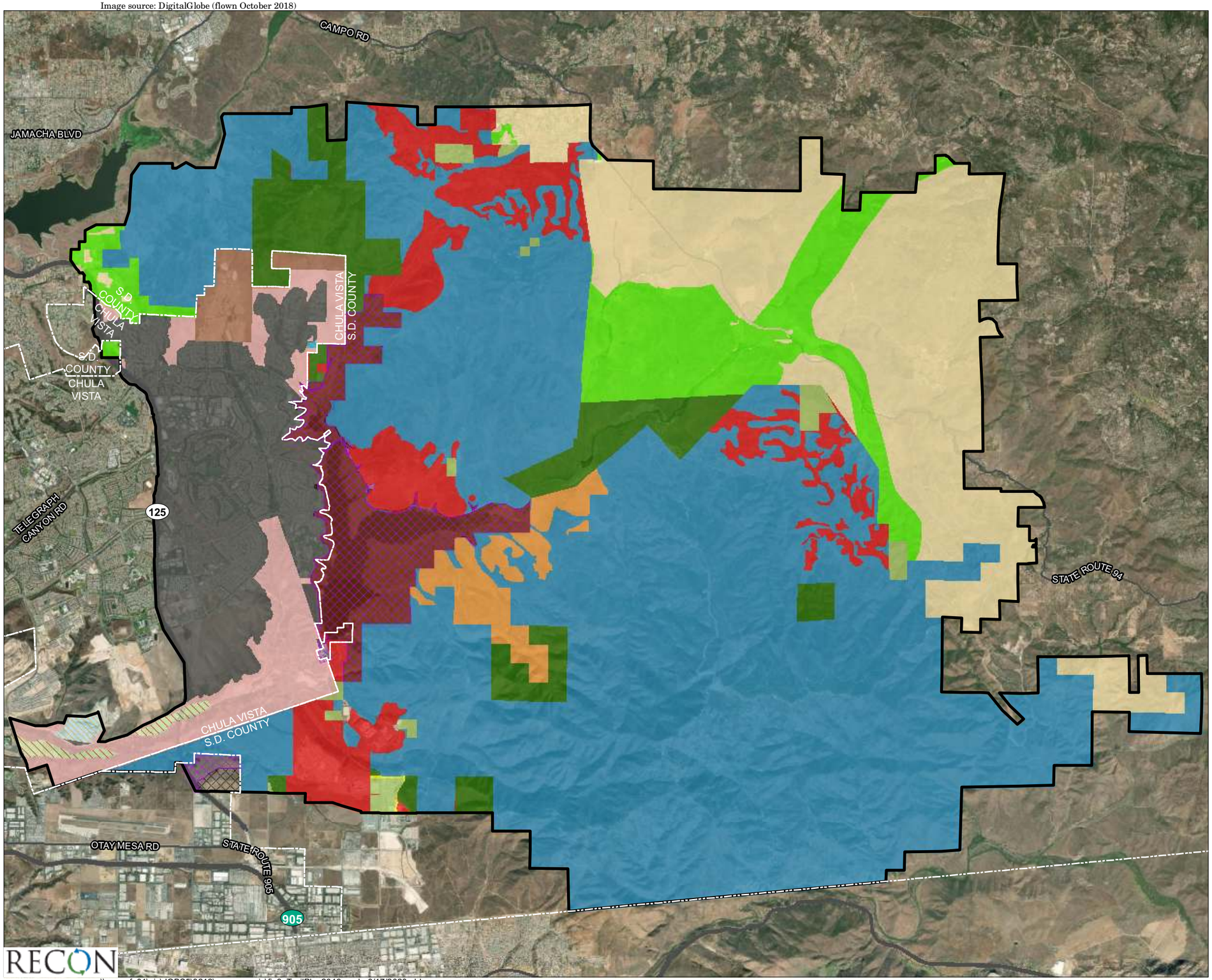
FIGURE 2
Trail Planning Areas

Image source: DigitalGlobe (flown October 2018)



Otay Trail Study Area

County of San Diego Subarea Plan

- Conserved Subject to Agreement with Wildlife Agencies
- Hardline Preserve
- Major Amendment Area
- Minor Amendment Area
- Minor Amendment Area Subject to Special Considerations
- Pre-Approved Mitigation Area
- Take Authorized Area
- Unincorporated Land in Metro-Lakeside-Jamul Segment

City of San Diego MSCP Subarea Plan

- Multi-Habitat Planning Area
- City of San Diego Cornerstone Lands
- Development Area

City of Chula Vista MSCP Subarea Plan

- 100% Conservation Area - Habitat Preserve
- Development Area
- Major Amendment Area
- Minor Amendment Area
- Planned Active Recreation Area - Subject to RMP Policies and OVRP Planning
- Other Agency - Preserve Planning Efforts

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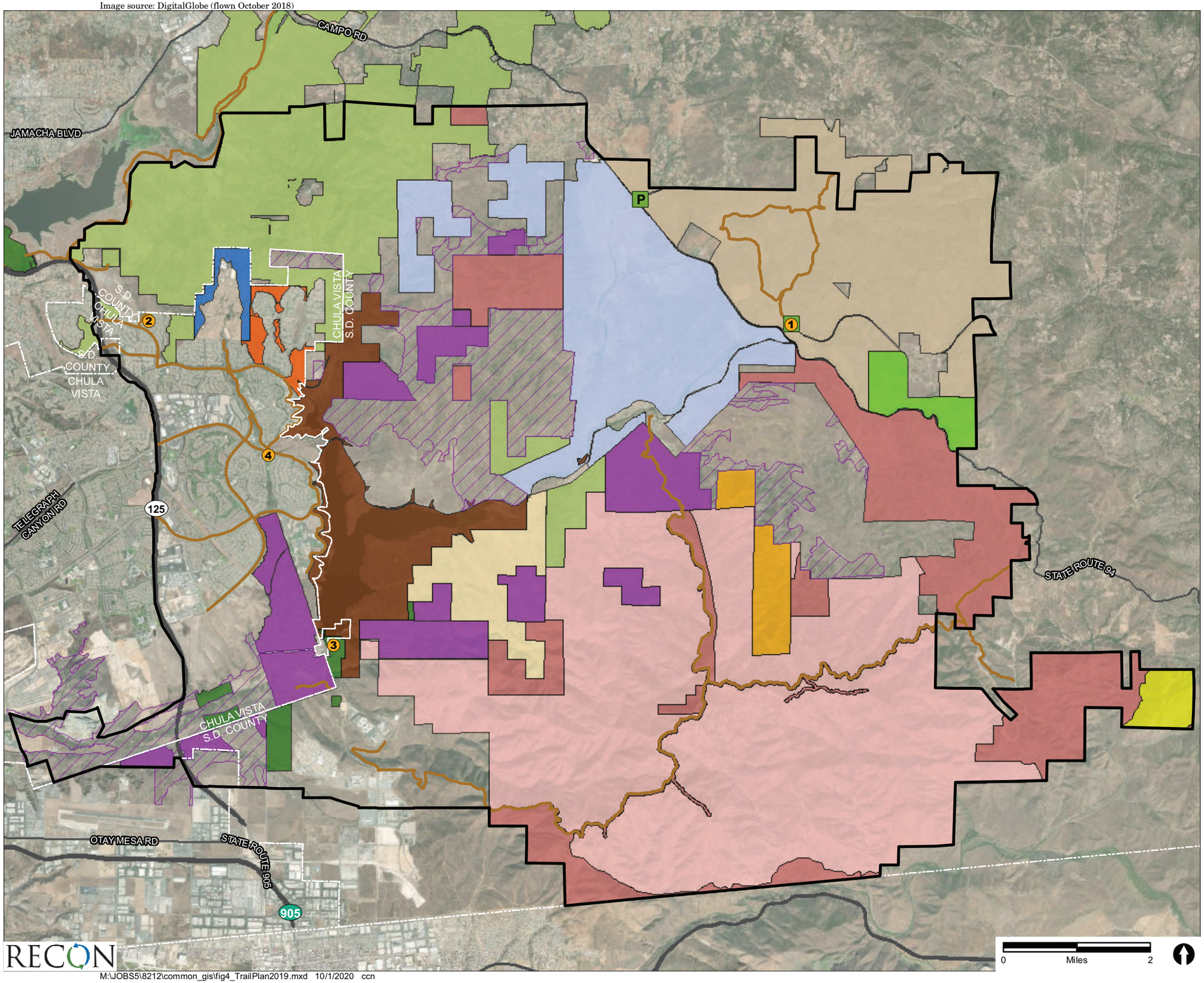
FIGURE 3
Multiple Species Conservation Program Subarea Plan Designations

Image source: DigitalGlobe (flown October 2018)



Otay Trail Study Area

Existing Trails/Pathways

Existing Staging Area

1. Hollenbeck Canyon Wildlife Area (Honey Springs)
2. Mount San Miguel Community Park
3. Otay Lakes County Park
4. Salt Creek Community Park

P — Land Management Plan Existing Staging Area

Otay Mountain Wilderness – BLM

- Kuchamaa ACEC
- Cedar Canyon ACEC
- Otay Mountain Wilderness
- **BLM Public Lands**
- **San Diego National Wildlife Refuge – USFWS**
- **Rancho Jamul Ecological Reserve - CDFW**
- **Otay Mountain Ecological Reserve – CDFW**
- **Hollenbeck Canyon Wildlife Area - CDFW**
- **City of San Diego Cornerstone Lands**
- **San Miguel HMA - Otay Water District**
- **Otay Ranch Preserve (Conveyed Land Under POM Management)**
- **Lawrence and Barbara Daley Preserve**
- **Rolling Hills Ranch Preserve**
- **County DPR Managed Parcels**

Lands Designated for Conservation

Otay Ranch Preserve (to be conveyed)

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FIGURE 4
Conserved Lands

2.1 Relationship to Existing Trail Plans

Numerous documents related to trail planning in jurisdictions that overlap with the study area have been approved or are in process. These contain guidance regarding trail siting and design and resource protection.

2.1.1 County of San Diego Community Trails Master Plan

The Community Trails Master Plan defines community trails goals, policies, and implementation criteria for the entire unincorporated portion of the County (County of San Diego 2005). The unincorporated area is divided into Community and Subregional Plan areas, each with their own community-specific criteria and trail maps. The plan area includes study area lands within both the Jamul-Dulzura Community Plan area and the Otay Community Plan area.

Specific trails and siting criteria were developed by the Community Trails Master Plan for the Jamul-Dulzura Community Plan area, but were not developed for the Otay Community Plan area. However, planned trails within the Otay Community Plan area are identified in the OVRP Concept Plan described in Section 2.1.2 below. The Community Trails Master Plan prefers community trails over regional trails. Community trails are in close proximity to residents and provide transportation, recreation, access, infrastructure, linkages, and safe routes throughout the community. Trail needs in each community are based on population, with 0.8 mile of trail required per 1,000 people. The population of the Jamul-Dulzura Community Plan area is projected to increase from 9,221 at the time of the 2000 census, to 21,400 by the year 2020. Such a population increase would result in a future need for 17 miles of community trails.

Currently, 7.9 miles of trails and 12.1 miles of pathways have been built inside the study area in accordance with the Otay Community Plan (see Figure 2). In addition to these trails and pathways, the Community Trails Master Plan proposes approximately 78.4 miles of trails and 15.2 miles of pathways within the plan area. Trails consist of traditional, multi-use trails for walking, hiking, biking, and/or horseback riding. Pathways consist of trails within road rights-of-way.

2.1.2 Otay Valley Regional Park Concept Plan

The OVRP Concept Plan is a framework for a conceptual open space system linking south San Diego Bay to the Lower Otay Reservoir. The land within the OVRP Concept Plan boundary is composed of both public and private lands and spans the jurisdictional boundaries of the County, City of San Diego, and City of Chula Vista. Approximately 6,604 acres of land within the plan area occur within the OVRP, and are subject to requirements set forth in the OVRP Concept Plan (County of San Diego et al. 2016). The OVRP identifies six conceptual trail corridors within the plan area, with three residential trail connections and three staging areas (see Figure 2). These trail corridors total a linear distance of 30.7 miles and would provide connections with Sweetwater Regional Park, Otay Lakes County Park, City of Chula Vista greenbelt trails, and BLM land. These trails would accommodate hiking, bicycling, and/or equestrian uses. The OVRP Trail Guidelines (County of San Diego et al. 2003) contain trail siting and design criteria for trails and staging areas proposed within the OVRP Concept Plan.

This Trail Alignment Study identifies six trails consistent with the OVRP Concept Plan, which are described in Section 4.4. These conceptual trail alignments fall within two of the OVRP Concept Plan segments, the Heritage Road to Otay Reservoirs segment, and the Otay Reservoirs segment, and follow the conceptual trail corridors proposed by the OVRP.

2.1.3 City of Chula Vista Greenbelt Master Plan

The Greenbelt Master Plan provides guidance for the creation of an open space area encircling the City of Chula Vista and connecting to a system of multi-use trails (City of Chula Vista 2003a). Approximately 9,246 acres within the plan area overlap with the greenbelt and are subject to requirements set forth in the Greenbelt Master Plan. The Greenbelt Master Plan proposes a system of 28 linear miles of trails, of which 5.4 linear miles of conceptual trail alignments are located within the plan area, namely along the Otay River Valley Trail. Proposed alignments are identified consistent with the Greenbelt Master Plan.

These trail alignments would provide connections to approximately 10.8 miles of existing Greenbelt pathways, as well as Sweetwater Regional Park, Otay Lakes County Park, Otay Valley Regional Park, and BLM land. A majority of these trails accommodate hiking and biking; however, one trail alignment is designed to accommodate equestrian use near San Miguel Ranch.

2.2 Other Trail Plans in Development

2.2.1 San Diego National Wildlife Refuge Comprehensive Conservation Plan

Approximately 6,144 acres within the study area occur within the Otay-Sweetwater Unit of the SDNWR, which is managed by USFWS and described in Section 3.3.3. A Comprehensive Conservation Plan (CCP) is currently being drafted to guide stewardship of the resources present within the SDNWR, as well as present opportunities for compatible wildlife-dependent recreation (USFWS 2014). The study area contains two management areas identified by the Draft CCP: the San Miguel Mountain Management Area and Otay Mesa and Lakes Management Area (see Figure 4). Under the preferred alternative of the CCP (Alternative D), two conceptual trail alignments totaling 12.1 linear miles are proposed in the San Miguel Mountain Management Area. These trails would be open to non-motorized multiple uses, including hiking, dog walking, horseback riding, and mountain biking. Within the Otay Mesa and Lakes Management Area, no public trails are proposed and public access would be restricted to an approximately 160-acre designated hunting area. The public uses proposed in the draft CCP are subject to approval, and would require site-specific analysis prior to implementation (USFWS 2014).

