

4.5 CULTURAL RESOURCES AND PALEONTOLOGY

This section evaluates impacts to cultural resources and paleontology associated with implementation of the 2050 RTP/SCS. Cultural resources include archaeological, historic architectural, and ethnographic resources. A summary of existing conditions includes a brief historic overview to provide a context for understanding the types of cultural resources found within the San Diego region. Known cultural resources include historic buildings and districts, archaeological sites, and ethnic resources.

4.5.1 EXISTING CONDITIONS

Cultural Setting

Paleoamerican Period (12,000 to 7000 Years Before Present [B.P.])

The earliest well-documented sites in the San Diego region belong to the San Dieguito complex, thought to be older than 9,000 years (Warren 1967). Related materials have been found in the Mojave Desert and in the Great Basin, sometimes called the Lake Mojave complex (e.g., Campbell et al. 1937; Warren and Ore 1978). The San Dieguito complex, sometimes placed in a larger context and termed the Paleo-Coastal tradition, is thought by most researchers to reflect an emphasis on big game hunting and coastal resources. Diagnostic artifact types and categories associated with the San Dieguito complex include scraper planes; choppers; scraping tools; crescentics; elongated bifacial knives; and Silver Lake, Lake Mojave, and leaf-shaped projectile points (Rogers 1939; Warren 1967). This Paleoamerican complex has also been termed the Western Pluvial Lakes Tradition (Bedwell 1970; Moratto 1984) and the Western Lithic co-tradition (Davis et al. 1969).

In areas adjacent to the coast, many Paleoamerican period sites have probably been covered by rising sea levels since the end of the Pleistocene. In more inland regions, alluvial sedimentation in valley areas may have covered these materials. The stable mesa landforms in the region, the abundance of appropriate lithic material, and soil column exposures along areas such as the San Diego and San Dieguito rivers have made the foothills an important area for Paleoamerican research.

Archaic Period (7000 to 1500 B.P.)

This period brings an apparent shift toward a more generalized economy and an increased emphasis on seed resources, small game, and shellfish. The local cultural manifestations of the Archaic period are called the La Jollan complex along the coast and the Pauma complex inland. Pauma complex sites lack the shell that dominates many La Jollan complex site assemblages. Along with an economic focus on gathering plant resources, the settlement system appears to have been more sedentary. There appears to have been a shift away from the northern San Diego coast in the middle of the period. This may be a response to the depletion of coastal resources and the siltation of lagoons. The La Jollan tool assemblage is dominated by rough, cobble-based choppers and scrapers, and slab and basin metates. There has been recent considerable debate about whether San Dieguito and La Jollan patterns 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 vs. Warren et al. 1993).

Late Prehistoric Period (1500 B.P. to 1769)

Near the coast and in the Peninsular Mountains beginning as far back as approximately 1,500 years ago, patterns began to emerge that seem to suggest the presence of the ethnohistoric Kumeyaay and Luiseño. This period is characterized by higher population densities and elaborations in social, political, and technological systems, some of which probably derived from the Gabrielino and Chumash to the north. On the other hand, some traits probably originated with the Hohokam and diffused west by way of the

lower Colorado River tribes, to which the Kumeyaay are closely related. Economic systems diversified and intensified during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive but effective technological innovations.

Subsistence is thought to be focused on the utilization of acorns and grass seeds, with small game serving as a primary protein resource and big game as a secondary resource. Fish and shellfish were also secondary resources except right along the coast where they assumed primary importance (Bean and Shipek 1978:552; Sparkman 1908:200). The settlement system is characterized by seasonal villages where people utilized a central-based collecting subsistence strategy.

The Late Prehistoric in the southern two-thirds of the San Diego region is represented by the Cuyamaca complex. Originally described in the work of D. L. True at Cuyamaca Rancho State Park, some 35 miles east of the San Diego region (True 1970), the Cuyamaca complex has a relatively broad array of artifact types. It is characterized by the presence of steatite arrow shaft straighteners, steatite pendants (some of these steatite items are incised with crosshatching), steatite comales (heating stones, some of which are biconically drilled on one end), Tizon Brownware pottery, ceramic figurines reminiscent of Hohokam styles, ceramic “Yuman bow pipes,” ceramic rattles, miniature pottery, various cobble-based tools (e.g., scrapers, choppers, hammerstones), bone awls, manos and metates, and mortars and pestles. The arrow point assemblage is dominated by the Desert Side-notched series, but Cottonwood series and the Dos Cabazas Serrated type also occur.

Ethnographic Background

The San Diego region is in the traditional territory of the Kumeyaay and Luiseño. Also known as Kamia, Ipai, Tipai, and Diegueño, the Kumeyaay occupied the southern two-thirds of the San Diego region. The Kumeyaay belong to the Hokan language family, which includes the lower Colorado River tribes (e.g., Quechan [Yuma], Mohave, Halchidhoma, Cocopa) and Arizona groups (e.g., Maricopa, Havasupai, Paipai) to whom they are closely related. The term Kamia and Kumeyaay are variants of the same word meaning westerner, from the point of view of the Colorado River groups (i.e., the Quechan and Mohave).

The inhabitants of the lower Santa Margarita River at Spanish contact are known today as the Luiseño. The Luiseño are the southwesternmost speakers of the Takic branch of the Uto-Aztecan language family, a branch that also includes the closely related Gabrielino, Cahuilla, and Cupeño languages. The territorial boundaries of the Luiseño are somewhat uncertain, but the general contours can be drawn in broad strokes (Sparkman 1908; Strong 1929). Prior to the arrival of the Spanish, Luiseño territory is thought to have comprised some 1,500 square miles of coastal southern California (White 1963). The northwest boundary is generally accepted to have been at Aliso Creek (in present Laguna Beach); while to the south, Luiseño territory extended to about Agua Hedionda Creek (Bean and Shipek 1978). Inland, Luiseño territory included Santiago Peak, Lake Elsinore, Temecula, Aguanga, and portions of Mount Palomar.

The Kumeyaay lived in semisedentary, politically autonomous villages or rancherias. 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. The most basic social and economic unit was the patrilocal extended family. Within the family, there was a basic division of labor based upon gender and age, but it was not rigid. Women made pottery and baskets, gathered plant resources, ground seeds and acorns, and prepared meals. Men hunted, fished, occasionally helped collect and carry acorns and other heavy tasks, and made tools for the hunt. Old women were active in teaching and caring for children while younger women were busy with other tasks. Older men were involved in politics; ceremonial life; teaching young men; and making nets, stone tools, and ceremonial paraphernalia (Bean and Shipek 1978:555).

The settlement system typically consisted of two or more seasonal villages with temporary camps radiating away from these central places. For example, the Kumeyaay band that spent summers at Mount Laguna migrated downslope to Vallecitos to spend the winter in the desert (Cline 1984). Padre Boscana, writing at San Juan Capistrano in 1813, alludes to a similar bipolar settlement system: “In the winter they resided in one place, and in summer in another. This was general among them, excepting in the case of those tribes located on the sea coast who seldom moved because their maintenance was derived from the sea” (Hanna [Boscana 1813] 1933:65).

Major coastal villages were known to have existed along the estuaries and lagoons along the San Diego coastline and up the corresponding rivers such as the village of *Kosti* or Cosoy near the mouth of the San Diego River (Kroeber 1925) and *Ystagua*, in Sorrento the Valley area.

The Luiseño also lived in rancherías. Most rancherías were the seat of a clan, although it is thought that some clans had more than one ranchería. As described in the ethnographic literature, ranchería territories were restricted, closely managed, and intensively used. There are some references to the names and locations of a number of major villages in ethnographic and ethnohistorical accounts (White 1959), although in many cases there are errors and conflicts. Although several settlements may have been located along the Santa Margarita River, only the village of *Topomai* is well attested. Located in the vicinity of the Santa Margarita ranch house just north of Basilone Road, *Topomai* was within relatively easy access of a variety of resource zones, and appears to have been the major Luiseño settlement along the lower Santa Margarita River (McCawley 1996). Mission records also document marriage ties between *Topomai* and some 25 other communities, providing its inhabitants with access to a variety of resource areas (McCawley 1996).

Kroeber (1925) estimates a population of only some 5,000 pre-contact Luiseño. White (1963) estimates that, at the time of Spanish contact, there were on the order of 50 Luiseño rancherías with an average population of some 200 people, for a total Luiseño population of about 10,000. Shipek (1977), using independent data, corroborates White’s estimate. Strong (1929), building on the earlier work of Gifford (1918), reconstructs the names of 96 clans, most of whom may have had an independent village or ranchería.

Historic Setting

Spanish Period

The Spanish period (1769–1821) represents a time of European exploration and settlement. While California was in theory a colony of Spain since its discovery by Juan Cabrillo in 1542, it was more than 200 years later that Spain finally established colonies in the area. Military and naval forces along with a religious contingent founded the San Diego Presidio, the pueblo of San Diego, and the San Diego Mission in 1769 (Pourade 1960; Rolle 1998). Gaspar de Portola, former governor of Baja California headed the military expedition to Alta California. He split the land expedition into two groups. He headed one, which included Padre Junipero Serra, who would go on to found the missions system of Alta California. The other group was led by Capitan Fernando Rivera y Mankato, accompanied by Padre Juan Crespo, who left a journal of great value to future historians and anthropologists. The naval contingent consisted of three small ships, the *San Antonio*, *San Jose*, and *San Carlos*. The San Jose was lost at sea with all hands; the other two ships arrived in San Diego Bay ahead of the overland expeditions. Of the 300 men who set out for Alta California in these various parties, less than 200 survived to see San Diego (Pourade 1960, 1961; Rolle 1998:30–31).

Portola became the first governor of California. He turned over the reins of government to Pedro Fages on July 9, 1770. Serra went on to found the first eight of a series of 21 Franciscan missions located near the coast from San Diego to San Francisco Solan de Sonora (now known as simply Sonora). These were located approximately 1 day's travel apart, between 20 and 50 miles. Each mission was originally granted a huge tract of land to be held in trust for the Native Americans (Pourade 1961; Rolle 1998:33).

At first, *Mission San Diego de Alcalá* consisted of wooden and brush structures near the Presidio at what is now Old Town. The priests became immediately concerned about the soldiers and the abuse of neophytes and moved the mission to its present location approximately 5 miles up the San Diego River in what is now known as Mission Valley. The mission system in general used forced Native American labor, encouraged by liberal use of corporal punishment, to build the mission, tend the fields and flocks, and build infrastructure needed to support European settlement.

The missions, pueblos, and a few well-connected Spaniards were granted large tracts of land on which to graze their cattle, horses, and sheep. The Mission San Diego Grant Boundary extends north to modern-day Del Mar and Poway. Extensive livestock grazing brought hunger and hardship for Native American people who depended on grass seeds as a dietary staple (Carrico 1987). From the arrival of the Spanish, Native Americans repeatedly attempted to revolt and repel the invaders; however, these efforts met with very limited success, and Native American culture in the coastal strip of California rapidly deteriorated (Cook 1976; Hurtado 1988).

Mexican Period

At the beginning of the 19th century, the far-flung Spanish colonies became restless under the distant rule of the Spanish Crown. In Mexico City, Agustin Iturbide, a colonel in the Spanish Imperial Army, defected to the insurgents in February 1821 and declared the independence of Mexico. It was not until April 1822, some 14 months later, that Californian governmental officials acknowledged the new government in Mexico City (Pourade 1961; Rolle 1998).

The new Mexican government encouraged increased settlement and trade in Alta California. In the Mexican period (1822–1848), the rancho system was dramatically expanded. Approximately 600 large tracts of land were granted to individuals and families. The mission system was secularized by the Mexican government over a period of years with 1834 usually given as the time of completion. After the mission system was secularized, the expansion of the rancho system was based largely on former mission lands. The San Diego region was once a part of the Pueblo Lands and, according to some accounts, the area at the bottom of Presidio Hill was used for cattle grazing by the Presidio soldiers.

The Southern California economy became increasingly based on cattle ranching during the Mexican period. Meat, both fresh and dried, was the mainstay of the menu and the resourceful Californios used leather, bone, and horn for a wide variety of items. Tallow and dried hides became major items of export in exchange for cloth, household furnishings, and manufactured goods. Indeed, dried steer hides were even a medium of exchange called “California Bank Notes” and worth about one dollar U.S. The cattle industry required large numbers of *vaqueros* or buckaroos to handle the hundreds of horses and thousands of cattle. Some larger ranchos employed more than 100 native laborers. The Mexican period ended when Mexico ceded California to the United States after the Mexican-American War (1846–1848), which concluded with the Treaty of Guadalupe Hidalgo (Rolle 1998).

American Period

In 1848, gold was discovered in California. The great influx of Americans and Europeans that resulted quickly overwhelmed many of the Spanish and Mexican cultural traditions and greatly increased the rate of decline among Native American communities. Few Mexican-owned ranchos remained intact because

of land claim disputes and the onerous system set up for proving ownership to the U.S. Government. Development of the railroads opened up much of the country to settlement. The homestead system encouraged American settlement in the western territories. Throughout the west, the growth and decline of communities occurred in response to an increasing and shifting population, fostering a “boom and bust” cycle. As early as 1868, San Diego was promoted as a natural sanitarium, and many people suffering from tuberculosis came to the area seeking a cure in the moderate climate.

4.5.1.1 Existing Cultural Resources

There are numerous cultural resources that have been documented in the San Diego region and within the vicinity of the San Diego region. In addition, some areas have not yet been inventoried. Due to the programmatic nature of the project, it is not feasible to identify all specific cultural resources that might conceivably be affected by implementation of the various project features included in the 2050 RTP/SCS. However, the following information provides a context for the types of resources that could potentially be encountered and a general discussion of the range of known cultural resources that may be present in the San Diego region.

Historical Resources or Archaeological Resources

Since the passage of CEQA and subsequent adoption of regional standards for environmental review, cultural resource discovery and evaluation have increased at an extraordinary rate. In addition to numerous built cultural resources, by 2007 there were over 16,000 recorded archaeological and historical sites in the San Diego region (State of California 2007).

In addition to the thousands of archaeological sites recorded within the San Diego region on the California Historic Resources Inventory, there are numerous historical resources listed on federal, state, and local registers, such as the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Historical Landmarks, and County of San Diego Historical Landmarks. Other historic inventories have been prepared by various cities within the San Diego region. Typical historic resources found in the San Diego region include sites, structures, features, or districts.

Historic period archaeological sites in the inventory include small debris scatters, irrigation features, mining, military sites, and foundations and features associated with farming/ranch complexes. Some of these sites contain surface material only, while others can contain buried features (e.g., cisterns, privies). For example, in the Midway area of Point Loma, historic period deposits have been uncovered, including the debris for an early San Diego kiln. In downtown San Diego and in Old Town, historic period archaeological materials are routinely identified during excavations and monitoring of construction activities. Typical prehistoric resources found in the region include, but are not limited to, village sites, temporary camp sites, rock art sites, ceremonial sites, burials, milling features, and trails. Major coastal villages were known to have existed along the estuaries and lagoons along the San Diego coastline and up the corresponding rivers, such as the village of *Kosti* or Cosoy near the mouth of the San Diego River (Kroeber 1925) and *Ystagua* in the Sorrento Valley area. While many historic and prehistoric resources have been identified and documented within the San Diego region, many unidentified resources remain unevaluated. In addition, the exact location of some of the known sites (such as Cosoy) are yet to be confirmed. Many areas within the San Diego region have a high potential for prehistoric and historic cultural resources. For example, lagoons and rivers were resource and transportation areas during prehistoric times, while coastal communities were some of the earliest and heaviest areas of settlement during historic times.

Historic Districts, Registers, and Landmarks

There are 23 historic and archaeological districts listed in the NRHP within the San Diego region; see Table 4.5-1. Many of the districts are located in more urban areas, specifically in and around the city of San Diego. These include such historical districts as Cabrillo National Monument Balboa Park and the Gaslamp Quarter Historic District.

