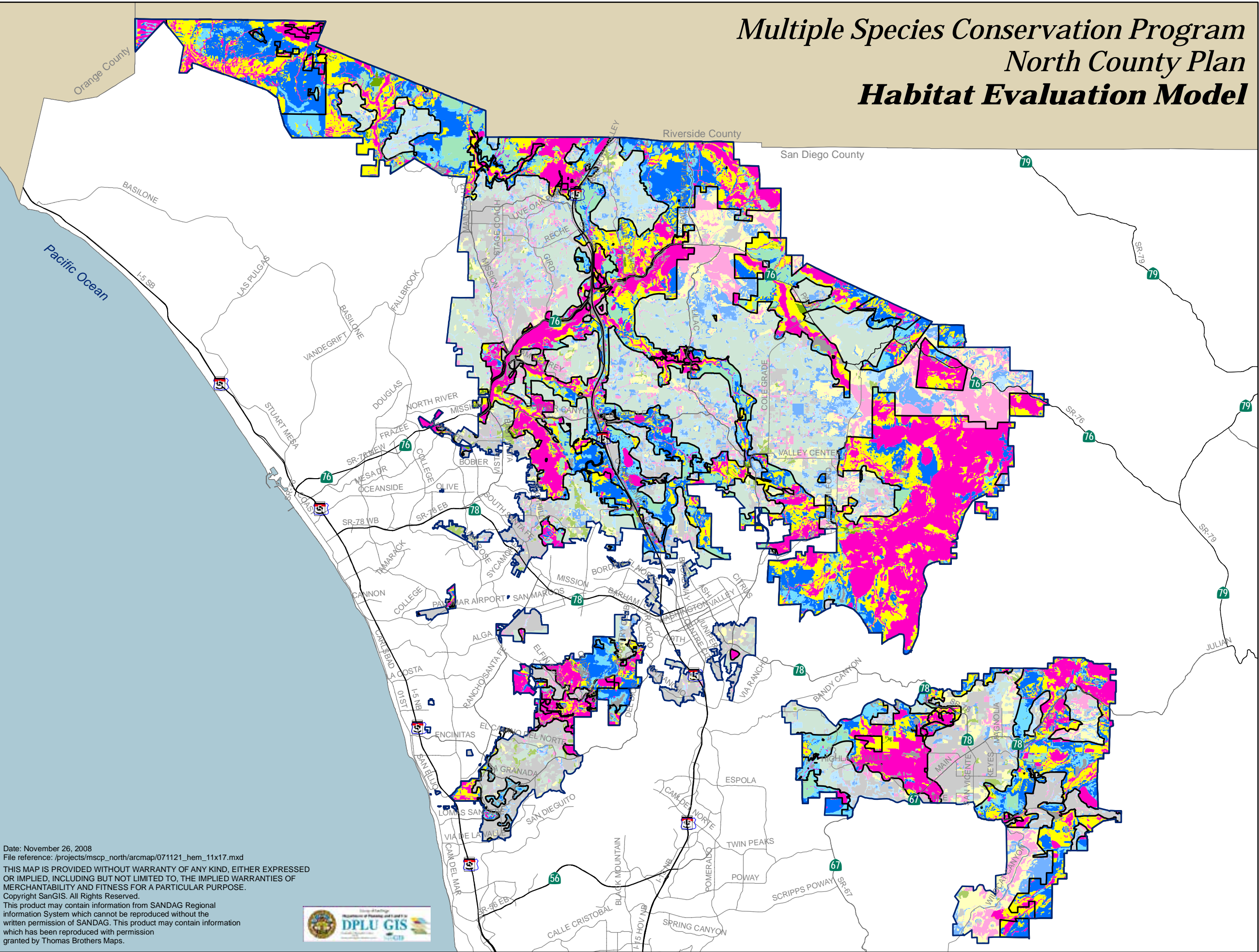
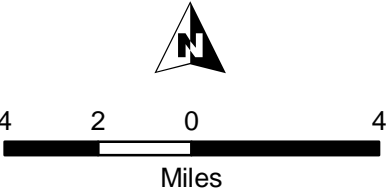


# Multiple Species Conservation Program North County Plan Habitat Evaluation Model

- North County Plan Boundary
- Pre-Approved Mitigation Area (PAMA)
- Habitat Evaluation Model Results**
- Within Pre-Approved Mitigation Area (PAMA)**
- Very High
- High
- Moderate
- Low
- Developed
- Intensive Agriculture
- Extensive Agriculture
- Habitat Evaluation Model Results**
- Outside Pre-Approved Mitigation Area (PAMA)**
- Very High
- High
- Moderate
- Low
- Developed
- Intensive Agriculture
- Extensive Agriculture

Date: November 26, 2008  
File reference: /projects/mscp\_north/arcmapping/071121\_hem\_11x17.mxd  
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# PROPERTY SPECIFIC REQUEST

NC42

## Property Specific Request:

Change land use designation from RL20 to add a buffer of Village Residential density around the General Commercial/Office Professional area and designate the remainder as SR4

Requested by: Jeffrey Cline, Mike Rust, Doug Hagerman

Community Recommendation	Existing GP <sup>1</sup>
Opposition Expected <sup>2</sup>	Yes
Spot Designation/Zone	Yes
EIR Recirculation Needed	Yes
Change to GPU Objectives Needed	Yes
Level of Change	Major

### Note:

1-Refer to Twin Oaks CSG letter dated 1/24/2011

2-Based on Wes Pelzer (Golden Door) letter dated 11/24/2010

## Property Description

### Property Owner:

NNP Stonegate Merriam LLC

### Size:

1,516.2 acres; 35 parcels

### Location/Description:

North of Deer Springs Rd and west of I-15. The site is in the Twin Oaks Sponsor Group Area in North County Metro and the Bonsall CPA. Within San Marcos Sphere of Influence, Inside County Water Authority boundary

### Prevalence of Constraints (See following page):

● – high; ◐ – partially; ○ - none

- Steep slope (greater than 25%)
- Floodplain
- Wetlands
- Habitat Value
- ◐ Agricultural Lands
- Fire Hazard Severity Zones

## Land Use

### General Plan

Scenario	Designation
Existing General Plan	1 du/2,4 ac 1 du/4,8,20 ac
PC / Staff Recommendation	RL20
Referral	RL20
Hybrid	
Draft Land Use	RL40
Environmentally Superior	RL40

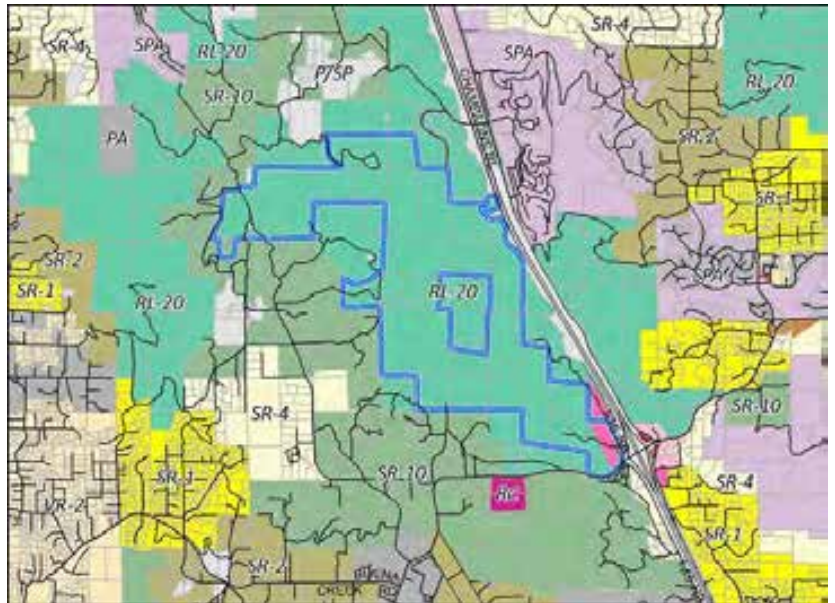
### Zoning

Existing — A70 – 4 acre minimum lot size

Proposed — RR – 4 acre minimum lot size



Aerial



PC/Staff Recommendation

## Discussion

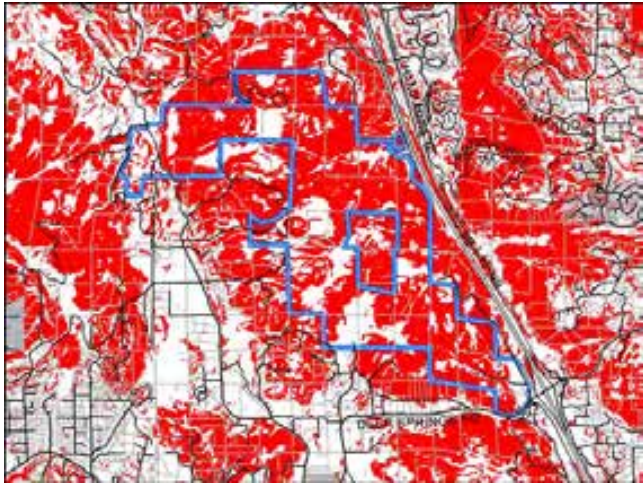
The site is entirely constrained by steep slopes, sensitive habitat and is also located within the Very High Fire Hazard Severity Zone. Because of the predominance of upland chaparral habitat, the County's habitat evaluation model qualifies the site as low value. However, a site-specific study indicated that this area supports rare plants and is conducive to wildlife movement. The property owner request is to add a buffer of Village Residential densities around the Office Professional and designate the remainder of the site at SR4 would be more intensive than any of the GPU mapping alternatives which would likely require recirculation of the EIR and not support project objectives. Specifically the request does not support Guiding Principle #5 due to the steep topography of the land and sensitive habitat. However, a buffer of Village Residential and a small area of SR4 would likely support General Plan Update project objectives, but would also likely require recirculation of the EIR.

NORTH COUNTY METRO [TWIN OAKS VALLEY]

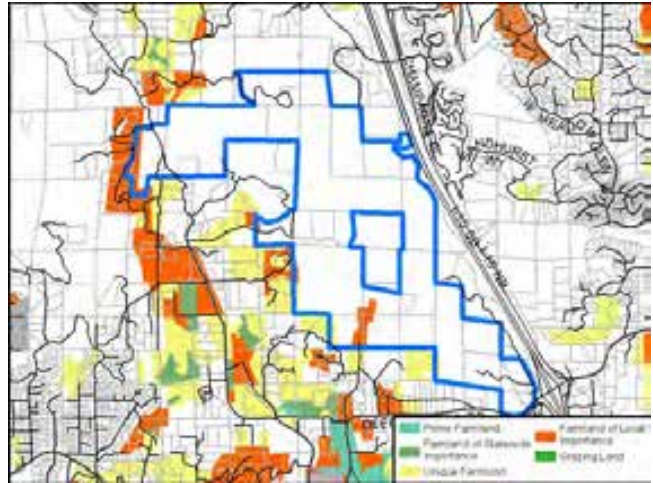
**DRAFT**

## PROPERTY SPECIFIC REQUEST

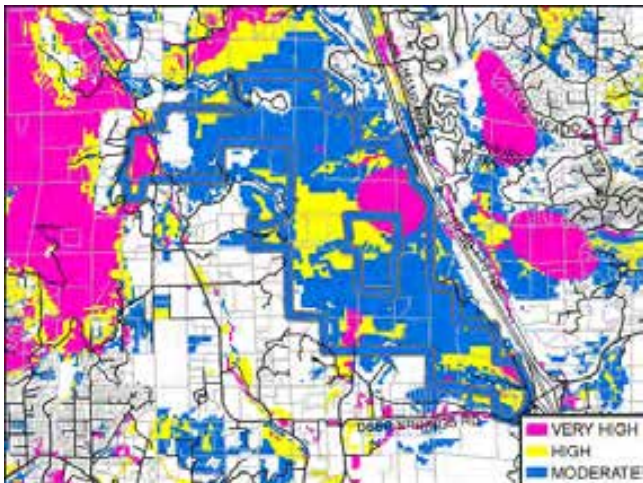
NC42 (cont.)



