HELIX Environmental Planning

County of San Diego Integrated Vector Management Program

Cultural Resources Technical Report

October 2021 | 00187.00005.024

Prepared for:

County of San Diego
Department of Environmental Health
Vector Control Program
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San Diego, CA 92123

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National Archaeological Database Information

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Consulting Firm:	HELIX Environmental Planning, Inc.
Client:	County of San Diego, Department of Environmental Health
Report Date:	September 2021
Report Title:	Cultural Resources Technical Report: County of San Diego Integrated Vector Management Program
Type of Study:	Technical Report in support of a Program Environmental Impact Report
New Sites:	N/A
Updated Sites:	N/A
USGS Quad:	Multiple
Acreage:	N/A
Key Words:	San Diego County; Townships 8 through 18 South, Ranges 6 West through 8 East; incorporated cities (Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, and Vista); Community Planning Areas (Alpine, Bonsall, County Islands, Fallbrook, Julian, Lakeside, Pendleton/De Luz, Rainbow, Ramona, San Dieguito, Spring Valley, Sweetwater, Valle de Oro, and Valley Center); Subregional Planning Areas (Central Mountain, Crest/Dehesa/Harbison Canyon/Granite Hills, Desert, Jamul/Dulzura, Mountain Empire, North County Metropolitan (Metro), North Mountain, Otay, and Pala/Pauma Valley)

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
BMPs	best management practices
BP	Before Present
CalEPA	California Environmental Protection Agency
CCR	California Code of Regulations
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CPA	Community Planning Area
CRHR	California Register of Historical Resources
DEH	Department of Environmental Health
DPR	California Department of Parks and Recreation
HELIX	HELIX Environmental Planning, Inc.
IVMP	Integrated Vector Management Program
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NRHP	National Register of Historic Places
PRC	Public Resources Code
RPO	Resource Protection Ordinance
SCIC	South Coastal Information Center
TCP	Traditional Cultural Properties
TCR	Tribal Cultural Resources
USEPA	U.S. Environmental Protection Agency
VCP	Vector Control Program

EXECUTIVE SUMMARY

This report presents an assessment of potential impacts to cultural resources associated with the proposed County of San Diego (County) Department of Environmental Health (DEH), Vector Control Program's (VCP) Integrated Vector Management Program (IVMP; Proposed Project). This report details the existing conditions (environmental, cultural, and regulatory settings) of the IVMP service area, which includes all 18 incorporated cities and unincorporated areas of San Diego County. It provides an analysis of potential impacts the IVMP activities may have on cultural resources and recommends measures to mitigate potential adverse impacts to cultural resources that may result from ongoing implementation of the IVMP.

Under the Proposed Project, the IVMP would continue the use of surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics vector control techniques. Of these, only source reduction would potentially result in tangible impacts to cultural resources, due to the potential ground-disturbing or physical impacts the possible environmental modifications may entail. Since specific site locations cannot be defined at this time, it is anticipated that ground-disturbing activities associated with implementation of the Proposed Project could have the potential to cause a substantial adverse change in the significance of an archaeological resource.

The Proposed Project would not cause substantial adverse changes to built environment resources (historic buildings, structures, or objects), as source reduction activities would primarily involve techniques such as ground disturbance, vegetation management, water control, and other maintenance activities within primarily undeveloped areas.

This report supports the preparation of a Program Environmental Impact Report for a countywide service area; therefore, site-specific analysis is infeasible at this time. However, over the course of the Proposed Project, potentially significant impacts may occur to archaeological resources, Tribal Cultural Resources (including archaeological sites, traditional gathering areas, or other areas of traditional use), or human remains. Ground-disturbing activities (such as grading or vegetation removal requiring grubbing) have the potential to damage or destroy resources, or unintentionally disturb human remains, that may be present on or below the ground surface.

Mitigation measures have been recommended to guide the identification, evaluation, and mitigation of potential impacts to cultural resources for individual activities that would involve ground-disturbing work related to the Proposed Project. With these measures, the impacts to cultural resources would be reduced to below a level of significance.

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1.0 INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) was contracted by the County of San Diego (County) to provide cultural resources services for the County's Department of Environmental Health (DEH) Vector Control Program (VCP), a public health program that was established to monitor and control vectors that transmit diseases and create public nuisances within San Diego County. For the purposes of this project, a vector is defined as any animal capable of spreading disease or producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates (California Health and Safety Code Section 2002[k]).

The VCP is managed by County staff, governed by the County Board of Supervisors, and implemented within a service area that includes all 18 incorporated cities and unincorporated areas of San Diego County. The VCP serves to reduce exposure to vectors and vector-borne diseases in a manner that minimizes risks to people, property and the environment through a coordinated set of activities collectively known as the Integrated Vector Management Program (IVMP). The IVMP carries out a full range of vector control activities, practices, and procedures to protect the public from vector-borne diseases and public nuisances while allowing for the inclusion of progressive and emerging vector control techniques, tools, and materials. For the purposes of this analysis, the Proposed Project consists of the ongoing implementation of the IVMP.

This report details the existing conditions (environmental, cultural, and regulatory settings) of the IVMP service area, provides an analysis of the impacts the IVMP activities may have on cultural resources, and recommends measures to mitigate any potential adverse impacts to cultural resources that may result from the Proposed Project.

1.1 PROJECT DESCRIPTION

1.1.1 Project Location

The IVMP service area is defined by the boundaries of San Diego County (Figure 1, *Regional Map*; Figure 2, *Integrated Vector Management Program Service Area*). The county is bordered by Orange and Riverside counties to the north, Imperial County to the east, the Pacific Ocean to the west, and the U.S./Mexico International Border to the south. The IVMP service area encompasses approximately 4,261 square miles, and includes all unincorporated areas within the county, as well as the 18 incorporated cities (Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, and Vista). The unincorporated portion of the county is divided into 23 planning areas. Fourteen of the planning areas are referred to as Community Planning Areas (CPAs), and nine areas are called Subregional Planning Areas (Subregions). The CPAs are Alpine, Bonsall, County Islands, Fallbrook, Julian, Lakeside, Pendleton/De Luz, Rainbow, Ramona, San Dieguito, Spring Valley, Sweetwater, Valle de Oro, and Valley Center. The nine Subregions are Central Mountain, Crest/Dehesa/Harbison Canyon/Granite Hills, Desert, Jamul/Dulzura, Mountain Empire, North County Metropolitan (Metro), North Mountain, Otay, and Pala/Pauma Valley. The location and extent of specific activities implemented under the IVMP are evaluated based on the site-specific situation and dictated by the targeted vector, regulatory requirements, and applicable management approaches.

1.1.2 Project Description

Under the Proposed Project, the IVMP would continue to comprehensively implement vector control through various techniques, including surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. Each of these techniques would be applied to the applicable vectors under the IVMP, including disease-transmitting mosquitoes (i.e., *Culex* spp., *Aedes* spp., and *Anopheles* spp.); nuisance mosquitoes (i.e., not disease-transmitting); vectors associated with mammalian disease reservoirs (i.e., ticks and rodents); and other nuisance species (e.g., eye gnats not on commercial organic farms) deemed necessary for control as approved by the VCP. The five core services of the IVMP include: (1) early detection of public health risks through comprehensive vector surveillance and testing; (2) control and reduction of vectors that transmit diseases to humans or create public nuisance; (3) dissemination of information regarding tools for prevention, protection, and reporting of vectors that transmit diseases; (4) appropriate and timely response to vector-related customer complaints; and (5) detection of vector-borne pathogens. The objectives of the IVMP are to:

1. Protect public health, well-being, and economic effects from vectors throughout San Diego County by applying integrated vector management practices.

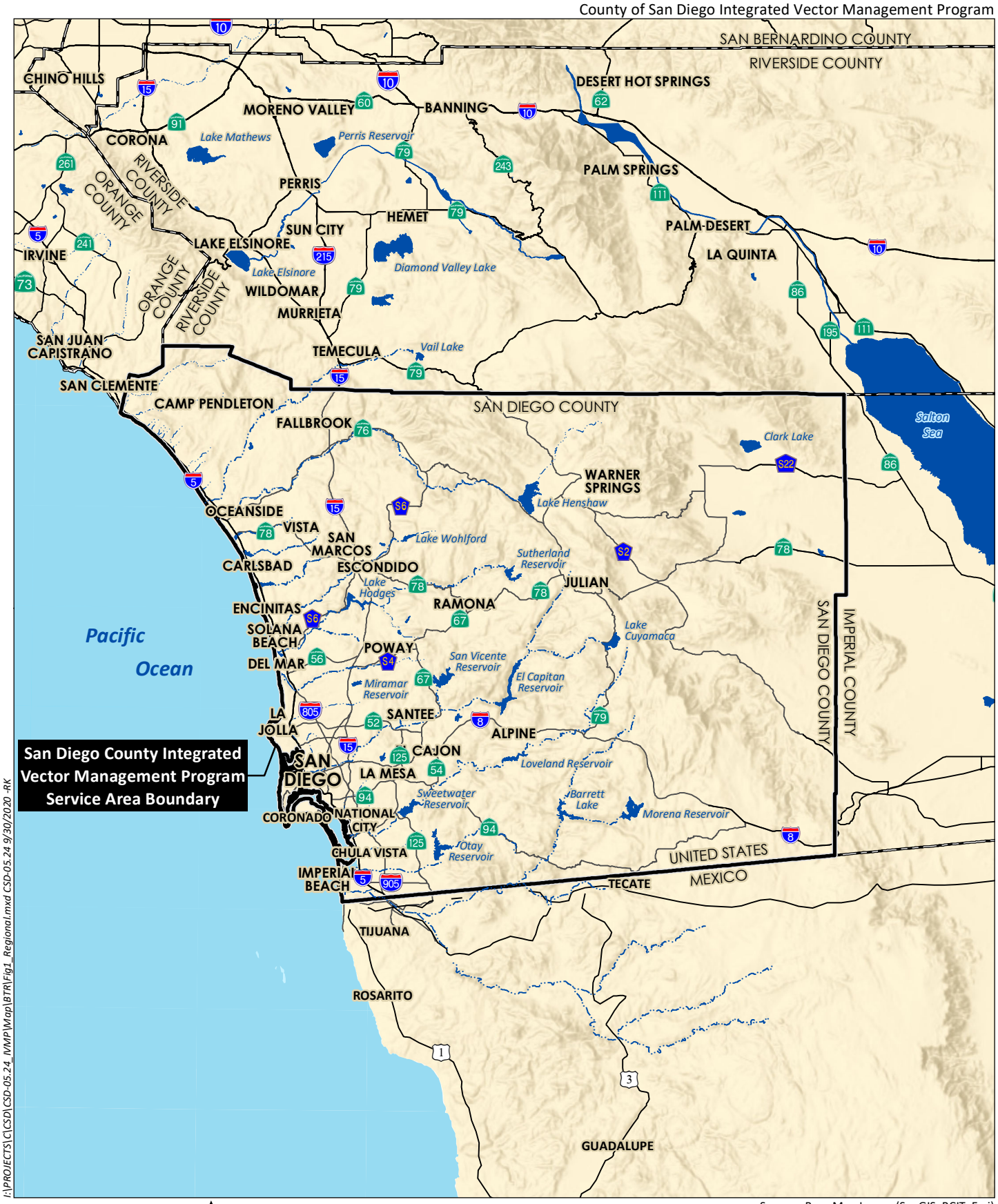
2. Implement effective and efficient integrated vector management practices in a manner that balances environmental impacts with the need to protect the public from vector-borne diseases and nuisances.