**Table 4.5-1
Nationally-Designated Historic Districts in the San Diego Region**

Historic District	Location
Balboa Park	CA Quadrangle 41, San Diego
Cabrillo National Monument	Near southern tip of Point Loma, San Diego
Camp Howard	Naval Air Station, North Island, San Diego
Coyote Canyon Wild Horse Herd Historic District	Anza-Borrego State Park, Borrego Springs
El Prado Complex	Balboa Park, San Diego
Fages-De Anza Trail-Southern Emigrant Road	Anza-Borrego State Park
Gaslamp Quarter Historic District	Bounded by railroad tracks, Broadway, 4th, and 6th Streets, San Diego
Gregory Mountain	Pauma, Unincorporated County of San Diego
Harris, C.W., Site Archeological District	Rancho Santa Fe, Unincorporated County of San Diego
Heilman Villas	Orange Avenue, Coronado
Kuchamaa	Southeast of San Diego at the US–Mexican border
Los Penasquitos Historic and Archeological District	12020 Black Mountain Road, San Diego
Lower Borrego Valley Archeological District	Borrego Springs, Unincorporated County of San Diego
Marine Corps Recruit Depot Historic District	South of junction of Barnett Ave. and Pacific Highway, San Diego
Naval Air Station, San Diego, Historic District	Naval Air Station, North Island, North Shore, San Diego
Naval Training Station	Barnett Street and Rosecrans Boulevard, San Diego
Old Town San Diego Historic District	Junction of I-5 and I-8, San Diego
Rancho De Los Kiotos	6200 Flying L.C. Lane, Carlsbad
Rockwell Field	North Island, San Diego
Rosicrucian Fellowship Temple	2222 Mission Avenue, Oceanside
San Diego Civic Center	1600 Pacific Highway, San Diego
San Diego State College	5300 Campanile Drive, San Diego
Table Mountain District	Jacumba, Unincorporated County of San Diego

Source: NRHP 2011

In addition to the NRHP historic districts, there are 147 individual historical resources in the San Diego region that are listed in the NRHP (NRHP 2011). Resources listed in the NRHP are automatically listed in the CRHR. Most of these resources within the San Diego region are buildings or structures, such as the Hotel Del Coronado and the Point Loma Lighthouse; however, some archaeological sites are on the list. The State of California Historical Resources Commission has designed the CRHR program in order to identify, evaluate, register, and protect California's historical resources. As of January 2008 more than 25,000 resources have been listed in the CRHR (State of California 2011). There are also 72 California State Historical Landmarks in the San Diego region. At the local level, a number of jurisdictions inventory the resources that are present to develop management plans and standards for their protection. This has become more often the case as urban areas are limited in their choices of undeveloped land and instead move toward adaptive reuse of existing buildings and features of the built environment. For example, the City of San Diego Historical Resources Board works to evaluate and preserve resources and has designated over 950 resources of local concern (City of San Diego 2010). Several of these resources are also listed in the NRHP either individually or as part of a district. In addition, the County of San Diego, and the cities of Oceanside, Poway, Escondido, Carlsbad, Encinitas, National City, Chula Vista, La Mesa, and El Cajon also maintain historic resource inventories.

Ethnographic Resources and Sacred Sites

Ethnographic resources include sites, areas, and materials important to American Indians for religious, spiritual, or traditional uses. These can encompass the sacred character of physical locations (mountain peaks, springs, and burial sites) or particular native plants, animals, or minerals that are gathered for use in traditional ritual activities. Also included are villages, burials, rock art, rock features, and traditional hunting, gathering, or fishing sites. Ethnographic resources are often referred to as “traditional cultural properties” – a type of cultural resource that can be eligible for listing in the National Register of Historic Places (NRHP) if certain criteria are met. The Native American Heritage Commission (NAHC) keeps a listing of sacred Native American sites. This information is not readily available to the public and is restricted due to its sensitive nature. The NAHC would provide information to qualified persons conducting cultural resources studies. Although the NAHC does not provide the location of the resources, they would provide a list of knowledgeable Native Americans who can be contacted. This consultation is typically done in conjunction with the public contact efforts for CEQA compliance.

4.5.1.2 Existing Paleontological Resources and Unique Geologic Features

Paleontological Resources

Paleontological resources represent a limited, nonrenewable, and impact-sensitive scientific and educational resource. As defined in this section, “paleontological resources” (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life. Fossils such as bones, teeth, shells, and leaves are found in geologic deposits (rock formations) within which they were originally buried. Paleontological resources include not only fossils as described above, but also collecting localities and the geological formations containing those localities. Known paleontological resources found in regions of moderate to high paleontological sensitivity throughout the San Diego region are included below in Table 4.5-2.

**Table 4.5-2
Paleontological Resources**

Region	Period	Sensitivity	Paleontology Resources Found
Unnamed River Terrace Deposits	Late Pleistocene	Moderate	<ul style="list-style-type: none"> Terrestrial vertebrates (i.e., pond turtle, passenger pigeon, hawk, shrew, mole, mice, gopher, squirrel, rabbit, ground sloth, wolf, camel, deer, horse, mastodon, and mammoth).
Unnamed Marine Terrace Deposits	Late Pleistocene	Moderate	<ul style="list-style-type: none"> Marine invertebrate fossils (e.g., mollusks, crustaceans, and echinoids). Marine vertebrates (e.g., sharks, rays, and bony fish). Terrestrial mammals (e.g., camel, horse, and mammoth).
Bay Point Formation	Late Pleistocene	High	<ul style="list-style-type: none"> Invertebrate fossils (primarily mollusks). Marine vertebrates (i.e., sharks, rays, and bony fishes).
San Diego Formation	Late Pliocene	High	<ul style="list-style-type: none"> Marine vertebrates and invertebrates (i.e., clams, scallops, snails, crabs, barnacles, sand dollars, sharks, rays, bony fishes, sea birds, walrus, fur seal, sea cow, dolphins, and baleen whales). Terrestrial mammals (e.g., cat, wolf, skunk, peccary, camel, antelope, deer, horse, and gomphother). Fossil wood and leaves (e.g., pine, oak, laurel, cottonwood, and avocado).
San Mateo Formation	Late Pliocene to Late Miocene	High	<ul style="list-style-type: none"> Marine vertebrates (e.g., rays, sharks, bony fishes, sea birds, dolphins, sperm whale, baleen whales, sea cow, fur seals, walrus, and sea otter). Terrestrial mammal remains (e.g., horse, camel, llama, and peccary). Marine invertebrates (e.g., clams, scallops, snails, and sea urchins).
Capistrano Formation	Late Miocene	High	<ul style="list-style-type: none"> Marine vertebrates (e.g., sharks, rays, bony fishes, sea birds, toothed whales, baleen whales, sea cow, fur seals, and walruses) (Orange County).

Region	Period	Sensitivity	Paleontology Resources Found
San Onofre Breccia	Middle Miocene	Moderate	<ul style="list-style-type: none"> Poorly preserved remains of nearshore marine foraminifers, bivalve mollusks, and unidentified mammals.
Region	Period	Sensitivity	Paleontology Resources Found
Otay Formation	Late Oligocene	High	<ul style="list-style-type: none"> Terrestrial vertebrates (e.g., tortoise, lizards, snake, birds, shrews, rodents, rabbit, dog, fox, rhinoceros, camels, mouse-deer, and oreodonts).
Sweetwater Formation	Eocene	High	<ul style="list-style-type: none"> Dental remains of opossums, insectivores, and rodents. A few nondiagnostic mammal teeth.
Pomerado Conglomerate	Middle Eocene	Moderate	<ul style="list-style-type: none"> Terrestrial mammals (e.g., insectivores, primates, rodents, protoreodonts, unidentifiable mammal bone fragments, and an unidentified artiodactyl, possibly a camelid). Nearshore marine mollusks (e.g., clams and snails).
Mission Valley Formation	Eocene	High	<ul style="list-style-type: none"> Marine microfossils (e.g., foraminifers), macroinvertebrates (e.g., clams, snails, crustaceans, and sea urchins). Marine vertebrates (e.g., sharks, rays, and bony fish). Petrified wood. Terrestrial mammals (e.g., opossums, insectivores, bats, primates, rodents, artiodactyls and perissodactyls).
Stadium Conglomerate (Upper)	Middle Eocene	Moderate	<ul style="list-style-type: none"> Fossil foraminifers, marine mollusks, opossums, insectivores, primates, rodents, carnivores, rhinoceros, and artiodactyls.
Stadium Conglomerate (Cypress Canyon)	Middle Eocene	High	<ul style="list-style-type: none"> Land mammals (e.g., opossums, insectivores, bats, primates, rodents, carnivores, tapirs, brontotheres, protoreodonts, and other artiodactyls).
Stadium Conglomerate (Lower)	Middle Eocene	High	<ul style="list-style-type: none"> Sparse marine fossil remains. Terrestrial mammals (e.g., opossums, insectivores, primates, rodents, carnivores, and artiodactyls).
Friars Formation	Middle Eocene	High	<ul style="list-style-type: none"> Terrestrial vertebrates; especially terrestrial mammals (e.g., opossums, insectivores, primates, rodents, artiodactyls, and perissodactyls). Marine microfossils and macroinvertebrates. Fossil leaves.
Santiago Formation (Member C)	Middle Eocene	High	<ul style="list-style-type: none"> Vertebrate fossils: turtles, snakes, lizards, crocodiles, birds, and mammals (e.g., opossums, insectivores, primates, rodents, brontotheres, tapirs, protoreodonts, and other early artiodactyls). Marine organisms (e.g., calcareous nannoplankton and mollusks).
Santiago Formation (Member B)	Middle Eocene	High	<ul style="list-style-type: none"> Terrestrial vertebrates (e.g., insectivores, primates, rodents, brontothere, rhinoceros, and uintathere). Marine and estuarine mollusks.
Santiago Formation (Member A)	Middle Eocene	Moderate	<ul style="list-style-type: none"> Member "A" has yet to produce any fossils, but the discovery of any diagnostic fossils in this rock unit would be of great importance in resolving the age and stratigraphic significance of the Santiago Formation.
Region	Period	Sensitivity	Paleontology Resources Found
Ardath Shale	Middle Eocene	High	<ul style="list-style-type: none"> The Ardath Shale has yielded diverse and well-preserved assemblages of marine microfossils and vertebrates (e.g., sharks, rays, and bony fish).
Torrey Sandstone	Early Middle Eocene	Moderate	<ul style="list-style-type: none"> Plant remains (mostly leaves). Invertebrate fossils primarily consist of nearshore marine taxa (e.g., clams, oysters, snails, and barnacles). Vertebrate fossil remains are rare and include teeth of crocodiles, sharks, and rays.
Delmar Formation	Late Early to Early Middle Eocene	High	<ul style="list-style-type: none"> Estuarine invertebrates (e.g., clams, oysters, and snails). Estuarine vertebrates (e.g., sharks and rays). Well-preserved skull remains of aquatic reptiles (e.g., crocodile) and terrestrial mammals (e.g., tillodont and early rhinoceros).
Mount Soledad Formation	Late Early to Early Middle	Moderate	<ul style="list-style-type: none"> Marine organisms (e.g., mollusks, planktonic foraminifers, benthonic foraminifers, and pollen).

Region	Period	Sensitivity	Paleontology Resources Found
	Eocene		
Unnamed Formation	Early Eocene	High	<ul style="list-style-type: none"> Dental remains of multituberculates, opossums, insectivores, primates, "condylarths," and rodents.
Cabrillo Formation	Late Cretaceous	Moderate	<ul style="list-style-type: none"> Marine invertebrates (e.g., clams, snails, and ammonites). Marine vertebrates (e.g., sharks).
Point Loma Formation	Late Cretaceous	High	<ul style="list-style-type: none"> Marine invertebrates (e.g., clams, snails, nautiloids, ammonites, crabs, and sea urchins). Marine vertebrates (e.g., sharks and mosasaurs). Terrestrial plants (leaves and wood). Dinosaurs, including armored dinosaur (nodosaur) and duck-billed dinosaur (hadrosaur).
Lusardi Formation	Late Cretaceous	Moderate	<ul style="list-style-type: none"> Fragments of plant material. The Cretaceous age of this rock unit coupled with its terrestrial depositional setting suggest the potential presence of dinosaurs and other terrestrial vertebrates.
Older Quaternary Alluvial Fan Deposits	Late Pleistocene	Moderate	<ul style="list-style-type: none"> Scattered vertebrate remains of late Pleistocene age.
Pauba Formation	Late Pleistocene	Moderate	<ul style="list-style-type: none"> Terrestrial mammals (e.g., shrew, rabbit, kangaroo rat, gopher, mice, deer, pronghorn, camel, horse, and elephant). Freshwater diatoms.
Temecula Arkose	Pleistocene	High	<ul style="list-style-type: none"> Terrestrial mammals (e.g., rabbits, rodents, wolf, badger, bobcat, elephant, horse, camel, deer, and antelope). Freshwater diatoms, snails, and gastropods.
Jacumba Volcanics	Early Miocene	Moderate	<ul style="list-style-type: none"> Fossil bone fragments. Identifiable fossils should eventually be found in these sediments.
Table Mountain Gravels	Early to Middle Eocene	High	<ul style="list-style-type: none"> Terrestrial mammals (e.g., rodents and large hoofed mammals) including teeth (rabbit, camel), limb bones (unidentified artiodactyl), and miscellaneous bone fragments.
Brawley Formation	Early to Late Pleistocene	Moderate	<ul style="list-style-type: none"> Lacustrine invertebrate fauna.
Ocotillo Conglomerate	Early Pleistocene	High	<ul style="list-style-type: none"> Terrestrial vertebrates (e.g., turtle, bird, ground sloth, rabbit, rodents, wolf, bear, bobcat, lion, sabertooth cat, mammoth, zebra, horse, camel, llama, deer, antelope, and ox).
Borrego Formation		High	<ul style="list-style-type: none"> Mollusks, ostracods, and rare foraminifers. Terrestrial vertebrates.
Canebrake Conglomerate	Late Pleistocene to Early Pleistocene	Moderate	<ul style="list-style-type: none"> Has not yet yielded any fossils.
Palm Springs Formation	Late Pleistocene to Early Pleistocene	High	<ul style="list-style-type: none"> Over 100 species of Plio-Pleistocene terrestrial vertebrates (e.g., turtles, snakes, lizards, hawk, eagle, vulture, ground sloth, shrews, rodents, mastodon, camel, llama, and horse).
Imperial Formation	Late Miocene to Early Pliocene	High	<ul style="list-style-type: none"> Over 200 species of marine fossils, (e.g., foraminifers, corals, clams, snails, ostracods, barnacles, crabs, sand dollars, and sea urchins). Marine vertebrates (e.g., sharks, rays, bony fish, sea cow, baleen whale, and walrus).
Split Mountain Formation		Moderate	<ul style="list-style-type: none"> Marine microfossils such as foraminifers.
Alverson Volcanics	Middle Miocene	Moderate	<ul style="list-style-type: none"> Algae, pollen, petrified wood, mollusks, and a vertebrate bone fragment.

Source: Deméré and Walsh 1993

Unique Geologic Features

A unique feature may be the best example of its kind locally or regionally, it may illustrate a geologic principle, it may provide a key piece of geologic information, it may be the "type locality" of a fossil or formation, or it may have high aesthetic appeal. Unique geologic features may be exposed or created from natural weathering and erosion processes or from man-made excavations. These unique geological features provide aesthetic, scientific, educational, and recreational value. Unique geological features were documented in the 1975 San Diego County General Plan (amended April 2002). This inventory is listed in Table 4.5-3.