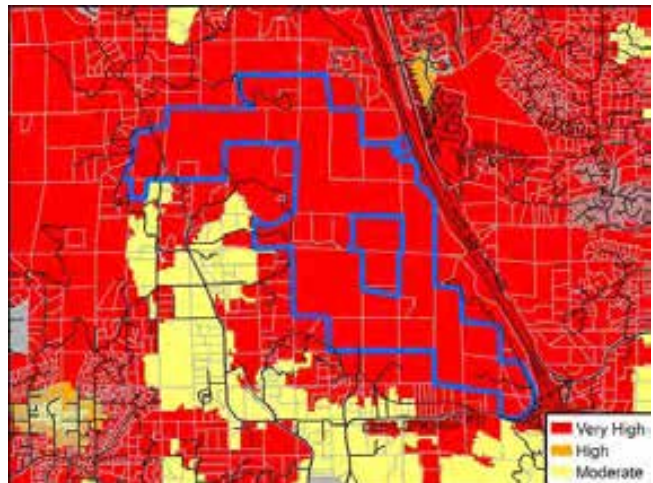
Slope



Agricultural Lands



Habitat Evaluation Model



Fire Hazard Severity Zone

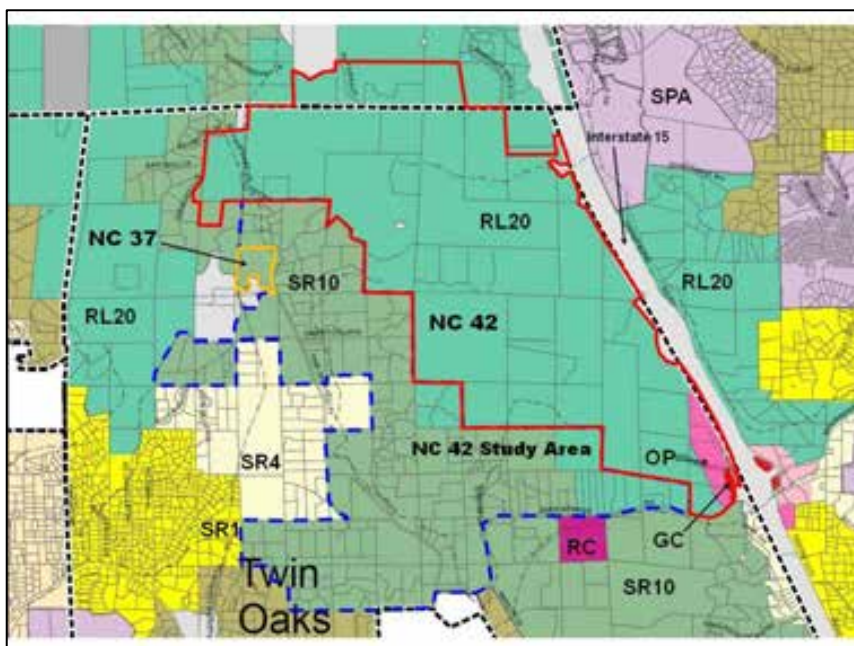
## NC42 and Study Area

Existing GP Designation(s)	RL20/OP
Requestor(s) Position: Support workplan designations Area (acres): 3,529.6 [2,018.2PSR; 1,511.4 study area] # of parcels: 255	

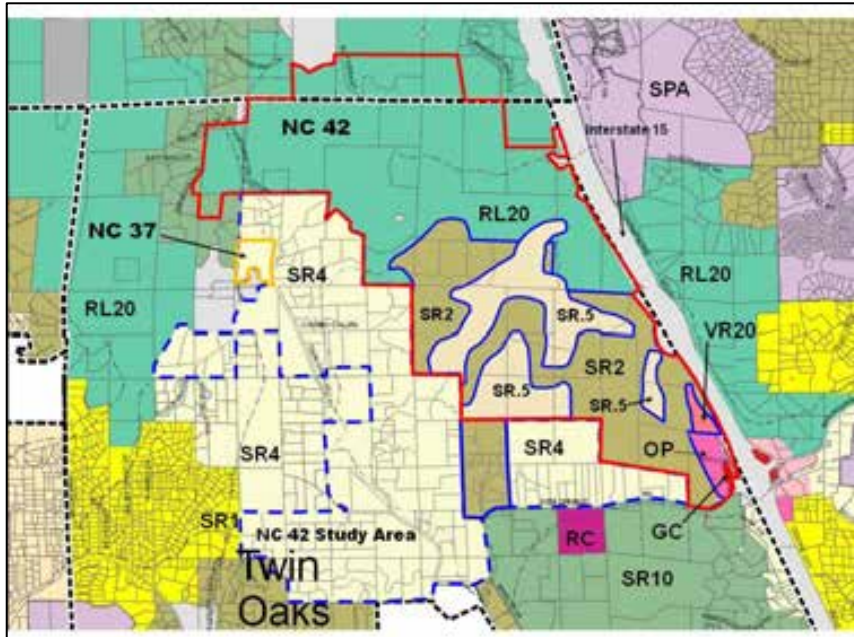
Workplan Designations Evaluated	RL20/SR4/SR2/SR0.5/VR20
CPG Position	Oppose
Opposition Expected	Yes
# of Additional Dwelling Units	1,162
<b>Complexity</b>	<b>Very High</b>

**Discussion:** This is the site of the former Merriam Mountains project. The requestor is seeking general plan designations that maximize development yield on the property while remaining consistent with the General Plan Guiding Principles. Because a specific development is not being considered at this time, land use designations were applied considering the general constraints of the property and proximity to the planned employment core at the Deer Springs Road/Interstate 15 interchange. The workplan considers designations that would yield approximately 1,100 dwelling units on the project site. Multifamily (Village Residential 20) is applied instead of Office Professional in the southeastern corner of the site. The remainder of the property is given SR0.5, SR2 or RL20 designations. (continued on next page)

Existing General Plan Designations:



Workplan Designations Evaluated:



**Discussion (continued):**

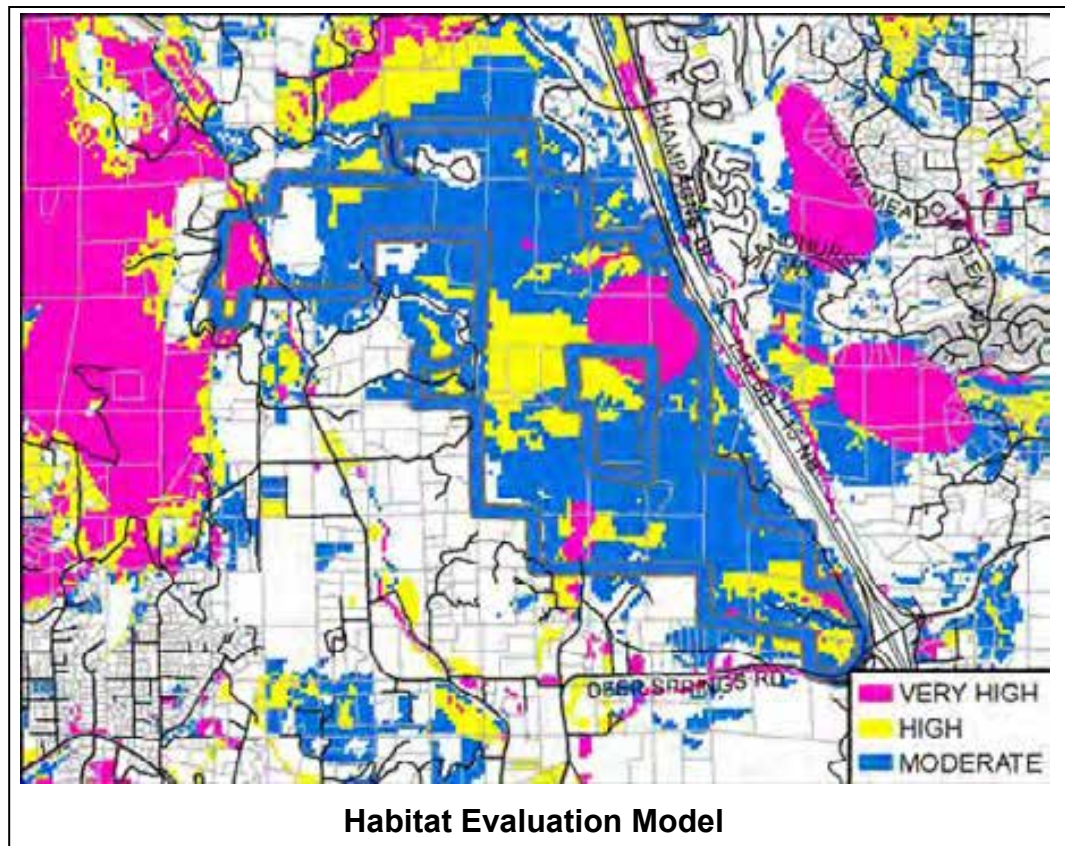
RL20 is assigned to the more remote and sensitive northern portion of the site. Semi Rural designations are applied to the more developable southern portion of the site with SR0.5 on the flatter areas and SR2 surrounding those areas to reflect the steep slopes and provide a transition into the surrounding community. These increases in development potential on this property also required consideration of the designations on the properties in the surrounding community. It would not be appropriate to increase development substantially on the site while significantly restricting development on the surrounding properties. Therefore, the properties within the off-site study area are recommended for SR2 or SR4 depending on size of other parcels in that area. As a result, the total dwelling unit yield would increase by approximately 1,162 units as a result of this change, 1,100 within the PSR and 62 within the study area.

**Rationale for Very High Complexity Classification:**

- The workplan outlines an extensive community remapping that will have a major impact on the Twin Oaks Community and neighboring communities. The effects of adding over 1,000 dwelling units on land that is currently undisturbed rural land will require extensive study to determine the impact on the community, resources, and the environment and to address consistency with Policy LU-2.3 assigning densities in a manner that is compatible with the character of the community.
- The proposal would shift the focus of the Twin Oaks community from its center to its edge along I-15. At a minimum it would be necessary to review the proposed change to address consistency with the Community Development Model, Policy LU-1.1, and Guiding Principle 2. The Community Development Model supports decreased densities as the distance increases from the village core to promote compact development and preserve distinct boundaries between communities.
- The study area affects over 250 property owners. A change affecting such a large number of people increases the complexity involved in notifying owners of the proposed changes, seeking their input, and addressing their concerns. Given the large amount of community opposition to this project, additional issues will be brought up over the life of the approval process.
- The adjacent study area constitutes primarily agricultural lands. Further analysis would be required to determine the effect of a density increase on efforts to preserve important agricultural areas of the county such as this one.
- Portions of the requestor's property contain High and Very High Value Habitat and would require additional environmental analysis to ascertain the impact of development on such sensitive habitat.
- Review of the mapping principles regarding prohibiting "leapfrog" development as outlined in Policy LU-1.2 and consistency with Policy LU-1.4 involving establishing new Village Regional Category designations outside of an existing or planned Village will be required.

**For Additional Information (January 9, 2012 Staff Reports):** [NC37](#), [NC42](#)

## Property Constraints



Dear Mr Gibson:

I find it hard to believe that I should have to write you this letter. You are responsible for fair and reasonable development in San Diego County and, I was led to believe it was your responsibility to follow the general plan. Since a new, long thought over plan is now in effect it should take something incredible to do more than make minor changes to it.

MERRIAM MOUNTAINS was considered in the new plan and the thoughtful decision was that this rural area could support the development of in the neighborhood of 75 houses. I know Bill Horn would develop anything without exception but I really find it sad that he has so much power over your department that you will go against all reason.

I won't go into all of the problems a big development would cause but I do beg you to get the strength to stand up to Bill Horn and the developers and tell them that we have a master land use plan and we are going to use it.

Sincerely,



Steven Muck

9528 Sage Hill Way  
Escondido, CA 92026



DEPARTMENT OF PLANNING  
AND LAND USE



COUNTY OF SAN DIEGO • DEPARTMENT OF PLANNING AND LAND

**PROJECT NAME:** General Plan Update- property specific requests- NC42 **Case Number:** Agenda Item #8

Results of Planning / Sponsor Group Review:

Planning / Sponsor Group: Twin Oaks Community Sponsor Group

Meeting date: January 10, 2011

A. Comments made by the group on the proposed project.

Property Owner request to change land use designation from SR20 to VR30.

Karen Binns recused herself and joined the public. Jemmott noted that the County did not provide the Sponsor Group with the level of information it had supplied with the other five requests. Group members were generally unhappy with the need to action so suddenly without adequate review or discussion, especially since the GP update had been going on for many years. Without the same level of information supplied on this request as supplied on the others it was hard to adequately debate the merits on Staff recommended land use verses the property owner request. (continued below)

B. **Advisory Vote:** The Group ☒ did or ☐ did not make a formal recommendation, approval or denial of property owner request for change.

If a formal recommendation was made, please check the appropriate box below:

**MOTION:**

- ☐ Approve without conditions  
☐ Approve with recommended conditions  
☒ Deny property owner request  
☐ Continue

**VOTE:** 4 Yes 0 No 0 Abstain

Karen Binns recused herself and did not

C. Recommended conditions of approval:

Given the lack of information, Farrell moved to support, at a maximum or not to exceed, the density that the property would yield that would be possible under the existing General Plan [with RPO in place]. Jemmott said that since the Sponsor Group had always opposed clustering, he would support that motion but only if "no clustering" was added to the motion. Farrell accepted the change although personally she supported clustering if it meant preserving more open space. Kumura seconded the motion. Motion passed. 4-0-0

Reported by: Gil Jemmott Position Vice Chair Date 1-20-2011

Minutes: March 21, 2012 meeting of the  
TWIN OAKS VALLEY COMMUNITY SPONSOR GROUP

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**Agenda Item 1: - Roll Call and Advisory Role Statement**

Farrell called the meeting to order at 6:30 pm. Farrell read the advisory role statement. Present: Sandra Farrell (Chair), Gil Jemmott (Co-Vice Chair), Karen Binns (Co-Vice chair), Ben Morris (secretary), Tom Kumura.

**Agenda Item 2: Review of minutes of previous meetings:** February 2012 Minutes were reviewed and no corrections were made, Farrell made a motion to approve, Kumura seconded and the motion was approved 4-0-1, Morris abstained as he did not attend the February meeting.