Approximately 1.9 miles of trails are proposed by the Otay Ranch Design Plan and 5.7 miles of trails by the Community Trails Master Plan within SDNWR. A compatibility determination by USFWS would be required for these trails.

2.2.2 Otay River Restoration Project

The Otay River Restoration Project is located in the City of Chula Vista within the Otay River Watershed. The project involves restoration of the physical, hydrological, and biological processes in the Otay River Valley on an approximately 300-acre parcel owned by the City of Chula Vista. Approximately 100 acres of conceptual floodplain and adjacent uplands restoration is covered by the mitigation plan associated with the Otay Village 3, Village 8 West, and Village 2 South developments. The parcel includes

several sections of the Otay River Valley Trail alignment and will connect to the Otay Mountain Truck Trail Expansion alignment proposed by this study. The restoration includes trails, fencing and signage. Coordination between the two projects should ensure connection between trails developed under the Otay River Restoration Project and the alignments proposed by this study.

2.2.3 Otay Ranch Village Developments

Otay Ranch Village developments encompasses approximately 22,881 acres in southwestern San Diego County, generally surrounding Lower Otay Reservoir (RECON 2018a). The developments span the jurisdictions of the County, City of Chula Vista, and City of San Diego and are composed of three nearby but non-contiguous ownership areas: the Otay Valley Area, the Proctor Valley/Jamul Mountains Area, and the San Ysidro Mountains Area. The dominant feature linking the three ownership areas is the Otay River system, which includes a tributary system of canyons and drainage courses and the Otay Reservoir system.

Approximately 18,196 acres within the study area are located inside the Otay Ranch boundaries. Development within Otay Ranch is guided by the City of Chula Vista Otay Ranch General Development Plan (GDP; 1996) and County Otay Subregional Plan Phase 2 (SRP; 1993). The GDP/SRP is a "general-plan level" document originally adopted by the County and City of Chula Vista in 1993 to guide future development of Otay Ranch.

The GDP/SRP includes objectives and policies related to parks, recreation, and open space. These policies encourage the development of a comprehensive trail network consisting of regional trails, regional bike ways, and village trails. Regional trails are intended to link major open space systems to the urban core, and accommodate a variety of users and travel times (0.5 hour, 1 hour, and 2 hours). Special guidance is also provided for trails within hard-line preserve areas to ensure that trail design is compatible with the resource protection objectives of the GDP/SRP. Subsequent to the GDP/SRP, the first Sectional Planning Area (SPA) Plan was adopted for the first development in the City of Chula Vista. A conceptual trails plan was included in the Otay Ranch Overall Ranch Design Plan (Otay Ranch Design Plan) contained in the first SPA Plan (Baldwin Company 1996). The Otay Ranch Overall Ranch Design Plan contained plans for approximately 65 linear miles of trails and pathways. Of this total, approximately 8 linear miles of pathways have been built out to date in accordance with this plan.

Resource management within Otay Ranch is governed by the Otay Ranch Resource Management Plan (RMP), which was enacted in two phases: Phase 1 and Phase 2. The Phase 1 RMP is intended to fulfill selected policies, standards, and guidelines of the GDP/SRP, including formalizing boundaries for the hard-line preserve. The Phase 2

RMP is intended to provide an implementation framework for resource management policies contained in the GDP/SRP. The Phase 2 RMP was updated in 2018 and approved by the County of San Diego and City of Chula Vista. Trail planning efforts within Otay Ranch is required to conform to the Phase 2 RMP Update, as well as the GDP/SRP and Phase 1 RMP.

2.2.4 Bureau of Land Management South Coast Resource Management Plan

While not specifically a trails plan, the BLM's Draft South Coast RMP will guide future management of approximately 296,000 acres of BLM-administered land. Two BLM Areas of Critical Environmental Concern (ACEC) addressed within the Draft South Coast Resource Management Plan are located within the study area. These ACECs include the Kuchamaa ACEC and the Cedar Canyon ACEC (see Figure 4). Cedar Canyon is located on the northeastern flank of Otay Mountain and contains populations of Mexican flannel bush (*Fremontodendron mexicanus*). Kuchamaa ACEC is located around Tecate Peak and Little Tecate Peak and provides protections for Native American heritage and resources. Any future trails through these areas would require future planning and evaluation of consistency with the final South Coast RMP.

Chapter 3: Existing Conditions

3.1 Regional Setting

The study area spans the jurisdictional boundaries of the County (62,461.32 acres), the City of Chula Vista (9,773.80 acres), and a small portion of the City of San Diego (287.826 acres) in the southwest corner of the study area. The study area is approximately 74.71 percent public ownership and 25.29 percent private ownership. Each plan or conservation area identifies permitted recreational uses and restrictions, which are summarized in Table 1. Table 2 provides a summary of the proposed trail alignments and the Plans or Conservation Areas that intersect with each trail.

Table 1
Summary of Permitted Public Uses within Plan Areas

Plan Area	Permitted Uses				
	Hiking	Biking[1]	Equestrian	Off-road Vehicle Use	Hunting
Regional Plan Areas					
County of San Diego MSCP Preserve	Yes	Yes	Yes	No	No
City of Chula Vista MSCP Preserve	Yes	Yes	Yes	No	No
City of San Diego MHPA	Yes	Yes	Yes	No	No
Otay Ranch GDP/SRP Plan Area	Yes	Yes	Yes	No	No
Community Trails Master Plan –Jamul-Dulzura Community Plan Area	Yes	Yes	Yes	No	No
Otay Valley Regional Park	Yes	Yes	Yes	No	No
City of Chula Vista Greenbelt	Yes	Yes[2]	Yes[2]	No	No
Bureau of Land Management – South Coast Resource Management Plan	Yes	Yes	Yes	Yes[3]	Yes

Table 1
Summary of Permitted Public Uses within Plan Areas

Plan Area	Permitted Uses				
	Hiking	Biking[1]	Equestrian	Off-road Vehicle Use	Hunting
Conserved Lands					
Otay Ranch Preserve (Conveyed Lands Under POM Management)[4]	Yes	Yes[1]	Yes	No	No
Otay Mountain Wilderness	Yes	No	Yes	No	Yes
San Diego National Wildlife Refuge	No[5]	No[5]	No[5]	No	No[5]
Rancho Jamul Ecological Reserve	Yes[5]	No	Yes[5]	No	Yes[6]
Otay Mountain Ecological Reserve	Yes	No	No	No	Yes
Hollenbeck Canyon Ecological Reserve	Yes	Yes[2]	Yes[2]	No	Yes
City of San Diego Cornerstone Lands	Yes	Yes	Yes	No	No
San Miguel Habitat Management Area	No	No	No	No	No

[1]Conditionally compatible; must be sited in areas with no sensitive biological resources.
[2]Designated trails only.
[3]Motorized use allowed only where signed, these areas correspond to roads/routes that were existing as of plan adoption in 1994.
[4]Public access within Otay Ranch Preserve (conveyed lands under POM management) is currently restricted. However, these public uses are considered compatible with the Preserve by the Phase 2 RMP, and would be allowed following the implementation of any public trails plan.
[5]Under the preferred alternative of the draft CCP, these uses would be allowed within designated areas of the SDNWR.
[6]By special hunt program events hosted by CDFW only.

Table 2
Summary of Trail Plan and Conservation Areas

Trail	Conservation Area(s)	Relevant Plans
Otay Mountain Truck Trail Expansion	N/A	County of San Diego MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan Otay River Valley Concept Plan
Otay Lakes Road Pathway Expansion	City of San Diego Cornerstone Lands Hollenbeck Canyon Wildlife Area – CDFW Otay Mountain Ecological Reserve – CDFW Rancho Jamul Ecological Reserve – CDFW	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan Community Trails Master Plan
Otay Ranch Village Perimeter/Connector Trail	Otay Ranch Preserve City of San Diego Cornerstone Lands Rancho Jamul Ecological Reserve San Diego National Wildlife Refuge	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan Community Trails Master Plan Otay Ranch GDP/SRP and RMP Phases 1 and 2
Otay River Valley Trail	Otay Ranch Preserve	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan Otay Ranch GDP/SRP and RMP Phases 1

Table 2 Summary of Trail Plan and Conservation Areas		
Trail	**Conservation Area(s)**	**Relevant Plans**
		and 2 Otay Valley Regional Park Concept Plan
Lower Otay Lake Trail	City of San Diego Cornerstone Lands	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan
Lower Otay Lake Pathway	City of San Diego Cornerstone Lands	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan
Upper Otay Lake Loop Trail	City of San Diego Cornerstone Lands	County of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of San Diego MSCP Subarea Plan Community Trails Master Plan City of Chula Vista Greenbelt Master Plan
Rolling Hills Ranch Pathway Expansion	San Miguel Habitat Management Area - Otay Water District San Diego National Wildlife Refuge	County of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan San Miguel Habitat Management Plan San Diego National Wildlife Refuge Draft CCP
Mother Miguel-Rockhouse Loop Connector	San Miguel Habitat Management Area - Otay Water District San Diego National Wildlife Refuge	County of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan San Miguel Habitat Management Plan San Diego National Wildlife Refuge Draft CCP
Rancho Jamul Ecological Reserve Trail System	Rancho Jamul Ecological Reserve - CDFW	County of San Diego MSCP Subarea Plan Community Trails Master Plan Rancho Jamul Ecological Reserve Land Management Plan
Proctor Valley Road Pathway	City of San Diego Cornerstone Lands Rancho Jamul Ecological Reserve	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan Community Trails Master Plan Rancho Jamul Ecological Reserve Land Management Plan
Proctor Valley Road Trail Alternative	City of San Diego Cornerstone Lands Otay Ranch Preserve Rancho Jamul Ecological Reserve	County of San Diego MSCP Subarea Plan City of San Diego MSCP Subarea Plan City of Chula Vista MSCP Subarea Plan City of Chula Vista Greenbelt Master Plan Community Trails Master Plan Rancho Jamul Ecological Reserve Land Management Plan
Hollenbeck Canyon Trail System Expansion	Hollenbeck Canyon Wildlife Area – CDFW	County of San Diego MSCP Subarea Plan Community Trails Master Plan Hollenbeck Canyon Wildlife Area Land Management Plan

3.2 Multiple Species Conservation Program

The Multiple Species Conservation Program (MSCP) Plan (MSCP Plan; County of San Diego 1998) is a comprehensive, long-term habitat conservation planning program in San Diego County. The MSCP Plan addresses the needs of multiple species and the preservation of natural vegetation communities within 12 jurisdictions and several independent special districts in southwestern San Diego County. Local jurisdictions and special districts implement their respective portions of the MSCP Plan through subarea plans, as described in further detail below.

3.2.1 County of San Diego MSCP Subarea Plan

Approximately 34,908 acres of the study area are designated by the County of San Diego's Multiple Species Conservation Program Subarea Plan (County Subarea Plan; 1997) as preserve areas where no take is authorized. These areas are intended for long-term conservation and preservation of sensitive habitats and species (see Figure 3). The following uses are compatible within the MSCP's preserve areas:

- Public access and recreation
- Infrastructure
- Scientific and biologic activities
- Emergency, safety, and police services

Recreation is generally limited to passive recreation, including hiking, scientific research and bird watching. Certain approved project or management plans identify specific conditions and locations in which mountain biking, horseback riding, sailing, sunbathing, fishing and swimming are also allowed.

Future trail development within the County Subarea Plan areas must demonstrate conformance with the County Subarea Plan and the County's Biological Mitigation Ordinance, which is the implementing ordinance for the County's Subarea Plan. The County's Framework Management Plan (2001) also provides general management directives for all areas within the County Subarea Plan. The County MSCP Subarea Plan defers to the OVRP Concept Plan and Otay Ranch Phase 1 and 2 Resource Management Plans for uses within preserve areas within Otay Ranch and the OVRP.

Portions of the study area surrounding Lower Otay Reservoir are public lands owned and managed by the City of San Diego. Although these lands are located within the County they are subject to the City of San Diego MSCP and its Multi-Habitat Planning Area (MHPA), described further in Section 3.2.3.

3.2.2 City of Chula Vista MSCP Subarea Plan

Approximately 2,591 acres of the study area are designated by the City of Chula Vista's MSCP Subarea Plan (City of Chula Vista Subarea Plan) as an MSCP Preserve (City of Chula Vista 2003b; see Figure 3). Land within these areas is either preserved or planned for preservation. The following uses are compatible within the City of Chula Vista's Preserve:

- Passive recreation
- Scientific research
- Emergency, safety, and police services

Conditionally compatible uses within the preserve include mining and processing facilities, flood control, and roads and infrastructure. Trails proposed within the City of Chula Vista Subarea Plan will require approval by the City of Chula Vista and must be in conformance with the Subarea Plan and Habitat Loss and Incidental Take (HLIT) Ordinance, the implementing ordinance for the Subarea Plan.

3.2.3 City of San Diego MSCP Subarea Plan

Approximately 2,933 acres within the study area are designated as MHPA by the City of San Diego MSCP Subarea Plan (City of San Diego Subarea Plan; City of San Diego 1997; see Figure 3). Approximately 2,817 acres within the MHPA are City of San Diego Cornerstone Lands, which are described in Section 3.3.7. MHPA lands are considered Environmentally Sensitive Lands (ESL) and have been designated for habitat conservation because they provide necessary habitat quality, quantity, and connectivity to sustain the San Diego region's unique biodiversity.

3.3 Conserved Lands

3.3.1 Otay Ranch Preserve – County of San Diego and City of Chula Vista

Otay Ranch contains large expanses of undeveloped land composed of and contiguous with other conserved lands, including SDNWR, Otay Mountain Ecological Reserve, Rancho Jamul Ecological Reserve, Hollenbeck Canyon Wildlife Refuge, Otay Mountain Wilderness, San Miguel Habitat Management Area, and Cornerstone Lands.