**Table 4.5-3
Unique Geological Features**

Unique Geological Feature	Location
Indian Mountain Leucogranodiorite	Banks of San Luis Rey River, few miles southwest of Pala
Pliocene San Mateo formation	Along San Mateo Creek
San Onofre breccia	San Onofre Hills
Monterey shale	Along sea cliffs southeast of San Onofre
Bonsall tonalite	Bonsall, west central San Luis Rey Quad
Petrified forest with logs in exposures of the prebatholithic volcanics and sedimentary rocks containing leaf imprints	Lusardi Canyon near Rancho Santa Fe near junction with San Dieguito River
Prebatholithic folded slates	Lusardi Canyon near Rancho Santa Fe near junction with San Dieguito River
The Lusardi formation consisting of a conglomerate unit	Lusardi Canyon near Rancho Santa Fe near junction with San Dieguito River
Lake Wohlford leucogranodiorite	Lake Wohlford, between Escondido and Lake Wohlford
San Marcos gabbro	San Marcos Mountains, San Luis Rey Quad
Woodson Mountain granodiorite	Woodson Mountain, a few miles southwest of Ramona
Swarm of distinctly oriented inclusion in Lakewood Mountain tonalite composing outer ring dike. Core is Green Valley tonalite	East of Ramona
Area of prebatholithic metamorphics, quartzite exhibiting swirls of swirls of magnetite and biotite which may represent relic crossbedding	Vicinity Highway 78 and San Pasqual
Green Valley tonalite	Southeast San Luis Rey Quad. Green Valley between SR 395 and Ramona
Elsinore fault, canyon eroded along fault, and tributaries offset in a right lateral sense. Typical exposure of Julian schist.	Julian, Santa Ysabel Quadrangle
Split Mountain formation	Split Mountain Gorge, south of Ocotillo, west side of Imperial Valley
Localities indicating age of peak volcanics. At (a) Buchia belemnoids, and ammonites were found. At (b) there are belemnoids, flame structures, flute castes and graded bedding	(a) Los Penasquitos; (b) San Santiago Dieguito, vicinity of San Dieguito piochii, River.
Eocene vertebrate fossil locality	Bank of San Diego River near Grantville
Eocene vertebrate fossil locality	Bank of San Diego River near Friars Road and Ulric Street
Exposures of fossiliferous Eocene and Pliocene strata. The Pliocene rocks are preserved by down faulting. They contain sharks teeth, whale bones and delicate Glottidia albida	Tecolote Creek
Bay Point formation	West shore of Bay Point in Mission Bay
Type area of the Rose Canyon shale	Rose Canyon

Unique Geological Feature	Location
Eocene foraminifera area	Old Murray Canyon Quarry
Green Eocene mudstones, containing large leaf imprints, petrified logs, and pelecypod molds	Black Mountain
Black Mountain volcanics, greenstones with primary structures. Quartzose pseudomorphs of gastropods	Black Mountain
Exposure of San Diego formation containing whole bones and sharks teeth	Vicinity of Miramar Reservoir
Type locality of <i>Spatangus rarus</i> Israelsky. Known only from type locality.	Pacific Beach
Type localities of <i>Pecten</i> (<i>patinopecten</i>) <i>healeyi</i> , <i>Pecten</i> (<i>Pecten</i>) <i>stearsi</i> , <i>Pecten</i> (<i>argopecten</i>) <i>subdulus</i> and <i>Pecten</i> (<i>Pecten</i>) <i>bellus</i> <i>hemphilli</i>	Pacific Beach
Del Mar formation	Sea cliff and short canyon in Del Mar
Mount Soledad formation	West of intersection of Ardath Road and I-5.
Mission Valley formation	South wall of Mission Valley on west side of SR 163 at the junction of I-8
Stadium conglomerate	North wall of Mission Valley west of Murphy Canyon Road from Friars Road
Scripps formation	North side of the mouth of Blacks Canyon, La Jolla
Friars formation	North wall of Mission Valley along Friars Road
Torrey sandstone	Torrey Pines Grade
Ardath shale	East side of Rose Canyon south of intersection of Ardath Road and I-5
Exposures of Santiago Peak volcanics showing unique stratigraphic and structural relationships between many units typical of formation. Also type locality when first named Black Mountain Volcanics	North of Black Mountain, La Jolla Quadrangle
Exposure of an old "unnamed" fanglomerate composed of metamorphic rocks, one of the highest surfaces of the "high terrace" cut into Stadium conglomerate, and a "contact breccia" migmatite zone	Vicinity of I-8, west of San Vicente Reservoir
Basal contact of Ballena gravels eastward; mechanically just folded border of Woodson Mountain granodiorite against narrow screen of metamorphic rocks and banded structures in gabbro on other side	Vicinity of Wildcat Canyon Road sloping just east of San Vicente Creek
An unusual occurrence of dumortierite, silimanite and associated minerals	Dehesa Road and Tavern Road, Alpine
An unusual occurrence of orbicular gabbro	Dehesa Road west of the Harbison Canyon Road intersection, Alpine
Prebatholithic metavolcanics, in selected places coarse pyroclastic and blastoporphyritic fabrics as well as original bedding are visible. Often very gneissic	Vicinity of I-8 south of Lake Jennings
Mixed and roof pendants in the prebatholithic metavolcanics	Vicinity of La Cresta Road, El Cajon
Contact of Woodson Mountain granodiorite and Green Valley tonalite. Notable for zone of coarse inclusions	Vicinity of La Cresta Road, El Cajon
Roof pendant of metavolcanics in the Green Valley tonalite	Vicinity of San Diego River west of El Capitan Reservoir
Stonewall quartz diorite	Stonewall Peak in Cuyamaca Region
Exposure of Bay Point formation fauna	Vicinity of the U.S./Mexican border 1/4 mile from the coast
Pliocene San Diego formation fossils	Vicinity of the U.S./Mexican border 2 miles from the coast
Cabrillo formation	Sea cliff in Point Loma
Point Loma formation	Along Point Loma Peninsula at southern end

Unique Geological Feature	Location
La Posta quartz diorite	La Posta Valley
Stratigraphic relationship between Jacumba volcanic rock (Alverson andesite) and "Table Mountain gravels" and reworked younger gravels	West of Jacumba

Source: County of San Diego General Plan 1975

4.5.2 REGULATORY SETTING

There are numerous laws, regulations, and programs that exist at the federal, state, and local level that apply to the identification, evaluation, protection, and preservation of historic properties (including archaeological and paleontological sites).

4.5.2.1 Federal Laws, Regulations, and Programs

Historic Sites, Buildings, Objects, and Antiquities Act

The Historic Sites, Buildings, Objects, and Antiquities Act of 1935 states that it is the national policy to preserve for the public use historic sites, properties, buildings, and objects of national significance. It gives the National Park Services (NPS) broad powers to execute the policy on both federal and nonfederal lands. The Act also set up an advisory board to aid the Secretary of the Interior in implementing the Act. The National Natural Landmarks (NNL) Program was established in 1962 to recognize and encourage the conservation of outstanding examples of the country's natural history. NNLs are designated by the Secretary of the Interior, with the owner's concurrence, as being of national significance, defined as being one of the best examples of a biological community or geological feature within a natural region of the United States.

National Historic Landmarks Program

The National Historic Landmarks Program, developed in 1982, identifies and designates National Historic Landmarks, and encourages the long-range preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the United States. These regulations set forth the criteria for establishing national significance and the procedures used by the Department of the Interior for conducting the National Historic Landmarks Program.

National Environmental Policy Act (NEPA)

NEPA directs federal agencies to use all practicable means to "preserve important historic, cultural, and natural aspects of our national heritage" (Section 101[b] [4]). Regulations for implementing NEPA are found in 40 Code of Federal Regulations (CFR) Parts 1500–1508. Consideration of cultural resources is required under NEPA when a project is under federal jurisdiction.

National Historic Preservation Act (NHPA)

The NHPA was passed in 1966 and set the foundation for much of the more specific legislation that guides cultural resource protection and management in local jurisdictions such as the County of San Diego. The Act established an Advisory Council on Historic Preservation to help implement and monitor it. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council a reasonable opportunity to comment on such undertakings. The goal of the Section 106 process is to identify historic properties potentially

affected by the undertaking, assess its effects, and seek ways to avoid, minimize, or mitigate any significant impacts related to historic properties.

National Register of Historic Places (NRHP)

Developed in 1981, the NRHP is an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment. Listing of private property in the NRHP does not prohibit under federal law or regulation any actions that may otherwise be taken by the property owner with respect to the property.

Native American Graves Protection and Repatriation Act (NAGPRA)

Enacted in 1990, NAGPRA conveys to Native Americans of demonstrated lineal descent, the human remains and funerary or religious items that are held by federal agencies and federally supported museums, or that have been recovered from federal lands. It also makes the sale or purchase of Native American remains illegal, whether or not they derive from federal or Native American lands.

The Secretary of the Interior's Standards

The Secretary of the Interior is the head of the U.S. Department of the Interior, which is nation's principal conservation agency. The department oversees agencies including the Bureau of Land Management, the Bureau of Indian Affairs, and the NPS.

The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation

The purpose of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation of 1983 is to (1) to organize the information gathered about preservation activities; (2) to describe results to be achieved by federal agencies, states, and others when planning for the identification, evaluation, registration, and treatment of historic properties; and (3) to integrate the diverse efforts of many entities performing historic preservation into a systematic effort to preserve the nation's culture heritage.

The Secretary of Interior's Standards for Rehabilitation

Developed in 1986, the Secretary of the Interior's Standards for Rehabilitation are 10 basic principles created to help preserve the distinctive character of a historic building and its site, while allowing for reasonable change to meet new needs.

The Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, 1995

The Secretary of the Interior's Standards for the Treatment of Historic Properties were developed to help protect the nation's irreplaceable cultural resources by promoting consistent preservation practices. The Standards are a series of concepts about maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations; as such, they cannot, in and of themselves, be used to make essential decisions about which features of a historic property should be saved and which might be changed. But once an appropriate treatment is selected, the Standards provide philosophical consistency to the work.

4.5.2.2 State Laws, Regulations, and Programs

California Historical Landmarks Program

The California Historical Landmarks Program places an emphasis on well-known places and events in California history. The goals of the program include the preservation and maintenance of registered landmarks, most of which include missions, early settlements, battles, and gold rush sites.

California Points of Historical Interest Program

The California Points of Historical Interest Program was established in the effort to accommodate local historic properties not able to meet the restrictive criteria of the California Historical Landmarks Program. The Points of Historical Interest Program requires the participation of local governmental officials, such as the chairperson of the Board of Supervisors, in the approval process.

California Register of Historical Resources (CRHR)

The CRHR program was designed for use by state and local agencies, private groups, and citizens to identify, evaluate, register and protect California's historical resources. A historical resource can include any object, building, structure, site, area, or place that is determined to be historically or archaeologically significant. The CRHR is an authoritative guide to the states significant historical and archaeological resources. The list of these resources can be used for state and local planning purposes, the eligibility determinations can be used for state historic preservation grant funding, and listing in the CRHR provides a certain measure of protection under CEQA.

California Native American Graves Protection and Repatriation Act (Cal NAGPRA)

The Cal NAGPRA 2001 conveys to Native Americans of demonstrated lineal descent, the human remains and funerary items that are held by state agencies and museums.

California Environmental Quality Act (CEQA)

CEQA applies to all discretionary projects undertaken or subject to approval by the state's public agencies (CEQA Guidelines Section 15002[i]). CEQA (PRC Section 21001[b], [c]) states that it is the policy of the State of California to “take all action necessary to provide the people of this state with... historic environmental qualities...and preserve for future generations examples of the major periods of California history.” Under the CEQA Guidelines (Section 15064.5[b]), “a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.” CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process (CEQA Guidelines Section 15064.5; PRC Section 21083.2).

Historical Resources. The CEQA Guidelines (Section 15064.5[a]) define a “historical resource” as including the following:

- A resource listed in, or eligible for listing in, the California Register of Historical Resources;
- A resource listed in a local register of historical resources (as defined at PRC Section 5020.1[k]);
- A resource identified as significant in a historical resources survey meeting the requirements of PRC Section 5024.1(g); or

- Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. (Generally, a resource is considered by the lead agency to be “historically significant” if the resource meets the criteria for listing in the California Register of Historical Resources. See further discussion of the California Register of Historical Resources below.)

A project that causes a “substantial adverse change” in the significance of a historical resource may have a significant effect on the environment (CEQA Guidelines Section 15064.5[b]). The CEQA Guidelines (Section 15064.5[b][1]) define “substantial adverse change” as “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.” Generally, the significance of a historical resource is “materially impaired” when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in or eligibility for the California Register of Historical Resources, or its inclusion in a local register of historical resources (CEQA Guidelines Section 15064.5[b][2]).

Archaeological Resources. If the cultural resource in question is an archaeological site, the CEQA Guidelines (Section 15064.5[c][1]) require that the lead agency first determine if the site is a historical resource as defined in section 15064.5(a). If the site qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource (CEQA Guidelines Section 15064.5[c][2]). If the archaeological site does not qualify as a historical resource but does qualify as a unique archaeological resource, then the archaeological site is treated in accordance with CEQA PRC section 21083.2 (CEQA Guidelines Section 15064.5[c][3]). In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.

CEQA (PRC section 21083.2[g]) defines a “unique archaeological resource” as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

According to CEQA PRC section 21083.2(h), resources that do not meet the above criteria are “nonunique archaeological resources” that need not be given further consideration under CEQA.

Public Resources Code (PRC)

The following additional PRC sections pertain to cultural resources:

PRC 5079-5079.65 – California Heritage Fund

PRC Section 5079-5079.65 outlines the appropriate uses of the California Heritage Fund. The fund shall be available, upon appropriation by the State Legislature, to implement laws providing for historical

resource preservation, including, but not limited to, Section 5028 and Executive Order W-26-92, under criteria developed by the Office of Historic Preservation and adopted by the State Historical Resources Commission.

PRC 5097-5097.6 – Archaeological, Paleontological and Historical Sites

PRC Section 5097-5097.6 outlines the requirements for cultural resource analysis prior to the commencement of any construction project on State Lands. This section identifies that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. It prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands, and provides for criminal sanctions. This section was amended in 1987 to require consultation with the California NAHC whenever Native American graves are found. Violations for the taking or possessing remains or artifacts are felonies.

PRC 5097.9-5097.991 – Native American Heritage

PRC Section 5097.9-5097.991 identifies that no public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the U.S. Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require it. In addition, this section details the composition and responsibilities of the NAHC. The NAHC strives for the preservation and protection of Native American human remains, associated grave goods, and cultural resources. The NAHC has developed a strategic plan to assist the public, development community, local and federal agencies, educational institutions, and California Native Americans to better understand problems relating to the protection and preservation of cultural resources and to serve as a tool to resolve these problems and create an awareness among lead agencies and developers of the importance of working with Native Americans. PRC Sections 5097.91 and 5097.98 were amended by State Assembly Bill 2641 in 2006. This bill authorizes the NAHC to bring an action to prevent damage to Native American burial grounds or places of worship and establishes more specific procedures to be implemented in the event that Native American remains are discovered.

Government Code (GC)

The following GC sections pertain to cultural resources:

GC Section 25373

GC Section 25373 gives authority to local governments to acquire property for the preservation or development of a historical landmark. In addition, local governments may provide special conditions or regulations for the protection, enhancement, perpetuation, or use of places, sites, buildings, structures, works of art, and other objects having a special character or special historical or aesthetic interest or value.

GC Section 27288.2

GC Section 27288.2 requires the County Recorder to record a certified resolution establishing a historical resources designation issued by the State Historical Resources Commission or a local agency. For previously designated properties, the County may record the certified resolution establishing the historical resources designation upon submission.

GC Sections 50280-50290 – Mills Act

The Mills Act, implemented in unincorporated San Diego County through County Ordinance 9425 (amended by Ordinance 9628), provides for reduced property taxes on eligible historic properties in return for the property owner's agreement to maintain and preserve the historic property. Preservation of properties is to be in accordance with the standards and guidelines set forth by the Secretary of the Interior. To be designated, a building must meet qualifying criteria such as significant architecture, association with a historically significant event or person, or location in a historic district, such as Marston Hills.

Health and Safety Code (HSC)

Several HSCs pertain to cultural resources:

HSC Sections 18950-18961 – State Historic Building Code

HSC Sections 18950 through 18961 provide alternative building regulations and building standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of buildings or structures designated as historic buildings. Such alternative building standards and building regulations are intended to facilitate the restoration or change of occupancy so as to preserve their original or restored architectural elements and features, to encourage energy conservation and a cost-effective approach to preservation, and to provide for the safety of the building occupants.

HSC 7050.5 – Human Remains

HSC Section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains. If the Coroner determines the remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall contact by telephone within 24 hours the NAHC. In addition, any person who mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor.

Penal Code Section 622 – Destruction of Historical Properties

The California Penal Code Section 622 provides that any person, not the owner thereof, who willingly destroys or injures objects of archaeological or historical value, whether on public or private land, is guilty of a misdemeanor.

Senate Bill (SB) 18 – Traditional Tribal Cultural Places

SB 18, enacted in 2004, requires local governments to consult with Native American groups at the earliest point in the local government land use planning process. The consultation intends to establish a meaningful dialogue regarding potential means to preserve Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. It allows for tribes to hold conservation easements and for tribal cultural places to be included in open space planning.

Local Plans, Policies, and Ordinances

County of San Diego Code of Regulatory Ordinances Sections 87.101-87.804, Grading, Clearing, and Watercourses Ordinance

Section 87.430 of the County's Grading and Clearing Ordinance provides for the requirement of a paleontological monitor at the discretion of the County. In addition, the suspension of grading operation is required upon the discovery of fossils greater than 12 inches in any dimension. The ordinance also requires notification of the County Official (e.g., Permit Compliance Coordinator). The ordinance gives the County Official the authority to determine the appropriate resource recovery operations, which shall be carried out prior to the County Official's authorization to resume normal grading operations.

Section 87.429 of the County's Grading and Clearing Ordinance requires that grading operations cease if human remains or Native American artifacts are found; and Section 87.216(a)(7) requires changes to grading plans/operations if it is determined that historic or archaeological resources may be located on site, in which case avoidance or mitigation will be required.