**Agenda Item 3: Public Forum:** Mike Hunsaker commented on who represents the community of Lake San Marcos, and what is the process of annexation for areas of the County. Patricia Worsham asked about the County plan to dissolve the sponsor groups. Farrell indicated that the Red Tape Reduction Task Force Report will be discussed tonight under Agenda item 8.

**Agenda Item 4: Henry Palmer:** The Sponsor Group will recognize and thank Henry Palmer for his years of service to the Twin Oaks Valley Community Sponsor Group as a member and an Officer. Mr. Palmer was unable to attend tonight's meeting so the recognition will be rescheduled for a future meeting.

**Agenda Item 5: General Plan Update:** Review of any updates from the County, regarding the General Plan update and property owner requests. NC-42 Merriam Mountains, Review of the alternatives to the Recommended map of RL20. Newland Real Estate Group is requesting a higher density. Mike Rust, Sr. Vice President of Newland Real Estate Group LLC, will be here to meet the residents and answer questions. Binns recused herself and joined the audience. Farrell pinned up maps of the old General Plan, the 2010 Recommended Map, and the applicant's Newland/ Merriam Mountains LLC Communities request. Mike Rust and Greg Bielli, Western Regional President from Newland answered questions made by the public. Chief concerns by the public were traffic, fire, and community character associated with the changes requested by Newland. A resident asked how the applicant's request in terms of percent increase of dwellings compared with the RL-20. Was it a 1000% increase, 400% increase? Newland said they didn't know that at this time. The VR designation in both Newland's request and the alternative were particularly troubling to the community and to members of the Sponsor Group. Everyone, with the exception of the applicant, felt the Village Residential didn't fit with the community. Farrell said she could support the Alternative if the VR2.9 was replaced with SR4.

Morris said he looked at the request and the alternative in relationship to the latest Community Plan and said both the Alternative and Newland's requested changes weren't supported by the Community Plan. He said the Community Plan directed Commercial to be in two locations and said they should be designed to reflect the rural Character and not be strip-mall like. Morris felt the problem with the Village Residential designation was that it created a village, something larger than the community, at the very edge of the community. He said he didn't understand the logic of this land use this designation unless this was to be part of a much larger project that would support the Village Residential. Morris said Twin

Oaks didn't have a village center but if it did it would be in the center of the community, near the existing market, and not over at the edge by I-15.

Morris pointed out that when the Sponsor Group looked at all the other property specific requests using topographical maps and documents to provide clarity on how a particular designation would work in the community given topographical constraints. He said he didn't understand why we were being asked to make a decision without this level of information. Through the whole General Plan process there had been no discussion of Village Residential for the Twin Oaks area and Morris could see no argument to support the Village Residential designation for this location. Without a planner's (staff) explanation and supporting documents showing the logic behind why the VR designation was now being proposed, he couldn't support the Alternative.

Rust responded that the County and not Newland had requested the VR 2.9 designation. Newland was requesting changing 25 acres of Office Professional to Village Residential and other uses so that the trip generation would be equivalent. Morris said that the I-15 intersection with Office Professional on the west side and Neighborhood Commercial on the east side felt appropriate for the community. Those Office Professional activities support the needs of the rural of the Twin Oaks Community [not traded for Village Residential] and should remain.

Kumura felt he too couldn't understand how you could go from RL 20 on the General Plan to VR2.9 with the type of community features in that area.

Jemmott said he was concerned that putting the higher density in one spot and the community thinking the rest would be low density. He is concerned that after the VR designation goes in that the areas nearby will request higher density. He is concerned about the traffic and thinks placing the Village Residential far removed from existing village development, so it is creating leapfrog development. Jemmott was concerned putting development clusters in constrained areas would make delivery of services difficult.

Farrell reminded everyone that the group had supported the use of the Old General Plan with all the constraints under the old General Plan and no clustering. She believed the SR4 designation with the steep slope overlay was similar to the old designation. Morris felt that the original vote only applied to the specific area that is now being considered for modification and not to the whole site.

Farrell said she could support the SR4 in those areas shown as being modified under the Alternative map, however she couldn't support the Village Residential because of the lack of services and the distance of the VR use from the existing Sprinter Rail and other mass transit systems. Farrell noted it was hard for even existing residents to even use the Park n' Ride as a transit option since it is always full. From a community character standpoint the Village Residential was out of character from the eclectic rural nature of the existing community. She would like to see the VR 2.7 remain Office Professional or Commercial, and Newland work to create a project that reflected a rural feeling of the Twin Oaks Community.

Farrell explained the steep slope destination areas over 50% slope would reduce the SR 4 density to one unit per 8 gross acres. Morris replied that the only area in North Twin Oaks given SR 4 designation was in North Twin Oaks valley and it is much flatter. He didn't see the area now being considered in NC 42 as similar in terrain—it was much steeper—so he has a hard time understanding, without additional topographical information, how SR4 is justified. Kumura agreed.

Farrell understood why the other group members couldn't support either Newland's request or even the Alternative based on lack of a topographical map. Kumura moved for the recommendation of using the 'Planning Commission/Staff Recommended Map- October 2010' for the General Plan. Morris seconded. Motion passed 4-0-0. Following the vote Binns rejoined the Sponsor Group.

**Agenda Item 6: San Diego County Water Authority:** A representative of the County Water Authority will give an update on the water treatment plant and other projects in the Twin Oaks area. Farrell announced that the representative could not attend tonight's meeting, so she will reschedule this for a future meeting.

**Agenda Item 7: Countywide Single-Family Residential Design Guidelines (POD-11:008):** The County is requesting comments on the draft Residential Design Guidelines that will serve as a reference document for designing residential subdivisions and single-family residences. [http://www.sdcountry.ca.gov/dplu/advance/POD\\_11008\\_Draft\\_Residential\\_Design\\_Guidelines\\_January\\_2012.pdf](http://www.sdcountry.ca.gov/dplu/advance/POD_11008_Draft_Residential_Design_Guidelines_January_2012.pdf). Farrell indicated that she had not had time to really review this item, and she will review it for our discussion at our next meeting.

**Agenda Item 8: Red tape Reduction Task Force Report and Recommendations:** Update of January 29<sup>th</sup> hearing and information about recommendations that may eliminate or change many processes; Including, community groups and the County's Resource Protection Ordinance: See Agenda Item 3 at: <http://bosagenda.sdcountry.ca.gov/agendadocs/materials.jsp> Binns announced that the Agenda for this upcoming meeting is out for review. Farrell indicated that she attended the last meeting, and she plans on attending this meeting also. Binns indicated that she may also attend. Jemmott made a motion for Farrell to attend the meeting and to speak on the behalf of the Sponsor Group. Morris seconded the motion and it passed 5-0-0.

**Agenda Item 9: Update on ongoing projects:** Morris indicated that at last month's meeting there was an item on the Tiered Equine Ordinance, and that the comment was made that the Sponsor Group would like to understand from him if a position is required by this group on the Notice of Preparation of the EIR. He indicated that he had read the NOP and felt that there was no comment that we needed to make, that we will have to wait for the Draft EIR for a thorough review.

**Agenda Item 10: Old Business:** None

**Agenda Item 11: Administration and correspondence:** Farrell indicated that she had not received any feedback on the vacancy notices for the Sponsor Group. Morris had two boxes of old County Planning maps he would like to pass on to another member; Jemmott accepted the boxes for safe keeping.

Farrell adjourned the meeting at 9:00 p.m.

**Respectfully Submitted, Ben Morris, Secretary**

**The next regular meeting of the TOVCSG will be on Wednesday, April 18, 2012 at 6:30 p.m. at the Twin Oaks Elementary School.**

## SUBCHAPTER 3.2

### BIOLOGICAL RESOURCES

## **3.2 Biological Resources**

The descriptions and evaluation of biological resources impacts in this section are based on information compiled through field reconnaissance (34 site visits over the 4-year period between 2001 and 2006) and the Biological Technical Report prepared by Pacific Southwest Biological Services (June 2007). A complete copy of the report is included in Appendix G.

### **3.2.1 Discussion of Existing Conditions Relating to Biological Resources**

#### **Project Vicinity**

The Merriam project site and the surrounding undeveloped portions of the Merriam Mountains forms a large block of largely undeveloped land (about 2,300 ± acres), adjacent to and east of another large undeveloped land form, the San Marcos Mountains. The northern and southern Merriam Mountains, along with the adjacent San Marcos Mountains, represent the largest substantial-sized, essentially native blocks of habitat located west of I-15 in central San Diego County. Southern Mixed Chaparral, the primary habitat located on the Merriam project site (approximately 95 percent coverage) is relatively common in the central foothills of San Diego County, although substantial amounts of this habitat have been converted to grove agriculture. The areas surrounding the Merriam site to the north and south are developed for agricultural and/or large-lot residential uses. The southern portion of the Merriam Mountains, south of Deer Springs Road and the project site, has been substantially planted in grove crops. The Merriam Mountains to the north of Lawrence Welk Drive are partially developed as large-lot residential uses and grove-agriculture, with isolated patches of chaparral and coastal sage scrub. The Merriam site is west of and adjacent to I-15, which includes eight lanes of freeway roadway with a wide median strip and often substantial cut or fill banks along the freeway.

#### **Vegetation Communities**

The majority of the chaparral on the Merriam site has been unburned for over one hundred years, which has reduced its wildlife carrying capacity. The wildlife carrying capacity has been reduced because chaparral is a naturally fire-adapted vegetation type; i.e., many of its component species require fire to regenerate new growth or allow seeds to germinate. Natural fires in chaparral often result in a mosaic of various-aged habitats, with different plant species dominating the landscape over time as the “climax vegetation” occurs. Thus, very recently burned areas of chaparral may be devoid of any surface vegetation, but these areas typically include resprouting shrubs, as well as species that principally reseed only after a fire, particularly if adequate rainfall occurs.

“Natural” fires are thought to generally occur every ten to forty years, although there is much debate about this interval. Between fires, seeds of some plants may lay dormant by the millions, and only germinate after a fire because of the heat and/or smoke released during a fire. Some plants germinate from seeds because of the fire and some plants resprout from basal burls, while other species are killed by the fire and reseed by other means, the kinds and structure of the vegetation changes over time after a fire. The differences in the age and frequency of various plants affect the wildlife using a given patch of chaparral. For instance Mule Deer may visit dense, old stands of chaparral, but they may have trouble moving through such stands and may not find young shoots to eat until after a fire, or in younger stands of shrubs and oak woodland.

In areas where fires do not occur over a long period of time, the structure of the chaparral typically becomes tall and dense, with relatively few species dominating compared to the period after a fire. Due to the number of ecological niches (i.e., microhabitats) is reduced in unburned areas), there is less diversity of habitat to support a less diverse range of wildlife species. Fires open up these habitats and create mosaics of habitats, and thus support a greater diversity of wildlife in a given area.

The site includes a number of vegetation communities that are relatively common in north-inland San Diego County. Southern Mixed Chaparral (on granitic-derived soils) covers most of the 2,327-acre site (approximately 2,156 acres or 92 percent of the entire site), while the remainder of the vegetation cover types individually amount to one percent or less of the total project area. They include, Disturbed Habitat, Urban/Developed, Orchard, Intensive Agriculture, Diegan Coastal Sage Scrub, Non-native Grassland, Freshwater Marsh, South Coast Live Oak Riparian Forest, Sycamore Alluvial Woodland, Eucalyptus Woodland Southern Willow Scrub/Mulefat Scrub, Mule-fat Scrub, Southern Willow Scrub, Southern Willow Scrub/Tamarisk Scrub, and Coast Live Oak Woodland. Each vegetation community is depicted on Figure 3.2-1 and described below. Table 3.2-1 includes the acreages and the percent coverage for each habitat type at the end of this section.

*Eucalyptus Woodland:* Scattered eucalyptus trees exist on the site, concentrated where Meadow Park Lane would join the site in the extreme southeastern part of the project. Scattered and isolated eucalyptus trees exist elsewhere on the site, but were not individually mapped.

*Disturbed Habitat:* This category consists of permanently disturbed land-cover currently existing on the site and includes small areas, including adjacent to the north end of Mesa Rock Road, the defunct quarry site adjacent to Twin Oaks Valley Road, and limited areas adjacent to the abandoned aircraft landing strip in the northwest quadrant of the site.

*Urban/Developed:* Developed areas support no native vegetation and may be additionally characterized by the presence of man-made structures such as buildings or roads. The level of

soil disturbance is such that only the most ruderal plant species occur. Urban/Developed lands occur in the southern portion of the site; near the proposed entrance area.

*Orchard:* Small areas in the southwest and northwest quadrant of the site contain apparently non-commercial orchard crops, primarily as a result of incursion from existing adjacent agricultural uses.

*Intensive Agriculture:* A small area of avocado groves occurs within the Merriam site, located in the lower southwest corner of the property; this may have been an incursion of agricultural by an adjacent agricultural operation.