3. Coordinate with other regional vector control districts throughout California as well as state and federal public health and environmental protection agencies to allow for the inclusion of progressive and emerging vector control activities and technologies.

Vector control and surveillance activities are conducted by VCP staff under standard operating procedures and use a risk-based approach to determine appropriate levels of response to each vector of concern. The IVMP incorporates various vector management principles and techniques from guidance documents that are regularly updated, such as the VCP's annual *Mosquito, Vector and Disease Control Assessment Engineer's Report* (hereafter referred to as Engineer's Report); *West Nile Virus Strategic Response Plan*; and *Aedes Transmitted Disease Strategic Response Plan* (County 2020, 2018a and 2018b, respectively), as well as procedural documents such as the *Mosquito Breeding Site Access Standard Operating Procedure* (County 2014). A general discussion of the key IVMP activities is discussed below.

Surveillance and Monitoring

Vector surveillance, monitoring, and diagnostics are needed to assess location and abundance of vector populations and species so that data-informed decisions can be made. Vector surveillance involves monitoring vector populations and habitat, their disease pathogens, and human/vector interactions. Vector surveillance provides the VCP with valuable information about which vector species are present or likely to occur, locations in which they may occur, abundance, and if they are carrying disease(s). The information obtained from surveillance is evaluated against treatment and risk-based response criteria to decide when and where to implement vector control measures, and to help form action plans that can also assist in reducing the risk of contracting disease or causing nuisance. Vector surveillance can help minimize the area to which control techniques may be applied by directing activities to the areas where they are needed.



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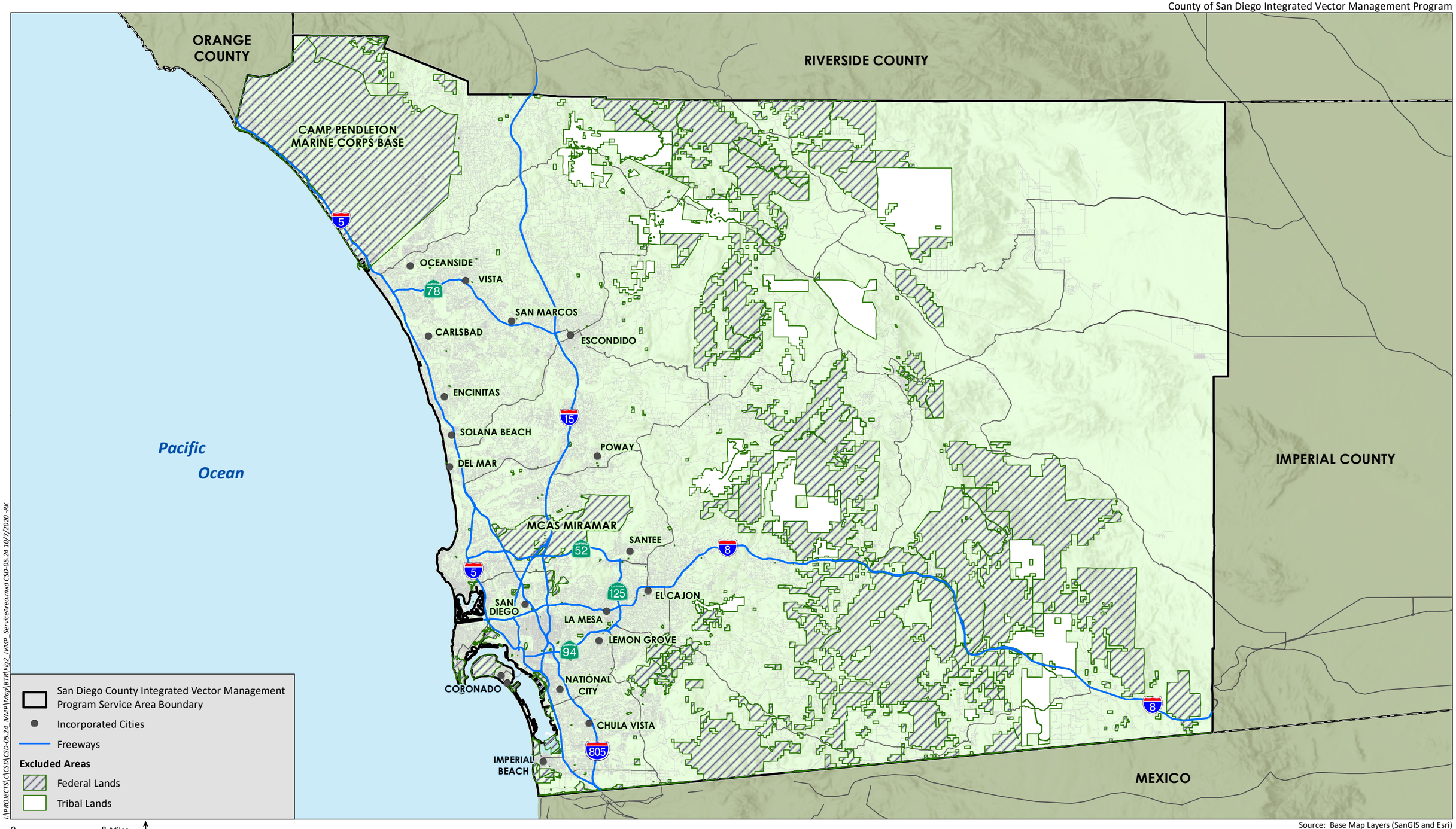
Regional Location

Figure 1

County of San Diego Integrated Vector Management Program



Source: Base Map Layers (SanGIS and Esri)

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Integrated Vector Management Program Service Area

Figure 2

The VCP monitors disease-carrying animals such as mosquitoes, ticks, and rodents, as well as other pests including flies on commercial poultry ranches, within the IVMP service area. Monitoring includes such techniques as setting traps to determine abundance and species of mosquitoes; testing mosquitoes for presence of disease; collecting and testing dead birds for West Nile virus; and conducting surveys via ground vehicles, aircraft (including piloted and unmanned aircraft), watercraft, and remote sensing equipment to evaluate mosquito-breeding sources. Surveillance is also conducted for ticks and rodents.

The VCP operates the Vector Disease and Diagnostic Laboratory that provides diagnostic testing to support the VCP, which helps in the evaluation of public health risk and appropriate responses and treatments. The VCP tests vector specimens from the field for numerous diseases that could be a risk to public health.

Source Reduction

Source reduction (i.e., environmental modification) techniques are used to reduce vector-breeding sources, such as habitat and other areas of harborage. Source reduction primarily involves physical control techniques that eliminate or reduce standing water including, but not limited to, ground disturbance (e.g., grading), vegetation management (including physical removal and/or herbicide application), water control, and other maintenance activities. Trapping and removal of vectors is also a form of source reduction.

Source Treatment

Source treatment includes biological and chemical controls of vectors. Specifically, this includes the use of mosquito fish (*Gambusia affinis*) and application of pesticides, such as larvicides and adulticides to reduce larval and adult mosquito populations, respectively. The type and location of biological and chemical controls vary based on different factors, including, but not limited to, the vector species and growth stage, environment, disease presence, and risk level to public health. Any pesticides applied within waterbodies defined by federal and state regulations as Waters of the U.S. and/or State are conducted in accordance with the Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications (Order No. 2016-0039-DWQ, General Permit No. CA990004). Methods of application include, but are not limited to, backpack applicators, truck-mounted equipment, or other motorized vehicles (e.g., piloted and unmanned aircraft, watercraft). Source treatments of non-mosquito vectors can include, but are not limited to, chemical controls applied to mammalian vectors such as rodents and mammal-related disease carriers such as ticks, fleas, and other arthropods. When pesticides are applied, label requirements are followed by VCP staff.

Public Education and Outreach

VCP staff conduct public education and outreach activities to increase public awareness of steps to prevent and protect against disease-carrying vectors. VCP staff distribute educational materials, provide informational displays and presentations, use social media and informational emails, and conduct media campaigns to provide the public with this knowledge.

Emerging Vector Control Strategies

Vector management strategies are updated as new information becomes available and are adapted and applied to new or emerging vectors as they arise. All vector control methods are based on empirical

data, scientific evidence, published research, current state and federal guidelines, expert guidance, and the VCP's experience conducting vector control activities. The IVMP integrates progressive and emerging vector control activities and materials established in coordination with other regional vector control districts and research institutions throughout California, as well as state and federal agencies, such as the California Department of Public Health, California Environmental Protection Agency (CalEPA), the United States Environmental Protection Agency (USEPA), and the Centers for Disease Control and Prevention (CDC). Emerging vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or early source prevention and/or reduction, surveillance, or physical/biological/chemical controls, depending on the assessment.

1.2 EXISTING CONDITIONS

1.2.1 Natural Environmental Setting

The mountains of the Peninsular Ranges are the predominant landform in San Diego County (Hall 2007). Several peaks in the county reach elevations over 6,000 feet, and from the crest of the mountains, the foothills extend west to almost the coast in many parts of the county. To the east, the foothills of the Peninsular Ranges form the western boundary of the Colorado Desert. Within the county, granitic rocks of Mesozoic age are the predominantly occurring bedrock within the Peninsular Ranges, with older metavolcanic and metamorphic rocks also present (Rogers 1965; Strand 1962; Weber 1963). Prehistorically, the abundant granitic bedrock in the county was well suited and frequently utilized for the creation of bedrock milling stations containing elements such as mortars, basins, and slicks for the processing of vegetal foodstuffs such as seeds and acorns. This utility is evidenced by the recorded presence of several thousand such features in the county. The relative abundance of metavolcanic stone in the county also provided material well-suited, and frequently used prehistorically, for the manufacture of flaked stone tools.

The western side of the mountains receives the most rainfall, with the eastern side receiving significantly less, resulting in desert conditions in the eastern area of the county. All of the major drainages in the county originate in these mountains and flow, either west, to the Pacific Ocean, or east into the Salton Basin. Major drainages flowing west include the Santa Margarita, San Luis Rey, San Dieguito, San Diego, Sweetwater, and Otay rivers; and the Buena Vista, Agua Hedionda, Escondido, Peñasquitos/Poway, and Cottonwood creeks. On the east side of the mountains, due to the lesser rainfall, most of the drainages are creeks or washes rather than rivers. These include San Felipe Creek, Bow Willow Creek, Carrizo Creek Wash, Fish Creek Wash, Borrego Wash, Tule Wash, Arroyo Salada, Tarantula Wash, and Palm Wash. The mountains in San Diego County also contain numerous springs. Prehistorically, these drainages and springs, along with the coastline, were the principal locations in the county for prehistoric habitation as well as for food resource procurement and processing activities (True 1990).