County of San Diego Code of Regulatory Ordinances Sections 86.601-86.608, Resource Protection Ordinance (RPO)

This ordinance requires that cultural resources be evaluated as part of the County's discretionary environmental review process and if any resources are determined significant under RPO, they must be preserved. RPO prohibits development, trenching, grading, clearing, and grubbing, or any other activity or use damaging to significant prehistoric or historic site lands, except for scientific investigations with an approved research design prepared by an archaeologist certified by the Register of Professional Archaeologists. Sites determined to be RPO significant must be avoided and preserved.

Resource Conservation Areas (RCAs)

County RCAs are identified lands requiring special attention in order to conserve resources in a manner best satisfying public and private objectives. The appropriate implementation actions will vary depending upon the conservation objectives of each resource but may include public acquisition, establishment of open space easements, application of special land use controls such as cluster zoning, large lot zoning, scenic or natural resource preservation overlay zones, or incorporating special design considerations into subdivision maps or special use permits. RCAs include, but are not limited, to the following: groundwater problem areas, coastal wetlands, native wildlife habitats, construction quality sand areas, littoral sand areas, astronomical dark sky areas, unique geologic formations, and significant archaeological and historical sites. County departments and other public agencies must give careful consideration and special environmental analysis to all projects located in RCAs.

San Diego County Local Register of Historical Resources

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.

San Diego County Historic Site Board

The County of San Diego Historic Site Board is an advisory body that provides recommendations to decision makers regarding archaeological and historic cultural resources. The Historic Site Board is

responsible for reviewing resources seeking historic designation and participation in the Mills Act as well as discretionary projects with significant cultural resources.

County of San Diego Zoning Ordinance

The County’s Zoning Ordinance provides for the designation and regulation of “special areas.” One type of special zoning area is a Historic/Archaeological Landmark or District. These resources may be assigned an “H” designator for historic areas or a specific district designator (e.g., Julian has a “J” designator). The purpose of these provisions is to identify, preserve, and protect the historic, cultural, archaeological and/or architectural resource values of designated landmarks and districts. Zoning regulations for these resources are designed to preserve their integrity and content. Other types of resources of equal or greater significance may exist and be designated in other ways such as the NRHP or CRHR. Individual jurisdictions within the San Diego region have also adopted ordinances dedicated to the preservation of historic and archaeological resources. These are discussed in the paragraph below.

Local Jurisdictions

Many jurisdictions within San Diego County local governmental bodies and city ordinances are dedicated to the preservation of historic and archaeological resources. Jurisdictions with applicable codes or standards are listed below in Table 4.5-4.

Local jurisdictions may also have policies and regulations dedicated to the preservation of unique geological features, natural landforms, and paleontological resources. These policies and regulations are listed in Table 4.5-5.

**Table 4.5-4
Local Cultural Preservation Ordinances**

Jurisdiction	Local Government/Regulations
Carlsbad	Municipal Code, Title 22
Chula Vista	Draft Ordinance, Municipal Code, Title 21
Coronado	Municipal Code, Title 84
Del Mar	Municipal Code, Chapter 30.58
El Cajon	Municipal Code, Chapter 17.55
Encinitas	Municipal Code, Chapter 30.34.050
Escondido	Municipal Code, Chapter 23, Article 40, Article 65
La Mesa	Municipal Code, Title 25
National City	Municipal Code, Chapter 15.34
Oceanside	Code of Ordinances, Chapter 14A
Poway	Municipal Code, Chapter 17.45
San Diego	Municipal Code, Chapter 14, Article 3, Division 2
Santee	Municipal Code, Chapter 15.60
Solana Beach	Municipal Code, Chapter 17.60.160
Vista	Municipal Code. Chapter 15.12

City of Carlsbad 2010; City of Chula Vista 2010; City of Coronado 2010; City of Del Mar n.d.; City of El Cajon 2010; City of Encinitas 2010; City of Escondido 2010; City of La Mesa 2010; City of National City 2011; City of Oceanside 2010; City of Poway 2010; City of San Diego n.d.; City of Santee 2010; City of Solana Beach 2010; City of Vista 2009

**Table 4.5-5
Local Policies and Regulations Concerning Unique Geological and Paleontological Features**

Jurisdiction	Ordinance
Carlsbad	The Conservation and Open Space Element of the Carlsbad General Plan contains Policy B.3, which preserves areas of unique scenic, historical, archaeological, paleontological and cultural value, and where possible, provide public access to these areas; and Policy B.7, which minimizes impacts from new development on hillsides, ridges, valleys, canyons, lagoons, beaches and other unique resources that provide visual and physical relief to the cityscape (City of Carlsbad 2006).
Chula Vista	The Environment Element of the Chula Vista General Plan contains Policy E 10.1 to continue to assess and mitigate the potential impacts of private development and public facilities and infrastructure to paleontological resources in accordance with the California Environmental Quality Act (City of Chula Vista 2005).
Coronado	The Conservation Element of the Coronado General Plan contains objectives to preserve the shoreline from erosion (City of Coronado 1994).
Del Mar	The Del Mar Community Plan contains objectives to preserve the integrity of the coastal bluffs and prevent erosion on steep slopes. The Bluff, Slope, and Canyon Specific Plan provides the implementation strategy to protect these natural resources (City of Del Mar 1985).
El Cajon	The City of El Cajon does not contain policies or regulations specific to unique geological features (City of El Cajon 2000).
Encinitas	The Resource Management Element of the Encinitas General Plan contains policies to document and preserve paleontological resources (City of Encinitas 1995).
Escondido	The Community Open Space/Conservation Element of the Escondido General Plan contains policies to conserve hillsides and ridgelines (City of Escondido 1990).
Imperial Beach	The City of Imperial Beach does not contain policies or regulations specific to unique geological features or landforms (City of Imperial Beach 2010).
La Mesa	The Conservation and Open Space Element of the La Mesa General Plan contains policies and conservation objectives to protect natural landforms and significant physical features (City of La Mesa 2005).
Lemon Grove	The Conservation and Recreation Element of the Lemon Grove General Plan contains Policy 2.1, which protect significant fossils and prehistoric artifacts from development impacts (City of Lemon Grove 2006).
National City	The Open Space and Agriculture Element of the National City General Plan contains Policy OS-1.1, which protects and conserves the landforms and open spaces that define the city's urban form, provide public views/vistas, serve as core biological areas and wildlife linkages, or are wetland habitats; and Policy OS-8.8, which requires monitoring for sub-surface cultural and paleontological resources during grading and construction activities for all development projects (City of National City 2011).
Oceanside	The Environmental Resource Management Element of the Oceanside General Plan contains implementation strategies and policies for reducing erosion and other environmentally damaging impacts (City of Oceanside 2002).
Poway	The City of Poway does not contain policies or regulations specific to unique geological features or landforms (City of Poway 1991).
City of San Diego	The Conservation Element of the City of San Diego General Plan includes the goal for the preservation and long-term management of the natural landforms and open spaces that help make San Diego unique. Policy CE-B.1 protects and conserves important landforms, canyon lands, and open spaces (City of San Diego 2008).
San Marcos	The City of San Marcos General Plan, in the Conservation Element, includes Policy 1, which preserves prominent landforms through conservation and management policies. Implementing strategies establish provisions for limiting environmental impacts to landforms, reducing erosion and runoff, and utilizing techniques for open space conservation (City of San Marcos 1997).
Santee	The Santee General Plan includes Policy 1.1, which encourages significant natural landforms to be maintained during development whenever possible, and Policy 10.2, which encourages the preservation of significant natural features, such as watercourses, ridgelines, steep canyons, and major rock outcroppings through the Development Review process (City of Santee 2003).

Jurisdiction	Ordinance
Solana Beach	The City of Solana Beach Municipal Code contains Objective 2.0 to preserve the city's hillside areas and natural landforms in their present state to the greatest extent possible (City of Solana Beach 2006).
Vista	The City of Vista does not contain policies or regulations specific to unique geological features or landforms (City of Vista 1988).
Unincorporated County of San Diego	The proposed San Diego County General Plan Update includes Goal COS-9 in the Conservation and Open Space Element, which requires the conservation of unique geologic features. Policy COS-9.2 requires future development to minimize impacts to unique geologic features (County of San Diego Draft General Plan Update EIR 2010).
Tribal Lands	Policies and regulations regarding unique geological features are determined by the individual tribe.

Data compiled by AECOM in 2011

4.5.3 SIGNIFICANCE CRITERIA

The proposed 2050 RTP/SCS would have a significant impact related to cultural resources, paleontology, or unique geological resources if implementation were to:

- CULT-1** Cause a substantial adverse change in the significance of a cultural resource.
- CULT-2** Disturb any human remains, including those interred outside of formal cemeteries, in violation of existing laws and regulations protecting human remains.
- PALEO-1** Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

4.5.4 IMPACT ANALYSIS

This section analyzes the impacts associated with the implementation of the 2050 RTP/SCS. It is organized in sections to address the two main components of the 2050 RTP/SCS: regional growth/land use change and transportation network improvements. A discussion of the forecasted population, housing and employment increases are included below for each planning horizon of 2020, 2035, and 2050, to help facilitate understanding of forecasted growth. Analysis for each significance criterion includes a programmatic-level discussion of anticipated impacts in the planning horizon years of 2020, 2035, and 2050. Significant impacts are identified and mitigation measures are provided where appropriate.

CULT-1 CULTURAL RESOURCES

A substantial adverse change to a cultural resource is defined as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the cultural resource would be materially impaired (CEQA Guidelines Section 15064.5). Cultural resources can be identified and evaluated based on standard criteria established by the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), CEQA and the San Diego County Local Register of Historical Resources. The San Diego County Local Register was modeled after the California Register. For the purposes of this analysis, a cultural resource is determined significant if the resource is listed in, or determined to be eligible for listing in the NRHP, the CRHR, or the San Diego

County Local Register. Any resource that is significant at the National or State level is by definition significant at the local level.

The integrity of the resource, its attributes and location are also key factors in establishing its significance. Resource significance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of San Diego County in history, architecture, archaeology, engineering, and culture that possess a high degree of integrity. Cultural resources, as analyzed in this EIR, consist of the remains of prehistoric and historic human behaviors and include archaeological, ethnographic, and historical resources. Archaeological and ethnographic resources include artifacts and features found on both the surface or under the surface and include both prehistoric and historic time periods. Historic resources refer to the built environment 50 years or older including buildings such as homes, barns, churches, factories; or structures such as mines, flumes, roads, bridges, dams, and tunnels.

Given that the geographic area assumed as part of the 2050 RTP/SCS covers the entire San Diego region, a literature review and records search was not completed for this analysis. The following information provides a context for the types of impacts that would occur if these resources are encountered as specific projects forecasted to occur in the 2050 RTP/SCS are implemented. Project-specific archival research, and in many cases field investigations, will be needed to identify cultural resources that could be affected by activities addressed at a program level in this analysis.

2020

Regional Growth/Land Use Change

By 2020, population within the region is forecasted to increase by 310,568 people; housing by 113,062 units; and employment by 118,535 jobs over 2010 conditions. While the 2050 RTP/SCS assumes a compact land use pattern with development focused in existing urban areas and along major transportation corridors, new development and intensification of existing land uses are expected to accommodate this growth. Some locations that would experience the most extensive land use change and development by 2020 would include areas such as eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 corridor; City of San Diego coastal and bay communities south of I-8 including Ocean Beach and the Peninsula planning areas; portions of northern Santee; areas north and south of the SR 56 corridor in the San Diego planning areas of Carmel Valley, Del Mar Mesa, Pacific Highlands Ranch, and Torrey Highlands; the San Marcos area near both the SR 78 and I-15 corridors; and within unincorporated County communities such as Fallbrook, Pala-Pauma Valley, and Valley Center along the I-15 and SR 76 corridors.

As discussed in Section 4.5.1, numerous cultural resources have been documented throughout the San Diego region. These include built historically designated resources listed on federal, state, and local registers as well as archaeological and ethnographic resources including historic and prehistoric artifacts and human remains. While many of these cultural resources have been identified and documented within the San Diego region, many unidentified resources remain undiscovered and are therefore unevaluated. In addition, the location of many cultural resource sites may be known, but kept confidential to protect these resources from desecration or theft.

Many areas within the San Diego region have a high potential for prehistoric and historic cultural resources. The location of past discoveries can be useful in determining where potential impacts to unknown cultural resources may occur. Lagoons and rivers were resource and transportation areas during prehistoric times, while coastal communities were some of the earliest and heaviest areas of settlement during historic times. For example, the earliest known archaic sites in the San Diego region were found

near coastal lagoons and river valleys; therefore, construction and development activities in coastal lagoons, river valleys, or periphery areas of the region, such as the City of San Diego coastal and bay communities south of I-8 including Ocean Beach and the Peninsula planning areas, would be more likely to result in significant impacts to cultural resources if encountered. In addition, Late Period archaeological sites are found on the northern and eastern periphery of the San Diego region. Prehistoric and historic cultural sites have been discovered along the SR 78 and I-15 corridors, as well as in areas along the I-8 corridor to La Mesa. In the southern portion of the region, the Otay Mesa area has been subjected to numerous archaeological surveys and testing programs. These studies have identified a mesa that is covered with a sparse lithic scatter with little subsurface deposition. Prehistoric habitation sites, which have been identified as significant resources, are located near water sources, such as the mouth of a canyon and in the Otay River Valley (SANDAG 2004).

Future development and redevelopment projects would result in wide range of construction and ground-disturbing activities, such as excavation, grading, and clearing, which remove and/or disturb the upper layer of soils. Since cultural resources have been found within inches of the ground surface in some areas of the San Diego region, including within the areas forecasted for growth and land use intensification mentioned above, even minimal grading activities can impact these resources.

In addition, redevelopment and intensification of land uses in or near established urban areas or town centers may require the demolition, alteration, or structural relocation of built historic resources. Often, built historic resources are located in or near established urban areas or town centers. These built historic resources are present in almost every local jurisdiction within the region (NRHP 2011). Increases in development intensity may also adversely affect historical sites through the introduction of visual, audible, or atmospheric effects that are out of character with the historical resources or alter the setting of the resources when the setting contributes to the resources' significance.

As discussed in Section 4.5.2, Regulatory Setting, there are numerous federal, state, and local laws, regulations, and programs in place to protect cultural resources. For example, HSC Sections 18950-18961 and the Secretary of the Interior's Standards for Rehabilitation provide regulations for the restoration or rehabilitation of historic structures to preserve their original or restored architectural elements and features, while providing a safe building for occupants. Additionally, the Secretary of the Interior's Standards for the Treatment of Historic Properties were developed to help protect historical resources by promoting consistent preservation practices. The FHWA and Caltrans have responsibilities under Section 106 of the NHPA and Section 4F of the Department of Transportation Act to identify significant properties and to avoid or minimize adverse effects from highway projects. Other local jurisdictions have responsibilities to identify and avoid adverse effects to significant cultural resources under CEQA. Agencies considering proposed major projects are required to consult with local tribal groups and the NAHC during the environmental review process for impacts to sacred lands and artifacts. Future projects implemented as part of the 2050 RTP/SCS would be required to adhere to these regulations.

Cultural resources are not renewable and therefore cannot be replaced. The disturbance or alteration of these resources would cause an irreversible loss of significant information. By 2020, the anticipated growth and land use changes projected in the 2050 RTP/SCS would allow for more development and redevelopment to occur, and therefore increase the potential to impact these resources. While adherence to the existing laws, regulations, and programs discussed above would reduce impacts to cultural resources upon implementation of the 2050 RTP/SCS, there is no assurance that they would reduce these impacts to a less than significant level. The 2050 RTP/SCS is a program-level document; detailed, site-specific information is not available to predict either the site-specific cultural resources impacts of future land use changes, or the effectiveness of existing laws, regulations, and programs in reducing any such site-specific impacts. Given the potential for land use changes to cause substantial adverse changes in the

significance of cultural resources, coupled with the nonrenewable nature of these resources if disturbed or altered, implementation of the 2050 RTP/SCS would result in ground-disturbing activities related to land use changes that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact.

Transportation Network Improvements

Transportation network improvements are a necessary component to accommodate the projected growth and increases in population, housing, and employment, as discussed above. By 2020, the transportation network improvements include widening and/or installation of HOV lanes, ~~and~~ Managed Lanes, and Transit Lanes along portions of I-5, I-15, I-805, SR 78, and SR 94; completion of SR 905 and SR 11; and HOV connector projects along I-805 and SR 78 at I-15. Some key transit network improvements in place by 2020 would include increases in existing COASTER service, including extension of COASTER service to the San Diego Convention Center and Petco Park. BRT downtown express services from inland and south bay locations would be expanded as well as new BRT routes from the south bay area and along I-15. Rapid bus service would add new routes and streetcar routes would be established. Airport express routes would also be developed. Local bus service would be improved to 15 minutes in key corridors. Double-tracking of the LOSSAN rail corridor would occur to accommodate increased frequency in COASTER and other rail services that utilize this rail line. In addition, the new Mid-Coast Trolley line from Old Town to University Town Center would be constructed and the Green Trolley line would be extended to downtown San Diego.