*Diegan Coastal Sage Scrub:* A few relatively limited areas of the site are covered with the open Diegan Coastal Sage Scrub vegetation. The most extensive patch of this vegetation occurs on the south-facing slopes of the southern valley. At the northwestern corner of the site, those areas not cleared by the aqueduct or for the avocado groves have an association of California Sage Brush (*Artemisia californica*) and Flat-top Buckwheat (*Eriogonum fasciculatum*). The northern-most extension of the site also has a Sage Scrub cover, but this appears to be due to prior clearing of the chaparral vegetation and should be better considered as Successional Sage Scrub. Sage Scrub vegetation is considered sensitive because of its conversion to other uses in southern California and because it supports a number of sensitive species of wildlife.

*Southern Mixed Chaparral:* The site is largely covered by Southern Mixed Chaparral that varies from an almost pure “Chamisal” of Chamise (*Adenostoma fasciculatum*) to a Mountain-Mahogany-dominated type (*Cercocarpus minutiflorus*) in the deeper soil inner valleys. The indicators of the more widespread Southern Mixed Chaparral on the site are: Chamise, Mission Manzanita (*Xylococcus bicolor*), Black Sage (*Salvia mellifera*) and Ramona Wild-lilac (*Ceanothus tomentosus*). The extent of exposure, soil depth and slope affect the extent of the diversity of the chaparral on the site. One major characteristic of the onsite Chaparral vegetation is its level of maturity. This Mediterranean-climate associated vegetation is highly correlated with periodic fires that recycle the surface load of organic material and nutrients back into a nutrient-poor soil system. The fires also allow the cycling of a major suite of annual native wildflowers and stimulate the re-growth from subsurface specialized stems of the major shrubs on the region. The onsite chaparral is ripe for a wildfire because of the lack of recent fires. Separation of proposed new land uses from existing chaparral areas (involving fuel management zones) will be a key issue in the development review process. Isolated trees of Coast Live Oak (*Quercus agrifolia*) and small stands of Scrub Oak (*Quercus berberidifolia*) occur in several areas mapped as Southern Mixed Chaparral, but do not constitute oak woodlands. These locations do not constitute distinct oak woodlands.

*Mafic Chaparral:* Chaparral vegetation on Santiago Peak metavolcanic rock-derived soil is sometimes classified as Mafic Chaparral, particularly where Las Posas and other clay-soils may support certain rare plants. The primary area mapped as Las Posas soils is on the west side of Twin Oaks Valley Road, part of the San Marcos Mountains. Vegetation in this area was difficult to define because of the evidence of prior agriculture and partial recovery of the area with elements of Coastal Sage Scrub species. It is very likely that this area was originally Mafic Chaparral prior to agricultural uses. The listed areal extent of the potential Mafic Chaparral is the area west of Twin Oaks Valley Road; an additional area of about 0.3 acre in the extreme northwest portion of the site was not inspected in detail and may also be classifiable as Mafic Chaparral. The total area given for this vegetation type is not necessarily reflected in the plant species or vegetation type observed in the field because of the age and uniformity of the vegetation. An additional area of Las Posas soils (fine sandy loam vs. stony fine sandy loam) occurs at the north end of Mesa Rock Road, but did not appear to support Mafic Chaparral plants and was not classified. These areas with Las Posas soils often support endemic plants that have either evolved to do well on these nutrient-poor soils, or can out-compete other plants and thrive on such soils. The mapped Las Posas soils areas were closely examined and did not support sensitive plants.

*Non-native Grassland:* This vegetation is primarily located in an area termed the linear “meadow” (north of Sarver Lane) is not biologically a meadow, but is an open field of non-native grasses and forbs, largely Ripgutgrass (*Bromus diandrus*). Within the site, the inner meadow, largely covered by weedy non-native grasses, and is surrounded by a perimeter dirt road and has another dirt road diagonally crossing it from southwest to northeast. Additionally, there are several areas used for informal dirt-bike tracks within the grassland area. The predominant plants vary on the season, sometime showing extensive Black Mustard (*Brassica nigra*) stands. Given its coverage in the only very flat area on the project site, it appears to have been used for pasture of crop lands, probably over the past 75+ years. Although Annual Grasslands are non-native, wildlife agencies consider them valuable as foraging habitat for a variety of raptorial birds such as hawks and eagles.

*Freshwater Marsh:* A small amount of Freshwater Marsh habitat exists in the Twin Oaks Valley Creek, west of and adjacent to Twin Oaks Valley Road, in the west-central portion of the site. This area is dominated by cattails, but shows evidence of occasional channel clearing (perhaps for mosquito control).

*South Coast Live Oak Riparian Forest:* Riparian Forest onsite, consist largely of Black Willow (*Salix gooddingii*) and Arroyo Willow (*S. lasiolepis*), with occasional Coast Live Oaks. The largest extent of this vegetation on site is in the bottom of the eastern central canyon, and also occurs just off-site along the creek, south of Deer Springs Road. Riparian Forest runs off the site from the southern valley and is dominated by Coast Live Oaks. Riparian habitats of any kind are

usually considered by wildlife agencies to have very high wildlife value for the cover, nesting habitat and food sources this habitat provides.

*Sycamore Alluvial Woodland:* This type of riparian woodland vegetation is mixture of California Sycamores (*Platanus racemosa*), with scattered Coast Live Oaks and several willow species (*Salix* sp.) that occurs in a narrow canyon opening up adjacent to the west I-15 in the extreme north-east part of the Merriam site. The extensive Sycamores in this area make it one of the two major riparian woodland areas on the site, with potentially high wildlife value. This area is within the Biological Open Space area of the proposed project.

*Southern Willow Scrub/Mule-Fat Scrub:* This generalized type of Riparian Scrub vegetation forms a scrubby streamside thicket including willows and Mule-fat (*Baccharis salicifolia*), located along Twin Oaks Valley Road in the stream in the south fork of Gopher Canyon.

*Mule-fat Scrub:* This vegetation is a tall, herbaceous riparian scrub strongly dominated by *Baccharis* (Holland, 1986). On the Merriam site, small drainage channels in various areas with occasional Mule-fat shrubs occur, including drainages associated with the southeastern central valley and the graded area of the defunct aircraft landing strip.

*Southern Willow Scrub:* This vegetation type is fairly typical of Holland's (1986) Southern Willow Scrub, described as "dense, broad-leafed, winter-deciduous riparian thickets dominated by several (willow species with scattered emergent cottonwoods [*Populus fremontii*] and sycamores). This vegetation occurs along the streamside in the South Fork of Gopher Canyon, adjacent to Twin Oaks Valley Road.

*Southern Willow Scrub/Tamarisk Scrub:* A small amount of this habitat exists in a previously graded area adjacent to the abandoned aircraft landing area in the northwest quadrant of the site. The topography of this area allows rainwater to pond and promotes this artificial wetland-like habitat, consisting of scattered willows and Tamarisk.

*Coast Live Oak Woodland:* The Deer Springs area at the southeastern corner of the site has a mature stand of Coast Live Oak and occasional Engelmann Oak. The area was the site of a prior residence, so the under story is largely disturbed and recruitment or new growth of young trees has been arrested by the presence of the weedy under story. Coast Live Oaks also occur scattered about the site, especially as part of the Chaparral vegetation on protected north-facing slopes, but the principal mapped unit of Oak Woodland lies only at this southeastern corner and the following site. The drainage that flows out of the southern valley has Riparian Oak Woodland that differs from the savannah-type Oak Woodland at the southern area. Oak woodland habitats are generally considered of high value because of their value to diverse and abundant wildlife.

**Wetlands:** Wetlands are areas where an excess of water is the dominant factor in determining the nature of soil development and the types of animals and plant communities living at the soil surface. There are several types of wetlands and classification is somewhat unique between local, state, and federal jurisdictional agencies. The project area was surveyed in July 2003 by Pacific Southwest to determine the presence of wetlands on the site. U.S. Army Corps of Engineers (ACOE), CDFG, and County guidelines were used and wetland features classified accordingly.

**Army Corps of Engineers:** The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the Clear Water Act. Wetlands, a subset of jurisdictional waters, are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions". The Corps has developed a methodology for determining the boundaries of jurisdictional wetlands based on the following three indicators that are normally present in wetlands: (1) hydrology providing permanent or periodic inundation by groundwater or surface water, (2) hydric soils, and (3) hydrophytic vegetation. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within all three of these parameters.

**California Department of Fish and Game:** The state of California regulates activities in rivers, streams, and lakes pursuant to Section 1600 of the Fish and Game Code. This section discusses the process by which an individual, government agency, or public utility must notify the CDFG prior to any activity that would "substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake..." Jurisdictional limits of the CDFG are not as clearly defined by regulation as those of the Corps. Generally, CDFG takes jurisdiction to the bank of the stream or to the outer limit of the adjacent riparian vegetation, whichever is greater.

**County of San Diego – RPO Wetlands:** The property is under the guidelines of the county's Resource Protection Ordinance (RPO). RPO defines wetlands as "all lands which are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or where the land is covered by water. All lands having one or more of the following attributes are wetlands: (1) At least periodically, the land supports predominantly hydrophytes, (2) The substratum is predominantly undrained hydric soil, or (3) an ephemeral or perennial stream is present, whose substratum is predominately non-soil, and which either (a) water from a tributary drainage area of 100 acres or larger flow; or (b) (for waters from a tributary drainage of less than 100 acres) substantial evidence demonstrates that such lands contribute substantially to the biological function or value of adjacent wetlands located up- or down-stream. RPO requires avoidance of wetlands and avoidance of the wetland buffer adjacent to the wetlands. The County RPO prohibits certain uses within RPO-defined wetlands and requires Wetland Buffers to protect

the environmental and functional habitat values of wetlands, with buffer widths from 50 to 200 feet in width.

In general, the property contains wet areas that support riparian vegetation, primarily within established drainages. These areas do not meet the three required criteria to be classified as ACOE jurisdictional wetlands (see above). However these areas meet one (vegetation) of the three required criteria for CDFG and County RPO, and therefore are classified as CDFG wetlands and County RPO wetlands.

Each of the wetlands occurring in the five watersheds is discussed below. The location of the five watersheds is shown on Figure 3.6-1 as part of the Hydrology/Water Quality analysis.

Watershed A – Southwest Fork Moosa Canyon Tributary: This area supports Southern Willow Scrub, Southern Willow Scrub/Mule-fat Scrub and Oak Riparian Forest. This watershed includes one of the largest and most diverse CDFG/RPO wetlands occurring on site.

Watershed B – San Marcos Creek Tributary: This area includes Southern Willow Scrub, Mule Fat Scrub, and Oak Riparian Forest. The Southern Willow Scrub and Mule Fat Scrub are small isolated areas occurring in the southern portion of the property. Two areas of Oak Riparian Forest occur in the same drainage system. These wetland areas occur within ACOE Non-wetland waters of the U. S. and CDFG Streambed. The two small areas of Southern Willow Scrub are isolated from the other wetland areas occurring downstream.

Watershed C – Basin C: This watershed does not include any jurisdictional wetland areas, but includes ACOE Non-wetland waters of the U. S. and CDFG Streambeds.

Watershed D – South Fork Gopher Canyon Tributary: This watershed includes the largest area (3.97 acres) of diverse riparian vegetation. This area includes areas of Fresh Water Marsh, Southern Willow Scrub, and Oak Riparian Forest.

Watershed E – Basin E: This area includes two small areas of Southern Willow Scrub located within ACOE and CDFG drainage.

RPO Wetlands and Other Jurisdictional Wetlands on the project site consist of Freshwater Marsh (0.1 acre), Mule Fat Scrub (0.2 acre), Oak Riparian Forest (2.3 acres), Southern Willow Scrub (2.6 acres), Southern Willow Scrub/Mule Fat Scrub (0.3 acre), Southern Willow Scrub/Tamarisk Scrub (0.6 acre), Sycamore Alluvial Woodland (1.6 acres) and Unvegetated Wetlands (0.2 acre). The total RPO Wetlands on site consist of 7.9 acres. Each of the wetlands occurring in the five watersheds is depicted on Figure 3.2-1. In addition Table 3.2-2 provides a summary of the wetlands within the project area.

## County of San Diego – Sensitive Habitat Lands

The patch of Diegan Coastal Sage Scrub north of the Mesa Rock Road cul-de-sac that supports a single pair of Threatened Coastal California Gnatcatchers does qualify as a Sensitive Habitat Land under the RPO. These gnatcatchers may be part of a larger population of gnatcatchers along the I-15 Corridor from State Route (SR) 76 to SR 78. The presence of the gnatcatchers qualifies the area occupied as a Sensitive Habitat Land under the RPO because the area supports this population of a “rare or endangered species or sub-species of animals” as defined by Section 15380 of the State CEQA Guidelines. No other lands on the site meet the definition of Sensitive Habitat Lands under the RPO.

## Wildlife Resources

Wildlife resources are invertebrates, amphibians, reptiles, birds, and other mammals expected to occur in the project area. A complete list of all the fauna observed is contained in Appendix G, and a summary of the major faunal groups on the site is provided in Table 3.2-3.

*Invertebrates/ Butterflies:* Ten species of butterflies were observed on the project site; all the species observed are typical for the area and habitats found on the site.