The Otay Ranch GDP/SRP, described in Section 2.2.3, designates a preserve area wherein land is intended for preservation. Under this plan, private property with high

conservation value is conveyed to the County and City of Chula Vista as mitigation for development within Otay Ranch. To date, a total of 3,438 acres have been conveyed to the County and City of Chula Vista and are managed as the Otay Ranch Preserve.

Conveyed lands within Otay Ranch Preserve are currently closed to all forms of public access, including hiking, biking, horseback riding, and hunting. However, passive recreation (hiking, biking, horseback riding) is considered a compatible land use within the Preserve by the GDP/SRP and public access would be permitted within designated areas upon implementation of an approved trails plan.

3.3.2 Otay Mountain Wilderness – BLM

Approximately 24,306 acres in the study area occur within the Otay Mountain Wilderness owned and managed by BLM. The Otay Mountain Wilderness is designated by Congress as 'Wilderness,' and subject to specific requirements of the Wilderness Act and BLM Manual 6340 to protect and preserve the wilderness character of such lands for the use and enjoyment of the American people. It is notable that the Minnewawa Truck Trail within BLM land is not considered Wilderness and is, thus, not subject to these requirements.

Primitive recreation opportunities are permitted within Wilderness, provided that those activities preserve the solitude and protect the wilderness character of the area. BLM defines primitive recreation as dispersed and undeveloped recreational opportunities that are appropriate in wilderness and require neither facilities nor motorized equipment. Motorized equipment and/or non-motorized mechanical transport are prohibited. However, hiking, backpacking, and equestrian use are permitted. New trails may be constructed only if they are needed to preserve wilderness values and resources and will not significantly impair the degree of naturalness or solitude in the area (BLM 2012).

Within the Otay Mountain Wilderness, the South Coast Resource Management Plan designates two ACECs: the Kuchamaa ACEC, totaling approximately 389 acres

within the study area, and Cedar Canyon ACEC, totaling approximately 714 acres within the study area. The Kuchamaa ACEC is located on Tecate Peak and is designated as an ACEC for the protection of Native American religious heritage. The Cedar Canyon ACEC is located within Cedar Canyon, and is designated as an ACEC to protect the Mexican flannelbush (*Fremontodendron mexicanum*; federally listed endangered and state listed rare). ACECs are considered right-of-way avoidance areas, and are closed to mineral extraction, grazing, and motorized vehicle use.

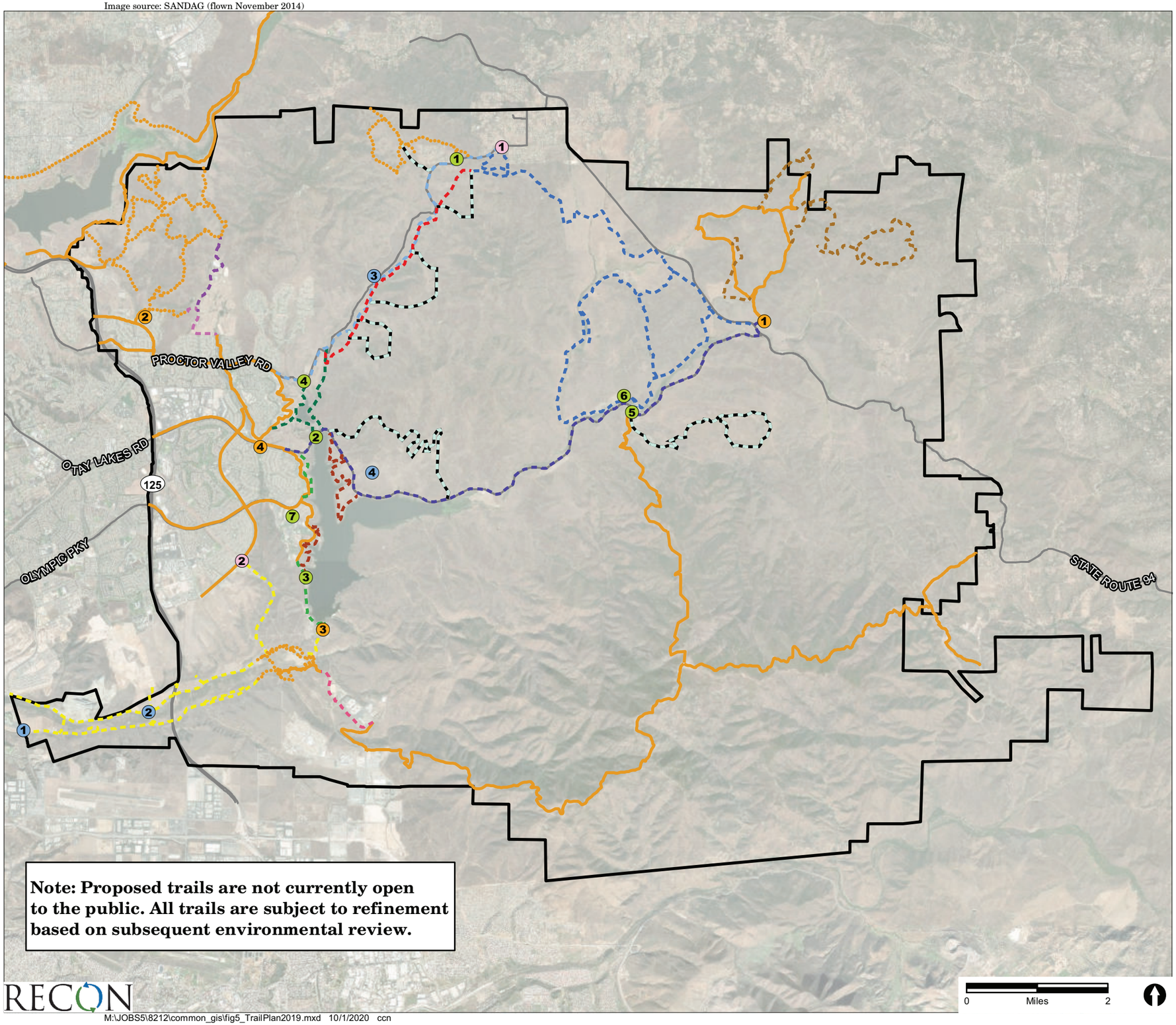
An update to the South Coast RMP is currently in draft. Under the preferred alternative, BLM lands within the study area would be contained in the Otay-Kuchamaa ACEC, which includes the former Cedar Canyon ACEC, Kuchamaa ACEC, and the MSCP Otay/Kuchamaa Cooperative Management Area. All BLM lands within the study area would be required to comply with the land use Manual 6340 and the Wilderness Act.

The County's Community Trails Master Plan proposes 9.4 linear miles of trails within the Otay Mountain Wilderness and identifies a total of 4.7 miles of existing trails and 6.7 miles of existing pathways that occur within a right-of-way along the Otay Mountain Truck Trail. These are shown as existing trails/pathways on Figure 5. An additional 2.1 miles of trails are proposed by the Otay Ranch Design Plan. Proposed trails within Wilderness Areas are required to undergo environmental analysis in accordance with the National Environmental Policy Act (NEPA) and prepare a Minimum Requirements Analysis in accordance with BLM Manual 6340. BLM will use the Minimum Requirements Design Guidelines and any associated NEPA analysis to determine on a case-by-case basis the minimum requirements for projects to ensure compatibility.

3.3.3 San Diego National Wildlife Refuge – USFWS

Approximately 6,144 acres within the study area occur within the Otay-Sweetwater Unit of the SDNWR. As described in Section 2.2.1, two conceptual trail alignments totaling 12.1 linear miles are proposed in the San Miguel Mountain Management Area of the SDNWR. The SDNWR is managed by the USFWS as part of the National Wildlife Refuge System with the purpose of conserving sensitive species and their habitats. Under Compatibility Policy 603 FW 1 of the USFWS Service Manual, units of the National Wildlife Refuge System are legally closed to all public access and use, including economic uses, unless they are officially opened through a compatibility determination (USFWS 2016). Within the study area, much of SDNWR is currently formally closed to all forms of public access, including hiking, biking, horseback riding, and hunting. A final compatibility determination will be required to open SDNWR to the public within the study area.

Image source: SANDAG (flown November 2014)



- Otay Trail Study Area
- Major Arterials

Existing Staging Area

1. Hollenbeck Canyon Wildlife Area (Honey Springs Entrance)
2. Mount San Miguel Community Park
3. Otay Lakes County Park
4. Salt Creek Community Park

Potential Staging Area

1. Echo Valley
2. Lower Otay Reservoir*
3. Lower Otay Reservoir Boat Launch/Picnic Area (City of San Diego)
4. Proctor Valley Natural Resource Area (City of San Diego)
5. Pio Pico RV Resort South
6. Pio Pico RV Resort North
7. Chula Vista Elite Athlete Training Center

Staging Area Proposed by Other Planning Efforts

1. Heritage Road (Planning Area 20)
2. Otay Valley Regional Park Area 11 (Community Park)
3. Otay Ranch Village 14
4. Otay Ranch Village 13

Potential Trailhead

1. RJER/Proctor Valley Road
2. Salt Creek/Hunte Parkway

- Existing Trails/Pathways
- Trails Proposed by Other Planning Efforts

Trails Evaluated in Alignment Study

Note: Not currently open to the public

- Upper Otay Lake Loop Trail
- Rancho Jamul Ecological Reserve Trail System
- Hollenbeck Canyon Trail System Expansion
- Otay Lakes Road Pathway
- Otay Mountain Truck Trail Connector
- Proctor Valley Road Pathway
- Proctor Valley Road Trail Alternative
- Lower Otay Lake Trail
- Mother Miguel-Rockhouse Loop Connector
- Rolling Hills Ranch Connector Pathway
- Otay River Valley Trail
- Lower Otay Lake Pathway
- Otay Ranch Village Perimeter/Connector Trails**

*Staging for Lower Otay Lake Pathway will be determined based on the final configuration of Otay Lakes Road.

**Final alignment to be determined based on development configurations for Otay Ranch.

0 Miles 2

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FIGURE 5
Otay Regional Trail Alignment Concept Plan

3.3.4 Rancho Jamul Ecological Reserve – CDFW

Approximately 5,725 acres of the study area occur within the Rancho Jamul Ecological Reserve (RJER). RJER is owned and managed by CDFW. Public access to RJER at this time is by special permit only and public uses are limited to managed hunting, scientific research, environmental education, and limited public outreach and education events. However, specific areas are closed to public access, including the twin hills area (near Cement and Main ponds), a quarter-mile area around water tanks and wells, CEC/Headquarters compound, a 200-foot zone around historic brick kiln and other historic sites, and some cattle trails and roads that enter sensitive areas (TAIC 2006).

RJER is subject to the provisions for ecological reserves contained in Title 14 of the California Public Resources Code (CDFW 2015). Per Section 550 of Title 14, passive recreation such as wildlife viewing, hiking, and photography are allowed on department land except when the property or portion of the property is specifically closed. Though RJER is not specified as closed to the public by Section 630 of Title 14, CDFW reserves the right to limit entry onto ecological reserves as it deems appropriate and require an entry permit for public access. Hunting within designated areas of RJER is permitted at the discretion of CDFW per Section 630 of Title 14. Biking and horseback riding are specifically prohibited per Section 630 (CDFW 2015).

The RJER Land Management Plan (LMP) adopted by CDFW proposes to expand public uses within RJER by allowing public access without a special permit. Based on Figure 13 of the RJER LMP, a total of approximately 11.2 linear miles of trails exist within RJER (not including management only roads) and approximately 0.4 linear mile of new trails are proposed. The RJER LMP also proposes two staging areas along State Route 94 and Otay Lakes Road are proposed but have never been developed due to site constraints.

The Community Trails Master Plan also expanded upon the trails proposed in the RJER LMP, proposing a total of 15.9 linear miles of trails and 2.7 miles of pathways to connect the Dulzura Creek Trail with the Jamul Creek Trail, provide a connection to the Big Olaf of Jamul Trail, and expand the Daley Ranch Loop. The Otay Ranch Design

Plan also proposes 12.2 miles of trails. These trails would require approval from CDFW prior to implementation, and would be required to comply with the provisions of Title 14 and the RJER LMP. Potential conflicts in land uses would also need to be addressed at the time public hiking trails in areas where proposed trails occur within or adjacent to designated hunting areas and other areas that are closed to public access.

3.3.5 Otay Mountain Ecological Reserve – CDFW

Approximately 1,248 acres of the study area occur within the Otay Mountain Ecological Reserve (OMER). OMER is owned and managed by CDFW. There is currently no approved Land Management Plan for the management of OMER.

OMER is subject to the provisions for ecological reserves contained in Title 14 of the California Public Resources Code (CDFW 2015). Per Section 550 of Title 14, passive recreation such as wildlife viewing, hiking, and photography are allowed on department land except when the property or portion of the property is specifically closed. Though OMER is not specified as closed to the public by Section 630 of Title 14, CDFW reserves the right to limit entry onto ecological reserves as it deems appropriate. Hunting is allowed within OMER in accordance with CDFW general hunting regulations and BLM's Wilderness Area Use Restrictions. Biking and horseback riding are specifically prohibited per Section 630 (CDFW 2015).

Within OMER, approximately 0.3 linear miles of trails are proposed by the OVRP Concept Plan, 0.4 mile by the Community Trails Master Plan, and 1.7 miles of trails by the Otay Ranch Design Plan. These trails would require approval from CDFW prior to implementation, and would be required to comply with the provisions of Title 14 of the California Public Resources Code. Title 14 regulations are reviewed and changed, as needed, every three years. Any changes in public uses proposed by the study would need to be consistent with Title 14. Potential conflicts in land uses would also need to be addressed in areas where proposed trails occur within or adjacent to designated hunting areas.

3.3.6 Hollenbeck Canyon Wildlife Area – CDFW

Approximately 6,131 acres of the study area occur within the Hollenbeck Canyon Wildlife Area (HCWA). HCWA is owned and managed by CDFW, and is managed in accordance with the HCWA LMP (TAIC 2008). Public access to HCWA is currently allowed without special permit, though some areas (e.g., around state housing and a private inholding) are closed to the public.

HCWA is subject to the provisions for wildlife areas contained in Title 14 of the California Public Resources Code (CDFW 2015). Hunting is permitted only for upland game birds and small resident game within designated areas of HCWA from September 1 through January 30. Biking and horseback riding are also allowed on designated

trails or routes. Many existing trails are not authorized for public use due to their location through private property. Approximately 7.4 miles of publicly accessible trails are available at HCWA.