As discussed above and in Section 4.5.1, numerous cultural resources have been documented and identified throughout the San Diego region. In addition, there is potential for unknown cultural resources to also be discovered throughout the region. Given this rich cultural setting, implementation of the transportation network improvements included in the 2050 RTP/SCS would impact these resources if encountered.

Some of the improvements in the 2050 RTP/SCS planned by 2020 would involve only operational changes that would not involve construction of new transportation or transit facilities, such as increasing service frequencies or new transit routes within existing right-of-way. However, those improvements that would involve construction of new infrastructure or facilities could result in impacts. Highway and arterial improvements including lane expansions would require grading, and potentially trenching. These activities remove and/or disturb the upper layer of soils and have the potential to unearth underlying historical and archaeological resources, and cause a direct disturbance to ethnographic and/or buried resources. Given that numerous prehistoric sites are known to exist along the shores, estuaries, lagoons, and bluffs of the San Diego coastline, grading and trenching activities along I-5 have the potential to impact cultural resources. Significant archaeological resources have been located along the I-15 corridor, including habitation sites, temporary camps, bedrock milling locales, flaking stations, and quarries. Examples of a habitation site identified as a historic archaeological resource would be the “Deer Springs Site” with associated human burials, which is located north of Escondido at Deer Springs Road (SANDAG 2004). Improvements along the I-15 corridor may impact these cultural resources. In addition, prehistoric sites located along the SR 78 corridor include habitation sites, temporary camps, and bedrock milling locations. Historic resources include early adobe houses, historic buildings and houses, and old roads. Future grading and trenching activities associated with SR 78 improvements may impact these resources.

Highway expansions constructed near historical built resources also have the potential to impact the existing historical setting and viewshed. These types of improvements could also impact the physical and aesthetic integrity of historic buildings and communities, as well as negatively impact the structures

through increased levels of corrosive air contaminants, which may damage the exterior of historic buildings.

Transit improvements, including the construction of the Mid-Coast Trolley line and double-tracking of the COASTER, would result in ground-disturbing activities within and around downtown San Diego and the Old Town Community Planning Area, and north along the coast through Camp Pendleton. Since historic period archaeological materials are routinely identified during excavations and monitoring of construction activities in downtown San Diego and the Old Town Community Planning Area, existing unknown resources may be encountered with these rail extensions. Additionally, numerous prehistoric sites are known to exist along the shores, estuaries, lagoons, and bluffs of the San Diego coastline. Double-tracking of the COASTER alignment would result in project construction and operation within 0.25 mile of the historic Gaslamp Quarter, Old Town San Diego Historic District, and the Presidio. These are prime locations for early historic maritime, transportation, and trade activities, as well as for prehistoric habitation.

Upon implementation of the individual transportation network improvements included as part of the 2050 RTP/SCS, both known and unknown cultural resources would be disturbed. As discussed above, while adherence to the existing laws, regulations, and programs discussed above would reduce impacts to cultural resources upon implementation of the 2050 RTP/SCS, there is no assurance that they would reduce these impacts to a less than significant level. Given the potential for transportation facilities to cause substantial adverse changes in the significance of cultural resources coupled with the nonrenewable nature of these resources if disturbed or altered, implementation of the 2050 RTP/SCS would result in ground-disturbing activities related to transportation network improvements that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact.

Conclusion

By 2020, implementation of the 2050 RTP/SCS would result in land use changes and the construction of transportation network improvements that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact for which mitigation measures are described in Section 4.5.5.

2035

Regional Growth/Land Use Change

By 2035, additional growth and development are anticipated within the region. From 2020 to 2035, growth in the region is forecasted to increase by 491,131 people; 155,032 housing units; and 193,757 jobs. From 2010, this represents a total increase of 801,699 people; 268,094 housing units; and 312,292 jobs within the region by 2035. Some locations that would experience the most extensive land use change and development by 2035 would include continued growth in eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 and SR 125 corridors; northeast of the SR 94 corridor in the unincorporated County planning areas of Jamul/Dulzura, Tecate, and Potrero; eastern Poway along the SR 67 corridor; the County planning area of Ramona along the SR 67 and SR 78 corridors; County planning areas of Lakeside and Alpine and the Crest, Granite Hills, Dehesa, Harbison Canyon subregion; and multiple north County planning areas along the I-15 and SR 76 corridors such as Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, and Hidden Valley. Areas of increased residential density by 2035 would be apparent in some coastal cities such as Oceanside and Encinitas, and City of San Diego coastal communities. Also increased density would occur in more inland areas along the I-8 corridor through Mission Valley, College Area, and into the City of La Mesa, as well as eastern Chula Vista along the SR 125 corridor. In the northern portion of the region, land use changes to accommodate growth in 2035 in the form of

spaced rural residential development would occur along the I-15 corridor north of Escondido toward the northern county line and in more eastern areas along I-8, SR 67, SR 78, and SR 94.

By 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. The SR 78 corridor, from Escondido to I-5 would also experience growth and resulting land use density increases of both residential and commercial/office by 2035. The majority of this growth would be centered around the cities of Vista, San Marcos, and Escondido. Also by 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. When comparing the existing land uses and 2035 land uses, the 2035 land use pattern would generally involve additional residential development in areas that were previously undeveloped open space or at some time in agricultural use (as discussed in Section 4.2).

As discussed in the 2020 analysis, many areas throughout the San Diego region have a high potential for prehistoric and historic cultural resources. The location of past discoveries can be useful in determining where potential impacts to unknown cultural resources may occur. In addition to the resource-sensitive areas mentioned in the 2020 analysis, the additional growth forecasted in the eastern rural portions of unincorporated County of San Diego may occur in areas where cultural resources are present, as culturally significant resources have been found throughout the unincorporated County of San Diego (County of San Diego 2010). In addition, built historical resources in the unincorporated County of San Diego tend to be concentrated in the more developed areas such as Spring Valley and San Dieguito, and in areas with established town centers, such as Ramona, Julian, and Fallbrook. Built historical resources are also generally located along major roadways, such as I-8 and SR 78. In addition, some resources exist within unincorporated San Diego County that are historically significant but have not yet been designated (County of San Diego 2010).

New development and redevelopment in these growth areas would result in additional construction and ground disturbing activities, such as such as excavation, grading, clearing, demolition, alteration, or structural relocation. These ground-disturbing activities, associated with infill, redevelopment, and/or expansion of infrastructure, have the potential to impact cultural resources. With additional growth and increased development intensities, the extent of impacts to cultural resources by 2035 would be greater than that experienced by 2020 as more resource-sensitive land would be disturbed over time.

As discussed in the 2020 analysis, while adherence to the existing laws, regulations, and programs discussed above would reduce impacts to cultural resources upon implementation of the 2050 RTP/SCS, there is no assurance that they would reduce these impacts to a less than significant level. Given the potential for land use changes to cause substantial adverse changes in the significance of cultural resources coupled with the nonrenewable nature of these resources if disturbed or altered, implementation of the 2050 RTP/SCS would result in ground-disturbing activities related to land use changes that would cause a substantial adverse change in the significance of a cultural resource.

Transportation Network Improvements

By 2035, additional transportation network improvements would occur in the San Diego region as part of the 2050 RTP/SCS. Some key highway improvements in place by 2035 would include ~~continued widening along portions of I-5;~~ additional HOV and Managed Lanes along portions of I-5, I-15, I-805, and SR 52; widening of portions of SR 125 and SR 67; and additional freeway and HOV connector improvements. Some important transit projects operational by 2035 would include continued increases in

COASTER service, increases in SPRINTER service, increases in downtown area streetcar service, and substantial increases in rapid bus service throughout the region. The Trolley Blue Line would be extended from UTC to Mira Mesa via Sorrento Mesa and Carroll Canyon; the Orange Line would be extended to Lindbergh Field; Phase 1 of the new Mid-City to Downtown San Diego line would provide service from the Mid-City transit station via El Cajon Boulevard to Downtown; and a new line from Pacific Beach to El Cajon via Kearny Mesa, Mission Valley, and San Diego State University would be established. Double-tracking along the SPRINTER rail line through the cities of Oceanside, Vista, San Marco, and Escondido would take place by 2035 as well as continued double-tracking along the LOSSAN corridor.

As true in the 2020 analysis, due to the rich historic and prehistoric background of the San Diego region, the potential for identified and unidentified cultural resources to occur within these transportation network improvement areas listed above exists. Some of the improvements in the 2050 RTP/SCS planned by 2035 would involve only operational changes that would not involve construction of new transportation or transit facilities, such as increasing service frequencies or new transit routes within existing right-of-way. However, those that would involve construction of new infrastructure or facilities could result in impacts. Highway and arterial improvements including lane expansions would require grading and potentially trenching, activities that remove and/or disturb the upper layer of soils and have the potential to unearth underlying historical and archaeological resources, and cause a direct disturbance to ethnographic and/or buried resources. Improvements along the I-5 corridor have the potential to impact cultural resources that may be present along the shores, estuaries, lagoons, and bluffs of the San Diego coastline. In addition, prehistoric sites located along the SR 78 corridor discussed in the 2020 analysis above may be encountered with double-tracking along the SPRINTER rail line through the cities of Oceanside, Vista, San Marcos, and Escondido.

Any ground disturbances associated with these transportation network improvements may unearth underlying historical and archaeological resources, and cause a direct disturbance to buried cultural resources. Given the magnitude and location of several of the transportation network improvements occurring by 2035 (e.g., double-tracking of the COASTER rail and SRINTER light rail lines), and the number of additional transportation network improvements over those previously implemented by 2020, additional ground disturbances are anticipated. It is possible that more cultural resources would be disturbed between 2020 and 2035.

As discussed in the 2020 analysis, while adherence to the existing laws, regulations, and programs discussed above would reduce impacts to cultural resources upon implementation of the 2050 RTP/SCS, there is no assurance that they would reduce these impacts to a less than significant level. Given the potential for transportation facilities to cause substantial adverse changes in the significance of cultural resources coupled with the nonrenewable nature of these resources if disturbed or altered, implementation of the 2050 RTP/SCS would result in ground-disturbing activities related to transportation network improvements that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact.

Conclusion

By 2035, implementation of the 2050 RTP/SCS would result in land use changes and the construction of transportation network improvements that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact for which mitigation measures are described in Section 4.5.5.

2050

Regional Growth/Land Use Change

By 2050, additional growth and development are anticipated within the region. From 2035 to 2050, growth in the region is forecasted to increase by 358,736 people; 111,570 housing units; and 189,666 jobs. From 2010, this represents a total increase of 1,160,435 people; 379,664 housing units; and 501,958 jobs within the region by 2050. Areas of substantial land use change and development, beyond that described in 2035, would include significant industrial development in the County's Otay planning area and San Diego Otay Mesa community surrounding the East Otay Mesa POE; throughout County planning areas located along the international border including Tecate, Potrero, Campo/Lake Morena, Boulevard, and Jacumba; throughout the Ramona and Julian planning areas in the unincorporated County; throughout other northeastern County planning areas including North Mountain, Desert, and Borrego Springs; and continued development throughout County planning areas located north and east of Escondido extending to the northern border with Riverside County including Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, Hidden Valley, Twin Oaks Valley, and North County Metro.

Increased population density is most apparent in City of San Diego communities near the downtown area near I-5 and I-805 and along the I-8 corridor to the east. Urban centers in the western third of the San Diego region would have most available land developed with single- and multi-family uses, commercial and office uses, and industrial uses. Consistent with the goals of the 2050 RTP/SCS, the dense growth within existing urban centers with high accessibility to transit options allows for the creation of communities that are more sustainable, walkable, transit-oriented, and compact. Substantial dense growth within the urban centers corresponds with major transportation corridors such as I-5, I-8, I-15, and I-805 and these are also alignments that would have extensive transit opportunities. Similar to the description in the 2035 analysis, growth would continue in more eastern locations of the region, such as east of I-15 in the northern area, east of SR 67 through the middle portion of the region, and east of SR 94 in the southern area. However, spaced rural residential development would have expanded beyond areas along existing transportation corridors and established rural communities and into areas with very minimal development at present. Some of these areas include northeast of Escondido to SR 76, areas east of Camp Pendleton, and areas north and south of the SR 78 corridor. Large pockets of land currently used for agricultural purposes would be developed with spaced rural residential uses. A substantial pocket of industrial development would be located along the planned SR 905 corridor in conjunction with the new Otay Mesa East POE at the international border with Mexico. This is a newly developing area that is planned for mainly industrial use and is highly dependent upon the planned construction of SR 11, SR 905, and the Otay Mesa East POE.

As discussed in the 2020 and 2035 analyses, many areas throughout the San Diego region have a high potential for prehistoric and historic cultural resources. The location of past discoveries can be useful in determining where potential impacts to unknown cultural resources may occur. In addition to the resource-sensitive areas mentioned in the 2020 and 2035 analyses, the additional growth forecasted in the areas discussed above would result in new development and redevelopment, and additional construction and ground-disturbing activities, such as such as excavation, grading, clearing, demolition, alteration, or structural relocation, would occur. These ground-disturbing activities, associated with infill, redevelopment, and/or expansion of infrastructure, have the potential to impact cultural resources. With additional growth and increased development intensities, the extent of impacts to cultural resources by 2050 would be greater than that experienced by 2020 and 2035 as more resource-sensitive land would be disturbed over time.

As more land is disturbed and altered for new development and redevelopment by 2050, the possibility of irreversible losses of significant cultural resources becomes greater. As discussed in the 2020 and 2035

analyses, while adherence to the existing laws, regulations, and programs discussed above would reduce impacts to cultural resources upon implementation of the 2050 RTP/SCS, there is no assurance that they would reduce these impacts to a less than significant level. Given the potential for land use changes to cause substantial adverse changes in the significance of cultural resources, coupled with the nonrenewable nature of these resources if disturbed or altered, implementation of the 2050 RTP/SCS would result in ground-disturbing activities related to land use changes that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact.

Transportation Network Improvements

By 2050, most of the highway, transit, and active transportation (bicycle and pedestrian) improvements, along with other infrastructure projects, would be in place and operational in accordance with the proposed 2050 RTP/SCS. Some key highway improvements that would be in place by 2050 would include widening portions of SR 52, SR 56, SR 76, SR 94, SR 125, and I-5; additional HOV lanes and Managed Lanes along segments of I-805, I-5, I-15, SR 94, SR 125, and SR 54; and freeway and HOV connector improvements. Important transit improvements in place by 2050 would include the extension of Trolley lines and increased Trolley service frequency. The Trolley Green Line would be extended to Downtown-Bayside; ~~a new Phase 2 of the line connecting San Diego State University to Downtown San Diego~~ to via El Cajon Boulevard/Mid-City would be constructed extended to San Diego State University; and a line from University Town Center to ~~San Ysidro Palomar Trolley Station in the South Bay~~ via Kearny Mesa, Mission Valley, Mid-City, and National City, and Chula Vista would be established.

As true in the 2020 analysis, due to the rich historic and prehistoric background of the San Diego region, the potential for identified and unidentified cultural resources to occur within these transportation network improvement areas listed above exists. Some of the improvements in the 2050 RTP/SCS planned by 2050 would involve only operational changes that would not involve construction of new transportation or transit facilities, such as increasing service frequencies or new transit routes within existing right-of-way. However, those that would involve construction of new infrastructure or facilities could result in impacts. Widening of the highways mentioned above would require grading and potentially trenching, activities that remove and/or disturb the upper layer of soils and have the potential to unearth underlying cultural resources and cause a direct disturbance to ethnographic and/or buried resources. The transit extension involving tunneling of the Green Line into downtown San Diego has the potential to impact cultural resources since historic period archaeological materials are routinely identified during excavations and monitoring of construction activities in the downtown planning area.

Any ground disturbances associated with these transportation network improvements may unearth underlying historical and archaeological resources, and cause a direct disturbance to buried cultural resources. Given the magnitude and location of several of the transportation network improvements occurring by 2050, and the number of additional transportation network improvements over those previously implemented by 2020 and 2035, additional significant ground disturbances are anticipated. It is possible that more cultural resources would be disturbed by 2050.

By 2050, additional ground disturbances are anticipated and it is possible that more cultural resources would be disturbed and/or significantly impacted. As discussed in the 2020 and 2035 analyses, while adherence to the existing laws, regulations, and programs discussed above would reduce impacts to cultural resources upon implementation of the 2050 RTP/SCS, there is no assurance that they would reduce these impacts to a less than significant level. Given the potential for transportation facilities to cause substantial adverse changes in the significance of cultural resources coupled with the nonrenewable nature of these resources if disturbed or altered, implementation of the 2050 RTP/SCS would result in ground-disturbing activities related to transportation network improvements that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact.