The natural vegetation communities in the county vary, principally by elevation and distance from the coast, as well as by association with different types of hydrological features. In the highest elevations in the county (circa 6,000 feet), alpine vegetation is present. In the upper elevations of the western foothills, the natural vegetation consists mostly of plants of the chaparral and/or coastal sage scrub communities. In the lower elevation foothills and near coastal areas, plants of the coastal sage scrub community, interspersed with areas of native plants of the grassland community predominate. Along the coast and in coastal lagoon and slough areas, freshwater and saltwater marsh vegetation are

present. Along the river and creek stream courses, plants of the riparian and riparian woodland communities, as well as freshwater marsh plants, are present. In the lower elevation foothill desert areas in the east county, creosote bush scrub is the most widespread vegetation type, but other plant communities are also present such as mesquite woodland, desert ironwood woodland, palo verde woodland, four-wing saltbush scrub, creosote bush-burrow weed scrub, brittle bush scrub, ocotillo scrub, and desert buckwheat scrub (Beauchamp 1986; Munz 1974).

Plants of the chaparral community include laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), sugarbush (*Rhus ovata*), California lilac *(Ceanothus* spp.), toyon (*Heteromeles arbutifolia*), chamise (*Adenostoma fasiculatum*), manzanita (*Arctostaphylos glauca*), coast live oak (*Quercus agrifolia*), yucca (*Yucca schidigera*), scrub oak (*Quercus dumosa*), and bush poppy (*Paeonia brownie*). Plants of the coastal sage scrub community include California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), flat-top buckwheat (*Eriogonum fasiculatum*), broom baccharis (*Baccharis sarothroides*), wild onion (*Allium haematochiton*), laurel sumac (*Malosma laurina*), San Diego sunflower *(Bahiopsis laciniata*), golden-yarrow (*Eriophyllum confertiflorum*), sawtooth goldenbush (*Hazardia squarrosa*), yucca (*Yucca schidigera*, *Hesperoyucca whipplei*), prickly pear cactus (*Opuntia* sp.), and scrub oak (*Quercus dumosa*). Native grassland plants include *Stipa*, *Elymus*, *Poa*, and *Muhlenbergia* species. Plants of the riparian and riparian woodland communities include western sycamore (*Platanus racemosa*), willow (*Salix* sp.), Fremont cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), cattail (*Typha latifolia*), bulrush (*Scirpus* spp.), mule fat (*Baccharis* spp.), and poison oak (*Toxicodendron diversiloba*) (Beauchamp 1986; Munz 1974). Plants common to fresh-water marsh include reed grass (*Phragmites australis*), marsh mallow (*Kosteletzkya virginic*), soft rush (*Juncus effusus*), pickerelweed (*Pontederia cordata*), narrow-leaved cattail (*Typha angustifolia*), and button bush (*Cephalanthus occidental*). Plants common to salt-water marshes include alkali heath (*Frankenia* sp.), seashore saltgrass (*Distichlis spicata*), marsh jaumea (*Jaumea* sp.), Salicornia (*Salicornia* sp.), and seepweed (*Suaeda* sp.). In the desert areas, the creosote bush scrub community is dominated by creosote bush (*Larrea tridentata*) and salt bush (*Atriplex canescens*), and it occurs where the soil is more alkaline, while only sparse creosote scrub, ocotillo (*Fouquieria splendens*), and brittle bush (*Encelia farinose*) are present in surface-exposed sandstone areas. Small shrubs such as mesquites (*Prosopis* sp.), burrobush (*Hymenoclea salsola* var. *pentalepis*), desert ironwood (*Olneya tesota*), desert broom (*Baccaris sarothroide*), and introduced tamarisk are present along valleys and dry water courses, with ocotillo sparsely present on alluvial fans (Beauchamp 1986; Hall 2007; Munz 1974).

Major wildlife species found in the western county environments include mammals such as coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), grizzly bear (*Ursus arctos*), mountain lion (*Puma concolor*), desert cottontail (*Sylvilagus audubonii*), jackrabbit (*Lepus californicus*); reptiles such as western pond turtle (*Actinemys marmorata*), southern pacific diamondback rattlesnake (*Crotalus oreganus helleri*), gopher snake (*Pituophis melanoleucus catenifer*), and several lizard species; and various rodents, the most notable of which are the valley pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi),* and dusky footed woodrat (*Neotoma fuscipes*) (Head 1972; Burt and Grossenheider 1976). Desert mammal species include kit fox (*Vulpes macrotis*), desert cottontail (*Sylvilagus audoboni*), black-tailed jackrabbit (*Lepus californicus*), white-tailed antelope squirrel (*Ammosphermophilus leucurus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert and Merriam kangaroo rats (*Dipodomys merriami*), desert pocket mouse (*Perognathus penicillatus*), coyote (*Canis latrans*), and desert bighorn sheep (*Ovis Canadensis nelson*). Desert reptiles include the fringed-toed lizard (*Uma inornata, U. notate*), flat-tailed horned lizard (P*hrynosoma m'calli*), desert tortoise (*Gopherus cinctus*), chuckwalla (*Sauromalus obesus*), desert iguana (*Dipsosaurus*

dorsalis), banded sandsnake (*Chilomeniscus cinctus*), sidewinder (*Crotalus cerastes*), and rosy boa (*Lichanura trivirgata gracia*) (Burt and Grossenheider 1976; Stebbins 1966).

These plant communities, as well as the native plant resources supported by these habitats, would have been used by Native American populations for clothing, food, tools, decorative, and ceremonial purposes (Bean and Saubel 1972; Bean and Shipek 1978; Cuero 1970; Hedges and Beresford 1986; Luomala 1978). Many of the animal species living within these vegetation communities (such as rabbits, deer, small mammals, and pond turtles, as well as birds and fish) would have been utilized by native inhabitants as well. Desert cottontails, jackrabbits, and rodents were very important to the prehistoric diet; deer were somewhat less significant for food, but were an important source of leather, bone, and antler (Bean 1978; Bean and Shipek 1978; Christenson 1990; Luomala 1978).

Modern Environmental Conditions and Land Use

Land uses within the county vary between the urban areas along the coast and the more rural areas in the eastern regions. The majority of the land in the unincorporated county is open space or undeveloped, while the majority of land in the incorporated cities is developed. More than 50 percent of the total land area in the region is not available for urban development, including public lands, dedicated parks and open space, lands constrained for environmental reasons, and military use (SANDAG 2015). The highest population densities are found in the western (coastal) third of the county, where topography and mild coastal climatic conditions are more inducive to development. Urban uses tend to consist of residential and commercial uses, as well as small-scale agricultural and industrial uses. Land uses that occur throughout the county include low-density residential and commercial uses, agricultural operations, mineral resources and extraction, and undeveloped habitats, as well as national forest and state park lands. Public and semi-public facilities, recreational areas, and open space conservation areas are located throughout the county.

The existing transportation network within the county consists of freeways, highways, regional arterials, local streets and roads, alternative transportation facilities, commercial and general aviation facilities, seaport facilities, and ports of entry at the U.S./Mexico border. These facilities serve the 18 cities and the unincorporated areas of the county.

The undeveloped portions of the county consist of a generally semi-arid environment and support a wide range of habitats and biological communities that vary greatly depending on the eco-region, soils and substrate, elevation, and topography. Still existing natural habitats and vegetation communities include vegetated wetlands, oak woodlands, riparian scrub, meadows, freshwater marsh, tidal marshes, sloughs, lakes, ponds, sage scrub, chaparral, grassland habitats, and a variety of other upland and wetland habitats. Sensitive habitats and unique resources within the IVMP service area require special consideration due to the potential presence of endangered plants and animals. These include, but are not limited to, active coastal dunes; vernal pools; southern maritime scrub; maritime succulent scrub; southern coastal bluff scrub; riparian scrub, woodland, and forest; and salt marsh. Additionally, artificially created structures that may be served by the IVMP include stormwater detention basins, flood control channels, roadside ditches, and liquid waste detention ponds.

Because the county is a diverse region with a variety of land uses, habitats, and climatic and topographic conditions, and given the diversity of vector habitat within the IVMP service area, vector control activities are conducted in a wide variety of ecosystems, habitat types, and land uses throughout the county. Mosquito control activities are associated with wet areas of all types and sizes, including

marshes, ponds, creeks, seasonal wetlands, wastewater ponds, stormwater detention basins, ditches, ornamental fishponds, impound areas, etc., as well as individual residential or commercial properties where standing water may occur. Other vectors such as fleas, ticks, and rodents are more commonly found in rural or undeveloped areas, including campgrounds and agricultural areas.

1.2.2 Cultural Setting

Prehistoric Period

The following culture history outlines and describes the known prehistoric background for the San Diego area with references to cultural traditions of potential relevance to prehistoric resources throughout the county. The approximately 12,000 years of documented prehistory of the San Diego region has often been divided into three periods: Early Prehistoric Period (San Dieguito Tradition/complex), Archaic Period (Milling Stone Horizon, Encinitas Tradition, La Jolla and Pauma complexes), and Late Prehistoric Period (Cuyamaca and San Luis Rey complexes).

Early Prehistoric Period

The Early Prehistoric Period represents the time period of the first known inhabitants in California. In some areas of California, it is referred to as the Paleo-Indian period and is associated with the Big-Game-Hunting activities of the peoples of the last Ice Age, occurring during the Terminal Pleistocene (pre-10,000 years ago) and the Early Holocene, beginning circa 12,000 years ago (Erlandson 1994, 1997; Erlandson et al. 2007). In the western United States, most evidence for the Paleo-Indian or Big-Game-Hunting peoples, derives from finds of large fluted spear and projectile points (Fluted-Point Tradition) in places such as Clovis and Folsom in the Great Basin and the Desert southwest (Moratto 1984:79–88). In California, most evidence for the Fluted-Point Tradition derives principally from areas along the margins of the Great Basin and the Desert southwest such as the Sierras, the southern Central Valley, and the deserts of southeastern California (Moratto 1984:79–88), with several, mostly isolated, occurrences of fluted spear points encountered on or near the coast of California (Dillon 2002; Rondeau et al. 2007). Three of these isolated fluted points or point fragments have occurred in San Diego County, all occurring in the mountainous or eastern areas, one approximately 7.5 miles northeast of Warner Springs (Kline and Kline 2007), one in Cuyamaca Pass (Dillon 2002; Rondeau et al. 2007), and one near Ocotillo Wells (Rondeau et al. 2007). Several others have occurred in proximity to the county including one along the coast in adjacent Orange County to the northwest (Fitzgerald and Rondeau 2012), and two in Baja California to the south (Des Lauriers 2008; Hyland and Gutierrez 1995).