*Amphibians and Reptiles:* One amphibian was observed on the site, about half a dozen young of the year Western Toads (*Bufo boreas*), in a damp culvert under a dirt road in the proposed location of Neighborhood 2. Because the majority of the surveys were carried out in extremely low rainfall years, few other amphibians were surface active none were observed during the surveys. It is likely that other common amphibians exist on the site, including such species as the California Slender Salamander (*Batrachoseps attenuatus*) and Pacific Chorus Frog (*Pseudacris regilla*), particularly in the two riparian canyons planned for preservation on the east and west sides of the site.

Seven species of lizards were observed on the site; all of the observed are common and widespread in the coastal foothills of San Diego County. Two snake species were observed, although undoubtedly several more species occur on the site.

*Birds:* Forty-two bird species were observed during the numerous field visits to the site; all of these species, except for the Coastal California Gnatcatcher and Red-shoulder hawk, are common species in the north San Diego County inland habitats found on the site. The relatively low avian diversity of the site is probably the result of low habitat diversity on the site (almost 95 percent Southern Mixed Chaparral vegetation) and because the majority of the site has not burned in over 100 years.

Due to the dominance of chaparral vegetation on the site, most of the wildlife is associated with that rather dense plant association. The relative lack of open field habitat largely restricts foraging use of the site for foraging by large raptors, though there are potential nesting or roosting sites. No raptors nest sites were observed during the various surveys but the rocky eastern escarpments (eastern area of Lusardi Mountain) probably provide potential nesting habitat for raptors. Occasional Red-shouldered Hawks (*Buteo lineatus*) and Red-tailed Hawks (*Buteo jamaicensis*) were noted during the numerous field visits to the site. While the Red-shouldered Hawk was once thought to be declining in Southern California, it is now considered a common nesting species in urban canyons in San Diego County. This species is not in trouble in San Diego County and has substantially increased in the region with urbanization. Furthermore, the Red-shouldered Hawk is not on the California Department of Fish and Game list of Special Animals.

*Mammals:* During the field investigations for this site, ten mammal species were recorded; all ten species are considered common throughout the inland foothills of north San Diego County. Three observations of Merriam's Chipmunk (*Eutamias merriami*) were made in the northern and southern parts of the site. This species is more commonly associated with montane habitats with conifers but is also known from chaparral habitats in the foothills of northwest San Diego County. Mountain Lion was not observed or detected during recent field surveys but has been known to utilize some of the site in the past.

Although no trapping was performed, small and medium sized mammals are probably fairly common on the site because they would be able to move through the brush with ease. Typical habitats used by bats include open areas for foraging (almost all habitats) and rock and tree crevices, caves, mines and other man-made structures used for daytime and maternity roosts for bats. The many rock out-crops, including the abandoned quarry on the western side of the site, would provide habitat for several species of bats. The nearby presence of agricultural activities would also support bat populations to some degree. Deer use of the site is apparently very low (no tracks were observed, although old scat was observed once), due to the senescent nature of the vegetation and relative lack of trails about the site. Coyote scat was observed commonly about the site; Gray Fox scat was observed less frequently. Bobcat use of the site is presumed to occur but no tracks were observed to confirm the level of activity.

### **Sensitive Biological Resources**

*Sensitive Vegetation Communities:* Certain vegetation communities are considered sensitive based on individual plant species (see below) that make up Unique Vegetation communities. The project site does not contain any Unique Vegetation communities as defined by the County of San Diego RPO. All of the vegetation types on the site are found elsewhere in San Diego County and are still considered relatively common and widespread, although some, including Diegan

Coastal Sage Scrub, Coast Live Woodland and Willow Riparian Woodland are declining in southern California and considered important wildlife habitats. Additional vegetation types found on the site are “sensitive” by virtue of their wetland association or potential high value as wildlife habitat. Areas considered to be sensitive include: Non-native Grasslands, Mafic Southern Mixed Chaparral, Freshwater Marsh, South Coast Live Oak Riparian Forest, Sycamore Alluvial Woodland, Southern Willow Scrub/Mule Fat Scrub, and Southern Willow Scrub. Non-native Grassland is considered of potentially value to wildlife because it can serve as important foraging habitat for raptors and other open-field birds; the other habitats listed are sensitive because of their dependence on water, higher habitat diversity, and higher wildlife habitat value.

*Sensitive Plant Species:* Sensitive plants are those species that are considered rare, threatened, or endangered within California, whether or not they are state or federally listed. Plant species can also be considered sensitive for their wildlife value or as defined by the County’s RPO for unique vegetation communities. Three sensitive plant species were found on the site: Summer-Holly (*Comarostaphylos diversifolia* ssp. *diversifolia*), Ramona Horkelia (*Horkelia truncata*), and Engelmann Oak (*Quercus engelmannii*). These species are discussed in Table 3.2-3 and the locations are illustrated on the biological resources map (Figure 3.2-1). The listing authorities and explanation of listing categories are presented in Appendix G. The proposed site does not include any Unique Vegetation communities as defined by the RPO.

*Sensitive Wildlife Species:* Sensitive animal species are those that are considered sensitive by the U.S. Fish and Wildlife Service (USFWS), CDFG, or County of San Diego. Seventy-one sensitive wildlife species recorded in the general project subregion, 37 species are unlikely to occur, and 9 species were detected during the field assessments. The locations for observations of sensitive species are illustrated on the biological resources map (Figure 3.2-1). Additional information on survey methodology and historical data can be found in the Biological Technical Report (Appendix G).

Observed Onsite: The species detected onsite include the following: Northern Red-diamond Rattlesnake, San Diego Horned Lizard, Belding’s Orange-throated Whiptail, Coastal Whiptail, Coastal California Gnatcatcher, California Thrasher, San Diego Desert Woodrat, Mountain Lion (nearby residents indicated this species had occurred on the site) and Southern Mule Deer.

Northern Red-diamond Rattlesnake (*Crotalus ruber ruber*)

This species was occasionally encountered during zoological field work on the site, primarily in rocky or boulder areas in the northeastern portion of the site.

San Diego Horned Lizard (*Phrynosoma coronatum blainvillei*)

This species was occasionally observed in various parts of the site, but appears to be uncommon on the site because of the dense chaparral vegetation without extensive open areas with extensive sandy soil patches that support harvest ants.

Belding's Orange-throated Whiptail (*Aspidoscelis hyperythrus beldingi*)

This species, like the Horned Lizard, depends on sandy soils, often in openings or along trails in coastal sage scrub or chaparral, where it was occasionally observed on the site.

Coastal Whiptail (*Cnemidophorus tigris stejnegeri*)

This insectivorous lizard, found in a greater variety of habitats than the Belding's Orange-throated Whiptail, was also found on the site.

Coastal California Gnatcatcher (*Polioptila californica californica*)

This species is a federally-listed Threatened species, was observed on the project site during the spring survey. Much of the southeastern portion of the ownership is included in the final Critical Habitat designated for the species (U.S. Fish and Wildlife Service 2000), although a single pair of these species only utilizes a small segment of the 28.6 acres of Diegan Coastal Sage Scrub on the site. Southern Mixed Chaparral, which composes approximately 95 percent of the land cover in the Merriam site, is not suitable habitat for the Gnatcatcher, though it may disperse over or through this habitat. The Gnatcatchers were observed in the extreme southeastern portion of the property, northeast of the existing gas station, based on two series of habitat assessments and presence/absence surveys for the species. Gnatcatchers are thought to disperse along the I-15, which includes the project site through brushy areas including Coastal Sage and Chaparral habitats.

California Thrasher (*Toxostoma redivivum*)

This species, placed on the National Audubon "Yellow List," is still common in appropriate chaparral habitat in the coastal foothills and mountains of southern California; it has no governmental sensitive rating at this time. The species was commonly seen in chaparral on the Merriam site.

San Diego Desert Woodrat (*Neotoma lepida intermedia*)

This species inhabits chaparral and woodland areas, particularly in rocky areas and its large conical nests have been observed in various places on the Merriam site.

Cooper's Hawk (*Accipiter cooperi*)

This species is widespread and locally common, even in suburban areas of San Diego; it has been observed on the Merriam site, typically around oak or other woodlands, where it typically preys on small birds.

Mountain Lion (*Felis [Puma] concolor*)

This wide-ranging species is uncommon in rural areas of southern California, but still present in open parts of the western mountain foothills. The species was noted as present in the Safa Ranch project biology report (Safa included portions of the south-central part of the present Merriam ownership. Given that the main prey item for this species is Mule Deer, which prefers more open vegetation, absence of the Mountain Lion is not surprising; however, it may still occasionally use the site.

Southern Mule Deer (*Odocoileus hemionus*)

This species is typically found in the undeveloped coastal foothills (as well as the mountains and parts of the desert) of San Diego County but apparently does not occur regularly on the Merriam site. Mule Deer, although a commonly hunted game species, is of importance because its presence can be indicative of a healthy upland ecosystem; it has been identified as a Covered Species in local subregional habitat conservation plans.

The species forages in shrubland openings and uses forested areas or dense brushy areas for cover. The extremely dense nature of the chaparral on the site probably limits the availability of suitable habitat on the Merriam site. This species was never directly observed on the site during field visits, although sign (droppings) of this species was observed. Thus, Mule Deer may occasionally utilize the site, but so irregularly or seldom that they should not be considered regular residents on the site. The dense chaparral habitat, steep slopes and lack of access from the east due to the freeway also probably limit Mule Deer utilization of the site.

Potential to Occur: The following species have a moderate potential to occur on site based on existing habitat,: Coastal Rosy Boa, Coast Patch-nosed Snake, Two-striped Gartersnake, Sharp-shinned Hawk, Western Bluebird, Yellow Warbler, Yellow-breasted Chat, Southern California Rufous-crowned Sparrow, Bell's Sage Sparrow, Western Red Bat, San Diego Black-tailed Jackrabbit, and Dulzura Pocket Mouse. In addition, Southwestern Willow Flycatcher, Loggerhead Shrike, and Least Bell's Vireo could occur in the project area, however, the potential would be considered very low. Table 3.2-4 provides additional detail on species of concern and describes the probability of occurrence within the project area.

Considered Absent: The following species, though they have some potential to occur, are presumed absent.

Hermes Copper (*Hermelcycaena hermes*)

The larval host plant for this species, Spiny Redberry (*Rhamnus crocea*), occurs on the site in small numbers in a variety of locations on the Merriam site, and potential adult roosting/foraging areas for the species have been examined during the flight period for this species (by experienced Hermes observers), but no Hermes Copper butterflies have been found on the site. This species

typically occurs in areas where the host plant and extensive nectaring plants occur in fairly close proximity, an uncommon circumstance within the Merriam site. Most of the species' collection areas are in the southwestern part of San Diego County and the species is probably not present on the site. Based on review of the species' distribution and onsite field surveys, it does not occur on the site.

Harbison's Dun Skipper (*Euphys vestris harbisoni*)

The larval form of this species is dependent on San Diego Sedge, which does occur on the Merriam site in the drainage along Twin Oaks Valley Road. Two visits to this area during the species' flight season of the butterfly failed to reveal its presence. Additional field visits during the active larval stage failed to detect larva of this species using the *Carex* plants on site. Based on review of the species' distribution and onsite field surveys, it does not occur on the site.

Golden Eagle (*Aquila chrysaetos*)

The potential for Golden Eagle (*Aquila chrysaetos*) is very low. While the site contains an historic nest site for this species on the prominent high rock outcrops in the east-central portion of the site, over-looking I-15, no Golden Eagles have been observed by Pacific Southwest biologists or others for many years. Unitt (1984) cites a study by Dixon (1937), who mapped territories of Golden Eagles in the northwestern part of San Diego County and estimated a territory size of 36 square miles per pair. Unitt (1984) further states: "The distribution of breeding Golden Eagles in the foothill, mountain, and desert zones has changed little through history, but the territories of about 12 pairs in the coastal lowland have been eliminated by urbanization, agricultural development, and human disturbance. This represents a decline of about 23% in the county population [in 1984]. Most of this loss has occurred since 1965, and further decreases can be expected in the future, particularly if development of new avocado orchards continues in the rugged hills of northwestern San Diego County, Golden Eagles now nest near the coast only in Camp Pendleton; further south, Lake Hodges, the Rancho Peñasquitos area, and San Miguel Mountain mark the limits of their breeding range in 1981. The abandoned historic Golden Eagle nest site on Merriam appears well below the nearest mountain peak, on the north-east facing slope, over-looking Interstate 15.

Eagles typically nest in protected cliffs, outcrops, or tall trees where they can be safe from terrestrial predators and have a broad view of potential foraging areas from the nest site area. The historic nest site on the northeast-facing slope of the Merriam Mountains appears to have a broad view of Interstate 15 and once open areas east of I-15, areas now occupied by the 8-lanes of freeways and residential developments like Lawrence Welk and the Circle-R Ranch. This nest may have been abandoned during the expansion of I-15 to its present configuration, or it may have occurred over a longer period of time, with the absence of wildfires leading to denser accumulations of chaparral vegetation and fewer open areas to forage for large-rodent to rabbit-sized prey. The lack of occupation of the historical eagle nest on the site Merriam is further

documented by Unitt (2004), in the San Diego County Bird Atlas that shows no Golden Eagle observations during the five-year period between March 1997 and February 2002 in the vicinity of I-15, north of SR 78 or south of Gopher Canyon Road. This study relied on focused field studies during the winter and breeding season County-wide, on individual cells 3 miles (5 km) on a side. Dr. Thomas Scott (pers. comm. 2005), who studied historical and recent Golden Eagle nest sites in San Diego County, has indicated that “old guys called this nest "Cozy Nook" and it was last active in the 1980's.”