Conclusion

By 2050, implementation of the 2050 RTP/SCS would result in land use changes and the construction of transportation network improvements that would cause a substantial adverse change in the significance of a cultural resource. This is a significant impact for which mitigation measures are described in Section 4.5.5.

CULT-2 DISTURBANCE OF HUMAN REMAINS

Section 15064.5(d) and (e) of the CEQA Guidelines assign special importance to human remains and specify procedures to be used when Native American remains are discovered. These procedures are detailed under PRC Section 5097.98, described in Section 4.5.2.

Previously recorded burials and cemeteries as well as previously undocumented burials, both historic and prehistoric, are located within the San Diego region. Human burials have occurred outside of formal cemeteries and are usually associated with archaeological resource sites and prehistoric peoples. Prehistoric archaeological deposits, including those containing human remains, can occur in urban settings, but the likelihood of encountering these resources is greatest in areas that have been minimally excavated in the past and in areas where alluvial sediments have covered and preserved them, such as lagoon margins and major drainages. Additionally, given the long period of Native American occupation in the San Diego region, resources have been found throughout the San Diego region include remains left by local Native Americans and other early inhabitants, including the Late Prehistoric, La Jolla, San Dieguito, Pauma, Kumeyaay, and Luiseño complexes (County of San Diego 2010).

2020

Regional Growth/Land Use Change

By 2020, growth within the region is forecasted to increase by 310,568 people; housing by 113,062 units; and employment by 118,535 jobs over 2010 conditions. While the 2050 RTP/SCS assumes a compact land use pattern with development focused in existing urban areas and along major transportation corridors, new development and intensification of existing land uses are expected to accommodate this growth. Some locations that would experience the most extensive land use change and development by 2020 would include areas such as eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 corridor; City of San Diego coastal and bay communities south of I-8 including Ocean Beach and the Peninsula planning areas; portions of northern Santee; areas north and south of the SR 56 corridor in the San Diego planning areas of Carmel Valley, Del Mar Mesa, Pacific Highlands Ranch, and Torrey Highlands; the San Marcos area near both the SR 78 and I-15 corridors; and within unincorporated County communities such as Fallbrook, Pala-Pauma Valley, and Valley Center along the I-15 and SR 76 corridors.

The likelihood of encountering human remains is greatest for projects that include grading and/or excavation of areas on which past grading and/or excavation activities have been minimal. Since archaeological resources have been found within inches of the ground surface throughout the San Diego region, even minimal grading activities can impact these resources. Excavation and soil removal of any kind, irrespective of depth, have the potential to yield human remains. While new development and redevelopment in the growth areas above would mostly result in the intensification of previously developed areas, ground-disturbing activities associated with infill, redevelopment, and/or expansion of infrastructure have the potential to unearth and impact buried human remains.

Given the growth and development forecasted by 2020, implementation of the 2050 RTP/SCS would result in the intensification of land uses along established transit corridors in older portions of the cities where human remains may be located. As discussed in Section 4.5.2, Native American human burials have specific provisions for treatment in PRC Section 5097.98, as amended by Assembly Bill 2641, which address the disposition of Native American burials, protects such remains, and establishes the NAHC to resolve any related disputes. Additionally, Cal NAGPRA requires repatriation of Native American human remains and funerary items that are held by state agencies and museums. In addition, disturbing human remains would destroy the resources and could potentially violate the health code. HSC Section 7050.5 has specific provisions for the protection of human burial remains, Native American or otherwise, if they are discovered, as described above in Section 4.5.2. HSC Section 7050.5 requires that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there would be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlay adjacent remains, until the County Coroner has examined the remains.

New development and redevelopment projects implementing the 2050 RTP/SCS would be required to adhere to the laws and regulations discussed above and listed in Section 4.5.2. Therefore, impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered.

Transportation Network Improvements

The transportation network improvements that would be implemented between 2010 and 2020 generally include widening and/or installation of HOV lanes, ~~and~~ Managed Lanes, and Transit Lanes along portions of I-5, I-15, I-805, SR 78, and SR 94; completion of SR 905 and SR 11; and HOV connector projects along I-805 and SR 78 at I-15. Some key transit network improvements in place by 2020 would include increases in existing COASTER service, including extension of COASTER service to the San Diego Convention Center and Petco Park. BRT downtown express services from inland and south bay locations would be expanded as well as new BRT routes from the south bay area and along I-15. Rapid bus service would add new routes and streetcar routes would be established. Airport express routes would also be developed. Local bus service would be improved to 15 minutes in key corridors. Double-tracking of the LOSSAN rail corridor would occur to accommodate increased frequency in COASTER and other rail services that utilize this rail line. In addition, the new Mid-Coast Trolley line from Old Town to University Town Center would be constructed and the Green Trolley line would be extended to downtown San Diego.

Some of the improvements in the 2050 RTP/SCS planned by 2020 would involve only operational changes that would not involve construction of new transportation or transit facilities, such as increasing service frequencies or new transit routes within existing right-of-way. However, those that would involve construction of new infrastructure or facilities could result in impacts. The likelihood of encountering archaeological resources and human remains is greatest for projects that include grading and/or excavation of areas on which past grading and/or excavation activities have been minimal. Since archaeological resources have been found within inches of the ground surface in some areas of the San Diego region, even minimal grading activities can impact these resources. Excavation and soil removal of any kind, irrespective of depth, have the potential to yield human remains. For example, double-tracking of the LOSSAN corridor and implementation of the Mid-Coast Trolley line would result in ground-disturbing activities within and around downtown San Diego, Old Town Community Planning Area, and north along the coast through Camp Pendleton. Since historic period archaeological materials are routinely identified during excavations and monitoring of construction activities in downtown San Diego and the Old Town Community Planning Area, existing unknown resources, including buried human remains, may be encountered with these rail extensions. Additionally, numerous prehistoric sites are

known to exist along the shores, estuaries, lagoons, and bluffs of the San Diego coastline. Double-tracking of the COASTER alignment would result in project construction and operation within 0.25 mile of the historic Gaslamp Quarter, Old Town San Diego Historic District, and the Presidio. These are prime locations for early historic maritime, transportation, and trade activities, as well as for prehistoric habitation.

The 2050 RTP/SCS transportation project improvements have the potential to yield previously undiscovered human remains because some would take place in previously undisturbed or under-disturbed areas. As discussed above, future transportation network improvement projects implemented by the 2050 RTP/SCS would be required to adhere to the laws and regulations discussed above and listed in Section 4.5.2. Therefore, impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains, and ensure the appropriate disposition of any human remains that are encountered.

Conclusion

By 2020, ground-disturbing activities associated with the implementation of the 2050 RTP/SCS have the potential to uncover or disturb buried human remains. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered. No mitigation measures are required.

2035

Regional Growth/Land Use Change

By 2035, additional growth and development are anticipated within the region. From 2020 to 2035, growth in the region is forecasted to increase by 491,131 people; 155,032 housing units; and 193,757 jobs. From 2010, this represents a total increase of 801,699 people; 268,094 housing units; and 312,292 jobs within the region by 2035. Some locations that would experience the most extensive land use change and development by 2035 would include continued growth in eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 and SR 125 corridors; northeast of the SR 94 corridor in the unincorporated County planning areas of Jamul/Dulzura, Tecate, and Potrero; eastern Poway along the SR 67 corridor; the County planning area of Ramona along the SR 67 and SR 78 corridors; County planning areas of Lakeside and Alpine and the Crest, Granite Hills, Dehesa, Harbison Canyon subregion; and multiple north County planning areas along the I-15 and SR 76 corridors such as Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, and Hidden Valley. Areas of increased residential density by 2035 would be apparent in some coastal cities such as Oceanside and Encinitas, and City of San Diego coastal communities. Also increased density would occur in more inland areas along the I-8 corridor through Mission Valley, College Area, and into the City of La Mesa, as well as eastern Chula Vista along the SR 125 corridor. In the northern portion of the region, land use changes to accommodate growth in 2035 in the form of spaced rural residential development would occur along the I-15 corridor north of Escondido toward the northern county line and in more eastern areas along I-8, SR 67, SR 78, and SR 94.

By 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. The SR 78 corridor, from Escondido to I-5, would also experience growth and resulting land use density increases of both residential and commercial/office by 2035. The majority of this growth would be centered around the cities of Vista, San Marcos, and Escondido. Also by 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would

be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. When comparing the existing land uses and 2035 land uses, the 2035 land use pattern would generally involve additional residential development in areas that were previously undeveloped open space or at some time in agricultural use (as discussed in Section 4.2).

The likelihood of encountering human remains is greatest for projects that include grading and/or excavation of areas on which past grading and/or excavation activities have been minimal. Since archaeological resources have been found within inches of the ground surface throughout the San Diego region, even minimal grading activities can impact these resources. Excavation and soil removal of any kind, irrespective of depth, have the potential to yield human remains. While most new development and redevelopment in the growth areas above would mostly result in the intensification of previously developed areas, ground-disturbing activities associated with infill, redevelopment, and/or expansion of infrastructure have the potential to unearth and impact buried human remains.

As discussed in the 2020 analysis above, the types of activities that would result in significant impacts to human remains (i.e., excavation, grading, soil removal associated with infill, redevelopment, and/or expansion of infrastructure) would continue to occur into 2035 as development intensities would increase to accommodate the forecasted growth. With more construction anticipated to occur within previously unearthed areas, there is an increased potential to discover archaeological deposits or buried human remains.

By 2035, the extent of impacts to archaeological deposits or buried human remains would be greater than that experienced by 2020 as more land would be disturbed over time during development and redevelopment activities. As discussed in the 2020 analysis, if human remains were to be encountered during construction, work would halt in that area and the procedures set forth in PRC Section 5097.98 and HSC Section 7050.5 would be undertaken. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered.

Transportation Network Improvements

By 2035, additional transportation network improvements would occur in the San Diego region as part of the 2050 RTP/SCS. Some key highway improvements in place by 2035 would include ~~continued widening along portions of I-5;~~ additional HOV and Managed Lanes along portions of I-5, I-15, I-805, and SR 52; widening of portions of SR 125 and SR 67; and additional freeway and HOV connector improvements. Some important transit projects operational by 2035 would include continued increases in COASTER service, increases in SPRINTER service, increases in downtown area streetcar service, and substantial increases in rapid bus service throughout the region. The Trolley Blue Line would be extended from UTC to Mira Mesa via Sorrento Mesa and Carroll Canyon; the Orange Line would be extended to Lindbergh Field; Phase 1 of the new Mid-City to Downtown San Diego line would provide service from the Mid-City transit station via El Cajon Boulevard to Downtown; and a new line from Pacific Beach to El Cajon via Kearny Mesa, Mission Valley, and San Diego State University would be established. Double-tracking along the SPRINTER rail line through the cities of Oceanside, Vista, San Marco, and Escondido would take place by 2035 as well as continued double-tracking along the LOSSAN corridor.

Some of the improvements in the 2050 RTP/SCS planned by 2035 would involve only operational changes that would not include construction of new transportation or transit facilities, such as increasing service frequencies or new transit routes within existing right-of-way. However, those that would involve construction of new infrastructure or facilities could result in impacts as the likelihood of encountering

human remains is greatest for projects that include grading and/or excavation of areas on which past grading and/or excavation activities have been minimal. Since archaeological resources have been found within inches of the ground surface in some areas of the San Diego region, even minimal grading activities can impact these resources. Excavation and soil removal of any kind, irrespective of depth, have the potential to yield human remains.

For example, the continued double-tracking of the LOSSAN corridor would result in ground-disturbing activities within and around coastal areas where numerous prehistoric sites are known to exist along the shores, estuaries, lagoons, and bluffs of the San Diego coastline.

As true in the 2020 analysis, any ground disturbances associated with transportation network improvements may unearth buried human remains. Given the magnitude and location of several of the transportation network improvements occurring by 2035, and the number of additional transportation network improvements over those previously implemented by 2020, additional ground disturbances are anticipated, and it is possible that, as more land is disturbed, buried human remains may be unearthed or disturbed and the extent of these impacts would increase over time.

As discussed above, if human remains were encountered during construction, work would halt in that area and the procedures set forth in PRC Section 5097.98 and HSC Section 7050.5 would be undertaken. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered.

Conclusion

By 2035, ground-disturbing activities associated with the implementation of the 2050 RTP/SCS have the potential to uncover or disturb buried human remains. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered. No mitigation measures are required.

2050

Regional Growth/Land Use Change

By 2050, additional growth and development are anticipated within the region. From 2035 to 2050, growth in the region is forecasted to increase by 358,736 people; 111,570 housing units; and 189,666 jobs. From 2010, this represents a total increase of 1,160,435 people; 379,664 housing units; and 501,958 jobs within the region by 2050. Areas of substantial land use change and development, beyond that described in 2035, would include significant industrial development in the County's Otay planning area and San Diego Otay Mesa community surrounding the East Otay Mesa POE; throughout County planning areas located along the international border including Tecate, Potrero, Campo/Lake Morena, Boulevard, and Jacumba; throughout the Ramona and Julian planning areas in the unincorporated County; throughout other northeastern County planning areas including North Mountain, Desert, and Borrego Springs; and continued development throughout County planning areas located north and east of Escondido extending to the northern border with Riverside County including Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, Hidden Valley, Twin Oaks Valley, and North County Metro.

Increased population density is most apparent in City of San Diego communities near the downtown area near I-5 and I-805 and along the I-8 corridor to the east. Urban centers in the western third of the San Diego region would have most available land developed with single- and multi-family uses, commercial and office uses, and industrial uses. Substantial dense growth within the urban centers corresponds with

major transportation corridors such as I-5, I-8, I-15, and I-805 and these are also alignments that would have extensive transit opportunities. Similar to the description in the 2035 analysis, growth would continue in more eastern locations of the region, such as east of I-15 in the northern area, east of SR 67 through the middle portion of the region, and east of SR 94 in the southern area. However, spaced rural residential development would have expanded beyond areas along existing transportation corridors and established rural communities and into areas with very minimal development at present. Some of these areas include northeast of Escondido to SR 76, areas east of Camp Pendleton, and areas north and south of the SR 78 corridor. Large pockets of land currently used for agricultural purposes would be developed with spaced rural residential uses. A substantial pocket of industrial development would be located along the planned SR 905 corridor in conjunction with the new Otay Mesa East POE at the international border with Mexico. This is a newly developing area that is planned for mainly industrial use and is highly dependent upon the planned construction of SR 11, SR 905, and the Otay Mesa East POE.

In addition to the growth areas described in the 2020 and 2035 analyses, growth in the eastern more rural portion of the San Diego region is forecasted by 2050. The likelihood of encountering human remains is greatest for projects that include grading and/or excavation of areas on which past grading and/or excavation activities have been minimal. Since archaeological resources have been found within inches of the ground surface throughout the San Diego region, even minimal grading activities can impact these resources. Excavation and soil removal of any kind, irrespective of depth, have the potential to yield human remains. While most new development and redevelopment in the growth areas above would mostly result in the intensification of previously developed areas, ground-disturbing activities associated with infill, redevelopment, and/or expansion of infrastructure have the potential to unearth and impact buried human remains. As true in the 2020 and 2035 analyses, as more and more land is disturbed and altered for new development and redevelopment anticipated as part of the 2050 RTP/SCS, the possibility for disturbance of human remains becomes greater.

As discussed in the 2020 and 2035 analyses, if human remains were to be encountered during construction, work would halt in that area and the procedures set forth in PRC Section 5097.98 and HSC Section 7050.5 would be undertaken. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered.

Transportation Network Improvements

By 2050, most of the highway, transit, and active transportation (bicycle and pedestrian) improvements, along with other infrastructure projects, would be in place and operational in accordance with the proposed 2050 RTP/SCS. Some key highway improvements that would be in place by 2050 would include widening portions of SR 52, SR 56, SR 76, SR 94, SR 125, and I-5; additional HOV lanes and Managed Lanes along segments of I-805, I-5, I-15, SR 94, SR 125, and SR 54; and freeway and HOV connector improvements. Important transit improvements in place by 2050 would include the extension of Trolley lines and increased Trolley service frequency. The Trolley Green Line would be extended to Downtown-Bayside; ~~a new Phase 2 of the line connecting San Diego State University to Downtown San Diego~~ via El Cajon Boulevard/Mid-City would be constructed ~~extended to San Diego State University;~~ and a line from University Town Center to ~~San Ysidro Palomar Trolley Station in the South Bay~~ via Kearny Mesa, Mission Valley, Mid-City, and National City, and Chula Vista would be established.