Results from recent archaeological investigations on the northern Channel Islands west of Santa Barbara have revealed that humans who were apparently not Big Game hunters (i.e., no fluted points have been found on the islands, to date) were occupying the islands as early as the terminal Pleistocene, roughly 12,000 years ago (Erlandson et al. 2007:57). These results, instead, document a fully maritime-adapted population on the islands at this early date that were exploiting shellfish, and using seaworthy boats to navigate the channel waters. Fishing has also been documented in the islands as early as 10,000 years ago by the presence of bone-gorge fishhooks (Erlandson et al. 2007:57). Such early dates, however, for a similar cultural pattern are still lacking for the adjacent southern California mainland. This absence on the mainland may be due to the rise in sea level brought about by post-Pleistocene deglaciation that possibly inundated sites located along this lower elevation coastline during the late Pleistocene/early Holocene. At this time in San Diego County, the shoreline stood 2 to 6 kilometers (km) farther seaward than today's coast (Masters and Aiello 2007).

Despite the occurrence of isolated of fluted points in the San Diego area and vicinity, the earliest archaeological sites documented to be at least 10,000 years old belong to the San Dieguito Tradition (Warren et al. 1998; Warren and Ore 2011). The San Dieguito Tradition, with an artifact assemblage distinct from that of the Fluted Point Tradition, has been documented mostly in the coastal and near coastal areas in San Diego County (Carrico et al. 1993; Rogers 1966; True and Bouey 1990; Warren 1966; Warren and True 1961), as well as in the southeastern California deserts (Rogers 1939, 1966; Warren 1967), but with some evidence for it recently proposed in the eastern Mountains of San Diego County (Pigniolo 2005) and in the coastal area north of San Diego County (Sutton and Grenda 2012). This tradition shares a similarity to Fluted Point Tradition, in that it is characterized by an artifact inventory suggestive of an emphasis on hunting, but it lacks the distinctive fluted points associated with the Fluted Point Tradition. Diagnostic artifact types and categories associated with the San Dieguito Tradition include elongated bifacial knives; large leaf-shaped projectile points; scraping tools; crescentics; and in the desert, Silver Lake and Lake Mojave projectile points (Knell and Becker 2017; Rogers 1939; Vaughan 1982; Warren 1966, 1967). The content of the earliest component of the C.W. Harris Site (CA-SDI-149/316/4935B), located along the San Dieguito River, southwest of Lake Hodges, formed the basis upon which Warren and others (Rogers 1966; Warren 1966, 1967; Warren and True 1961) originally identified the "San Dieguito complex," and which Warren later reclassified as the San Dieguito Tradition (1968).

The subsistence system or emphasis of the San Dieguito Tradition, while not as yet entirely agreed upon, has, as previously noted, been suggested by Warren (1967) as having an orientation toward a hunting rather than a gathering economy. This characterization is based on an artifact assemblage of primarily hunting associated tools, in contrast to the more gathering-oriented complexes that were to follow in the Archaic Period (Warren 1967, 1968, 1987; Warren et al. 1998). Other researchers, however, have interpreted the San Dieguito subsistence system to be possibly ancestral to, or a developmental stage for, the predominantly gathering-oriented "La Jolla/Pauma complex" of the subsequent Archaic Period (e.g., Bull 1983; Ezell 1987; Gallegos 1985, 1987, 1991; Koerper et al. 1991). Based on uncalibrated radiocarbon dates, Warren originally indicated the San Dieguito Tradition to have begun sometime prior to 9000 years before present (BP) and to have ended sometime between 8500 and 7500 BP (1967; 1968:4). Recent calibrations of these dates, however, have indicated that some are significantly earlier, i.e., exceeding 10,000 BP (Warren et al. 1998; Warren and Ore 2011).

Archaic Period

In the southern coastal region, the subsequent Archaic Period dates from circa 8600 BP to circa 1300 BP (Warren et al. 1998). A large number of archaeological site assemblages dating to this period have been identified at a range of coastal and inland sites. This appears to indicate that a relatively stable, sedentary hunting and gathering complex, possibly associated with one people, was present in the coastal and immediately inland areas of what is now San Diego County for more than 7000 years. These assemblages, designated as the La Jolla/Pauma complexes, are considered part of Warren's (1968) "Encinitas Tradition" and Wallace's (1955) "Milling Stone Horizon." In general, the content of these site assemblages includes manos and metates; shell middens; terrestrial and marine mammal remains; burials; rock features; bone tools; doughnut stones; discoidals; stone balls; plummets; biface points/knives; beads made of stone, bone, or shell; and cobble-based tools at coastal sites and increased hunting equipment and quarry-based tools at inland sites. As defined by True (1958), the "Pauma complex" aspect of this culture is associated with sites located in inland areas that lack shellfish remains but are otherwise similar in content to the La Jolla complex. The Pauma complex may, therefore, simply represent a non-coastal expression of the La Jolla complex (True 1980; True and Beemer 1982). During the latter half of the Archaic Period, artifacts such as dart points and mortars and pestles, which are

essentially absent during the early Archaic Period, begin to occur in site assemblages dating after circa 5500 BP. Also noted by Warren (2012), was an increase in the presence of larger mammal remains in La Jolla complex faunal assemblages during the latter part of the Archaic Period. This new and subsequently increasing use of these resources represents a significant shift in the Encinitas/La Jolla/ Pauma complex subsistence system in the southern coastal region (Warren et al. 1998; Warren 2012).

In the inland, western foothill area of San Diego County, archaeological sites dating to the Archaic Period are generally less numerous than along the coast (Gross and Robbins-Wade 2010: 26; Warren et al. 1998; McDonald 1995: 14), but are not unknown (e.g., Chace and Sutton 1990; Cooley and Barrie 2004; Gross and Robbins-Wade 1992, 2010; Raven-Jennings and Smith 1999; True 1980; Warren et al. 1961:10). However, similar to the Early Period San Dieguito Tradition, most of the substantiating archaeological evidence for the Archaic Period Encinitas Tradition/La Jolla/Pauma complex (Milling Stone Horizon) in present-day San Diego County is derived from sites in near-coastal valleys, estuaries, and/or embayments that are present along the San Diego coast south of the San Luis Rey River (e.g., Cooley et al. 2000; Cooley and Mitchell 1996; Gallegos 1995:200; Pigniolo et al. 1991; Shumway et al. 1961; Smith and Moriarty 1985).

While not plentiful, sites in inland foothill circumstances with evidence for exclusively Archaic Period occupation are rare. Instead, many inland sites with evidence for Archaic Period occupation also have evidence for subsequent late prehistoric occupation as well. One such site located along the San Diego River in Mission Gorge area, approximately 14 miles from the ocean, CA-SDI-9243, has produced radiocarbon dates of circa 5400 and 5700 BP and Elko-eared style projectile points (Cooley 1995). The artifact assemblage and the radiocarbon results from the site also appear to indicate that it was repeatedly occupied over a period of nearly 6,000 years, with the last occupation occurring during the Late Prehistoric Period (Carrico et al. 1994; McDonald et al. 1994). Sites in the foothills along Santa Maria Creek, near Ramona, have produced an Elko-eared style projectile point and a radiocarbon date of circa 2000 BP, documenting an occupation during the late Archaic Period, but with subsequent occupation occurring during the Late Prehistoric Period (Cooley and Barrie 2004). In the foothill Alpine area, radiocarbon dates of 2550 BP and 2900 BP, from two of the sites, also suggested a late Archaic Period occupation of these sites with subsequent occupation occurring during the Late Prehistoric Period (Gross and Robbins-Wade 2010). Similar to the long and repeated occupation at site CA-SDI-9243, the Scripps Poway Parkway Site (CA-SDI-4608), located along the Beeler Canyon drainage, and situated approximately 15 miles from the ocean, has been radiocarbon dated to as early as 5800 BP, and is described as associated with the "transitional periods between the San Dieguito and La Jolla complexes and the later Archaic/Late Prehistoric transition" (Raven-Jennings and Smith 1999:3.0-5). La Jolla complex artifacts recovered from the site included doughnut stones; discoidals; and Pinto, Elko, and large side-notched points. Also, in the Poway area, archaeological investigations along Poway/ Peñasquitos Creek, have produced both radiocarbon dates and projectile points (Elko, Gypsum Cave, large side-notched, and Pinto points) that indicate there was an Archaic occupation with subsequent occupation occurring during the Late Prehistoric Period (Gross and Robbins-Wade 1992).

Unlike the western part of the county, in the western Colorado Desert area of the east county, only limited archaeological evidence has yet been encountered that can be definitely attributed to the Archaic Period (Schaefer 1994:64; Schaefer and Laylander 2007:247). While evidence of possible Archaic Period occupation in the western Colorado Desert is minimal, recently, site CA-SDI-7074, located in the southeast corner of the county, approximately 22 miles to the southwest of Carrizo Creek, was found to contain more than 100 subsurface thermal features, most of which were likely earth ovens associated with agave roasting activity. While radiocarbon dating indicated that most of these oven features dated

to the Late Prehistoric Period, five more deeply buried features were discovered to date between 8590 and 9600 BP (Williams 2014). These results not only indicate the utilization of this vegetal food resource much earlier in time than was previously realized but may also suggest a reappraisal of the dating for the inception of the early Archaic Period in the area, as Williams states that the thermal features "spanned the Early Archaic to Late Prehistoric periods" (Williams 2014:325). Also recovered from the site was an Elko style projectile point, suggestive of an early to mid-Archaic Period occupation (Williams 2014:151). One other site of note dating to the late Archaic consists of deposits at the Indian Hill Rockshelter site (CA-SDI-2537), in the foothill areas of Anza-Borrego Desert State Park (McDonald 1992). The site contained distinctive dart-sized projectile points, ground stone implements, rock-lined caches, and inhumations, one of which was radiocarbon dated to 4070 ± 100 years BP (McDonald 1992; Schaefer 1994; Wilke and McDonald 1989).

Late Prehistoric Period

While there has been considerable debate about whether San Dieguito and La Jolla traditions might represent the same people using different environments and subsistence techniques, or whether they are separate cultural patterns (e.g., Bull 1983; Ezell 1987; Gallegos 1987; Warren et al. 1998), abrupt shifts in subsistence practices and the use of new tool technologies are documented in the archaeological record to have occurred at the onset of the Late Prehistoric Period (ca. 1500 to 1300 BP). The Late Prehistoric Period is also characterized by higher population densities and intensification of social, political, and technological systems. The technological changes observed include a shift from the use of atlatl and dart to the bow and arrow and the manufacture and use of ceramics. Subsistence shifts included a reduction in shellfish gathering in some areas (possibly due to silting of the coastal lagoons), and the storage of vegetal foodstuff such as acorns. A shift in burial practices from inhumation to cremation of the dead also occurred during the Late Prehistoric Period.

Movements of people during the last 2,000 years can account for at least some of these changes. Yuman-speaking people had occupied the Gila/Colorado River drainages of what is now western Arizona by 2,000 years ago (Moriarty 1968) and then continued to migrate westward. An analysis by Moriarty (1966, 1967) of materials recovered from the Spindrift site in La Jolla indicated a preceramic Yuman phase. Based on this analysis and a limited number of radiocarbon samples, Moriarty concluded that Yumans, lacking ceramic technology, penetrated into and occupied what is now the San Diego coastline circa 2000 BP. Subsequently, approximately 1200 to 1300 BP, ceramic technology diffused into the coastal area from the eastern deserts. Although these Yuman speakers may have shared cultural traits with the people occupying what is now eastern San Diego County before 2000 BP, their influence is better documented throughout present-day San Diego County after 1300 BP, with the introduction of small points, ceramics, Obsidian Butte obsidian, and the practice of cremation of the dead.