#### Burrowing Owl (*Athene cunicularia*)

The potential for Burrowing Owl (*Athene cunicularia*) is very low. This typically grassland species has not been observed on the Merriam site during the current round of field work, but was listed in the 1998 species list for the Safa Ranch project (Pacific Southwest 1998) as occurring on the site. The Safa Ranch project included lands from the northern portion of the inner meadow/ valley of the Merriam site (Neighborhood 2), and this is the most likely area where a Burrowing Owl may have been encountered. Unfortunately, no site-specific information was listed in the 1998 report. Based upon the limited habitat onsite and its absence of for many years, the species does not occur onsite.

### Wildlife Corridors

Extensive field qualitative assessments were carried out on the site in July 2003 to determine the patterns and locations of wildlife use on the site. These field assessments indicated except for the portions of the site that include Gopher and Moosa Creek tributaries no major wildlife corridors or movement areas occur on the site. Localized wildlife movement trails and canyons identified in field studies on the site are depicted on Figure 3.2-1 and a detailed description of the wildlife corridor study is provided in the Biological Technical Report (Appendix G).

Due to the dense nature of chaparral vegetation found onsite, it is highly likely that the existing dirt access roads are the primary avenues for terrestrial wildlife movement, at least for medium-sized and larger mammals. Many of these roads join canyons, which could be used as secondary areas for movement, where they are open enough to allow access. An extensive matrix of canyons and roads exist in the northern portion of the site that can support movement and access to a number of locations within the project area and to suitable habitat offsite. Since most of the canyon bottoms on the site are clothed in dense chaparral, probably limiting substantial movement within these canyons at present, existing trails and roadways may be more heavily used. In the southern portions of the site, the proximity of adjacent residential and agricultural uses and roads with higher traffic volumes probably reduced both internal and external wildlife movement in the south.

The South Fork of Gopher Canyon and undeveloped portions of the San Marcos Mountains are located west of Twin Oaks Road and the project site. These areas show favorable attributes as both primary habitat and movement area habitat for larger forms of wildlife. Riparian vegetation found within the South Fork of Gopher Canyon has a more open understory to facilitate movement and is habitat for prey items for Bobcat, Gray Fox, Coyotes and potentially, Mountain Lion. Additionally, this area is a tributary to the San Luis Rey River, which is a regionally-important riparian habitat and corridor. Riparian habitats provide water, food, cover, and both linear and lateral wildlife movement potential. The San Marcos Mountains also have suitable habitat characteristics for mammal species found on-site, and are largely undeveloped at present. These mountains could provide wildlife with important life history resources and potential access through the South Fork of Gopher Canyon, back and forth from the San Luis Rey River.

Initial qualitative observations of terrestrial wildlife movement signs on the Merriam site indicate that the site is used primarily by small to medium sized species such as rodents, squirrels, Gray Foxes, Bobcats and Coyotes.

Existing terrestrial wildlife use of the majority of dense Southern Mixed Chaparral may be limited because of the lack of habitat diversity and very dense foliage and lack of surface water. Terrestrial wildlife movement appears largely limited to the extensive series of dirt roads on the site formed for water line maintenance or individual lot access. Permanent surface water appears limited to two areas on site, including the south fork of Gopher Canyon, and a major drainage with riparian woodland adjacent to I-15. There is some evidence that pools are formed during winter storms, but these are temporary sources of surface water for wildlife.

The northern portion of the Merriam site appears to have greater conservation value compared to the southern portion of the site, with the following characteristics: (1) it is broader in the east-west direction [reduced surface to area ratio]; (2) it is immediately adjacent to areas not generally used for agriculture; (3) it extends west to connect to the San Marcos Mountains, across Twin Oaks Valley Road; and (4) it contains more rugged topography, including the highest point on the site. In contrast, the southern portion of the site: (1) is narrower in width (higher surface to area ratio); (2) is adjacent to commercial or agricultural lands on the eastern, southern and southwestern sides; (3) is not adjacent to the San Marcos Mountains or other open areas; and (4) the topography varies, although not to the extent of the northern portion of the site.

As the northern portion of the Merriam site has the greatest potential of supporting wildlife movement internally and externally of the site, the project has been clustered in an all-south design that concentrates development in the southern portion of the ownership. This design leaves the northern portion of the site consolidated as a single block of habitat, except for two project access road, Camino Mayor (leading to Twin Oaks Valley Road) and Lawrence Welk Court (leading to I-15). This design maintains a large, contiguous reservoir of undisturbed

Southern Mixed Chaparral with a variety of elevations, slope variations and slope exposures. Additionally, this redesign insures that the site maintains a broad habitat connection to the largely undeveloped San Marcos Mountains, adjacent to the west.

A detailed description of the wildlife corridor study is provided in Biological Technical Report (Appendix G).

### **Off-site Improvements**

The project would require improvements at twelve off site intersections, including some located at the project boundaries; Figure 1.1-14 shows the location of the intersection improvements and impacted areas. All of the intersection improvements would take place within existing right-of-way along roadways. All impacted areas for intersection improvements are located within the existing rights of ways and no equipment staging areas are anticipated to occur outside of existing rights of ways. A detailed description of the biological conditions at each intersection is provided in the Biological Technical Report (Appendix G).

*Camino Mayor Improvements (off site):* Camino Mayor will be improved to provide a paved secondary emergency gated access roadway within the existing disturbed 40-foot easement. The roadway will be improved from the western project limits to Twin Oaks Valley Road (see Figure 1.1-16C). Minimal disturbed chaparral is located within the 40-foot easement as it is mostly disturbed due to vehicles utilizing the roadway. A detailed description of the biological conditions associated with Camino Mayor is provided in the Biological Technical Report (Appendix G).

*Deer Springs Road Improvements (off site):* Widening of Deer Springs Road from the I-15 interchange to Twin Oaks Valley Road would result in relatively small impacts to a variety of native and non-native habitats. Impacted vegetation would consist of Intensive Agriculture (1.3 acres), Non-vegetated channel (0.8 acres), Coast Live Oak Woodland (0.1 acres), Coastal Sage-Chaparral Scrub (3.0 acres), Disturbed Habitat (1.1 acres), Eucalyptus Woodland (1.4 acres), Non-native Grassland (1.2 acres), Orchard (0.6 acres), and Urban Developed (20.5 acres). The impacted acres are shown in Table 3.2-8. In addition Figure 3.2-2a through Figure 3.2-2c shows the location for vegetation within and adjacent to improvements along Deer Springs Road.

### **Regional Conservation Planning Context**

*Federal Regulations:* Federal regulations apply to a number of resources typically found in Southern California, including the Migratory Bird Treaty Act which protects most native species of birds, while specific regulations, such as the Bald Eagle and Golden Eagle Protection Act (United States Code, Title 16, et seq.) prohibits the taking of these species without appropriate

permits. The federal Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544, December 28, 1973, as amended 1976-1982, 1984 and 1988.), as amended, protects taking of species of plants and animals listed as Threatened or Endangered.

The Army Corps of Engineers regulates activities affecting wetlands and non-wetland waters pursuant to Section 404 of the Federal Clean Water Act and Section 10 of the Rivers and Harbors

*State Regulations:* The California Fish and Game Code regulates protection of natural resources under state protection, including the California Endangered Species Act (Sections 2050-2085). The code also applies to protection of streambeds (Sections 1600-1616). The California Regional Water Quality Control Board (RWQCB) regulates activities under Section 401 of the Federal Clean Water Act and the California Porter Cologne Water Quality Control Act. The California Environmental Quality Act (CEQA, California Public Resources Code, Sections 21000 - 21178, and Title 14 CCR, Section 753, and Chapter 3, Sections 15000 - 15387) requires state agencies and local jurisdictions to address environmental consequences of discretionary decisions.

Natural Community Conservation Plans (NCCPs) are authorized under State of California Fish and Game Code (Sec. 2800-2840, as amended).

*Local Policies and Ordinances:* The project is located within the Natural Communities Conservation Planning Act (NCCP) planning area. The County became a participant in the NCCP in 1993 with the stated intent to "...provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." The NCCP Process Guidelines were established as interim guidelines until formal subregional plans were approved. The draft NCMSCP is the proposed subregional plan for this portion of the County of San Diego.

The project must demonstrate conformance with overall goals and policies of the NCCP, and may also be required to make the specific findings applicable to issuance of Incidental Habitat Loss Permits (HLPs). Through hardline negotiations with the Wildlife Agencies, and in signing a hardline agreement for the NCMSCP, the project has demonstrated conformance with the general principles. If NCMSCP has not been adopted at the time of project approval, the specific findings applicable to NCCP will be made. The hardline agreement has established that the project footprint is consistent with preserve design principles under the NCCP. The NCMSCP Vegetation Map, NCMSCP Habitat Evaluation Model and County SITES Model Results characterize the property's vegetation as predominately Southern Mixed Chaparral and its habitat value as moderate with limited areas of high, very high and low. However, this area has greater preservation value to because it is such a large natural area with connectivity to the San Marcos Mountains and ultimately to the San Luis Rey River to the north and northwest. Focused

Planning Areas (FPAs) for the SANDAG North County Multiple Habitat Conservation Program (MHCP), and the planning maps for the NCMSCP indicate that most existing connectivity is in the north and northwestern portions of the site, with connectivity to the south and east being limited by I-15 and existing urban development. The NCMSCP Subarea Working Draft Map identifies the project site with an asterisk indicating, “Properties currently being negotiated for hardline preserve”.

Consistent with generally accepted preserve design principles, the project preserves a large block of open space (Biological Open Space), including the northern and northwestern portions of the site and provides offsite regional linkages between offsite lands in the San Marcos Mountains to the west, and north along Gopher Canyon and to the San Luis Rey River. Figure 1.1-20 depicts the areas that will be preserved as Biological Open Space, development areas, natural parks and other open space areas that were agreed upon by all parties mentioned above. The project’s hardline boundary, when the NCMSCP is approved, would eliminate the need for a separate NCCP (HLP) approval from the County, CDFG and FWS.

Prior to the initiation of the MSCP planning effort, the Merriam Mountains were recognized by the County’s North County Metropolitan Subregional Plan by its designation as the Merriam Mountain Resource Conservation Area (RCA). This RCA is characterized as having “Resources in this area similar to the San Marcos Mountains including the same species of rare plants plus *Comarostaphylos diversifolia*.” Concerning the San Marcos RCA, the definition states as follows: “These mountains are especially significant because they have rare and endangered plant species such as, Parry’s tetracoccus (*Tetracoccus dioicus*) and southern mountain misery (*Chamaebatia australis*).”

*Resource Management Plan:* The Resource Management Plan (RMP) is being prepared and reviewed as part of the overall entitlement process for the Merriam Mountains project (see *Appendix T*). The RMP is the result of a series of discussions and negotiations between the applicant, the County and the Wildlife Agencies that resulted in agreement on an MSCP hardline preserve boundary to assemble the Merriam Mountains core area as part of the draft North County MSCP. The agreement was executed by the applicant and the Wildlife Agencies in October 2005 (see *Appendix T*). The hardline preserve depicted in the agreement consolidates development in the southern portion of the site and retains 1,192 acres of Biological Open Space in the northern portion of the site as a large core area. The agreed-upon “hardline” has been determined to be an ecologically superior plan when compared with a more piecemeal preserve design potentially resulting from a plan strictly adhering to the parcel by parcel requirements of the Resource Protection Ordinance.

The RMP addresses landform resources, biological resources (sensitive habitats and wetlands) and cultural resources also being addressed in the Merriam Mountains EIR. In some cases,

measures incorporated in the RMP provide the basis for mitigation measures identified in this section. The RMP is proposed to be adopted by the County of San Diego in conjunction with entitlement approvals for the Merriam Mountains project along with certification of the Merriam Mountains EIR. Together, these approvals will assure that the policies, programs and measures included in the RMP are carried out.

### **3.2.2 Guidelines for the Determination of Significance**

Project-related improvements or activities would result in direct, indirect, and/or cumulative impacts that would be detrimental to biological resources if:

#### **Vegetation Community/Habitat Impacts**

1. A block of substantially native habitat considered essential to the naturally-functioning local or subregional or regional biological environment will be eliminated or substantially degraded such that it no longer provides comparable biological function(s) or value(s).
2. The natural biological diversity and habitat associations are not being preserved in a contiguous, functional habitat area, thereby compromising the long-term health and viability of the ecosystem.
3. Any functionally-viable component of native or naturalized habitat will be removal or substantially impacted through grading, clearing, and/or other construction activities.
4. The functional value of habitat will be “moderately to significantly” degraded either immediately or in the long-term as indicated by one of the following:
  - a. A substantial decrease in species composition, diversity, or abundance;
  - b. A substantial decline in the biological value or function of the habitat.
5. Any of the following will occur to or within County-defined wetlands: removal of associated vegetation; grading; obstruction or diversion of water flow; change in velocity or siltation rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause a change in species composition, diversity, and abundance.