As true in the 2020 and 2035 analyses, due to the rich historic and prehistoric background of the San Diego region, the potential for identified and unidentified cultural resources to occur within these transportation network improvement areas listed above exists. Some of the improvements in the 2050 RTP/SCS planned by 2050 would involve only operational changes that would not involve construction of new transportation or transit facilities, such as increasing service frequencies or new transit routes

within existing right-of-way. However, those that would involve construction of new infrastructure or facilities could result in impacts to buried human remains. Widening of the highways mentioned above would require grading and potentially trenching, activities that remove and/or disturb the upper layer of soils and have the potential to unearth underlying buried resources, including human remains. The transit extension involving tunneling of the Green Line into downtown San Diego has the potential to impact cultural resources since historic period archaeological materials are routinely identified during excavations and monitoring of construction activities in the downtown planning area.

Any ground disturbances associated with these transportation network improvements may unearth underlying historical and archaeological resources, and cause a direct disturbance to buried human remains. Given the magnitude and location of several of the transportation network improvements occurring by 2050, and the number of additional transportation network improvements over those previously implemented by 2020 and 2035, additional significant ground disturbances are anticipated. It is possible that more buried human remains would be disturbed by 2050. Given the number of additional transportation network improvements over those previously implemented by 2020 and 2035, additional ground disturbances are anticipated and it is possible that, as more land is disturbed, buried human remains may be unearthed or disturbed, and the extent of impacts would increase over time.

As discussed in the 2020 and 2035 analyses, if human remains were encountered during construction, work would halt in that area and the procedures set forth in PRC Section 5097.98 and HSC Section 7050.5 would be undertaken. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered.

Conclusion

By 2050, ground-disturbing activities associated with the implementation of the 2050 RTP/SCS have the potential to uncover or disturb buried human remains. Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered. No mitigation measures are required.

PALEO-1 UNIQUE PALEONTOLOGICAL RESOURCES OR UNIQUE GEOLOGICAL FEATURES

The San Diego region is underlain by areas ranging from no paleontological sensitivity to high sensitivity and geological formations with moderate to high paleontological potential to occur throughout the region. Excavation related to construction of projects proposed in the 2050 RTP/SCS would cause unearthing of buried paleontological resources, such as true fossils and fossil casts. Construction occurring in previously undisturbed areas and deep excavation activities would have the greatest likelihood to affect paleontological resources. The potential for loss of paleontological resources is also most likely to occur when the volume of excavation in the potential fossil formation exceeds 2,500 cubic yards. Impacts to paleontological resources generally occur from the physical destruction of fossil remains by excavation operations that cut into geologic formations. Trenching and tunneling activities may also result in impacts to paleontological resources. When such activities occur, potential impacts are limited to the immediate area of disturbance. Because paleontological resources are typically located underground and, therefore, not apparent until revealed by excavation, the potential for significant impacts to paleontological resources to occur is based on the extent that a geologic formation would be disturbed and the potential for those geologic formations to contain fossils. When such activities occur, potential impacts are limited to the immediate area of disturbance. The covering of undisturbed paleontological sites would not represent a potentially significant impact, as the resources would be left intact and would not be

destroyed. Because paleontological resources are typically located underground and, therefore, not apparent until revealed by excavation, the potential for significant impacts to paleontological resources to occur is based on the extent that a geologic formation would be disturbed and the potential for those geologic formations to contain fossils.

Construction occurring in previously undisturbed areas may cause direct or indirect damage to a unique geological feature. Unique geological features are found in rocks, such as fossils, or are the rocks themselves. Blasting or chiseling rock formations for grading activities may directly harm unique geological features if these features are not identified and protected from such activities. When direct impacts occur, impacts are limited to the immediate area of disturbance. Indirect impacts may occur to unique geological features if altered hydrologic flow or runoff erodes the feature over time, and may occur within the project area or spread to surrounding areas.

2020

Regional Growth/Land Use Change

By 2020, population within the region is forecasted to increase by 310,568 people; housing by 113,062 units; and employment by 118,535 jobs over existing conditions. Some locations that would experience the most extensive land use change and development by 2020 would include areas such as eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 corridor; City of San Diego coastal and bay communities south of I-8 including Ocean Beach and the Peninsula planning areas; portions of northern Santee; areas north and south of the SR 56 corridor in the San Diego planning areas of Carmel Valley, Del Mar Mesa, Pacific Highlands Ranch, and Torrey Highlands; the San Marcos area near both the SR 78 and I-15 corridors; and within unincorporated County communities such as Fallbrook, Pala-Pauma Valley, and Valley Center along the I-15 and SR 76 corridors.

As described in Section 4.5.1 and Tables 4.5-2 and 4.5-3, geologic formations with moderate to high paleontological resource potential are present throughout the San Diego region. Excavation and grading activities associated with new development and redevelopment in the growth areas above may result in impacts to paleontological resources. For example, the San Diego planning areas of Carmel Valley, Del Mar Mesa, Pacific Highlands Ranch, and Torrey Highlands are underlain by portions of the Friars Formation and the Scripps Formation (Deméré and Walsh 2003); both of which have high paleontological resource sensitivity. In addition, portions of San Ysidro and Otay Mesa are underlain by the Otay Formation, which ranges from moderate to high paleontological resource sensitivity. Ground-disturbing activities in high or moderate sensitivity fossil-bearing geologic formations such as these have the potential to damage or destroy paleontological resources that may be present below the ground surface.

The majority of unique geological features are located in the eastern areas of the region in areas that are not forecasted to change significantly by 2020. Additionally, many of the unique geological features listed in Table 4.5-3 are located in canyons, riverbanks, or other areas where construction would be infeasible or difficult. The policies and ordinances of local jurisdictions typically restrict construction on steep slopes to preserve hillsides and reduce hazards. Therefore, the majority of identified unique geological features would not be directly impacted from regional development associated with the 2050 RTP/SCS land use pattern.

However, some of identified unique geological features listed in Table 4.5-3 are located in areas that would experience increased regional growth development under the 2050 RTP/SCS. Coastal communities such as Pacific Beach, La Jolla, Mission Beach, Del Mar contain unique geological features and are projected to increase in residential and commercial densities by 2020. Other features are located near

urban areas within the City of San Diego, such as those near the San Diego River in Mission Valley, or Rose Canyon. These geological features may experience direct impacts from construction or be affected by indirectly from increased development, including impacts caused by changes to hydrology and water runoff. Features sensitive to the effects of erosion, such as coastal bluffs or canyon walls, may be impacted by runoff or vibration from construction activities.

Any future development projects implementing the 2050 RTP/SCS would be required to adhere to the regulations discussed in Section 4.5.2 or listed in Table 4.5-5. In addition, development projects would undergo local site-specific CEQA analyses to determine impacts to hydrology and geologic hazards, including the potential to cause erosion. Projects associated with regional growth would be required to adhere to design standards described in the Uniform Building Code (UBC) and permit requirements of local jurisdictions and the California Coastal Commission (CCC), if applicable, to reduce slide danger and erosion. These requirements would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. The 2050 RTP/SCS is a program-level document; detailed, site-specific information is not available to predict either the site-specific impacts of future land use changes on paleontological resources and unique geological features, or the effectiveness of existing laws, regulations, and programs in reducing any such site-specific impacts. Although most local jurisdictions have policies and regulations to protect natural landforms and/or paleontological resources from development-related impacts, only the County of San Diego has policies specific to the protection of unique geological features. Therefore, impacts to paleontological resources and unique geological features are considered significant.

Transportation Network Improvements

The transportation network improvements that would be implemented between 2010 and 2020 generally include widening and/or installation of HOV lanes, ~~and Managed Lanes, and Transit Lanes~~ along portions of I-5, I-15, I-805, SR 78, and SR 94; completion of SR 905 and SR 11; and HOV connector projects along I-805 ~~and SR 78 at I-15~~. Some key transit network improvements in place by 2020 would include increases in existing COASTER service, including extension of COASTER service to the San Diego Convention Center and Petco Park. BRT downtown express services from inland and south bay locations would be expanded as well as new BRT routes from the south bay area and along I-15. Rapid bus service would add new routes and streetcar routes would be established. ~~Airport express routes would also be developed.~~ Local bus service would be improved to 15 minutes in key corridors. Double-tracking of the LOSSAN rail corridor would occur to accommodate increased frequency in COASTER and other rail services that utilize this rail line. In addition, the new Mid-Coast Trolley line from Old Town to University Town Center would be constructed and the Green Trolley line would be extended to downtown San Diego.

Implementation of the 2050 RTP/SCS would result in transportation network improvements, being constructed within geological formations of moderate to high paleontological resource potential or areas containing unique geological features. New roadways and transit facilities can directly and permanently alter unique geologic features, particularly in canyons, coast lines, and mountain passes. New lanes and transit projects require earthwork, and, in areas of high or moderate paleontological resource sensitivity or that contain unique geological features, would directly or indirectly impact existing unique geologic features and paleontological resources. Project activities such as grading and tunneling near coastal bluffs or through canyons would cause direct physical destruction of resources. For example, implementation of the Mid-Coast Trolley line and double-tracking of the COASTER in the vicinity of Pacific Beach and La Jolla would be constructed within or adjacent to Ardath Shale, the Baypoint Formation, the Mount Soledad Formations, and other geologic formations with moderate to high paleontological resource sensitivity. Construction and operation of these transportation network improvements would also produce

vibration and contribute to the effects of erosion, which would indirectly impact paleontological resources and unique geological features.

Upon implementation of the individual transportation network improvements included as part of the 2050 RTP/SCS, both paleontological resources and unique geological features would be directly or indirectly impacted. As discussed above, existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, impacts to paleontological resources and unique geological features are considered significant.

Conclusion

By 2020, ground-disturbing activities, such as construction associated with development, redevelopment, and/or expansion of infrastructure associated with the implementation of the 2050 RTP/SCS have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, this is a significant impact for which mitigation measures are described in Section 4.5.5.

2035

Regional Growth/Land Use Change

By 2035, additional growth and development are anticipated within the region. From 2020 to 2035, growth in the region is forecasted to increase by 491,131 people; 155,032 housing units; and 193,757 jobs. From 2010, this represents a total increase of 801,699 people; 268,094 housing units; and 312,292 jobs within the region by 2035. Some locations that would experience the most extensive land use change and development by 2035 would include continued growth in eastern Chula Vista along the SR 125 and I-805 corridors; San Diego community planning areas of San Ysidro and Otay Mesa along the SR 905 and SR 125 corridors; northeast of the SR 94 corridor in the unincorporated County planning areas of Jamul/Dulzura, Tecate, and Potrero; eastern Poway along the SR 67 corridor; the County planning area of Ramona along the SR 67 and SR 78 corridors; County planning areas of Lakeside and Alpine and the Crest, Granite Hills, Dehesa, Harbison Canyon subregion; and multiple north County planning areas along the I-15 and SR 76 corridors such as Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, and Hidden Valley. Areas of increased residential density by 2035 would be apparent in some coastal cities such as Oceanside and Encinitas, and City of San Diego coastal communities. Also, increased density would occur in more inland areas along the I-8 corridor through Mission Valley, College Area, and into the City of La Mesa, as well as eastern Chula Vista along the SR 125 corridor. In the northern portion of the region, land use changes to accommodate growth in 2035 in the form of spaced rural residential development would occur along the I-15 corridor north of Escondido toward the northern county line and in more eastern areas along I-8, SR 67, SR 78, and SR 94.

By 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and generally within San Diego County community planning areas. The SR 78 corridor, from Escondido to I-5 would also experience growth and resulting land use density increases of both residential and commercial/office by 2035. The majority of this growth would be centered around the cities of Vista, San Marcos, and Escondido. Also by 2035, some regional growth would be accommodated in the more eastern, rural areas of the region. Development in these areas would be centered mostly along highway corridors, such as SR 78, SR 67, I-8 east of El Cajon, and SR 94, and

generally within San Diego County community planning areas. When comparing the existing land uses and 2035 land uses, the 2035 land use pattern would generally involve additional residential development in areas that were previously undeveloped open space or at some time in agricultural use (as discussed in Section 4.2).

As discussed in the 2020 analysis above, geologic formations with moderate to high paleontological resource potential are present throughout the San Diego region (Section 4.5.1 and Tables 4.5-2 and 4.5-3). Excavation and grading activities associated with new development and redevelopment in the growth areas above may result in impacts to paleontological resources. Ground-disturbing activities in high or moderate sensitivity fossil-bearing geologic formations such as these have the potential to damage or destroy paleontological resources that may be present below the ground surface. The types of activities that would result in significant impacts to paleontological resources and unique geological features (i.e., excavation and grading) in 2020 would continue to occur into 2035 as development intensities would increase to accommodate the forecasted growth. In addition, with more construction anticipated to occur within previously unearthened areas, or increase the likelihood of impacts from erosion or changes to hydrology, there is an increased potential to physically destroy or indirectly alter unique geological features.

As more land is disturbed and altered for new development and redevelopment by 2035, the possibility of impacts on paleontological resources and unique geological features becomes greater. As discussed in the 2020 analysis, existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, impacts to paleontological resources and unique geological features are considered significant.

Transportation Network Improvements

By 2035, additional transportation network improvements would occur in the San Diego region as part of the 2050 RTP/SCS. Some key highway improvements in place by 2035 would include ~~continued widening along portions of I-5;~~ additional HOV and Managed Lanes along portions of I-5, I-15, I-805, and SR 52; widening of portions of SR 125 and SR 67; and additional freeway and HOV connector improvements. Some important transit projects operational by 2035 would include continued increases in COASTER service, increases in SPRINTER service, increases in downtown area streetcar service, and substantial increases in rapid bus service throughout the region. The Trolley Blue Line would be extended from UTC to Mira Mesa via Sorrento Mesa and Carroll Canyon; the Orange Line would be extended to Lindbergh Field; Phase 1 of the new Mid-City to Downtown San Diego line would provide service from the Mid-City transit station via El Cajon Boulevard to Downtown; and a new line from Pacific Beach to El Cajon via Kearny Mesa, Mission Valley, and San Diego State University would be established. Double-tracking along the SPRINTER rail line through the cities of Oceanside, Vista, San Marco, and Escondido would take place by 2035 as well as continued double-tracking along the LOSSAN corridor.

As true in the 2020 analysis, any ground disturbances associated with transportation network improvements, including highway expansions and transit extensions mentioned above, may directly or indirectly impact paleontological resources or unique geological features. Given the magnitude and location of several of the transportation network improvements occurring by 2035 (e.g., continued double-tracking of the COASTER rail and SRINTER light rail lines, and extension of the Orange Line Trolley to Lindbergh Field), and the number of additional transportation network improvements to be implemented in areas of moderate to high paleontological resource sensitivity over those previously implemented by 2020, additional ground disturbances are anticipated. It is possible that more paleontological resources or unique geological features would be directly destroyed or altered by runoff or erosion.

As discussed in the 2020 analysis, existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, impacts to paleontological resources and unique geological features are considered significant.

Conclusion

By 2035, ground-disturbing activities, such as construction associated with development, redevelopment, and/or expansion of infrastructure associated with the implementation of the 2050 RTP/SCS, have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, this is a significant impact for which mitigation measures are described in Section 4.5.5.

2050

Regional Growth/Land Use Change

By 2050, additional growth and development are anticipated within the region. From 2035 to 2050, growth in the region is forecasted to increase by 358,736 people; 111,570 housing units; and 189,666 jobs. From 2010, this represents a total increase of 1,160,435 people; 379,664 housing units; and 501,958 jobs within the region by 2050. Areas of substantial land use change and development, beyond that described in 2035, would include significant industrial development in the County's Otay planning area and San Diego Otay Mesa community surrounding the East Otay Mesa POE; throughout County planning areas located along the international border including Tecate, Potrero, Campo/Lake Morena, Boulevard, and Jacumba; throughout the Ramona and Julian planning areas in the unincorporated County; throughout other northeastern County planning areas including North Mountain, Desert, and Borrego Springs; and continued development throughout County planning areas located north and east of Escondido extending to the northern border with Riverside County including Rainbow, Fallbrook, Bonsall, Pala-Pauma Valley, Valley Center, Hidden Valley, Twin Oaks Valley, and North County Metro.