Based on early research by Meighan (1954) and True (1970), two distinct archaeological complexes have been proposed for the Late Prehistoric Period in what is now San Diego County. The Cuyamaca complex is based on analysis by True of archaeological excavations within Cuyamaca Rancho State Park and of San Diego Museum of Man collections. Based on the results of this analysis, True (1970) defined a Late Prehistoric Period complex for southern San Diego County that was distinct from Meighan's (1954) San Luis Rey complex in the northern county area. The presence or absence, or differences in the relative occurrence, of certain diagnostic artifacts in site assemblages provide the principal distinctions between these archaeological complexes. Cuyamaca complex sites, for example, generally contain both Cottonwood Triangular-style points and Desert Side-notched arrow points, while Desert Side-notched points are less common in San Luis Rey complex sites (Pigniolo 2004). Other examples include Obsidian

Butte obsidian, which is far more common in Cuyamaca complex sites than in San Luis Rey complex sites, and ceramics; while ceramics are present during the Late Prehistoric Period throughout what is now San Diego County, they are more common in the southern or Cuyamaca complex portions of San Diego County where they occur earlier in time and appear to be somewhat more specialized in form. Both complexes have produced a variety of ceramic vessel types, along with straight and bow-shaped ceramic pipes and effigies. Interment of the dead at Cuyamaca complex sites is almost exclusively by cremation, often in special burial urns, while archaeological evidence from San Luis Rey complex sites indicates both inhumation and cremation. Based on ethnographic data, including the areas defined for the Hokan-based Yuman-speaking peoples (Diegueño/Kumeyaay) and the Takic-speaking peoples (Luiseño) at the time of contact, it is generally accepted that the Cuyamaca complex is associated with the Diegueño/Kumeyaay people and the San Luis Rey complex with the Luiseño people (True 1970; True and Waugh 1982).

As noted above, it has been previously observed in San Diego County, that during the Late Prehistoric Period sites attributable to the San Luis Rey or Cuyamaca complexes occur in greater frequency in inland areas of the county. McDonald (1995:14), for example, has stated that "most sites in the Laguna Mountains can be expected to date from late prehistoric or ethnohistoric occupation of the region, and Archaic Period remains, while not unknown, are relatively rare", and Gallegos (1995:200) states that "for San Diego County, there is temporal patterning, as the earliest sites are situated in coastal valleys and around coastal lagoons. Late Prehistoric Period sites are also found in coastal settings but are more common along river valleys and interior locations." It is also possible, now, to observe, however, that while a number of examples of Late Prehistoric Period sites that appear to be attributable exclusively to the San Luis Rey or Cuyamaca complexes have been identified for the near-coastal inland foothill areas of the county through diagnostic artifacts and/or radiocarbon dating (e.g., Chace and Hightower 1979:48; McCown 1945), a number of sites containing evidence for both Late Prehistoric Period and Archaic Period occupations have also been documented (Carrico and Cooley 2005; Carrico et al. 1994; Cooley and Barrie 2004; Gross and Robbins-Wade 1992, 2010; McDonald et al. 1994; Raven-Jennings and Smith 1999; Willey and Dolan 2004). It appears possible, therefore, that as more archaeological data accumulates, this geographic dichotomy of site locations between the Archaic and Late Prehistoric periods within the county may be found to not be completely valid.

In the far east county, most resources in the archaeological record for the western Colorado Desert that date to the Late Prehistoric Period are associated with the prehistoric Lake Cahuilla shorelines in the Salton Basin, and, consequently, are located to the east of the county (Apple et al. 1997; Laylander 1997; Schaefer 2006; Wilke 1978). Late Prehistoric Period cultural resources located within the county are usually associated with springs, major drainages, rock shelters, and adjacent seasonally occupied montane areas. In these latter categories, in addition to the late Archaic Period occupation described above, evidence of Late Prehistoric occupation was also noted at CA-SDI-2537, the Indian Hill Rockshelter site, located in the foothills of the east county (McDonald 1992). Also, though located in Riverside County, Tahquitz Canyon in the mountainous area just north of the northeastern corner of the county, has been documented as having been an important population center during the Late Prehistoric Period (Bean et al. 1995).

Native American Perspective

In addition to the point of view discussed in the culture history above, it is recognized that other perspectives exist to explain the presence of Native Americans in the region. The Native American perspective is that they have been here from the beginning, as described by their creation stories.

Similarly, they do not necessarily agree with the distinction that is made between different archaeological cultures or periods, such as "La Jolla" and "San Dieguito." They instead believe that there is a continuum of ancestry from the first people to the present Native American populations of San Diego (County of San Diego 2011).

Ethnohistory

The Ethnohistoric Period, sometimes referred to as the ethnographic present, commenced with the earliest European arrival in what is now the San Diego county area and continued through the Spanish and Mexican periods and into the American period. Based on early ethnographic data, four linguistically distinct indigenous peoples inhabited the San Diego County area at the time of first European contact: the Hokan-based Yuman-speaking Kumeyaay or Diegueño in the southern part of the county, the Takic-speaking Luiseño in the northwestern portion of the county, the Takic-speaking Cupeño, in the north-central area of the county, and the Takic-speaking Cahuilla in the northeastern portion of the county. The Kumeyaay people are also known as Ipai, Tipai, or Diegueño (named for Mission San Diego de Alcala), while the term Luiseño derives from Mission San Luis Rey de Francia as they were originally associated by the Spaniards with that mission. Agua Hedionda Creek is often described as the division between the territories of the Kumeyaay people and the Luiseño (Bean and Shipek 1978; Luomala 1978), although various archaeologists and ethnographers use slightly different boundaries. The territorial boundaries between the Cahuilla and their Luiseño and Kumeyaay neighbors were apparently somewhat fluid at the time of European contact and were, therefore, difficult for ethnographers to definitely delineate. The territorial boundary, for example, between the Luiseño and Cahuilla as shown by Kroeber (1925) and Bean (1978) varies considerably, and, according to Schaefer (2006), the Ocotillo Wells area in the east county was the boundary between the Kumeyaay (Tipai/Kamia) to the south and the Cahuilla to the north, and he states that although both groups "consider the cultural resources of the general area as part of their cultural and historical legacy," tribal boundaries likely shifted through time (2006:21).

At the time of Spanish contact, the Luiseño occupied northwestern San Diego County and western Riverside County (Bean and Shipek 1978; Kroeber 1925). This territory was subdivided and occupied by different families or bands. Family groups were known as *tunglam* or *kamalum*. Chiefs acted as religious leaders of clans and directed religious ceremonies. This position was hereditary (Sparkman 1908). Kroeber estimates that the Luiseño population was approximately 3,000 to 4,000 (Kroeber 1925) during the Mission era. More than 80 family groups were known in the early twentieth century (Kroeber 1925). The Luiseño lived in semi-sedentary villages usually located along major drainages, in valley bottoms, and also on the coastal strand, with each family controlling gathering areas (Sparkman 1908; White 1963; Bean and Shipek 1978). True (1990) indicated that the predominant determining factor for placement of villages and campsites was locations where water was readily and consistently available. The Luiseño followed a seasonal gathering cycle, with bands occupying a series of campsites within their territory (Bean and Shipek 1978; White 1963). One band could have multiple areas depending on the season such as in the mountains or valley areas (Sparkman 1908). Each band was typically restricted to their territory for hunting and resource gathering. The Luiseño subsisted on seeds, acorns, fruits, and berries, as well as meat caught by hunting and fishing (Kroeber 1925; Sparkman 1908). The resources used depended on the seasons, as the Luiseño moved through the coastal, mountain, or desert zones (Lightfoot and Parrish 2009). While most of the major Luiseño villages known ethnohistorically were located closer to the coast along the Santa Margarita River Valley and the San Luis Rey River Valley (Bean and Shipek 1978; Kroeber 1925; White 1963), Kroeber (1925) does indicate general locations for ethnohistoric Luiseño villages in more inland areas as well.

At the time of Spanish contact, southern San Diego County, southwestern Imperial County, and northern Baja California was the traditional territory of the Kumeyaay people. The population of the Kumeyaay people in San Diego in 1770 was estimated by Kroeber (1925:883) to be 3,000, but Luomala (1978:596) believes it was likely double or triple that estimate. The Kumeyaay were territorial, with bands that lived in semi-sedentary, politically autonomous villages or rancherias (Carrico 1998). Each village was comprised of many households, and groups of villages were part of a larger social kinship system. The basic unit of the system "appears to have been kin groups referred to by a variety of names including sib, shimulls, cimuLs, gens, and gentes. These clans were organized into exogamous groups based on patrilineal (male) descent" (Carrico 2017:9). Most rancherias were the seat of a clan, although it is thought that, aboriginally, some clans had more than one rancheria and some rancherias contained more than one clan, often depending on the season within the year (Luomala 1978). Villages and larger campsites were generally chosen based on proximity to water, boulder outcrops, environmental protection, and availability of plants and animals (Luomala 1978; True 1990). Consequently, many of the Kumeyaay villages or rancherias were located in river valleys and along the shoreline of coastal estuaries (Carrico 1998; Kroeber 1925; Luomala 1978). They subsisted on a hunting and foraging economy, exploiting San Diego's diverse ecology throughout the year; coastal bands exploited marine resources while inland bands might move from the desert, ripe with agave and small game, to the acorn and pine nut rich mountains in the fall (Cline 1984; Kroeber 1925; Luomala 1978).

At the time of Spanish contact, the Cahuilla occupied northeastern San Diego County and portions of western Riverside County (Bean 1978; Kroeber 1925). This territory included portions of the Santa Rosa, Santa Jacinto, and San Bernardino mountains as well as portions of the western Colorado Desert including the northern Salton Basin (Bean 1978). The earliest Spanish contact with the Cahuilla may have been when the Anza expedition trips in 1774 and 1777 traversed the area (Schaefer 2006:23). The origin of the term Cahuilla is uncertain, but it has been suggested that it may derive from their own word *Káwiya,* which translates as 'master or boss' (Bean 1978:575; Kroeber 1925:693). The Cahuilla territory contained a diverse range of environmental habitats. Topographically, their territory ranged from the summit of the San Bernardino Mountains, in excess of 11,000 feet, to the Coachella Valley and Salton Sink, well below sea level. Ecological habitats included the full range of mountains, valleys, passes, foothills, and desert area. Villages were typically situated in canyons or on alluvial fans near water and food resources, and a village's lineage owned the immediately surrounding land (Bean 1978). Well-developed trails were used for hunting and travel to other villages. Village houses ranged from brush shelters to large huts 15–20 feet long. Important plant foods exploited from the Cahuilla's diverse habitat included mesquite and screw beans, piñon nuts, and various cacti. Other important plant foods included acorns (six oak varieties), various seeds, wild fruits and berries, tubers, roots, and greens. Women were instrumental in the collection and preparation of vegetal foods (Bean 1978). It has been suggested that when the large prehistoric Lake Cahuilla was present in the Salton Basin, it affected the settlement and subsistence patterns, with the desert area becoming a more productive resource area. Schaefer (2006:22) states that "Cahuilla mythology and oral tradition also indicate that when Lake Cahuilla dried up, it was the mountain people who resettled the desert floor. The time of Lake Cahuilla is also best documented in the oral traditions of the Cahuilla, both with regard to settlement patterns, song cycles, and the effects of Lake Cahuilla on patrilineal clan segmentation."