The County of San Diego Community Trails Master Plan proposes 17.5 linear miles of trails and 0.4 mile of pathways within the HCWA. These trails would require approval from CDFW prior to implementation, and would be required to comply with the provisions of Title 14 and the HCWA LMP. Additionally, any changes in public uses proposed by the Community Trails Master Plan or subsequent studies would need to be added to Title 14 before those changes can become legal. Potential conflicts in land uses would also need to be addressed for public hiking trails in areas where proposed trails occur within or adjacent to designated hunting areas and the state-owned residential units which are closed to public access.

3.3.7 Cornerstone Lands – City of San Diego

Approximately 2,817 acres in the study area are Cornerstone Lands, which are owned and managed by the City of San Diego Public Utilities Department. The Cornerstone Lands are considered by the City of San Diego Subarea Plan as essential building blocks for creating a viable habitat preserve system. These lands provide source water protection for San Diego's public water supply. Per the San Diego Municipal Code, Public Utilities lands are not 'designated open space' and public access to these lands is strictly controlled. The design and operation of any trails segment on City of San Diego Public Utilities land, including the Cornerstone Lands, is at the discretion of the City of San Diego Public Utilities Department.

Approximately 0.1 mile of existing trails is identified in the Cornerstone Lands by the Community Trails Master Plan. In addition, 1.3 miles of pathways and 10.8 miles of trails are proposed by the Community Trails Master Plan, 12.5 miles of trails by the Otay Ranch Design Plan, 0.5 mile of trails by the Greenbelt Master Plan, and 13.8 miles of trails and one staging area by the OVRP Concept Plan. These trails would be required to comply with the standards presented in the Guidelines for the Establishment, Use, and Management of Public Access Trails on Public Utilities Land ([Public Utilities Trail Guidelines]; City of San Diego 2009), as well as any state or federal laws related to source water protection including California Public Health Code (Sections 115825-115850).

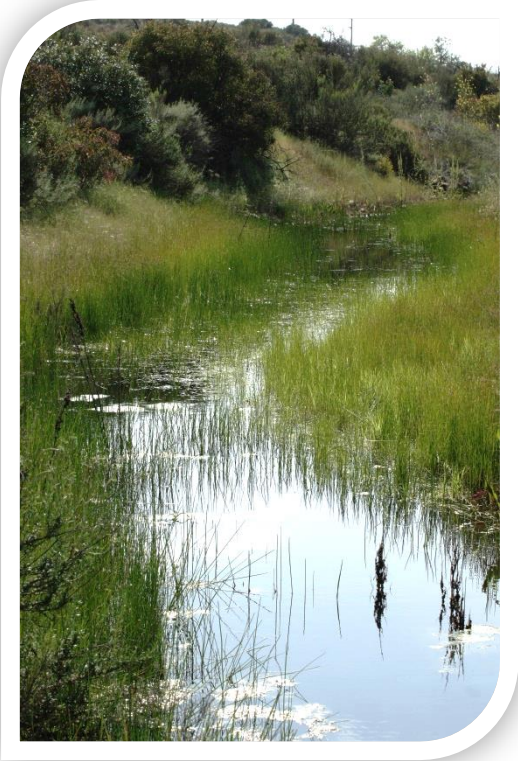
3.3.8 San Miguel Habitat Management Area – Otay Water District

Approximately 230 acres of the study area occur within the San Miguel Habitat Management Area (HMA), which are owned and managed by the OWD. The HMA was created by the OWD as a preserve and mitigation bank for impacts associated with the construction and operation of the OWD's projects and facilities. The HMA is located

within the City of Chula Vista and surrounds the now closed Salt Creek Golf Course. Public access and recreation are not a secondary land use in the OWD San Miguel HMA Mitigation Bank Establishment and Operating Procedures (Merkel & Associates 1996). Proposed trails within the San Miguel HMA are subject to review by the OWD.

3.4 Topography and Land Forms

The study area is largely undeveloped expanse of rolling hills, valleys, and mountains, ranging from 94 feet to 3,570 feet above mean sea level. The highest point is Otay Mountain, which is located near the area's southern boundary in the San Ysidro Mountain Range. The two other main mountain features in this area are the Jamul Mountains and San Miguel Mountain, located near the northeast corner. Two main valleys intersect the study area, both trending east/west. Proctor Valley separates San Miguel Mountain from the Jamul Mountains, and the Jamul Valley separates the Jamul Mountains from the San Ysidro Mountains. The defining landform in the south-western section of the study area is the Otay Valley, while to the northeast it is Hollenbeck Canyon. A flat grassland is located near the northern limit of the study area, southeast of the town of Jamul. Several mostly north/south canyons lead into the San Ysidro Mountains as the terrain approaching Otay Mountain becomes steeper and more rugged; they are O'Neal Canyon, Little Cedar Canyon, Cedar Canyon, and Sycamore Canyon. Erodibility is considered severe throughout the majority of the study area, with grasslands and valley bottoms the exceptions.



3.5 Hydrology

The study area is comprised of three principal watersheds. While the majority of the study area falls within the Otay Watershed, the northwestern corner of the study area falls within the Sweetwater Watershed, and a thin strip in the south falls within the Tijuana Watershed. The two major water bodies of the study area are the Upper and Lower Otay Reservoirs. They serve as impounding reservoirs that are part of the City of San Diego's municipal water supply system. The Upper Otay Reservoir, when full, is approximately 20 surface acres, and the Lower Otay Reservoir is approximately 1,100

surface acres when full and is the terminus of the State's imported water aqueduct system. The Lower Otay Reservoir is fed by Jamul Creek and empties via the Otay River. Dulzura Creek drains the southeastern section of the study area before joining Jamul Creek. The Sweetwater Reservoir is located just outside the study area, and is supplemented by the Sweetwater River. Two additional creeks, Telegraph Canyon Creek and Poggi Canyon Creek, originate near the western section of the study area. Otay Reservoir, Sweetwater Reservoir, Sweetwater Creek, Jamul Creek, Telegraph Canyon Creek, and Poggi Canyon Creek are all listed as impaired under Section 303D of the Clean Water Act. Freshwater emergent wetlands occur throughout the study area, but in particular surrounding Lower Otay Reservoir. Two large freshwater forested/shrub wetlands occur in the southwestern section of the study area: one on the eastern tip of the Lower Otay Reservoir and a second throughout the Otay River Valley. Freshwater ponds occur throughout the northern half of the study area, with a concentration of ponds located near San Miguel Mountain.

3.6 Biological Resources

The data review process used for this study produced a GIS mapbook providing the locations and distributions of Holland/Oberbauer vegetation communities, sensitive species, and sensitive habitats. A total of 34 vegetation communities occur within the study area. Diegan coastal sage scrub, southern mixed chaparral, and non-native grassland are the dominant communities. Several substantial stands of chamise chaparral occur throughout the area, with the largest stand located in the northwestern corner on San Miguel Mountain. A large stand of maritime succulent scrub also occurs on the northwest slopes of the mountain, with a second large stand located west of Lower Otay Reservoir. Mafic southern mixed chaparral occurs throughout the southern side of the San Ysidro Mountains, and to a much lesser extent at the northern limit of the study area. Stands of southern interior cypress forest grow throughout the San Ysidro Mountains, primarily on north-facing slopes and drainages. Vernal pools are found in the Otay River Valley, east of Lower Otay Reservoir, and in the north-central portion of the study area near the town of Jamul. Two large areas are mapped as urban/developed. They are the communities of Rolling Hills Ranch and Eastlake in the western section of the study area, and a section of the town of Jamul to the north.

This large variety of vegetation communities provides critical habitats for sensitive species. At least 155 sensitive species are known to occur in the area and critical habitats are located within the study area. As the entire study area has not been surveyed, the area may support additional species not recorded. Critical habitat for the arroyo toad is found in the southeastern portion of the study area. Critical habitat for the coastal California gnatcatcher (*Polioptila californica californica*) is spread throughout the study area, particularly on the northern and western lower elevation flanks of Otay Mountain and San Miguel Mountain, while least Bell's vireo (*Vireo bellii*

pusillus) critical habitat occurs near Jamul Creek and Sweetwater River. Three small patches of Mexican flannelbush critical habitat are located on the north side of Otay Mountain. Otay tarplant critical habitat also occurs in three general locations: in the northwestern portion of the study area bordering the community of San Miguel Ranch, as well as other developments; in the Otay River Valley; and as a smaller area immediately outside the southwestern boundary. Critical habitat for spreading navarretia (*Navarretia fossalis*) occurs in five locations in the western portion of the study area. Critical habitat for San Diego fairy shrimp (*Branchinecta sandiegonensis*) occurs in the southwestern section of the study area, near Lower Otay Reservoir and in the Otay River Valley. Just one area of critical habitat for Riverside fairy shrimp (*Streptocephalus woottoni*) also occurs in this area, overlapping with San Diego fairy shrimp and spreading navarretia habitat.

3.7 Cultural Resources

In order to identify potential cultural constraints along trail alignments, a cultural resources record search was requested from the California Historical Resources Information System, South Coastal Information Center (SCIC) for each of the six trail alignments (see Attachment 4). The record search included the 100-foot-wide trail corridor in addition to a 0.25-mile buffer on each side of the trail corridor, or a 0.5 mile total buffer area. Numerous cultural resource investigations were identified within the six trail alignments. SCIC identified 217 cultural resources within the buffered study area. Of these, 46 were located within the survey corridor of the six trails. The resources identified in these records include seven historic-era structures, including troughs, a house, outbuildings, and a water flume; three multi-component sites, including lithics, a historic trash scatter, and water associated structures; eight prehistoric isolated artifacts; and 28 prehistoric sites. Two additional cultural resources were found during the surveys.

State, County, and City guidelines for determining the significance of these resources are included in Attachment 4. Significant resources are those cultural resources (whether prehistoric or historic) that are potentially eligible for listing in the California Register of Historical Resources (CRHR). A research design and data recovery program must be developed to avoid or address adverse effects to any significant resources that might be impacted by trail implementation.

Previous research evaluated and recommended two resources as significant archaeological resources and two more as not significant. Ten of the resources are isolated artifacts and not considered significant as they lack the qualities that qualify them for significance. None of the seven historic-era resources have been evaluated, but two of them are assumed significant. The other five were either not found or in poor condition due to past impacts and have lost their integrity. These five are recommended

not significant under California Environmental Quality Act (CEQA) guidelines. None of the three multi-component sites have been evaluated. One of these sites was impacted by construction of the juvenile detention center and is not recommended significant while the other two are assumed significant. None of the remaining 24 prehistoric resources have been evaluated. Based on past impacts, eight resources lack integrity and are recommended not significant. The other 16 resources are assumed significant.

Chapter 4: Concept Plan

4.1 Overview of the Trail Network

This study identifies conceptual trail alignments where thirteen new trails, trail systems and pathways, with differing distances and difficulty levels (see Figure 5) are planned. The trail alignments are conceptual, providing a 100-foot-wide, linear alignment wherein a future trail is planned. As specific trails are proposed for construction consistent with this study, the ultimate location of trails would be determined after review and consideration of the Policies and Siting and Design Criteria provided in this chapter.

Proposed trail alignments are described in Section 4.4. Many of the shorter proposed trails are intended to connect and extend existing trails, turning out-and-back trails into loops, or linking existing trail systems and future ones. These include the Otay Mountain Truck Trail Expansion, the Lower Otay Lake Trail and Pathway, the Rolling Hills Ranch Pathway Expansion, and the Mother Miguel-Rockhouse Loop Connector. Longer trails and new trail systems such as the Proctor Valley Road and Trail Alternative, the Rancho Jamul Ecological Reserve Trail System, and the Hollenbeck Canyon Trail System Expansion will significantly increase the recreational potential of portions of the study area where there are currently few or no publicly accessible trails. As described in Chapter 2.0, many of the conceptual trails included in this study are also proposed by other trail plans. These include the Otay River Valley Trail, which is part of the Otay Valley Regional Park Concept Plan, the Lower Otay Lake Pathway, which is also part of the Chula Vista Greenbelt Master Plan, and the Otay Ranch Village Perimeter/Connector Trails, which are proposed as part of the Otay Ranch Village developments.

Staging areas provide parking and other amenities at trail access points. This study identifies existing staging areas already capable of serving a number of proposed trails, as well as staging areas proposed by other planning efforts, and proposes locations for additional staging areas and trailheads.

4.2 Policies

4.2.1 Biological Policies

The following biological policies apply to all future trail planning efforts within the Otay Regional Trail Alignment Study Area.

POLICY B1: Final trail alignments should consider locations of sensitive resources, in order to minimize impacts and protect habitats and species.

POLICY B2: Establish final trail designs away from vernal pool habitat, sensitive riparian vegetation, and ephemeral drainages, and with sufficient buffers from rivers and reservoirs.

POLICY B3: Conduct adult flight season spring surveys for Quino checkerspot butterfly prior to project implementation to ensure final trail alignments avoid impacts to the species. If the survey season is inadequate to ensure avoidance, additional spring surveys should be completed to ensure the trail design minimizes impacts.

POLICY B4: Focused plant surveys shall be conducted prior to determining final trail locations and all efforts should be taken to avoid impacts. Unavoidable impacts to sensitive plant species require mitigation via relocation and/or restoration.

POLICY B5: For construction within or adjacent to suitable nesting habitat for sensitive avian species, conduct all activity outside breeding season. If construction is to take place during breeding season, pre-construction surveys and avoidance measures shall be carried out.

4.2.2 Cultural Policies

The following cultural policies apply to all future trail planning efforts within the Otay Regional Trail Alignment Study Area.

POLICY C1: Final trail alignments shall consider locations of sensitive cultural resources in order to minimize impact.

POLICY C2: Avoidance and preservation in place shall be the preferred mitigation method for significant cultural resources

POLICY C3: For trails proposed to follow existing disturbance, impacts shall remain within the extent or width of the existing disturbance. During construction, Environmentally Sensitive Area fencing shall be installed along the edges of proposed disturbance and construction shall be monitored by a qualified archaeologist and Native American monitor.

POLICY C4: If impacts are required beyond disturbed footprints, an archaeological testing program shall be implemented to determine significance for resources that have not yet been evaluated.

POLICY C5: If impacts to significant resources are proposed, a data recovery program shall be implemented to mitigate impacts to significant resources, as determined by the lead agency.