#### **Wildlife Movement Impacts**

6. Project-related improvements or activities within or adjacent to local wildlife corridors, subregional or regional linkages, or other areas utilized for wildlife movement will:
  - a. Prevent a substantial proportion of existing wildlife using or relying on the project

- site from accessing areas considered necessary to their survival (i.e., foraging resources, breeding areas, necessary water sources, etc.); or
- b. Restrict substantial numbers of wildlife from utilizing their natural movement patterns (i.e., those path-ways used when given the choice absent human interference); or
  - c. Further constrain a narrow wildlife corridor by reducing width, removing available vegetative cover, creating substantially adverse edge effects, or placing barriers in the movement path; or
  - d. Create artificial corridors that do not functionally connect core habitat areas or linkages.

### **Sensitive Species Impacts**

- 7. Direct, indirect, and/or cumulative impacts may occur that may be detrimental to the regional long-term survival of a County Sensitive animal (those recognized by a government agency or conservation or scientific group as being depleted, potentially depleted, declining, rare, locally endemic, endangered, or threatened (*based on scientifically valid criteria*), and/or any species nominated for or on a State or Federal rare, endangered or threatened species list *within the San Diego subregion*) or Direct, indirect, and/or cumulative impacts that may reduce the local population of a plant species listed as federally or state endangered or threatened, and/or listed as a County Group A or B plant species, or Group C or D plant species as listed by the County, or a County-defined sensitive habitat (any habitat recognized by a government agency or conservation or scientific group as being depleted, rare and/or endangered, or otherwise sensitive, based on scientifically valid criteria.
- 8. Grading, clearing, construction, or other activities (including passive and active recreation, permanent development or recreational activities) will occur within 4,000 feet of an active Golden eagle nest during the breeding season (February 15 to July 15), such that it would be likely to interfere with normal nesting activities of the eagle (considers impacts that would not be in the line-of-sight, or where natural noise buffering reduces potential impacts to a less-than-significant level.
- 9. Grading, clearing, and/or construction will occur within the following distances and within the following time periods for one or more of these species:

Species	Distance	Breeding Season
Coastal Cactus Wren	300 feet from occupied habitat	February 15 to August 15
Coastal California Gnatcatcher	300 feet from occupied habitat	February 15 to August 31
Least Bell's Vireo	300 feet from occupied habitat	March 15 to September 15
Southwestern Willow Flycatcher	300 feet from occupied habitat	May 1 to September 1
Tree-nesting raptors	300 feet from occupied habitat	February 15 to July 15
Ground-dwelling raptors	800 feet from occupied habitat	February 15 to July 15

10. Loss of functional raptor foraging habitat (from a subregional perspective).

### Indirect Impacts

11. On- or off-site native habitat will be subjected to substantially-adverse urban-type edge effects, including:
- a. Project-generated noise levels in excess of 60 dB during daytime hours and 50 dB during nighttime hours measured at the edge of native habitats slated for preservation;
  - b. Artificial light in exceeding a level of one-half as bright as a full moon;
  - c. A drawdown of the groundwater table of 3 feet or more (for groundwater-dependent species or habitats);
  - d. Project-generated, unauthorized human encroachment that is substantially detrimental to native flora and fauna, including but not limited to unauthorized clearing, trash dumping or off-road vehicle traffic within preserve areas;
  - e. Substantial predation or substantial disruption of natural history activities of native species by unrestrained domestic pets;
  - f. A substantially adverse change in pre-project typical range of moisture levels and/or increasing the spread of pollution and pesticides; or
  - g. A substantial change in the composition of native vegetation caused by invasive plants from adjacent ornamental landscaping.
  - h. Introduce or substantially increase populations of pest, disease-carrying, or nuisance species (plants or animals) that may adversely affect native species, future project residents or adjacent residents.
12. Reduced habitat viability in habitats not directly impacted by the proposed project.

### Regulatory Compliance

13. The project does not conform to the requirements regarding wetlands, wetland buffers, or sensitive habitat lands as outlined in the County of San Diego RPO.

14. The project does not conform to the goals and requirements of the County of San Diego HLP Ordinance or NCCP.
15. The project does not conform to the goals and requirements as outlined in an adopted, applicable HCP, Habitat Management Plan (HMP), Special Area Management Plan (SAMP), or similar regional planning effort.
16. The project does not conform to the goals and requirements of applicable federal or state regulations, including but not limited to the federal Endangered Species Act, Migratory Bird Treaty Act, Bald Eagle Protection Act, Clean Water Act, Porter-Cologne Water Quality Act, and the California Fish and Game Code.

*Guideline Sources.* The aforementioned significance criteria are based on Appendix G of the State CEQA Guidelines, County regulations, state and federal regulations, and other County guidance, as described below.

Guideline 1 is associated with the protection of biologically important blocks of habitat in a configuration that preserves biological functions and values consistent with accepted conservation biology principles. This guideline is intended to protect the functions and values of such habitat blocks from direct and indirect project-related effects, and to maintain the contribution of such areas to the regional biological environment.

Similar to Guideline 1, Guideline 2 and Guideline 12 are associated with preservation of contiguous blocks of open space consistent with accepted conservation biology principles.

The removal of native or naturalized habitat through project-related activities, as described in Guideline 3, would directly affect habitat acreage and plant/animal species located therein, as well as potential impacts associated resources/uses such as species diversity, foraging, breeding and access.

Guideline 4 is intended to protect the functions and values of habitat areas from direct and indirect project-related effects as well as to maintain a high species diversity and/or abundance within the provided open space areas.

The federal, state and county requirements identified in Guideline 5 and Guideline 13 includes goals and objectives intended to protect wetlands. Compliance with the referenced laws and regulations is required. The agencies responsible for enforcing these laws and regulations are responsible agencies with respect to this EIR, including the CDFG and ACOE. These agencies and/or the laws and regulations they enforce are specifically referenced in the CEQA Guidelines, Appendix G.

The criteria related to wildlife movement identified in Guideline 6 are intended to protect such areas due to their role in meeting species life history requirements and incorporate the use of site-specific factors, consistent with conservation biology principles. CEQA Guidelines Appendix G indicates that a project could have a significant impact if it would “interfere substantially with

the movement of any native resident or wildlife species or with established native resident or migratory wildlife corridors.”

Impacts to state- or federally-listed plant species or County Group A or B plant species can potentially be detrimental to regional long-term species survival as noted in Guideline 7. Group C and D species identified in Guideline 7 are thought to be in decline, although not to the extent that extirpation or extinction is imminent. Because these species are often present in substantial numbers within suitable habitat, habitat based conservation approaches are generally adequate to protect them.

The criterion related to golden eagles, their nests and offspring as identified in Guideline 8 are intended to protect this species pursuant to the Bald and Gold Eagle Protection Act.

The criteria identified in Guideline 9 are intended to address the potential loss of offspring for particularly sensitive avian species based on the described buffer distances and breeding season dates derived from various studies completed for birds in San Diego County (and generally accepted by the scientific community).

The criterion identified in Guideline 10 is intended to address the raptor species that regularly use both native and non-native grassland habitats for foraging.

The criteria identified in Guideline 11, are directed toward protecting open space from edge effects related to development. The criteria identified for potential project related edge effects in Guideline 11 were generated on the basis of both local conditions and commonly accepted practices in the biological community.

Guideline 14 addresses applicable goals and requirements under the County HLP Ordinance 8365 and related 4d rule for the California Gnatcatcher. The 4d rule authorized a total interim Diegan coastal sage scrub habitat loss of five percent (based on calculations of then existing habitat acreage by an established Scientific Review Panel). An HLP is required for parcels located outside of the MSCP, and must be issued prior to issuance of Brushing and Clearing Permits, Grading Permits or Improvement Permits in lieu of Grading Permits.

Guideline 15 addresses applicable goals and requirements under applicable HCP, SAMP, or similar planning efforts to protect sensitive resources in perpetuity.

The federal and state requirements identified in Guideline 16 include goals and objectives intended to protect (among other issues) sensitive species, habitats and related resource values such as water quality. Many of these goals and objectives are addressed either directly or indirectly in elements of Guideline 1 through 15. Compliance with the referenced laws and regulations is required. The agencies responsible for enforcing these laws and regulations are responsible agencies with respect to this EIR, including the USFWS, CDFG, RWQCB and ACOE. These agencies and/or the laws and regulations they enforce are specifically reference in the CEQA Guidelines, Appendix G.

### 3.2.3 Analysis of Project Effects and Determination of Significance

Implementation of the proposed project would result in impacts to 598 acres for the development sites and secondary access roads as presented in Table 3.2-5 and shown on Figure 3.2-1. Remaining areas would be preserved within Biological Open Space easements as depicted on Figure 3.2-3. Table 3.2-5 lists the existing vegetation types and acreage, with impacted areas resulting from development which includes impacts from grading activities and fuel treatment. The significance of biological impacts as a result of the project is presented below, and is numbered corresponding to the significance guidelines identified in Section 3.2.2. .

#### **Vegetation Community/Habitat Impacts**

##### *Guideline 1: Degradation of Native Habitat*

The proposed project would directly impact about 1,135 acres, including development pads and roadways, Other Open Space subject to fuel modification and secondary access roads or about 48 percent of the site's native habitat; an additional 53.7 acres of various habitats would be impacted by offsite improvements. The project design includes 1,192 acres of managed natural habitat Biological Open Space located in the northern portion of the project site.

Specific Direct (on-site) Vegetation/Habitat Impacts are as follows:

Disturbed and other Man-modified Habitats. The project would result in impacts to 2.1 acres (7%) of the existing 27.3 acres of Disturbed Habitat onsite, 12.6 acres (87%) of the existing 13.0 acres of Urban Developed Habitat onsite, 0.3 acres (29%) of the existing 2.4 acres of Orchard habitat onsite, 1.5 acres (100%) of the existing 1.5 acres of Eucalyptus Woodland onsite and 3.6 acres (73%) of the existing 4.9 acres of Intensive Agriculture onsite. All of these impacts are considered less than significant because they are not natural and they have low habitat quality. This impact would not be significant.

Diegan Coastal Sage Scrub. Of the existing 28.6 acres of Diegan Coastal Sage Scrub onsite, the development footprint would result in removal of 18.7 acres, fuel modification would occur to 4.0 acres and 0.4 acres would be impacted through development of secondary access roads and 1.2 acres would be impacted along Meadow Park Lane, while placing 5.5 acres in Biological Open Space. Additionally, approximately 3.0 acres of Coastal Sage Scrub-Chaparral Scrub would be impacted by off-site improvements to Deer Springs Road.

Impact Bio-1a – Project related impacts to 27.3 acres of Diegan Coastal Sage Scrub would be significant.

Southern Mixed Chaparral. Of the existing 2,156.6 acres of Southern Mixed Chaparral onsite, the development footprint would result in removal of 479 acres; fuel modification would occur on 526.7 acres, 59.3 acres would be impacted through development of secondary access roads and 14.2 acres impacted by the development of Meadow Park Lane while placing 1,091.6 acres in Biological Open Space.

Impact Bio-1b – Project related impacts to 1,079.2 acres of Southern Mixed Chaparral would be significant.

Mafic Chaparral. Of the existing 57.4 acres of Mafic Chaparral located on the project site, the proposed project would preserve all 57.4 acres in Biological Open Space. There would be no other offsite impacts to Mafic Chaparral. Therefore impacts would be less than significant.

Non-native Grassland. Of existing 23.2 acres of Non-native Grassland onsite, the development footprint would result in removal of 17.6 acres, fuel modification would occur on 1.9 acres, while placing 3.7 acres in Biological Open Space. Additionally, approximately 1.2 acres of this habitat would be impacted by off-site improvements to Deer Springs Road.

Impact Bio-1c – Project related impacts to 20.7 acres of Non-native Grassland would be significant.

Freshwater Marsh. The project would result in no impacts to Freshwater Marsh; all of the existing 0.1 acre of habitat would be preserved in the Biological Open Space. There would be no other offsite impacts to Freshwater Marsh. Therefore impacts would be less than significant.

Southern Coast Live Oak Woodland Riparian Forest. Of existing 2.3 acres of South Coast Live Oak Riparian Forest onsite, the development footprint would result in removal of 1.1 acres, fuel modification would occur on 0.1 acres and 0.1 acres would be impacted by development of Meadow Park Lane. None of this habitat will be placed in Biological Open Space.

Impact Bio- 1d – Project related impacts to 1.3 acres of South Coast Live Oak Riparian Forest would be significant.

Sycamore Alluvial Woodlands. Of the existing 1.6 acres of Sycamore Alluvial Woodlands onsite, the project would result in no impacts to Sycamore Alluvial Woodlands. The proposed project would preserve all 1.6 acres in the Biological Open Space. No impacts would occur off site. Therefore impacts would be less than significant.

Southern Willow Scrub/Mule Fat Scrub. Of the existing 0.3 acres Southern Willow Scrub/Mule Fat Scrub onsite, the project would result in impacts to 0.3 acres onsite with none of this habitat placed in Biological Open Space. There would be no offsite impacts.