The Cupeño were one of the smallest linguistically distinct native groups in southern California, with an estimated population of 500 to 750 people at the time of first European contact in 1795 (Bean and Smith 1978: 589; Kroeber 1925:689). The Cupeño occupied a small area (approximately 10 square miles) in the mountains of north-central San Diego County and within the upper reaches of the San Luis Rey River watershed (Bean and Smith 1978; Kroeber 1925). This territory extended east from Lake Henshaw,

along both sides of the Agua Caliente drainage, to just east of Hot Springs Mountain (Bean and Smith 1978:558). The term Cupeño is of Spanish origin consisting of the native place-name *Kúpa* (a principal Cupeño village) and the Spanish appendage *-eño,* which means a person who lives in or comes from *Kúpa* (Bean and Smith 1978:590). While the Cupeño social organization and cosmology were largely the same as their neighbors the Cahuilla, with the social organization consisting of exogamous moieties, patrilineal clans, ceremonial exchange parties, they also acquired various religious and ceremonial rituals from their other neighbors, the Luiseño and Kumeyaay. Within their territory, the most productive food gathering locations were owned by clans, with the intervening areas available to all for both hunting and gathering (Bean and Smith 1978:588).

The founding of Mission San Diego de Alcalá in 1769, in the southern county, and Mission San Luis Rey in 1798, in the northern county, brought about profound changes in the lives of the Kumeyaay and Luiseño peoples. The coastal populations of the Kumeyaay and Luiseño, in particular, died from introduced diseases or were brought into the mission system, while inland areas, and inland tribes such as the Cahuilla and Cupeño, were less immediately affected; these groups were eventually also substantially impacted as Spanish activities and settlement expanded into their territories. Earliest accounts of Native American life in what is now San Diego County were recorded as a means to salvage scientific knowledge of native lifeways. These accounts were often based on limited interviews or biased data collection techniques. Later researchers and local Native Americans began to uncover and make public significant contributions in the understanding of native culture and language. These studies have continued to the present day and involve archaeologists and ethnographers working in conjunction with Native Americans to address the continued cultural significance of sites and landscapes across San Diego County.

Historic Period

Spanish Period (1769 to 1821)

While Juan Rodriguez Cabrillo visited San Diego briefly in 1542, the beginning of the historic period in the San Diego area is generally given as 1769. In the mid-eighteenth century, Spain had escalated its involvement in California from exploration to colonization (Weber 1992), and in that year, a Spanish expedition headed by Gaspar de Portolá and Junípero Serra established the Royal Presidio of San Diego. Portolá then traveled north from San Diego seeking suitable locations to establish military presidios and religious missions in order to extend the Spanish Empire into Alta California.

Initially, both a mission and a military presidio were located on Presidio Hill overlooking the San Diego River. A small pueblo, now known as Old Town San Diego, developed below the presidio. The Mission San Diego de Alcalá was constructed in its current location in 1769, and in the northern portion of the county, Mission San Luis Rey de Francia was established in 1798. The missions and presidios stood, literally and figuratively, as symbols of Spanish colonialism, importing new systems of labor, demographics, settlement, and economies to the area. Animal husbandry and agriculture were the main pursuits of the missions, utilizing large swaths of land. Animals raised included cattle, horses, pigs, sheep, and goats (Wade et al. 2009).

Mexican Period (1821 to 1848)

Although Mexico gained its independence from Spain in 1821, Spanish patterns of culture and influence remained for a time. The missions continued to operate as they had in the past, and laws governing the

distribution of land were also retained throughout the 1820s. Following secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals, ushering in the Rancho Era, with the society making a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With the numerous new ranchos in private hands, cattle ranching expanded and prevailed over agricultural activities, remaining the base economy of California until the 1840s (Wade et al. 2009).

Rancho Santa Maria de Los Peñasquitos, located in Peñasquitos Canyon, was the first rancho granted by the Mexican government in San Diego county. This rancho included 8,486 acres granted to Captain Francisco María Ruíz. During the Mexican Period, land was also granted to pueblos with locally elected town councils. In 1833, San Diego submitted a petition to Governor Figueroa asking for formal recognition as a pueblo, and in 1834, was granted permission to establish a municipal government. However, partially due to the establishment of the ranchos in the back-county areas and the subsequent population shift to the ranchos, San Diego's population shrunk from nearly 500 people in 1834 to 150 in 1841 (Crane 1991). Consequently, the town council was replaced by a justice of the peace in 1838. A few years later, in 1845, the town was allowed a governor-appointed sub-prefect, Santiago Arguello, who commissioned a survey of the pueblo lands; the resulting map was signed by Governor Pio Pico in 1846, establishing the pueblo as over 48,000 acres of land.

American Period (1848 to Present)

On May 13, 1846, the United States of America declared war on Mexico. General Stephen Watts Kearny's "Army of the West" engaged with General Andres Pico and his Mexican-Californian army in a bloody battle at the Valley of San Pasqual, near present-day Escondido. The battle was victorious for the Mexican Californios; however, in the end they lost the Mexican–American War. American governance began in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo, ceding California to the United States at the conclusion of the war. The following years saw a great influx of settlers to California and the San Diego region. The increase in population resulted from several factors, including the discovery of gold in the state in 1848, the end of the Civil War, the availability of free land through passage of the Homestead Act, and later, the importance of San Diego County as an agricultural area supported by roads, irrigation systems, and connecting railways.

On September 9, 1850, California was granted statehood by the United States of America, with San Diego County being established as one of the original 27 counties within California. The original county boundaries included much of the Colorado and Mojave deserts, extending from the Pacific Ocean to the Colorado River and all present-day Imperial County and much of San Bernardino, Riverside, and Inyo counties. San Diego County then had more than 37,000 square miles of area. In 1851, Los Angeles County was given the north half of San Diego County, which thereby was left with but 14,800 of its original 37,000 square miles. In 1872, Riverside County was formed, reducing San Diego County to 8,400 square miles (Moore 1955).

While the American system required that the newly acquired land be surveyed prior to settlement, the Treaty of Guadalupe Hidalgo bound the United States to honor the land claims of Mexican citizens who were granted ownership of ranchos by the Mexican government. The Land Act of 1851 established a board of commissioners to review land grant claims, and land patents for the land grants were issued throughout the following years. Eventually, more than 30 land grants covering almost 1,000 square miles were established within San Diego County. In 1874, San Diego received a land patent for

47,323 acres, which was slightly less than the size of the original pueblo lands, due to 1,233 acres within Point Loma being assigned as a military reservation (Crane 1991).

Many farms and ranches were established within many of the former ranchos; large tracts such as Jamul, Santa Maria (Ramona), San Vicente, San Jose (Warner's), San Felipe, Laguna, and Cuyamaca, continued as large cattle enterprises into the twentieth century (Wade at al. 2009). The confirmation of ranchos' boundaries in the late 1860s and early 1870s also drew additional settlers as land became officially conveyable. Under the Homestead Act of 1862 settlers could claim up to 160 acres of public land for the cost of a filing fee of $10, on condition that the land was occupied for at least five years and that certain improvements were made. The increase of land claims significantly reduced the remaining lands within the county which sustained the Native American populations as settlers marked, surveyed, and fenced property. The increase of land claims contributed to the push for Native American reservations to be established, often in what were lands of poorer subsistence (Carrico 2008).

In the early years of the American Period, Old Town had remained the center of civic life in the area; however, the San Diego River was prone to major floods, and in the 1870s, downtown San Diego, then known as Horton's Addition, became the urban center (AECOM 2015). In San Diego County, the 1880s were characterized by "boom and bust" cycles that brought thousands of additional people to the region. In 1885, the Transcontinental Railroad reached San Diego, making the journey of American settlers from the east and Midwest easier. By the end of the decade, many of the new settlers had left after the development bust; however, some remained to form the foundations of small communities based on dry farming, orchards, dairies, and livestock ranching. During the late nineteenth and early twentieth centuries, rural areas of San Diego County developed small agricultural communities centered on one-room schoolhouses. Such rural farming communities consisted of individuals and families tied together through geographical boundaries, a common schoolhouse, and a church.

As with the rural portions of the county, by the 1890s, the City of San Diego had also entered a time of steady growth and subdivisions such as Golden Hill, Sherman Heights, Logan Heights, Banker's Hill, and University Heights were developed. As the City continued to grow in the early twentieth century, the downtown's residential character changed. Streetcars and the introduction of the automobile allowed people to live farther from their downtown jobs, and new suburbs were developed. By 1900 the population of the City of San Diego was 17,700 and San Diego County was 35,090 (San Diego History Center 2020).

The influence of military development, beginning in 1916 and 1917 during World War I, and the need to fight a two-ocean war during World War II resulted in substantial development in infrastructure and industry to support the military and accommodate soldiers, sailors, and defense industry workers. In 1917, the U.S. Army established Camp Kearny on the site of what is now MCAS Miramar, located in the central portion of the County. San Diego Bay became the home of the United States Navy Pacific Fleet in 1919. Marine Corps Base Camp Pendleton was established within Rancho Santa Margarita y Las Flores in 1942, which became the largest Marine Corps base in the United States. Many military bases and military industrial operations were established across San Diego County due to World War II, resulting in an economic shift away from agricultural industries in San Diego County.

After World War II, San Diego County experienced massive development. San Diego State University, established in the 1920s, spurred the development of the eastern portion of the City of San Diego and new roadways, freeways, infrastructure, tract housing and multi-family housing developments, commercial and recreational developments were constructed in the 1950s, 1960s, and 1970s. In 1954

the University of San Diego was founded in Linda Vista, and in 1964 the University of California established a 1,000-acre San Diego campus in La Jolla. San Diego Stadium opened in Mission Valley as home to the San Diego Chargers in 1967 and San Diego–Coronado Bay Bridge opened in 1969, replacing ferry service across San Diego Bay. By 1970 San Diego became California's second-largest city, with a population of 696,474, with the overall county population being greater than 1.3 million by this time (San Diego History Center 2020). San Diego County continued to grow in population and development into the last decades of the twentieth century.

1.3 APPLICABLE REGULATIONS

Cultural resources are defined as buildings, sites, structures, objects, or districts each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. Resource importance is assigned to those cultural resources that possess exceptional value or quality illustrating or interpreting the heritage of San Diego County in history, architecture, archaeology, engineering, and culture.