4.3 Siting and Design Criteria

Siting and design criteria were developed prior to establishing preliminary trail alignments for this plan. These criteria were developed to ensure compliance with existing regulations associated with the preserves occurring within the study area and to ensure final trail design minimizes impacts to sensitive ecological resources while providing the community with recreational opportunities.

Siting and design criteria were developed considering existing

regional planning documents, trail plans, and resource management plans, in addition to the trail alignment guiding principles provided in Section 1.4.

4.3.1 Trail Siting and Design Criteria

The siting and design criteria were developed to identify the appropriate location for conceptual trail alignments, in addition to providing criteria that would be used as future trail alignments are proposed for implementation. The siting and design criteria include requirements for trail type, level of difficulty, and layout, as well as avoidance and minimization measures for biological and cultural resources. These criteria were developed using GIS analysis to identify the location of sensitive resources in relation to proposed trail alignments. Resource avoidance mapping categorized sensitive resources into four different groups.

Group 1 resources are plant species, wildlife species, habitat types, communities, and cultural resources that lack coverage in an MSCP subarea, except for the City of Chula Vista; and/or would require permits for impacts. They include Quino checkerspot butterfly (covered in the City of Chula Vista's MSCP Plan), Mexican flannelbush, wetlands, vernal pools and associated species, and cultural resources.

Group 2 resources are plant species subject to the narrow endemic plant protections in each jurisdiction's MSCP Subarea Plan. They include plants that are clay endemics, metavolcanic, and gabbro endemics, as well as other narrow endemics.

Group 3 resources are wildlife species subject to specific avoidance areas per the MSCP. They include certain raptor species, southwestern pond turtle, and arroyo toad.

Group 4 resources are wildlife species remaining federally-listed, state-listed and/or narrow endemic animals. They include coastal California gnatcatcher and coastal cactus wren, among others.

Avoidance and minimization measures were provided for each group (see Attachment 2). Such measures include avoiding siting trails or staging areas where these resources are known to occur or in potential habitat, conducting focused surveys, and reducing edge effects resulting from the proximity of trails to these resources.

Table 3 contains trail siting and design guidelines adapted from existing regional planning documents, trail plans, and resource management plans reviewed for the Literature Review for the Otay Regional Trail Alignment Study, San Diego, California prepared by RECON on January 4, 2017 (RECON 2017b), as well as the guiding principles stated in Section 1.4. These guidelines were used to guide the trail planning process, and will continue to be evaluated by the Steering Committee on a case-by-case basis while finalizing the trail system. Guidelines will be applied to the maximum extent practicable, which is defined as necessary to ensure consistency with enforceable

policies from programs such as the MSCP and federal, state, and local laws and regulations.

Table 3 Trail Siting and Design Guidelines	
Guideline Number	**Siting and Design Guideline**
1.0	Biological Resources
1.1	Locate trails, view overlooks, and staging areas in the least sensitive areas of the MSCP Preserve.
1.2	Avoid impacts to sensitive plant and wildlife species within MSCP Preserve areas to the maximum extent practicable, with priority given to avoiding breeding habitats for federally and state listed species and narrow endemics.
1.3	Minimize trail widths to reduce impacts to critical habitat and resources. To the maximum extent practicable, do not locate new trails wider than four feet in core MSCP Preserve areas or wildlife corridors.
1.4	Limit equestrian trails near sensitive resources in the MSCP Preserve, such as riparian, wetland, and coastal sage scrub habitats. Where trails are located in the vicinity of sensitive resources, best management practices shall be incorporated into the respective jurisdiction's maintenance plan to reduce potential for invasion by brown-headed cowbirds and water pollution from horse manure.
1.5	Locate equestrian staging areas sufficient distance (e.g., 300 to 500 feet) from riparian and coastal sage scrub habitats in the MSCP Preserve.
1.6	Avoid siting trails in Wolf Canyon.
1.7	The trail design will adhere to the guidelines in the MSCP subarea plans relative to MSCP Preserve adjacency and consider access, non-native species/predators, lighting, runoff/drainage, and noise during trail planning, construction, and operation. This may include (but is not limited to) incorporating signage, physical barriers, visual barriers, and noise reduction measures to reduce detrimental edge effects.
1.8	Trail alignments shall incorporate appropriate buffers from sensitive biological resources inside MSCP Preserve Areas to the maximum extent practicable. Trail alignments will be evaluated in the context of the following buffers: • 300 feet from active nesting sites of Cooper's hawk • 900 feet from active nesting sites of northern harriers • 4,000 feet from active nesting sites of golden eagles • 300 feet from occupied burrows of burrowing owls
1.9	All wetlands and vernal pools should be avoided. Riparian areas must be avoided to the maximum extent practicable and crossed perpendicularly to limit detrimental effects (refer to Guideline 2.2). Set-back distances will be evaluated on a case-by-case basis and comply with all applicable regulations.
1.10	Avoid where possible routing trail alignments between habitat ecotones for longer than necessary due to the typically heightened resource sensitivity in those areas.
2.0	Aquatic Resources
2.1	Trail alignments should incorporate set back distances from dams, intakes, pipelines, and other critical water infrastructure in the City of San Diego Cornerstone Lands, based on the City of San Diego Public Utilities' Vulnerability Assessment and Department of Public Health Source Water Protection Zones. Trail alignments will be assessed in the context of these source water protection zones: • 2,500 feet from reservoir outlets • 1,000 feet from reservoir high water line • 200 feet from major tributary streams, top of bank
2.2	Trails should cross creeks and drainages perpendicular to channel in locations that travel through the source water protection buffer in the shortest distance possible while providing safe access. Drainage crossing structures should be designed to keep footings above the 100-year floodplain or top of bank, where feasible.
2.3	Trails adjacent to critical water infrastructure should incorporate access control measures such as fencing, signage, and barriers to prevent unauthorized access where necessary.

Table 3 Trail Siting and Design Guidelines	
Guideline Number	**Siting and Design Guideline**
2.4	Runoff from staging areas shall be addressed through features incorporated into the project design, as well as the implementation of best management practices.
3.0	Cultural Resources
3.1	All feasible efforts shall be made to avoid cultural resources when designing trail routes, including consultation with Native American tribal representatives early in the planning process. Resource avoidance shall be prioritized. In those instances where a cultural resource or tribal cultural resources cannot be avoided, mitigation measures shall be developed based on the applicable jurisdiction's guidelines in consultation with the appropriate tribal representatives, to mitigate all direct and indirect impacts to below a level of significance.
3.3	Evaluate appropriate treatments where trail alignments occur in close proximity to archaeological and cultural resources. Treatments may include preservation in place, fencing, and other access control measures to deter access, and/or revegetation to hide and protect the resource. Where appropriate, resources may be incorporated into the trail design for education and interpretation.
4.0	Trail Siting
4.1	Utilize existing access roads, fire roads, utility roads/easements, and existing, non-designated trails that already have a disturbed tread and sustainable grades/cross slopes for trail alignments, if appropriate.
4.2	Trail opportunities on public lands and public easements should be a priority over those crossing privately owned lands. Where trails are planned in concert with sewer or water utility easements, the trail width should consider the easement requirements (e.g., Maintenance) for the utility, as well as the sustainability of the site (e.g., cross slope, grade).
4.3	Provide trails that connect to existing and planned regional trails, as well as existing and planned park facilities. Pathways should be considered when connections using a conventional trail aren't feasible, and be routed along scenic roads where such routing is feasible.
4.4	Locate trails along the edge of urban development and other land uses (e.g., agriculture) adjacent to MSCP Preserve areas and other conserved lands where feasible to reduce edge effects. Trails located near edges of urban development should utilize fire buffer/limited building zone areas to reduce impacts/edge effects. Trails should make connections back into communities at multiple distinct locations to promote responsible trail access.
4.5	Existing residents and property owners should be considered during design to avoid issues related to trespassing, noise disturbances, view, privacy, security, and safety. Additionally, the potential for unauthorized access points from neighborhoods and private property should be considered during design.
4.6	Accessibility shall be considered during the planning and design of trails within the study area. Current state and federal regulations concerning the Americans with Disabilities Act, Architectural Barriers Act, and the Final Guidelines for Outdoor Developed Areas shall be applied to provide access to a wide range of user capabilities where deemed appropriate.
4.7	Consider potential land use conflicts (e.g., CBP activities, agriculture, hunting, public utilities, detention centers, hazardous materials, privately-owned lands) and resolve such conflicts when designing the trail system.
4.8	Avoid siting trailheads, staging areas, and other facilities within Bureau of Land Management (BLM) Wilderness. New trails may be constructed only if they are needed to preserve wilderness values and resources and will not significantly impair the degree of naturalness or solitude within the BLM Wilderness, and must comply with all applicable federal regulations related to Wilderness.

Table 3 Trail Siting and Design Guidelines	
Guideline Number	**Siting and Design Guideline**
5.0	Trail Design
5.1	The following are optimum ranges for tread width based on trail type: • Type A – Urban/Suburban: 6 to 10 feet • Type B – Rural: 4 to 10 feet • Type C – Primitive: 2 to 5 feet • Type D – Pathway: 8 to 12 feet Trail width will be influenced by site conditions, and may vary from the suggested guidelines on a case-by-case basis. Tread will be limited to 2 feet in BLM Wilderness, except where a wider trail is justified to protect the wilderness resource. Where the tread width of multi-use trails is less than 6 feet, occasional passing areas or turnouts should be added at gentle slopes, where feasible.
5.2	Trails should adhere to accepted sustainability standards related to trail grade, while following natural contours to the maximum extent practicable. The following are optimum ranges for average vertical grade based on trail type: • Type A – Urban/Suburban: 5% to 12% • Type B – Rural: 7.5% to 15% • Type C – Primitive: 8% to 15% • Type D – Pathway: 0% to 5%, or existing road grade Vertical grade of trails will be influenced by topographic and environmental constraints, and may vary from the suggested guidelines on a case-by-case basis. Switchbacks will be considered when vertical grade exceeds the optimum ranges. Equestrian trails should not exceed 12% grade, and should consider steps at grades above 10%.
5.3	The following are optimum ranges for cross slope based on trail type: • Type A – Urban/Suburban: 1% to 6% • Type B – Rural: 2% to 8% • Type C – Primitive: 1% to 10% • Type D – Pathway: 1% to 6% Cross slope of trails will be influenced by terrain and environmental constraints, and may vary from the suggested guidelines on a case-by-case basis.
5.4	Horizontal clearance will be 2 feet beyond the tread edge for the following trail types: Type A (Urban/Suburban), Type B (Rural), and Type D (Pathway). Horizontal clearance will be 1 foot beyond the tread edge for Type C (Primitive) trails. Horizontal clearance will be accomplished through tree and shrub trimming in MSCP Preserve areas; however, no root grubbing will occur.
5.5	Vertical clearance will be between 7 and 12 feet for hiking and cycling trails, and between 10 and 14 feet where equestrian use is permitted.
5.6	Steep grades should be avoided on soils with a 'Severe' soil erodibility rating for trails, as defined by the Natural Resource Conservation Service, through the incorporation of switchbacks when feasible. Where steep grades cannot be avoided due to other environmental considerations, erosion control measures such as water bars should be incorporated into the trail design and long-term maintenance measures should be incorporated into the maintenance plan to ensure sustainability of trails in the long-term.
5.7	Trails should be designed with adequate lines of sight based upon user type.
6.0	Trail Construction & Maintenance
6.1	Ground disturbance shall be minimized in BLM Wilderness and City of San Diego Cornerstone Lands.
6.2	Natural materials (e.g., native soil, decomposed granite) that complement the surrounding landscape are preferred for trail tread construction, where feasible. Recycled materials, without detrimental environmental effects, may also be used when appropriate. Avoid paving trails where feasible. Importation of material with the potential to introduce invasive weeds shall be avoided.
6.3	Trail grading, clearing, or construction shall follow distance, season, and impact avoidance requirements, when applicable, to reduce detrimental effects to vegetation and species.

Table 3 Trail Siting and Design Guidelines	
Guideline Number	**Siting and Design Guideline**
6.4	Public access or management plans for each preserve's trail system should be developed to address maintenance and management requirements. Measures should be developed during the trail planning process to ensure the sustainability of the trails and protection of species and habitats in the long-term, including (but not limited to) erosion control, run-off, manure management, access control measures. Measures may also include trail closures after rain, during red flag warnings, or during specific breeding seasons, if necessary.

4.3.2 Trail Types

The regional planning documents, trail planning documents, and site-specific resource management plans governing the study area contain numerous policies related to trail siting and design, as well as resource protection. Attachment 5 contains a summary of the various requirements and regulations related to biological and cultural resources, land use considerations, and trail siting and design.

Additionally, the Community Trails Master Plan, OVRP Concept Plan, Greenbelt Master Plan, and City of San Diego Public Utilities Guidelines contain specific guidance for trail width, grade, cross slope, surface material, and clearance cover for different trail types. Both the Community Trails Master Plan and OVRP Concept Plan categorize trails into four general types (Type A, B, C, and D) depending on the intended use and trail location. The Greenbelt Master Plan and Public Utilities Guidelines can be adapted to fit these categories. A description of these four categories is included below, and a summary of the trail design guidelines for these three plan areas is contained in Table 3.

Type A. Type A trails function as both recreation and transportation facilities, and generally consist of urban and suburban trails. Type A trails are intended to be accessible to all trail users and accommodate an intense volume of use, and thus have a wider tread than rural and primitive trails. This definition is generally consistent with the description for multi-use trails in the Greenbelt Master Plan, high-use recreational trails in the Public Utilities Guidelines, and trail type A in the Community Trails Master Plan and the OVRP,

Type B. Type B trails function as both recreation and transportation facilities, and are generally associated with a rural setting. These trails are designed to accommodate a medium volume of use. This definition is generally consistent with the descriptions for rural trails in the Greenbelt Master Plan, moderate-use trails in the Public Utilities Guidelines, and trail Type B in the Community Trails Master Plan and OVRP Concept Plan.

Type C. Type C trails are generally associated with a primitive or wilderness setting, and are intended to function as low impact, remote recreational experiences, and connector trails. These trails are designed to accommodate a medium to low volume of use. Steep terrain and remote wilderness dictate that accessibility is limited and may not be suitable for all persons or user groups. This definition is generally consistent with the description for primitive trails in the Public Utilities Guidelines and trail Type C in the Community Trails Master Plan and OVRP Concept Plan. The Greenbelt Master Plan does not contain a trail type consistent with this category.