Increased population density is most apparent in City of San Diego communities near the downtown area near I-5 and I-805 and along the I-8 corridor to the east. Urban centers in the western third of the San Diego region would have most available land developed with single- and multi-family uses, commercial and office uses, and industrial uses. Consistent with the goals of the 2050 RTP/SCS, the dense growth within existing urban centers with high accessibility to transit options allows for the creation of communities that are more sustainable, walkable, transit-oriented, and compact. Substantial dense growth within the urban centers corresponds with major transportation corridors such as I-5, I-8, I-15, and I-805 and these are also alignments that would have extensive transit opportunities. Similar to the description in the 2035 analysis, growth would continue in more eastern locations of the region, such as east of I-15 in the northern area, east of SR 67 through the middle portion of the region, and east of SR 94 in the southern area. However, spaced rural residential development would have expanded beyond areas along existing transportation corridors and established rural communities and into areas with very minimal development at present. Some of these areas include northeast of Escondido to SR 76, areas east of Camp Pendleton, and areas north and south of the SR 78 corridor. Large pockets of land currently used for agricultural purposes would be developed with spaced rural residential uses. A substantial pocket of industrial development would be located along the planned SR 905 corridor in conjunction with the new Otay Mesa East POE at the international border with Mexico. This is a newly developing area that is

planned for mainly industrial use and is highly dependent upon the planned construction of SR 11, SR 905, and the Otay Mesa East POE.

As discussed in the 2020 and 2035 analysis above, geologic formations with moderate to high paleontological resource potential are present throughout the San Diego region (Section 4.5.1 and Tables 4.5-2 and 4.5-3). As development extends farther east, into currently rural and less developed areas, additional excavation and grading activities associated with land use changes in these growth areas as well as the areas mentioned above may result in more impacts to paleontological resources. Ground-disturbing activities in high or moderate sensitivity fossil-bearing geologic formations such as these have the potential to damage or destroy paleontological resources that may be present below the ground surface. In addition, with more construction anticipated to occur within previously unearthed areas, or increase the likelihood of impacts from erosion or changes to hydrology, there is an increased potential to physically destroy or indirectly alter unique geological features.

As more land is disturbed and altered for new development and redevelopment by 2050, the possibility of impacts on paleontological resources and unique geological resources becomes greater. As discussed in the 2020 and 2035 analyses, existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, impacts to paleontological resources and unique geological features are considered significant.

Transportation Network Improvements

By 2050, most of the highway, transit, and active transportation (bicycle and pedestrian) improvements, along with other infrastructure projects, would be in place and operational in accordance with the proposed 2050 RTP/SCS. Some key highway improvements that would be in place by 2050 would include widening portions of SR 52, SR 56, SR 76, SR 94, SR 125, and I-5; additional HOV lanes and Managed Lanes along segments of I-805, I-5, I-15, SR 94, SR 125, and SR 54; and freeway and HOV connector improvements. Important transit improvements in place by 2050 would include the extension of Trolley lines and increased Trolley service frequency. The Trolley Green Line would be extended to Downtown-Bayside; ~~a new Phase 2 of the line connecting San Diego State University to Downtown San Diego~~ via El Cajon Boulevard/Mid-City would be constructed ~~extended to San Diego State University;~~ and a line from University Town Center to ~~San Ysidro~~ Palomar Trolley Station in the South Bay ~~via Kearny Mesa, Mission Valley, Mid-City, and National City, and Chula Vista~~ would be established.

As true in the 2020 and 2035 analyses, any ground disturbances associated with the transportation network improvements, including highway expansions and transit extensions, mentioned above may directly or indirectly impact paleontological resources or unique geological features. Widening of the highways mentioned above would require grading and potentially trenching, activities that remove and/or disturb the upper layer of soils in areas with high paleontological resource sensitivity. In addition, the transit extension involving tunneling of the Green Line into downtown San Diego has the potential to result in impacts to paleontological resources as the entire downtown planning area is underlain by the San Diego Formation and the Baypoint Formation, both of which have high paleontological resource sensitivity. Given the number of additional transportation network improvements requiring construction over those previously implemented by 2020 and 2035, additional ground disturbances in areas of high paleontological resource sensitivity are anticipated by 2050. It is also possible that more unique geological features would be directly destroyed or altered by runoff or erosion.

As discussed in the 2020 and 2035 analyses, existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than

significant level. Therefore, impacts to paleontological resources and unique geological features are considered significant

Conclusion

By 2050, ground-disturbing activities, such as construction associated with development, redevelopment, and/or expansion of infrastructure associated with the implementation of the 2050 RTP/SCS, have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Existing federal, state, and local laws, regulations, and programs included in Section 4.5.2 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, this is a significant impact for which mitigation measures are described in Section 4.5.5.

4.5.5 MITIGATION MEASURES

The following mitigation measures aim to reduce impacts related to cultural resources and paleontology to less than significant levels. These mitigation measures are general and programmatic in nature, and would be refined in project-specific CEQA documents. It should be noted that the FHWA and Caltrans have responsibilities under Section 106 of the NHPA and Section 4F of the Department of Transportation Act to identify significant properties and to avoid or minimize adverse effects from highway projects. Other local jurisdictions have responsibilities to identify and avoid adverse effects to significant cultural resources under CEQA. Agencies considering proposed major projects are required to consult with local tribal groups and the NAHC during the environmental review process for impacts to sacred lands and artifacts.

CULT-1 CULTURAL RESOURCES

2020, 2035, 2050

Implementation of the 2050 RTP/SCS would result in significant impacts to cultural resources in 2020, 2035, and 2050. Implementation of Mitigation Measures CULT-A, CULT-B, CULT-C, CULT-D, ~~and~~ CULT-E, and CULT-F would reduce impacts to a less than significant level.

CULT-A During CEQA review of development projects and transportation network improvement projects implementing the 2050 RTP/SCS, SANDAG shall and other implementing agencies can and should conduct a review of literature and historic maps and a records search to determine whether the project area has been previously surveyed and whether cultural resources were identified. In the event that the records indicate that no previous survey has been conducted, ~~the agency project implementing agency shall have a qualified cultural resource specialist conduct a survey of the project area obtain a recommendation from a qualified cultural resources expert or an appropriate facility regarding the need for survey.~~ Specifically, the report shall explicitly state the results of the literature study and site survey, whether the resource is eligible for either state or local historical registers. In addition, SANDAG shall and other implementing agencies can and should ~~contact~~ consult the Native American Heritage Commission and any and all area tribes that have filed a claim in the Sacred Lands Inventory to identify potential places of cultural and/or religious importance or sites that may contain other cultural resources. Resources that cannot be avoided will need to be evaluated, and if found significant, will require project-level mitigation.

CULT – B Prior to construction of specific development projects and transportation network improvement projects implementing the 2050 RTP/SCS that would disturb a historic structure listed or eligible to be listed in the NRHP, the CRHR, or the San Diego County Local Register of Historical Resources, SANDAG shall and other implementing agencies can and should develop feasible project-level mitigation measures, identified in consultation with lead agencies and the State Historic Preservation Office as appropriate, to avoid or substantially reduce impacts to significant cultural resources. Feasible project-level mitigation measures include maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation, relocation, or reconstruction of any impacted historic resource, which will be conducted in a manner consistent with the Secretary of the Interior’s Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings.

CULT-C During the planning, design, and environmental review phases of individual development projects and transportation network improvement projects implementing the 2050 RTP/SCS SANDAG shall and other implementing agencies can and should incorporate design measures in engineering documents to provide avoidance or minimization of impacts to significant archaeological or cultural resources. Archaeological or cultural resource sites identified as significant shall be avoided or mitigated by completion of a data recovery program conducted in compliance with CEQA and agency guidelines.

Site avoidance and preservation can include capping the site with gravel or construction fabric and 16 to 18 inches of sterile fill soil. Sites proposed for capping shall be indexed so future researchers have reasonable knowledge of the resources that have been protected. Capped sites can be landscaped with native, shallow rooted plants that are compatible with the surrounding biologic habitat. Suggested capping methods should be communicated to Interested Tribes for their review and Tribal recommendations shall be considered to the maximum extent feasible as capping plans are finalized. Passive uses for capped sites include trails, picnic areas, and play areas. Capped areas should not contain asphalt or landscaping with invasive root systems.

~~During the planning, design, and environmental review phases of individual development projects and transportation network improvement projects implementing the 2050 RTP/SCS SANDAG shall and other implementing agencies can and should incorporate design measures in engineering documents to provide avoidance or minimization of impacts to significant archaeological resources. Archaeological sites identified as significant shall be avoided or mitigated by completion of a data recovery program conducted in compliance with CEQA and agency guidelines. Site avoidance and preservation can include capping the site with gravel or construction fabric and 16 to 18 inches of sterile fill soil. Sites proposed for capping shall be indexed so future researchers have reasonable knowledge of the resources that have been protected. Capped sites can be landscaped with native, shallow rooted plants that are compatible with the surrounding biologic habitat. Passive uses for capped sites include trails, picnic and play areas, parking lots, and tennis or volleyball courts.~~

CULT –D During construction of specific development projects and transportation network improvement projects implementing the 2050 RTP/SCS, SANDAG shall and other implementing agencies can and should require areas determined to be of cultural significance to be monitored during the grading phase of individual projects by a qualified archeologist and Tribal monitor.

SANDAG shall and other implementing agencies can and should retain a Tribal monitor (at historic rates of compensation) or tribal representatives designated by the Tribal Council or chairperson, if so requested, to accompany a qualified archeologist to identify, and determine the significance of, cultural resources and/or sacred lands. Both the archeologist and tribal monitor shall observe ground-disturbing activities and/or other scientific surveying that may occur in preparation for construction activities.

Should an archaeological deposit and/or feature be encountered during construction activities, an Archaeological Data Recovery Program (ADRP) shall be prepared and implemented with consultation with Interested Tribes. Both the archeologist and tribal monitor should strive for agreement on the determined significance of an artifact or cultural resource. Once in agreement, either the archeologist or tribal monitor may divert or halt ground-disturbing activities for the purposes of implementing a data recovery program.

~~Should an archaeological deposit and/or feature be encountered during construction activities, an Archaeological Data Recovery Program (ADRP) shall be implemented. A data recovery program for archaeological sites consists of excavation of a percentage of the site (determined in consultation with the lead agency) to provide information necessary to answer significant research questions. Project implementation agencies shall integrate curation of all archaeological and/or historical artifacts and associated records in a regional center focused on the care, management, and use of archaeological collections. All Native American human remains and associated grave goods discovered shall be returned to their Most Likely Descendent and repatriated. The final disposition of artifacts not directly associated with Native American graves will be negotiated during consultation with Interested Tribes. Artifacts include material recovered from all phases of work, including the initial survey, testing, indexing, data recovery, and monitoring. Curated materials shall be maintained with respect for cultures and available to future generations for research.~~

CULT-E

Prior to construction of individual development projects and transportation network improvement projects implementing the 2050 RTP/SCS, SANDAG shall and other implementing agencies can and should consult with the NAHC and local tribes for each discretionary project at the onset and during the environmental review process and the preconstruction phases –to determine if ethnographic resources and/or sacred lands are present within the project area, or its vicinity. Native American tribes shall be notified of project construction prior to obtaining grading permits and/or beginning ground-disturbing activities within a tribe’s traditional territory. SANDAG shall and other implementing agencies can and should request from Interested Tribes appropriate provisions to address the proper treatment of found cultural resources and Native American remains and consider including these provisions in applicable work plans to the maximum extent feasible.

If cultural resources and/or sacred lands are present, SANDAG shall and other implementing agencies can and should communicate with Interested Tribes during the design, construction, operation, and decommissioning of the project. Prior to implementation of construction, SANDAG shall and other implementing agencies can and should communicate with Interested Tribes that place cultural significance on the project area. Outreach efforts between the Tribes and SANDAG or other implementing agencies shall be communicated quarterly during the design and construction phase for

review and input. Where potential impacts are identified, grading and excavation activities shall avoid impacts to identified resources, as feasible.

CULT-F If human or nonhuman remains are found, SANDAG shall and other implementing agencies can and should ~~construction shall be immediately suspended~~ construction in the in the vicinity of the discovery and determine if the remains discovered are human or nonhuman. For human remains, the archeologist and Tribal monitor, if present, shall protect discovered remains and/or burial goods remaining in the ground from additional disturbances. In the event that the human remains are discovered to be Native American, project implementation agencies shall contact the NAHC so that a Most Likely Descendent can be identified as required under California Public Resources Code §5097.98. Through coordination with SANDAG (or other implementing agencies), the Most Likely Descendent will determine the ultimate disposition of the human remains in compliance with all applicable local, state, and federal laws. Whenever possible, areas in which Native American remains and/or burial goods are discovered shall be avoided and placed into protected open space.

CULT-2 DISTURBANCE OF HUMAN REMAINS

Section 15064.5(d) and (e) of the CEQA Guidelines assign special importance to human remains and specify procedures to be used when Native American remains are discovered. These procedures are detailed under PRC Section 5097.98, described in Section 4.5.2.

Impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered. No mitigation is required.

~~Where potential impacts are identified, grading and excavation activities shall avoid impacts to identified resources, as feasible. The project implementation agencies shall meet further requirements established by the NAHC, such as providing a procedure for the notification of “Most Likely Descendent” regarding the discovery of Native American human remains, and maintaining an inventory of sacred places.~~

PALEO -1 PALEONTOLOGICAL RESOURCES AND UNIQUE GEOLOGIC FEATURES

2020, 2035, 2050

Implementation of the 2050 RTP/SCS would result in significant impacts to paleontological resources or unique geological features in 2020, 2035, and 2050. Implementation of Mitigation Measures PALEO-A would reduce impacts to a less than significant level.

PALEO-A If it is determined during the environmental review process that development projects and transportation network improvement projects implementing the 2050 RTP/SCS would be located within an area of high or moderate paleontological resource sensitivity or near a known unique geological feature, and would remove at least 2,500 cubic yards of soil from a previously unearthed area, SANDAG shall and other implementing agencies can and should require a qualified researcher to be stationed on-site to observe during grading operations and recover scientifically valuable specimens or enforce avoidance of the unique geologic feature. A certified paleontologist or qualified researcher shall be retained (or required to be retained) by the project-implementing agency prior to construction to establish procedures for surveillance and the preconstruction salvage of

exposed resources if fossil-bearing rocks or unique geologic features have the potential to be impacted. The monitor shall provide preconstruction coordination with contractors, oversee original cutting in previously undisturbed areas of sensitive geologic formations, halt or redirect construction activities as appropriate to allow recovery of newly discovered fossil remains, and oversee fossil salvage operations and reporting. This measure shall be placed as a condition on all grading plans where grading is proposed in geologic units defined as having a moderate or high potential for containing fossils.

4.5.6 SIGNIFICANCE AFTER MITIGATION

CULT-1 CULTURAL RESOURCES

2020, 2035, 2050

Implementation of Mitigation Measures CULT-A, CULT-B, CULT-C, CULT-D, ~~and CULT-E,~~ and CULT-F would reduce impacts that would cause a substantial adverse change in the significance of a cultural resource to a less than significant level. These mitigation measures would be included in project-level planning, design, and CEQA reviews. Implementation of these mitigation measures would require project implementation agencies to follow comprehensive, proven procedures to assess the magnitude of impact anticipated on a project level, and avoid or substantially reduce adverse changes in the significance of a cultural resource. The project implementation agencies would be responsible for ensuring adherence to the mitigation measures prior to construction. Therefore, with implementation of these mitigation measures, impacts to cultural resources would be less than significant because 2050 RTP/SCS implementation would not cause substantial adverse changes to the significance of cultural resources.

PALEO-1 PALEONTOLOGICAL RESOURCES OR SITES, OR UNIQUE GEOLOGICAL FEATURES

2020, 2035, 2050

Implementation of Mitigation Measure PALEO-A would require project implementation agencies to assess potential impacts to paleontological resources or unique geological features prior to construction of individual projects associated with the 2050 RTP/SCS. If a project is determined to be located within an area of high or moderate paleontological resource sensitivity or unique geologic features, implementation of Mitigation Measure PALEO-A would require a qualified research to be stationed on-site of any future development to monitor construction and identify valuable paleontological specimens, if any. The on-site research would recover and report on any significant resources found at the site. Implementation of this mitigation measure would reduce impacts by overseeing construction and related project activities to ensure the recovery of discovered paleontological resources and avoidance of unique geologic features.

Mitigation Measure PALEO-A would be included in project-level planning, design, and CEQA reviews. Implementation of Mitigation Measure PALEO-A would require project implementation agencies to follow comprehensive, proven procedures to assess the magnitude of impact anticipated on a project level; and avoid or substantially reduce the potential for paleontological resources and unique geological features to be directly or indirectly destroyed.. The project implementation agencies would be responsible for ensuring adherence to the mitigation measures prior to construction. Therefore, with implementation of this mitigation measure, impacts to paleontological resources and unique geological features would be less than significant because 2050 RTP/SCS implementation would not directly or indirectly destroy these resources.

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