A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in the California Environmental Quality Act (CEQA), Assembly Bill (AB) 52, the San Diego County Local Register, and the County of San Diego Resource Protection Ordinance (RPO) provide the guidance for making such a determination. The following sections detail the criteria that a resource must meet in order to be determined important.

1.3.1 State Guidelines and Regulations

California Environmental Quality Act

CEQA Public Resources Code (PRC) 21084.1, and California Code of Regulations (CCR) Title 14 Section 15064 discuss significant cultural resources as "historical resources," which are defined as:

- Resource(s) listed or determined eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR) (14 CCR Section 15064.5[a][1]);

- Resource(s) either listed in the National Register of Historic Places (NRHP) or in a "local register of historical resources" or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (14 CCR Section 15064.5[a][2]); or

- Resource(s) determined by the Lead Agency to meet the criteria for listing on the CRHR (14 CCR Section 15064.5[a][3]).

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. It is associated with the lives of persons important to local, California, or national history;

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

4. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a "historical resource" for the purposes of CEQA at the discretion of the lead agency.

All resources that are eligible for listing in the CRHR must have integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

(1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.

(2) The significance of an historical resource is materially impaired when a project:

   (a) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

   (b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

   (c) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5 of CEQA applies to effects on archaeological sites and contains additional provisions regarding archaeological sites. If an archaeological site does not meet the criteria defined in subsection (a) as a historical resource, but does meet the definition of a unique archaeological resource in Section 21083.2 of the PRC, the site shall be treated in accordance with the provisions of

section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources. If an archaeological resource is neither a unique archaeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the environmental document, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) & (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides the following:

> When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code §5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission.

California Assembly Bill 52

California AB 52 revised PRC Section 21074 to include Tribal Cultural Resources (TCRs) as an area of CEQA environmental impact analysis. Further, per new PRC Section 21080.3, a CEQA lead agency must consult with any California Native American tribe that requests consultation and that is traditionally and culturally affiliated with the geographic area of a proposed project to identify resources of cultural or spiritual value to the tribe, even if such resources are already eligible as historical resources as a result of cultural resources studies. A TCR may be considered significant if it is (i) included in a local or state register of historical resources; (ii) determined by the lead agency to be significant pursuant to criteria set forth in PRC Section 5024.1; (iii) a geographically defined cultural landscape that meets one or more of these criteria; (iv) a historical resource described in PRC Section 21084.1 or a unique archaeological resource described in PRC Section 21083.2; or (v) a non-unique archaeological resource if it conforms with the above criteria.

1.3.2 Local Guidelines and Regulations

San Diego County Local Register of Historical Resources

The County requires that resource importance be assessed not only at the state level as required by CEQA, but at the local level as well. If a resource meets any one of the following criteria as outlined in the Local Register, it will be considered an important resource.

1. Resource(s) associated with events that have made a significant contribution to the broad patterns of California or San Diego County's history and cultural heritage;

2. Resource(s) associated with the lives of persons important to the history of San Diego County or its communities;

3. Resource(s) that embody the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Resource(s) that have yielded, or may be likely to yield, information important in prehistory or history.

The purpose of the San Diego County Local Register of Historical Places is to develop and maintain "an authoritative guide to be used by State agencies, private groups, and citizens to identify the County's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Sites, places, or objects that are eligible to the NRHP or the CRHR are automatically included in the San Diego County Local Register of Historical Places.

Resource Protection Ordinance

The County of San Diego's RPO requires that cultural resources be evaluated as part of the County's discretionary environmental review process, and if resources are determined to be significant under the RPO, they must be preserved. Pursuant to Section 86.603, the RPO is applicable to discretionary applications such as Tentative Map, Tentative Parcel Map, Revised Tentative Map and Revised Tentative Parcel Map, Rezone, Major Use Permit, Major Use Permit Modification, Site Plan, Vacation of Open Space Easement Expired Map, Certificate of Compliance, or Administrative Permit. The Proposed Project is a countywide program that protects the public from vector-borne disease and public nuisances, and it would continue to comprehensively implement vector control through various techniques. As such, it is not a discretionary application. Therefore, the RPO is not applicable to the Proposed Project.

1.3.3 Native American Heritage Values

Federal and state laws mandate that consideration be given to the concerns of contemporary Native Americans with regard to potential ancestral human remains, associated funerary objects, and items of cultural patrimony. Potentially relevant to prehistoric archaeological sites is the category termed Traditional Cultural Properties (TCP) in discussion of cultural resource management performed under federal auspices. According to Patricia L. Parker and Thomas F. King (1998), "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices.

The County of San Diego Guidelines identify that cultural resources can include TCPs, such as gathering areas, landmarks, and ethnographic locations in addition to archaeological districts (County of San Diego 2007). These guidelines incorporate both state and federal definitions of TCPs. Generally, a TCP may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ethnographic importance.

1.4 BEST MANAGEMENT PRACTICES

The IVMP follows the best management practices (BMPs) described in the Best Management Practices for Mosquito Control in California (California Department of Public Health [CDPH]; 2012), Best Management Practices for Mosquito Control on California State Properties (CDPH 2008), and in the

California Mosquito-Borne Virus Surveillance and Response Plan (CDPH 2020), which detail vector control and pesticide application procedures. In addition, the County integrates BMPs into the IVMP serving as a comprehensive management framework for implementation of individual activities. The following BMP will be implemented as part of the IVMP, which demonstrate the County's commitment to avoid or minimize impacts to the maximum extent feasible.

Assessment of IVMP Activities

Individual IVMP source reduction activities that involve ground disturbance (e.g., grading, earthwork, or other excavation activities) will undergo a preliminary planning review by the County to assess the degree to which each activity may potentially result in impacts to cultural resources. The County shall review available records documentation and determine whether known archaeological or tribal resources are present within the proposed activity area, or ascertain the potential that such resources may be encountered. Per the *County of San Diego Report Format and Content Requirements, Cultural Resources: Archaeological and Historic Resources*, project sites that have been previously surveyed within 5 years or less may use the previous study (County 2007a). As such, if preliminary planning review determines that the IVMP activity area has been previously surveyed for the presence of archaeological or tribal resources within the last 5 years with negative results or has been previously disturbed (e.g., grading, earthwork, or other excavation activities), the area would be considered "low sensitivity" and no further evaluation would be required. If the results of the review determine that the area has not previously been surveyed or disturbed, or has been surveyed and archaeological and/or tribal resources have been identified, a site-specific cultural resource survey will be required.

2.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

The significance thresholds for cultural resources are based specifically on criteria provided in the County's Guidelines for Determining Significance (2007b). For the purposes of the Proposed Project, any of the following will be considered a potentially significant environmental impact to cultural resources:

1. The Proposed Project causes a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines. This shall include the destruction, disturbance, or any alteration of characteristics or elements of a resource that cause it to be significant in a manner consistent with the Secretary of Interior Standards.

2. The Proposed Project causes a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines. This shall include the destruction or disturbance of an important archaeological site or any portion of an important archaeological site that contains or has the potential to contain information important to history or prehistory.

3. The Proposed Project disturbs any human remains, including those interred outside of formal cemeteries.

4. The project proposes activities or uses damaging to significant cultural resources as defined by the Resource Protection Ordinance and fails to preserve those resources.

As state above, the Proposed Project is a countywide program that protects the public from vector-borne disease and public nuisances, and it would continue to comprehensively implement vector control

through various techniques. As such, it is not a discretionary application. Therefore, the RPO is not applicable to the Proposed Project and is not discussed further in this report.

In addition, in December 2018 the State CEQA Guidelines were updated to include Tribal Cultural Resources. Per State CEQA Guidelines Appendix G, a potentially significant environmental impact would occur if the following tribal cultural resources are affected:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.0 ANALYSIS OF PROJECT EFFECTS

3.1 METHODS

The evaluation of cultural resources presented in this report has been prepared in conformance with PRC Section 21083.2 and the State CEQA Guidelines. Statutory requirements of CEQA (Section 15064.5) are followed in evaluating the significance of cultural resources. As this report is being prepared to support a program-level document and the site-specific locations of IVMP activities cannot be defined at this time, record searches and field surveys cannot be conducted for this evaluation. As such, the analysis is qualitative in nature and does not provide specific locations of resources. The potential impacts that the Proposed Project may have on cultural resources are discussed in a broader context relative to the various IVMP components for each cultural resources-related CEQA significance criterion.

Under the Proposed Project, the IVMP would continue the use of the following vector control techniques: surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. Emerging vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or advanced early source prevention and/or reduction, surveillance, or physical/biological/chemical controls. Of these, only source reduction would potentially result in tangible impacts to cultural resources, due to the potential ground disturbing or physical impacts that environmental modifications could entail. Physical controls could potentially include, but not be limited to removal of vegetation or sediment, interruption of water flow, rotation of stored water, pumping and/or filling water sources, improving drainage and water circulation systems; and installing, removing, or improving culverts, tide gates, or other water control structures. No new structures or buildings associated with vector control are anticipated to be constructed.

3.2 NATIVE AMERICAN CONSULTATION

In accordance with AB 52, consultation with tribal governments was conducted by the County. On August 23, 2018 at the start of the Notice of Preparation (NOP)/Initial Study review period for the Proposed Project, the County notified all Native American tribes of the NOP (who at the time requested to be notified of upcoming County projects).The list of tribes who were notified include: Barona Group

of the Capitan Grande, Campo Band of Diegueno Mission Indians, Iipay Nation of Santa Ysabel, Jamul Indian Village, Kwaaymii Laguna Band of Mission Indians, Pala Band of Mission Indians, Pechanga Band of Luiseno Indians, Rincon Band of Luiseno Indians, San Luis Rey Band of Mission Indians, Soboba Band of Luiseno Indians, Sycuan Band of the Kumeyaay Nation, and Viejas Band of Kumeyaay Indians.

On August 28, 2018, the Viejas Band of Kumeyaay Indians provided a response letter requesting compliance with CEQA, National Environmental Policy Act, and Native American Graves Protection and Repatriation Act; in addition to immediately contacting Viejas of any changes or inadvertent discoveries.

3.3 IMPACT IDENTIFICATION

3.3.1 Historical Resources

PRC Section 21083.2 and State CEQA Guidelines Section 15064.5 recommend evaluating historical resources to determine whether or not a proposed action would have a significant effect on unique historical resources (refer to Guideline for Determining Significance 1 in Section 3.0). A project that would have an adverse impact (direct, indirect, or cumulative) on significant historical resources as defined by these guidelines would be considered a significant impact. As source reduction activities would primarily involve techniques such as vegetation management (including trimming and removal of vegetation and application of herbicides), water control, and other maintenance activities, the Proposed Project would not result in impacts to built environment resources (historic buildings, structures, or objects). However, physical control techniques associated with the IVMP source reduction activities could potentially result in direct or indirect impacts to archaeological resources; unrecorded or unevaluated archaeological sites may require research or testing programs to determine their eligibility for inclusion in the CRHR or San Diego County Local Register. If an archaeological resource is found to eligible for inclusion in the CRHR or San Diego County Local Register, it would be considered a 'historical resource,' per CEQA. As such, the Proposed Project could have the potential to cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 of the State CEQA Guidelines.