Type D. Type D trails function as pathways, which are intended for a high volume of use and are located within a public road right-of-way. These trails are generally intended for transportation purposes, and may be utilized for connector trails. However, grade and accessibility is established by the grade right-of-way and may limit uses in some circumstances. This definition is generally consistent with the description for circulation trails in the Public Utilities Guidelines, multi-use trails as defined by the Greenbelt Master Plan, and Type D trails in the Community Trails Master Plan and OVRP Concept Plan. Both the Community Trails Master Plan and OVRP Concept Plan contain provisions for specialty trails which may not conform to the guidelines in Table 2. Specialty trails may include interpretive trails, barrier-free/accessible trails, and/or Preserve trails that provide unique opportunities for special access to biological and cultural resources.

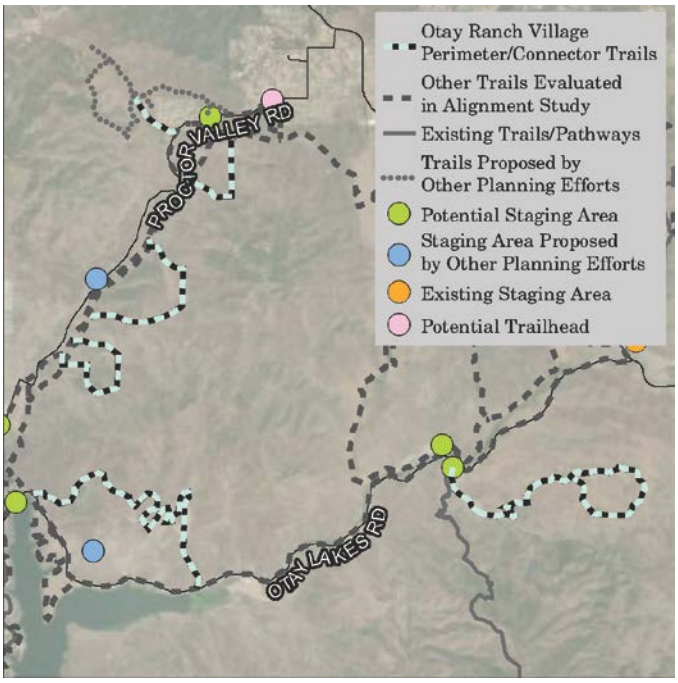
4.4 Proposed Trail Alignments

Thirteen conceptual alignments have been identified wherein trails, pathways, connectors, and trail systems are planned. As described in Chapter 2, trails consist of

traditional, multi-use trails for walking, hiking, biking, and/or horseback riding. Pathways consist of trails within road rights-of-way. Connectors join and extend existing trails, making out-and-back trails into loops, or linking existing trail systems and future ones. Trail systems increase or create new recreational potential in areas with few existing trails. This study takes into account existing trails, conceptual trails proposed by other planning efforts, and existing and proposed staging areas (see Figure 5).

4.4.1 Otay Ranch Village Perimeter/Connector Trail – Trail Type A

A total of 13.8 miles of new trails would follow the perimeter of the future Otay Ranch developments, providing mountain and reservoir vistas. Single- or double-track trails would connect hikers, cyclists, and horseback riders to the SDNWR, Rancho Jamul Ecological Reserve, and Upper Otay Reservoir. The final alignments will be determined based on the development configurations for Otay Ranch in these areas. Potential staging areas may be located at Echo Valley, Lower Otay Reservoir, and Proctor Valley Natural Resource Area. Two additional staging areas are proposed for Otay Ranch Village 13 and 14.



The proposed perimeter/connector trail is consistent with the project plan for the following reasons:

- Integrates with private developments (e.g., Village 14, Village 13, Planning Area 19, and Jamul) (Guiding Principle 5)
- Develops a trail in an area already influenced by human activity (e.g., behind homes, within the fire protection zone) (Guiding Principle 2)
- Provides connection to an existing trail within Hollenbeck Canyon Wildlife Area, as well as potential trails within Otay Ranch Preserve, Rancho Jamul Ecological Reserve, and Cornerstone Lands (Project Purpose)
- Funding/Implementation can be accomplished through project conditioning

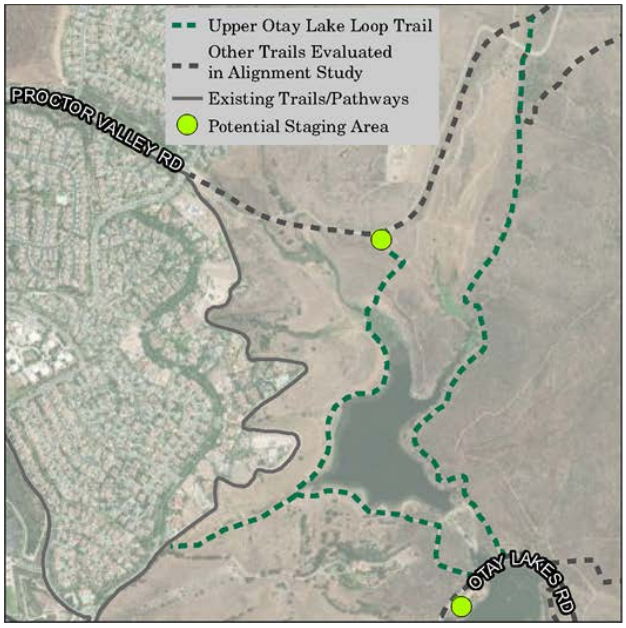
Implementation will require:

- Conditioning Otay Ranch Village 14 and Planning Areas 16 and 19 for trail easement (County of San Diego)

- Determining funding source for long-term perimeter/connector trail maintenance (e.g., CFD or HOA from Village 14) (County of San Diego)
- Constructing Otay Ranch Developments (Private developers)

4.4.2 Upper Otay Lake Loop Trail – Trail Type A

These single-track trails will connect to Otay Lakes Road and Proctor Valley Road Pathway, providing an interconnected loop around Upper Otay Reservoir to the Lower Otay Lake Pathway. This 2.9-mile trail system is envisioned to be part of the Otay Valley Regional Park. In addition to hiking and biking, other recreational opportunities from this trail will include fishing, bird-watching, and picnicking. A nearby existing staging area is located at Salt Creek Community Park. Potential staging areas are located at Lower Otay Reservoir and Proctor Valley Nature Resource Area.



The proposed lake loop trail is consistent with the project plan for the following reasons:

- Develops trail in an area already influenced by human activity (e.g., located within an existing user created trail) (Guiding Principle 2)
- Integrates with private developments (e.g., Village 14, Planning Area 19, and Jamul) via Proctor Valley Road Pathway or Proctor Valley Trail (Guiding Principle 5)
- Integrates with private developments (e.g., Village 13 and communities in Chula Vista) via Otay Lakes Road Pathway (Guiding Principle 5)

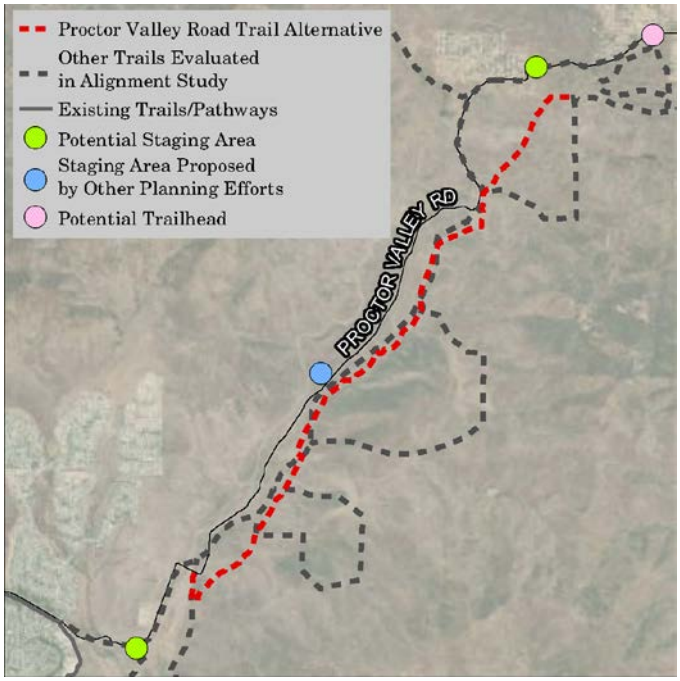
- Consistent with public workshop comments to provide loop/trailheads at Upper Otay Reservoir (RECON 2017c)
- Provides scenic overlooks of Lower Otay Reservoir, consistent with public surveys (RECON 2017c)

Implementing this trail will require:

- Constructing western segment of Otay Lakes Road Pathway and Otay Lakes Road crossing associated with Otay Ranch Village 13 (Private developer or County of San Diego)
- Constructing pathway improvements for Proctor Valley Road Pathway in association with the Otay Ranch Village 14 development (Private developer)

4.4.3 Proctor Valley Road Trail Alternative – Trail Type A

This trail alternative parallels Proctor Valley Road and would provide connections from the communities of Otay Ranch, Eastlake, and Jamul to trail systems in SDNWR, RJER, and Upper Otay Reservoir. The new trail would provide hiking, cycling and horseback riding opportunities. Potential staging areas would be located at either end of the trail, at Echo Valley and at the Proctor Valley Natural Resource Area. An additional staging area is proposed at Otay Ranch Village 14.



The proposed trail alternative is consistent with the project plan for the following reasons:

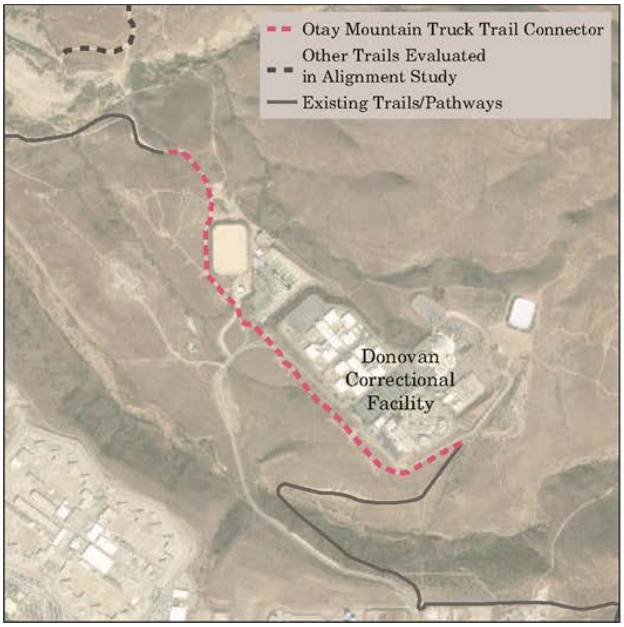
- Provides connection to planned trails within SDNWR, as well as connection to potential trail(s) within RJER and Cornerstone Lands (Project Purpose)
- Develops a trail in an area already influenced by human activity (e.g., located within an existing road) (Guiding Principle 2)
- Integrates with private developments (e.g., Village 14, Planning Area 19, and Jamul) (Guiding Principle 5)

Implementing this trail alternative will require:

- Conditioning Otay Ranch Village 14 and Planning Areas 16 and 19 for trail easement (County of San Diego)
- Constructing trail for Proctor Valley Road Trail Alternative in association with the Otay Ranch Village 14 development (Private developer or County of San Diego)
- Determining funding source for long-term trail maintenance (e.g., CFD or HOA from Village 14) (County of San Diego)

4.4.4 Otay Mountain Truck Trail Connector – Trail Type B

A connection to the existing Otay Mountain Truck Trail will provide a connection from the Otay Lakes County Park to the BLM Wilderness and Public Lands. This is a 1.1-mile-long single- or double-track hiking, biking, and horseback-riding trail. It crosses some rolling to hilly terrain. The existing Truck Trail is regularly used by San Diego Gas and Electric and is open to street legal vehicles. A nearby existing staging area is located at Otay Lakes County Park.



The proposed trail is consistent with the project plan for the following reasons:

- Connects existing trails, including the Otay Mountain Truck Trail, and proposed trails within the Otay River Valley Park Plan (Project Purpose)
- Develops a trail in an area already influenced by human activity (e.g., located within an existing road right-of-way) (Guiding Principle 2)
- Fulfills public comment (RECON 2017c)
- No additional funding for trail required. Trail exists and is maintained by CBP (Guiding Principle 2)

Implementation will include:

- Obtaining trail easement(s) through private parcels at the northern end of the trail, if needed (County of San Diego)

4.4.5 Otay River Valley Trail – Trail Type B

This trail will span both sides of the Otay River, providing scenic views of the Otay River Valley and providing an interconnected trail system within the Otay Valley Regional Park. This trail will connect to Main Street and Heritage Road to the west, Otay Ranch to the north, and Otay Lakes County Park to the east. Single- or double-track trails will lead hikers, cyclists and horseback riders a distance of 10.9 miles over flat terrain and within existing maintenance access roads. An existing staging area is located at Otay Lakes County Park. Two additional staging areas are proposed by the Otay Valley Regional Park Planning Effort, located at Heritage Road (Planning Area 20) and Otay Valley Regional Park Area 11 (Community Park).

The proposed trail is consistent with the project plan for the following reasons:

- The southern alignment is a regional trail per the County's Regional Trails Plan, and provides connections to Otay Ranch Preserve (Project Purpose)
- Contains segment of regional trail from an adopted planning document (formerly known as Otay Valley Regional Park Trail; OVRP) (Trail Siting & Design Guideline 4.3)
- Provides connection to Chula Vista and Otay Mesa (Policy 3)
- The trail would be developed in an area already influenced by human activity (e.g. located within existing maintenance road access easements) (Guiding Principle 2)

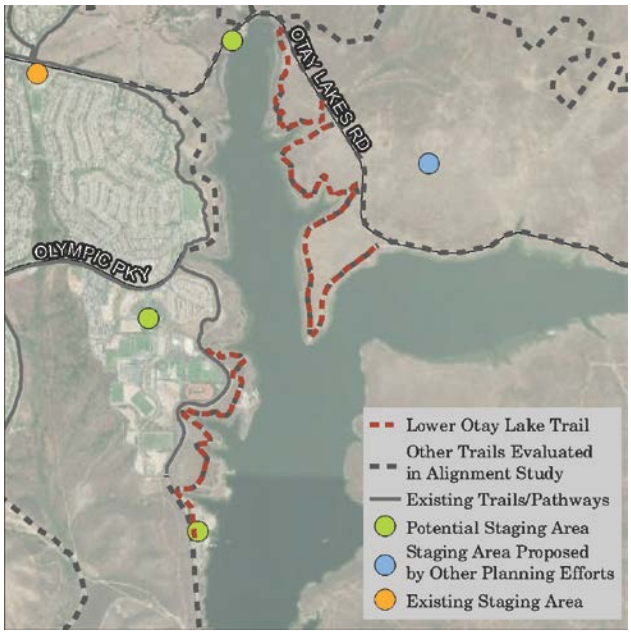
- The trail integrates with the active recreation areas (Otay Ranch Planning Area 20), as well as provides links to Eastlake via a north/south section of the Otay River Valley Trail that connects at Hunte Parkway (Guiding Principle 5)
- The trail satisfies public workshop comments to provide connection to community parks, including Otay Lakes County Park (RECON 2017c)
- Partially funded – funding for some sections can be accomplished through project conditioning
- The trail is consistent with public workshop trailhead along Heritage Road (RECON 2017c)

Implementing this trail will require:

- Implement conditions for the Otay River Valley Restoration Project and Otay Ranch Villages 8 (West), 8 (East), and 9 for trail easements, construction, and maintenance of their respective segments (City of Chula Vista)
- Constructing Otay River Valley Restoration Trails (Private developer)
- Constructing Otay Ranch Villages 8 (west), 8 (east), and 9 for the northern connection segments (Private developer)
- Obtaining trails easements through private parcels (City of Chula Vista)
- Obtaining funding for trail improvements for un-funded segments (OVRP Joint Exercise of Powers Agreement [JEPA] Partners)

4.4.6 Lower Otay Lake Trail – Trail Type C

These single-track trails will connect to Otay Lakes Road and Proctor Valley Road Pathway, providing an interconnected loop around Upper Otay Reservoir, to the Lower Otay Lakes Pathway. This 4.1-mile trail system is envisioned to be part of the Otay Valley Regional Park. In addition to hiking and biking, other recreational opportunities from this trail will include fishing, bird-watching, and picnicking. Potential staging areas may be located at the Chula Vista Elite Athlete Training Center and the Lower Otay Reservoir Boat Launch/Picnic Area. An additional staging area is proposed within the Otay Ranch Village 13 Area.



The proposed lake trail is consistent with the project plan for the following reasons:

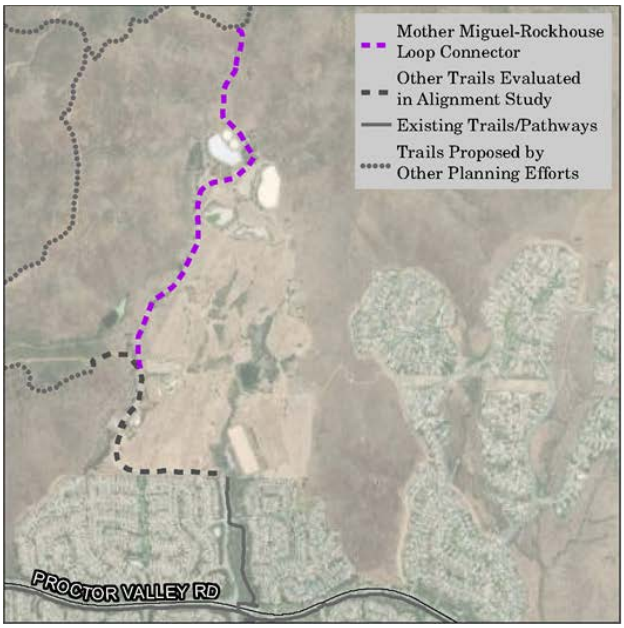
- The proposed trail provides connection to existing City of Chula Vista Greenbelt trails and pathways within Mountain Hawk Park, as well as a connection between City of San Diego Cornerstone Lands and Otay Ranch Preserve (Project Purpose)
- Trail is developed in an area already influenced by human activity (e.g., a majority is located within an existing fisherman trail) (Guiding Principle 2)
- The trail integrates with private developments (e.g., communities in Chula Vista) via connection with the existing Centennial Trail along Wueste Road and Otay River Valley Trail (Guiding Principle 5)
- The trail is consistent with public workshop comments to provide a loop around Lower Otay Lake and provide connection to community parks such as Otay Lakes County Park (RECON 2017c)
- Provides scenic overlooks, consistent with public surveys (RECON 2017c)

Implementing this trail will require:

- Coordinating with the City of San Diego for public parking on the City-owned property (County of San Diego)
- Obtaining grant funds for construction of improvements for Lower Otay Lake Trail (OVRP JEPA Partners)
- Constructing western segment of Otay Lakes Road Pathway associated with Otay Ranch Village 13 (Private developer or County of San Diego)

4.4.7 Mother Miguel-Rockhouse Loop Connector – Trail Type C

The expansion of the planned Mother Miguel trail system in SDNWR would create a loop system on Mother Miguel, as well as additional trails providing scenic views of Rickey Pond and the San Miguel Habitat Management Area. A total of 2.7 miles of moderate, single- and double-track trails would be used by hikers, cyclists and horseback riders. A nearby existing staging area is located at Mount San Miguel Community Park.



The proposed loop connector is consistent with the project plan for the following reasons:

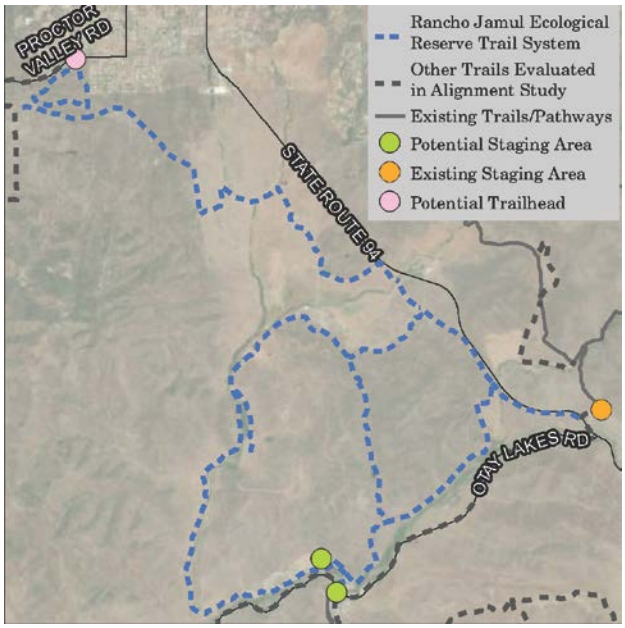
- Provides connections to existing regional trails in Sweetwater via proposed trails in San Diego National Wildlife Refuge (Project Purpose)
- Develops a trail in an area already influenced by human activity (e.g. located within existing roads and trails) (Guiding Principle 2)
- Integrates with private developments by providing connections to community trails in Rolling Hills Ranch (Guiding Principle 5)
- Consistent with public workshop comments to provide connections to community parks by providing connection to Mount San Miguel Park (RECON 2017c)
- Consistent with proposed trailheads from Public Workshop at Otay Water District/golf course lands (RECON 2017c)

Implementing this loop connector will require:

- Constructing Rolling Hills Ranch Connector Pathway improvements (County of San Diego)
- Amend licensing agreement to accommodate connections through San Diego Gas and Electric (SDG&E) parcels (County of San Diego)
- Obtaining easement from Otay Water District for trail implementation and maintenance within San Miguel Habitat Management Area (County of San Diego)
- Obtaining funding for trail improvements (SDNWR and County of San Diego)

4.4.8 Rancho Jamul Ecological Reserve Trail System – Trail Type C

A new trail system totaling 15.9 linear miles of trails will provide various loops with views of different habitats within the RJER. Moderate, double track trails will be available for hiking and horseback riding over rolling or hilly terrain with shorter, steeper slopes, the latter by special permit only. This area provides for wildlife viewing opportunities along the trail system. An existing staging area is located at the HCWA (Honey Springs Entrance). Potential staging areas are located at the Pio Pico RV Resort (north and south sides). An additional potential trailhead is located at Proctor Valley Road near Jamul.



The proposed trail system is consistent with the project plan for the following reasons:

- Connects to regional trail from an adopted planning document (previously known as California Riding and Hiking Trail - Otay Lakes Road Pathway segment) (Trail Siting and Design Guideline 4.3)
- Connects to planned development (PA 16 and PA 19) (Guiding Principle 5)

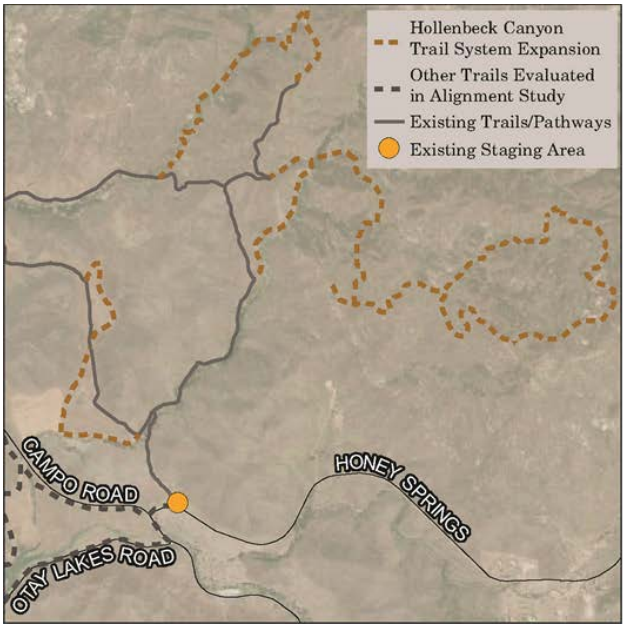
- Connects to existing development (Jamul and Pio Pico RV Resort) (Guiding Principle 5)

Implementing this trail system will require:

- Changing Title 14 to allow public access to RJER. Currently, CDFW reserves the right to limit entry onto ecological reserves as it deems appropriate and require an entry permit for public access, and horseback riding is prohibited under Section 630 (CDFW)
- Coordinating with Pio Pico RV Resort to determine viability of providing public parking at southern end of the trail (County of San Diego)
- Coordinating staging with Village 14 for northern end of the trail (County of San Diego and CDFW)
- Implementing trail improvements (e.g. stabilization structures, water crossings, and informational signage) (CDFW)
- Obtaining funding for trail implementation/improvements/maintenance (CDFW)
- Implementing trail improvements (CDFW)

4.4.9 Hollenbeck Canyon Trail System Expansion – Trail Type C

This trail system expansion will increase the size of the existing trail system in Hollenbeck Canyon to include trails to scenic vista points and an expanded loop system. This area provides for wildlife viewing opportunities along the trail system. A total of 9 miles of difficult, double-track trail will be used for hiking, biking, and horseback riding. An existing staging area is located at the HCWA.



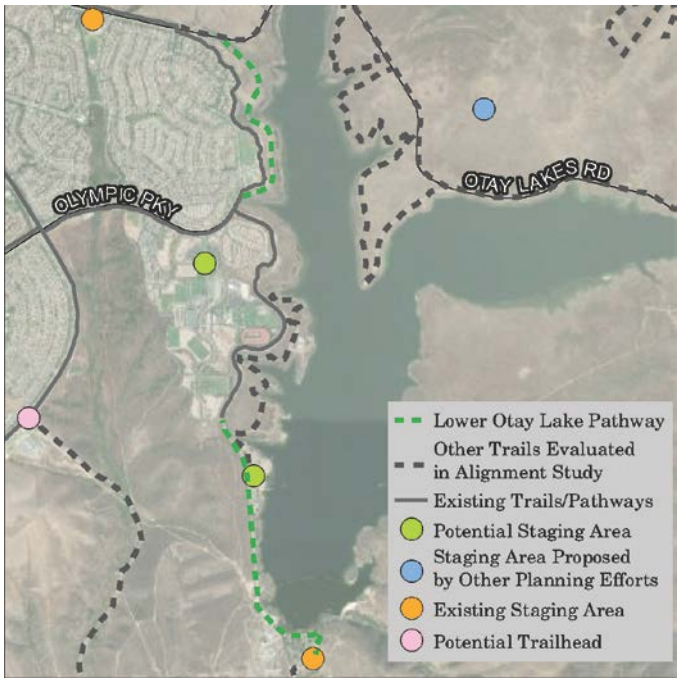
The proposed trail system expansion is consistent with the project plan for the following reasons:

- Contains a segment of regional trail from an adopted document (previously known as California Riding and Hiking Trail) (Trail Siting and Design Guideline 4.3)
- Connects with existing trail system in Hollenbeck Canyon Wildlife Area (Project Purpose)
- Fulfills public comments (RECON 2017c)

Implementing this trail system expansion will require:

- Obtaining funding for trail implementation/improvements/maintenance (CDFW)
- Implementing trail improvements (e.g., repair erosion) (CDFW)

4.4.10 Lower Otay Lake Pathway – Trail Type D



This two-part pathway is located on the western edge of Lower Otay Reservoir and will provide scenic waterfront vistas and opportunities for hiking and cycling. The first segment of the proposed Lower Otay Lake Pathway would parallel Wueste Road between Otay Lakes Road and Olympic Parkway. The second segment would parallel Wueste Road between the Lower Otay Reservoir Boat Launch and Otay Lakes County Park, thereby linking to the Otay River Trail System. Existing staging areas are located at Otay Lakes County Park, and Salt Creek Community Park. Potential staging areas may be located at the Chula Vista Elite Athlete Training Center and the Lower Otay Boat Launch/Picnic Area.