3.3.2 Archaeological Resources

PRC Section 21083.2 and State CEQA Guidelines Section 15064.5 recommend evaluating archaeological resources to determine whether a proposed action would have a significant effect on unique archaeological resources (refer to Guideline for Determining Significance 2 in Section 3.0). A project that would have an adverse impact (direct, indirect, or cumulative) on significant archaeological resources as defined by these guidelines would be considered a significant impact. Unrecorded or unevaluated archaeological sites may require research or testing programs to determine their eligibility for inclusion in the CRHR or San Diego County Local Register. Adverse effects to known significant or unique archaeological resources may result in a loss of valuable information that could be gained from the resources or prevent potentially eligible sites from being listed on a register of cultural resources.

Source reduction activities involving ground-disturbing work that may occur within or near archaeological resources, within previously undisturbed areas, or within previously disturbed areas with known cultural resource sensitivity, could result in potential impacts if archaeological resources present on or below the ground surface are damaged or destroyed. Accordingly, since specific site locations cannot be defined at this time, it is anticipated that ground-disturbing activities associated with implementation of the Proposed Project could have the potential to cause a substantial adverse change

in the significance of an archaeological resource pursuant to §15064.5 of the State CEQA Guidelines, and result in a potentially significant impact.

3.3.3 Human Remains

Pursuant to State CEQA Guidelines Section 15064.5, a project must be evaluated for its potential to disturb any human remains, including those interred outside of formal cemeteries (refer to Guideline for Determining Significance 3 in Section 3.0). A project that would have an adverse impact (direct, indirect, or cumulative) on human remains as defined by this guideline would be considered a significant impact, regardless of archaeological significance or association. Archaeological materials, including human burials, have been found throughout unincorporated San Diego County and incorporated cities serviced by the IVMP. Human burials have occurred outside of formal cemeteries, usually associated with archaeological resource sites and prehistoric people. While some burials have been uncovered, the potential exists for unknown burials to be present within areas potentially requiring physical control activities associated with the IVMP. Ground-disturbing activities associated with implementation of the Proposed Project could have the potential to disturb human remains and result in a potentially significant impact.

3.3.4 Tribal Cultural Resources

A project would have a potentially significant environmental impact (direct, indirect, or cumulative) if it would cause a substantial adverse change in the significance of a TCR, defined in PRC Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Ground-disturbing activities associated with the Proposed Project have the potential to affect TCRs, including archaeological sites, traditional gathering areas, or other areas of traditional use. Per AB 52, the County initiated consultation with California Native American tribes that are traditionally and culturally affiliated with the service area of the Proposed Project to identify resources of cultural value to the tribe.

Accordingly, since specific site locations cannot be defined at this time, it is anticipated that ground-disturbing activities associated with implementation of the Proposed Project could have the potential to cause a substantial adverse change in the significance of a tribal cultural resource pursuant to §21074 of the State CEQA Guidelines, and result in a potentially significant impact.

Subsequent discretionary projects that are not evaluated under the Program Environmental Impact Report would be required to prepare site-specific project-level analysis to fulfill CEQA requirements, which may include additional AB 52 consultation with the culturally-affiliated Native American tribes that could lead to the identification of TCRs.

3.3.5 Cumulative Impacts

The geographic scope of the cumulative impact analysis for cultural resources (including historical and archaeological resources), human remains, and TCRs, is the entirety of San Diego County, including both incorporated and unincorporated areas.

Cumulative projects located in the southern California region would have the potential to result in cumulative impacts associated with the loss of historical resources, archaeological resources, human remains, and TCRs through the physical disturbance, relocation, or alteration of these resources. Discretionary projects located in the southern California region would be required to comply with applicable federal, state, and local regulations for the protection of unique or significant cultural resources. Such regulations include PRC Section 5097, California Penal Code 622, the Mills Act, State Health and Safety Code (HSC) Sections 18950-1896, and the Secretary of the Interior's Standards for Rehabilitation and Standards for the Treatment of Historic Properties for historical resources; the federal and California Native American Graves Protection and Repatriation Acts (NAGPRA), Section 106 of the National Historic Preservation Act, PRC Section 5079, CEQA Section 21083.2, and the County RPO for archaeological resources and TCRs; and PRC Section 5097.9-5097.991, Cal NAGPRA, and HSC Section 7050.5 for human remains. Even with regulations in place, individual resources would still have the potential to be impacted or degraded as a result of development of cumulative projects, and the loss of resources at a regional level may not be adequately mitigable through the data recovery and collection methods specified in these regulations. Therefore, potential combined cultural resources effects from all projects within the geographic scope for the cultural resources analysis is considered cumulatively considerable.

As discussed in Section 3.3.1, built environment resources would not be impacted by the Proposed Project; therefore, implementation of the IVMP would not result in a cumulatively considerable contribution to historic resources impacts. The Proposed Project has the potential to cause impacts to unknown archaeological resources, human remains, and TCRs during ground-disturbing activities. Due to the nature and scale of the activities that could be implemented under the IVMP; the requirement to comply with all applicable federal, state, and local regulations; and the requirement to implement the mitigation measures (identified in Section 4.1, below) and standard operating procedures and protocols, the Proposed Project would not have a cumulatively considerable contribution to potentially significant impacts to cultural resources that may occur within the IVMP service area.

4.0 MANAGEMENT CONSIDERATIONS

4.1 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Although ground-disturbing activities associated with the Proposed Project are expected to generally be minor in scale, physical control techniques associated with the IVMP source reduction activities could potentially result in direct or indirect impacts to archaeological resources, TCRs, and human remains. As such, the following mitigation measures are recommended for individual activities related to the Proposed Project that would involve ground-disturbing work to guide the identification, evaluation, and mitigation of potential impacts to cultural resources, if encountered.

CUL-1 **Site-specific Cultural Resources Survey.** For individual IVMP source reduction activities that have been determined to have the potential to result in impacts to archaeological or tribal

resources, as identified in the IVMP Best Management Practices (Assessment of IVMP Activities), a qualified archaeologist shall be retained to conduct a site-specific cultural resource survey if the site has not been surveyed in the previous 5 years. The survey shall consist of a record search of the California Historical Resources Information System (CHRIS) housed at the South Coastal Information Center (SCIC), research to identify historic land use in the area, and pedestrian survey that includes the participation of a Native American monitor. A review of the Sacred Lands File maintained by the NAHC shall also be requested for the individual IVMP activity. A report shall be prepared to discuss the survey and record search results.

CUL-2 **Cultural Resources Evaluation.** If potential cultural resources are identified within an individual IVMP activity area where ground disturbance is proposed, a cultural resources significance evaluation shall be conducted. Specifically, a significance evaluation shall be prepared if the individual IVMP activity has the potential to result in an adverse effect to (1) new cultural resource(s) that are identified as a result of a site-specific survey, or (2) previously recorded resource(s) that have not been previously evaluated that are reidentified during a survey, unless resource(s) can be avoided. Per the *County of San Diego Report Format and Content Requirements, Cultural Resources: Archaeological and Historic Resources*, significance evaluations will not be required if the resource has been evaluated for CEQA significance or for NRHP eligibility within the last five years and if there has been no change in the conditions that contributed to the determination of resource importance (County of San Diego 2007a). Significance evaluation efforts may include additional research to determine whether the resource meets the criteria for listing on the CRHR and/or subsurface investigation. Archaeological testing programs involving subsurface investigation shall include assessing the horizontal and vertical dimensions of a site, the chronological placement, site function, artifact/ecofact density and variability, presence/absence of subsurface features, and research potential. A Native American monitor shall be retained for all subsurface investigations. Resources found to be non-significant as a result of a survey and/or assessment will require no further work beyond documentation of the resources on the appropriate California Department of Parks and Recreation (DPR) site forms and inclusion of results in the survey and/or assessment report prepared for the individual IVMP activity. A cultural resources report shall be prepared to discuss potential impacts associated with the individual IVMP activities and identify measures to reduce all significant impacts to below a level of significance, if applicable.

CUL-3 **Cultural Resources Data Recovery Program.** If significant cultural resources are identified within an individual IVMP activity area where ground disturbance is proposed, and avoidance of impacts to the resource is not possible, a data recovery program (including research design) shall be implemented. The data recovery program shall be subject to the provisions, as outlined in PRC Section 21083.2 and completed prior to the implementation of the individual IVMP activity. Avoidance of significant cultural resources shall be sought to the extent possible.

CUL-4 **Cultural Resources Monitoring Program.** If significant cultural resources are identified or potential cultural resources are suspected to occur within an individual IVMP activity area where ground disturbance is proposed, monitoring shall be required by an archaeologist and Native American monitor. If unevaluated potentially significant cultural resources are

discovered, construction activities shall be diverted away from the discovery until significance evaluation can be conducted.

To mitigate potential impacts to significant cultural resources, a Data Recovery Program for any newly discovered cultural resource would be prepared, approved by the County, and implemented using professional archaeological methods. Construction activities would be allowed to resume after the completion of the recovery of an adequate sample and the recordation of features. All cultural material collected during the Data Recovery Program or Monitoring Program would be processed and curated at a San Diego County facility that meets federal standards per 36 Code of Federal Regulations Part 79 unless the tribal monitors request the collection.

After the completion of monitoring, an appropriate report shall be prepared. If no significant cultural resources are discovered, a brief letter shall be prepared. If significant cultural resources are discovered, a report with the results of the monitoring and any data recovery (including the interpretation of the data within the research context) shall be prepared.

CUL-5 **Identification of Human Remains**. In the event that human remains are discovered during individual IVMP source reduction activities, work shall halt in the identified area, the County Coroner shall be contacted, and Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health & Safety Code Section 7050.5 shall be followed. If the remains are determined to be of Native American origin, the Most Likely Descendant (MLD) shall be identified by the NAHC and contacted by the County in order to determine proper treatment and disposition of the remains.

5.0 CONCLUSION

The Proposed Project has the potential to cause impacts to unknown archaeological resources, human remains, and TCRs during ground-disturbing activities. With implementation of the IVMP BMP addressing assessment of IVMP activities, as well as mitigation measures CUL-1 through CUL-5, potential direct and indirect impacts to archaeological resources, human remains, and TCRs would be less than significant.

Relative to the potential for the Proposed Project to result in cumulative impacts, compliance with applicable federal, state, and local regulations for the protection of unique or significant archaeological resources is employed during CEQA review of all discretionary projects within the County and surrounding counties. The Proposed Project has the potential to result in significant cumulative effects on cultural resources; however, due to the nature and scale of the activities that could be implemented under the IVMP; the requirement to comply with all applicable federal, state, and local regulations; and the requirement to implement standard operating procedures and protocols, BMPs, and mitigation measures CUL-1 through CUL-5; cumulative impacts to cultural resources resulting from the Proposed Project would be less than significant. Therefore, the Project would not result in a cumulatively considerable contribution to regional cultural resources impacts.

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