The proposed pathway is consistent with the project plan for the following reasons:

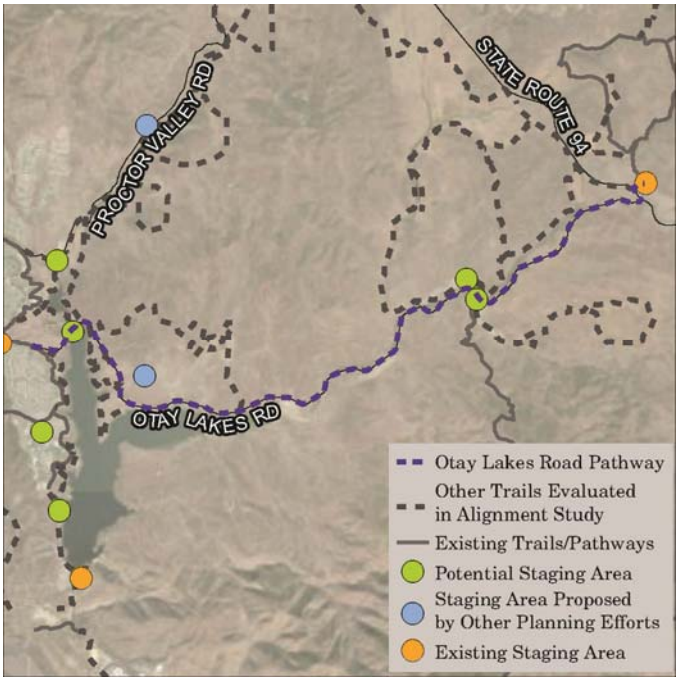
- Connects with regional trail from an adopted document (previously known as Otay Valley Regional Park Trails) (Trail Siting and Design Guideline 4.3)
- Expands existing Chula Vista Greenbelt pathway (Project Purpose)
- Provides direct connection to Otay Ranch and Eastlake developments (Guiding Principle 5)
- Will provide connections to future Otay Ranch Village 13 (Guiding Principle 5)

Implementing this trail expansion will require:

- Obtaining grant funds to extend the existing pathway along Wueste Road (OVRP JEPA Partners)
- Establishing a mechanism for long-term funding of pathway maintenance (OVRP JEPA Partners)

4.4.11 Otay Lakes Road Pathway– Trail Type D

A pathway bordering Otay Lakes Road will provide scenic views of Lower Otay Reservoir. This 9.1-mile pathway will connect Eastlake and Otay Ranch to trails at Upper and Lower Otay Reservoir, Rancho Jamul Ecological Reserve, and Otay Ranch perimeter trails. Allowed uses will be hiking, biking and horseback riding. Existing staging areas are located at the Hollenbeck Canyon Wildlife Area (Honey Springs Entrance) and at the Salt Creek Community Park. A potential staging area is located at Lower Otay Reservoir; the final location will be determined by development configurations of Otay Ranch Village 13. One additional nearby staging area is proposed within Otay Ranch Village 14.



The proposed pathway is consistent with the project plan for the following reasons:

- Provides connection to an existing trail within Hollenbeck Canyon Wildlife Area, as well as proposed trails within Otay Ranch Preserve, Rancho Jamul Ecological Reserve, and Cornerstone Lands (Project Purpose)
- Develops a trail in an area already influenced by human activity (e.g., located along an existing road road) (Guiding Principle 2)
- Integrates with private developments, including existing pathways in Otay Ranch and Eastlake developments, and planned pathways in Village 13 and communities in Chula Vista (Guiding Principle 5)
- Contains a segment of regional trail from an adopted planning document (previously known as California Riding & Hiking Trail) (Trail Siting and Design Guideline 4.3)
- Connects with a regional trail from an adopted planning document (previously known as Otay Valley Regional Park Trail) (Trail Siting and Design Guideline 4.3)
- Connects with existing trails (Chula Vista Greenbelt pathway) (Guiding Principle 2)

- Fulfills public comment (RECON 2017c)
- Funding/Implementation for a portion of the pathway can be accomplished through development project conditioning

Implementing the eastern section will require:

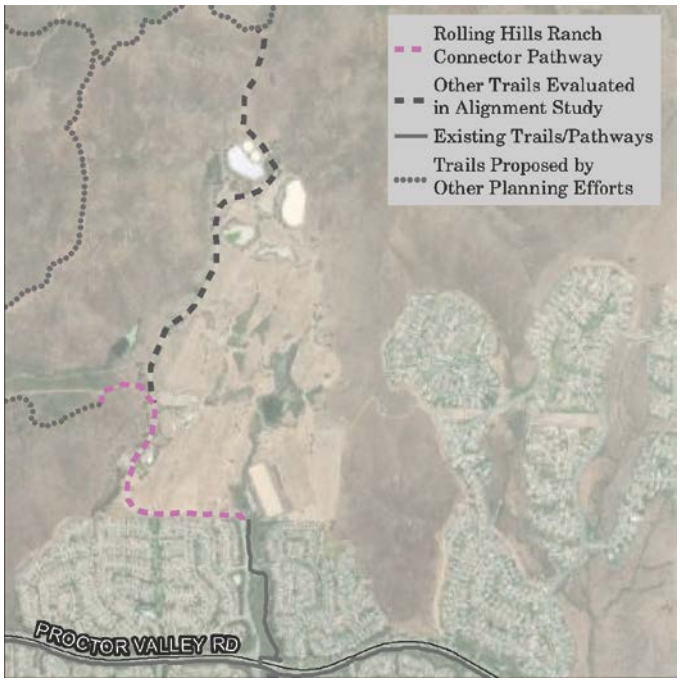
- Conducting study to determine the feasibility of a pathway on Otay Lakes Road east of Village 13 with existing topographic constraints (County of San Diego)
- Coordinating with City of San Diego for public parking on the city-owned property (County of San Diego)
- Determining funding source for long-term pathway maintenance (e.g., Private developer or agency with control over right-of-way) (County of San Diego)

Implementing the western section will require:

- Conditioning Otay Ranch Village 13 for Otay Lakes Road improvements and pathway construction (County of San Diego)
- Determining funding source for long-term pathway maintenance (e.g., Community Facilities District (CFD) or homeowners association [HOA] from Village 13) (County of San Diego)

4.4.12 Rolling Hills Ranch Connector Pathway – Trail Type D

This 0.9-mile connection of the existing pathway system in Rolling Hills Ranch would provide connections to SDNWR and Mount San Miguel Community Park. Hiking, biking and horseback riding would all be permitted along this moderately-difficult pathway featuring rolling or hilly terrain with shorter, steeper slopes. A nearby existing staging area is located at Mount San Miguel Community Park.



The proposed pathway connection is consistent with the project plan for the following reasons:

- Develops a trail in an area already influenced by human activity (e.g. located within existing road right-of-ways) (Guiding Principle 2)
- Connects to regional trails from an adopted planning document (Sweetwater) (Trail Siting & Design Guideline 4.3)

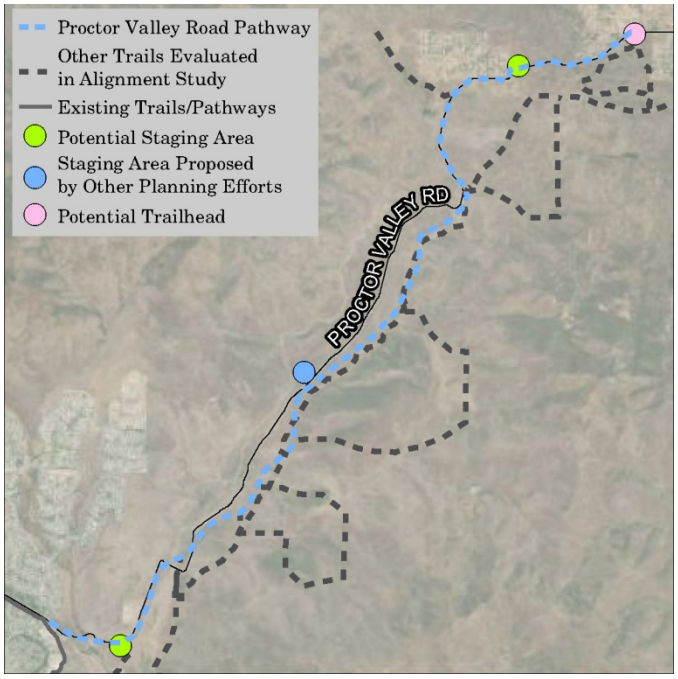
- Connects with Mother Miguel/Rockhouse Trail and Rolling Hills Ranch pathways (Project Purpose)
- Connects to Rolling Hills Ranch (Guiding Principle 5)
- Fulfills public comments (RECON 2017c)

Implementing this pathway will require:

- Constructing Rolling Hills Ranch Connector Pathway improvements (County of San Diego)
- Amend licensing agreement to accommodate connections through SDG&E parcels (County of San Diego)
- Obtaining easement from Otay Water District for trail implementation and maintenance within San Miguel Habitat Management Area (County of San Diego)
- Obtaining funding for trail improvements (San Diego National Wildlife Refuge & County of San Diego)

4.4.13 Proctor Valley Road Pathway – Trail Type D

This proposed pathway system borders the realigned Proctor Valley Road. The pathway will provide connections from the communities of Otay Ranch, Eastlake, and Jamul to trail systems in San Diego National Wildlife Refuge, Rancho Jamul Ecological Reserve, and Upper Otay Reservoir. The new pathway will provide 5.4 miles of hiking, cycling, and horseback riding. Potential staging areas would be located at either end of the pathway, at Echo Valley and at the Proctor Valley Natural Resource Area. An additional staging area is proposed at Otay Ranch Village 14.



The proposed pathway is consistent with the project plan for the following reasons:

- Provides connection to planned trails within SDNWR, as well as connection to potential trail(s) within RJER and Cornerstone Lands (Project Purpose)
- Develops a trail in an area already influenced by human activity (e.g., located within a road right-of-way) (Guiding Principle 2)
- Integrates with private developments (e.g., Village 14, Planning Area 19, and Jamul) (Guiding Principle 5)
- Could potentially provide Americans with Disabilities (ADA) accessible trail

Implementing this pathway will require:

- Implementing conditions in Otay Ranch Village 14 and Planning Areas 16 and 19 for trail easement and pathway construction (County of San Diego)
- Constructing pathway improvements for Proctor Valley Road Pathway in association with the Otay Ranch Village 14 development (Private developer or County of San Diego)
- Determining funding source for long-term pathway maintenance (e.g., CFD or HOA from Village 14) (County of San Diego)

Chapter 5: Future Actions

Development of the complete trail system described in this plan will be a long-term effort accomplished through a variety of actions, culminating in the progressive development of the trails proposed in this study.

5.1 Concept Plan Acceptance and Adoption

- Acceptance by Steering Committee
- Adoption by Board of Supervisors and City Councils

5.2 Trails Implementation and Management

Implementation of projects consistent with the goals of this alignment study are expected to occur based on the priorities described in Section 5.3 and listed in Tables 4 and 5 below. These projects will include:

- Trails, Staging Areas, Viewpoints, and Overlooks
- Habitat Restoration and/or Enhancement
- Development of Recreation Areas
- Interpretive Facilities and/or Signage
- Long-term management and maintenance

Prior to implementation, future studies and CEQA review will be required as detailed in Section 5.4.

5.3 Trail Prioritization

An implementation framework was developed for the study, which organizes the creation of each conceptual trail into high, medium, and low priority categories. Table 4 provides the ranking criteria used to prioritize each trail. Trail alignments receive between one and three points each time they fulfill one of the ranking criteria. Conceptual trail alignments are awarded three points for connecting to existing trails, connecting to existing developments, for being designated as regional trails in adopted planning documents and for connecting to regional trails. Alignments received an additional two points for having available funding sources and fulfilling public comment. An additional one point was given for alignments connecting to planned developments. Planned development includes all entitled and unentitled Otay Ranch Villages not acquired for conservation. Otay Ranch Villages analyzed to have connections include Villages 8E, 8W, 13, and 14 and Planning Areas 16, 17, 19, and 20. Table 5 provides trail scores and resulting implementation priority levels.

Table 4
Ranking System

Scoring Criteria	Points
Connects to a regional trail identified in an adopted planning document?	3
Designated as a regional trail in an adopted planning document?	3
Connects with existing trails or pathways?	3
Provides direct connection to existing development?	3
Funding source available?	2
Fulfills public comment?	2
Provides direct connection to planned development?	1
Prioritization	**Total Points**
High Priority	12-17 points
Medium Priority	6-11 points
Low Priority	1-5 points

Table 5
Trail Implementation Priorities

Priority Level	Trail	Score
High	Otay Lakes Road Pathway	17
	Proctor Valley Road Pathway	14
	Upper Otay Lake Loop Trail	14
	Otay Mountain Truck Trail	13
	Lower Otay Lake Trail	12
Medium	Rolling Hills Ranch Pathway Expansion	11
	Mother Miguel-Rockhouse Loop Connector	11
	Otay River Valley Trail	11
	Lower Otay Lake Pathway	10
	Hollenbeck Canyon Wildlife Area Trail Expansion	8
	Rancho Jamul Ecological Reserve Trail System	7
	Otay Ranch Village Perimeter/Connector Trail	6
Low	Proctor Valley Road Trail Alternative	4

5.4 Future Studies and CEQA Review

Future trail planning may be needed to provide more specific guidance and/or detailed plans for development of elements in this trail alignment study. Any further studies, plans, and design documents should address specific policies, uses, circulation, linkages to other features, and areas both inside and adjacent to the proposed trail alignments. In addition to this alignment study, areas included within this study require separate land use and environmental analysis to determine potential impacts associated with implementation of trails and to identify appropriate mitigation. Initial biological and cultural resources constraints analysis have been completed for six trails (see Attachment 3 and 4, respectively) which identify preliminary resources and constraints. Future environmental review required for each trail alignment will need to address the various MSCP Subarea Plans within the project area in addition to providing consistency analysis with applicable conservation plans.

5.5 Trail Maintenance

Trail maintenance and management in perpetuity will be required for each trail alignment. Long-term management responsibility and funding would be identified as each alignment is implemented and is anticipated to be a mixture of private development responsibility and publicly managed and funded trail alignments.

The Trail Siting and Design Guidelines presented in Section 4 require the development of public access or management plans for each preserve's trail system in order to address maintenance and management requirements. Measures should be developed to ensure the sustainability of the trails and protection of species and habitats in the long term, including erosion control, runoff, manure management, and access control measures. Measures may also include trail closures after rain, during red flag warnings, or during specific breeding seasons.

5.6 Plan Conclusions

This plan is intended to be a dynamic and flexible document. While it is intended to provide long-range policy guidance for the development of the Otay Regional Trail System, the plan is intended as a living document capable of responding to unanticipated changes in environmental, social, economic, or other conditions. Development for the trail system will be considered in substantial conformance with this plan when they meet the intent of the plan. Future modifications may be needed to change the trail alignments or to develop uses that are not currently consistent with the plan.

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Attachments

Attachment 1

Biological Constraints Mapbook

Attachment 2

Resource Avoidance Mapping

Attachment 3

Biological Constraints Report

Attachment 4

Cultural Constraints Report

Attachment 5

Summary of Resource Protection and Design Guidelines