Impact Bio-1e – Project related impacts to 0.3 acres of Southern Willow Scrub/Mule Fat Scrub would be significant.

Mule-Fat Scrub. Of the existing 0.2 acres of Mule-Fat Scrub onsite, the project would result in impacts to 0.2 acres within the fuel modification area. There would be no other offsite impacts to Mule-Fat Scrub.

Impact Bio-1f – Project related impacts to 0.2 acres of Mule Fat Scrub would be significant.

Southern Willow Scrub. Of the existing 2.6 acres of Southern Willow Scrub onsite, the development footprint would result in removal of 0.2 acres and fuel modification would occur on 0.1 acres. No other offsite impacts would occur.

Impact Bio-1g- Project related impacts to 0.3 acres of Southern Willow Scrub would be significant.

Southern Willow Scrub/Tamarisk Scrub. The project would result in no impacts to Southern Willow Scrub/Tamarisk Scrub, placing 0.6 acres in Biological Open Space. No offsite impacts would occur. Therefore impacts would be less than significant.

Coast Live Oak Woodland. Of the existing 4.2 acres of Coast Live Oak Woodland, the development would result in removal of 1.0 acres, fuel modification would occur on 1.1 acres and 0.2 acres would be impacted through development of secondary access roads while placing 1.9 acres in Biological Open Space. Additionally, no acres would be impacted by off-site improvements to Deer Springs Road. Impacts to 0.1 acres of Coast Live Oak Woodland associated with a stream would occur due to improvements along Deer Springs Road.

Impact Bio-1h - Project related impacts to 2.4 acres of Coast Live Oak Woodland would be significant.

Non-Vegetated Channel and Unvegetated Channel. Offsite roadway improvements associated with Deer Springs Road would result in the loss of 0.8 acres of Non-vegetated channel. In addition onsite development would impact 0.1 acres of unvegetated channel.

Impacts Bio-1i – Project related impacts to 0.8 acres of Non-vegetated channel and 0.1 acres of unvegetated channel would be significant.

The project design includes Biological Open Space, enveloping approximately 60 percent of the eastern border of the site along Interstate 15, the majority of the northern half of the ownership, as well as substantial connection with open habitats to the San Marcos Mountains to the west. This design preserves and maintains a large, intact section of the chaparral ecosystem, along with other habitats and maintains existing ecological connections to surrounding blocks of native habitats.

The large site (2,327 acres) is relatively homogeneous (92% of the site is Granitic Southern Mixed Chaparral). The following habitats would be substantially degraded as described in Guideline 1: Diegan Coastal Sage Scrub, Granitic Southern Mixed Chaparral, Non-native Grassland, Southern Coast Live Oak Riparian Forest, Southern Willow Scrub/Mule Fat Scrub, Mule Fat Scrub, Southern Willow Scrub, Coast Live Oak Woodland, unvegetated channel, and Non-vegetated channel (no impacts would occur to Mafic Chaparral, Freshwater Marsh, Sycamore Alluvial Woodland and Southern Willow Scrub/Tamarisk Scrub). Loss of functioning habitats is regarded as a significant impact (see Impact BI-1a through BI-1i).

*Guideline 2: Preservation of Natural Biological Diversity*

As discussed in Guideline 1 above, the project would impact approximately 48 percent of the naturally functioning habitats on site, while retaining approximately 52 percent in Biological Open Space, in a generally contiguous, functional habitat area. The biological open space would be configured as a large habitat block in the northern portion of the property, traversed only by a secondary access road (Lawrence Welk Court) and a gated, emergency access route (Camino Mayor). Recreational use of the Biological Open Space will be limited to trails along the existing dirt pathways and trail overlooks as noted in the Merriam Mountains Specific Plan (see Appendix C).

This Biological Open Space displays a relatively compact and intact shape, geometry encompassing the majority of the northern portion of the site. Additionally, with most of the fuel modification area that will retain elements of their native vegetation, more than 80 percent of the I-15 frontage, including the majority of the steep slopes and canyons adjacent to the I-15 would retain some wildlife function and diversity. The intactness of the northern portion is considered good with only one road to provide access to and from the southern areas proposed for development (generally following an existing dirt road), while some of the existing dirt roads would be retained for utility access and recreational trail uses.

Preservation of natural habitats within the Merriam Mountains and linking them with the San Marcos Mountains has been identified by Wildlife Agencies and County as desirable to conserving biological diversity in Northern San Diego County. Both the Merriam Mountains and the San Marcos Mountains have been identified as Resource Conservation Areas (RCAs) in the

County General Plan and these areas have also been identified as biological core areas in studies for the draft North County MSCP. The 1192 acres of Biological Open Space proposed in the northern portion of the project site would provide core habitat in the Merriam Mountains, contributing to preservation of biological diversity in the North County area.

Implementation of the proposed project would result in disturbance of about 48 percent of the natural habitats onsite, including 538 acres of development area, 537 acres of Other Open Space subject to fuel modification and 60 acres of secondary/emergency access roads within Biological Open Space. Impacts to biological diversity will occur as a result of removing localized pockets of Coast Live Oak Woodland, Diegan Coastal Sage Scrub and Non-native grassland, which represent approximately 1%, 2% and 0.2% of the total onsite habitats. These areas tend to support disproportionately higher wildlife habitat diversity. Although these habitats typically support a different suite of plants and wildlife compared to Granitic Southern Mixed Chaparral, the dominant habitat on the site, these former habitats together do not contribute significantly to the average biological diversity per acre of the site because of the strong dominance of Southern Mixed Chaparral (92% onsite).

Impact Bio-2 –Project related impacts to the natural biological diversity would be significant for loss of Coastal Sage Scrub, Coast Live Oak Woodland and Non-native grassland species.

*Guideline 3: Removal of Native or Naturalized Habitat*

Removal of native or naturalized habitat through grading and clearing has been adequately covered under Guidelines 1 and 2 (above). This section addresses impacts to native or naturalized habitat from construction activities.

During construction activities, edge effects may include dust which could disrupt plant vitality in the short-term from construction-related activities. In addition soil erosion and water runoff resulting from grading activities could impact vegetation onsite and adjacent properties. Adjacent land uses include large-lot single-family residences and avocado groves to the north, west, and south. Existing uses to the south of the site are separated from the site by Deer Springs Road. Existing uses to the east of the site are separated from the site by I-15. Sensitive vegetation communities or sensitive plants that are planned for preservation onsite could be potentially impacted during construction activities. Therefore, the potential for short-term or construction-related impacts resulting from the proposed project through grading, clearing and/or other construction activities would be significant.

Impact Bio-3 – Project related impacts for short-term or construction related impacts to native and naturalized habitats would be significant.

*Guideline 4: Degradation of Habitat*

Due to the high degree of habitat homogeneity of the site (92 percent of the site is unburned Granitic Southern Mixed Chaparral), the 48 percent reduction in native habitats proposed by the project would not result in a substantial degradation of habitat.

The project would result in a 48 percent decrease in biological function because that amount of habitat would be lost to other uses; however, the overall value of the remaining habitats would not be reduced substantially because the proposed project design includes 1,192 acres of managed Biological Open Space, in a configuration to preserve core habitat in the Merriam Mountains, enveloping much of the eastern border of the site along Interstate 15, the majority of the northern half of the ownership, as well as substantial connection with open habitats to the San Marcos Mountains to the west. This design would allow the primary off-site ecological connections to preserve existing ecological functions. The project includes a RMP that describes measures to monitor and maintain the preserve in perpetuity that would preserve 1,192 acres of habitat value onsite.

Impacts to the overall value of the natural habitats onsite and offsite, as identified in Guideline 4, are less than significant because the Biological Open Space would be preserved in perpetuity and managed according to the requirements of the Merriam Mountains RMP, the Biological Open Space would maintain a high biological value and function as a result of design measures incorporated into the proposed project, the Biological Open Space will be preserved and managed in perpetuity, restoration/creation of habitats will largely occur within the Biological Open Space to contribute to the naturally functioning ecosystem, and the project would preserve core habitat in the Merriam Mountains as a large habitat preserve.

*Guideline 5: Impacts to Wetlands*

The proposed project would avoid and minimize impacts to wetlands with the exception of 2.1 acres of wetland for which impacts are unavoidable. Unavoidable onsite impacts include mule-fat scrub (0.2 acres), oak riparian forest (1.3 acres), southern willow scrub (0.3 acres), southern willow scrub/mule-fat scrub (0.3 acres) and unvegetated wetlands (0.1 acres) (see Table 3.2-6). Onsite unavoidable wetland impacts would include impacts within the development footprint, offsite impacts and oak riparian forest impacts associated with crossings due to construction of Meadow Park Lane. Unavoidable offsite impacts include 0.9 acre associated with offsite improvements to Deer Springs Road, a circulation element roadway required to be improved as part of the project.

As discussed above and in Guideline 1, impacts to mule-fat scrub, oak riparian forest, southern willow scrub, southern willow scrub/mule fat scrub, non-vegetated channel and unvegetated wetlands would be significant. The project is designed to minimize impacts to County wetlands; however, impacts would occur due to consolidation of development in the southern portion of the site to provide for the configuration of the Biological Open Space as a large block of habitat in the northern portion of the site.

Impact Bio-4 – Project related impacts to 2.1 acres of RPO Wetlands onsite and 0.9 acres offsite along Deer Springs Road would be significant.

### **Wildlife Movement Impacts**

#### *Guideline 6: Impacts to Wildlife Corridors and Wildlife Movement*

The biological assessment and preliminary wildlife movement study for the project site indicates that the site is fairly homogeneous in terms of vegetation (92 percent of the site is unburned Granitic Southern Mixed Chaparral); however, the site has varied topography, with substantial areas of steep slopes. There are no major sources of surface water besides a small section of an unnamed creek adjacent to Twin Oaks Valley Road and seasonal drainage flows in the Merriam Valley area of the northeast quadrant of the site. Medium to large sized mammal species probably rely on the extensive network of dirt roads and trails to forage and move within the site. The Inner Meadow area in the southern part of the site is the only large area (20 ± acres) open Non-native Grassland area likely used for raptor foraging. The only narrow wildlife corridor identified on the site is the approximately half-mile wide frontage along Twin Oaks Valley Road, where the site connects to the San Marcos Mountains to the west. Because the proposed project design leaves the majority of the northern part of the site in a Biological Open Space (except for the estate lot area), it is likely that the site could still be used by Mountain Lions and Mule Deer, if they still occur in the area. Preservation of the major linkage to the San Marcos Mountains would still allow such wildlife species to move in and out of the project area.

As discussed in Guideline 1, above, the proposed project would impact approximately 48 percent of the native and non-native habitats on site, while retaining the remaining vegetation in a natural Biological Open Space, in a generally contiguous, functional habitat area. The Biological Open Space would be configured as a large habitat block in the northern portion of the property, traversed only by a secondary access road (Lawrence Welk Court) and a gated, emergency access route (Camino Mayor). Recreational use of the Biological Open Space will be limited to trails along the existing dirt pathways and trail overlooks as noted in the Merriam Mountains Specific Plan (see Appendix C).

This Biological Open Space displays a relatively compact and intact shape, encompassing the northern portion of the site. Additionally, the Biological Open Space and other open space areas includes more than 80 percent of the I-15 frontage, including the majority of the steep slopes and canyons adjacent to I-15. It should be noted that the Biological Open Space area includes only one road that provides access to and from the southern areas proposed for development (generally following an existing dirt road) and some of the existing dirt roads would be retained for utility access and recreational trail uses.

Preservation of natural habitats within the Merriam Mountains linking them with the San Marcos Mountains has been identified as desirable to conserving biological diversity in Northern San Diego County. Both the Merriam Mountains and the San Marcos Mountains have been identified as Resource Conservation Areas (RCAs) in the County General Plan and these areas have also been identified as biological core areas in studies for the draft North County MSCP.

On a subregional level, the string of Coastal Sage Scrub habitats along Interstate 15, particularly between SR 76 and SR 78, probably is used by sage scrub-dependent species such as the California Gnatcatcher in these habitats and move longitudinally and laterally away from the corridor. The gnatcatcher pair identified on the project site at the north end of Mesa Rock Road is probably part of this corridor population, as it is a historic Gnatcatcher location in Caltrans right-of-way near the mouth of Merriam Valley. The project proposes to remove the Mesa Rock Road gnatcatcher habitat (during the non-nesting period) and purchase and preserve an occupied gnatcatcher along the east side of I-15, near the Circle-R ranch.

- A. *Prevent substantial numbers of wildlife from accessing areas considered necessary to their survival (i.e., foraging resources, breeding areas, necessary water sources, etc.)*

The only sources of permanent natural water on the site appear to be the south fork of Gopher Canyon located west of Twin Oaks Valley Road, and a riparian canyon draining from the eastern one-half of the site to a culvert under I-15. However, wide-ranging wildlife may use leaking agricultural water sources in adjacent groves. The project design maintains the only onsite areas of permanent water (along Twin Oaks Valley Road and the western canyon, Merriam Valley) both of these areas are provided along the east, north and western portions of the site within the Biological Open Space. Thus the project does not prevent access to substantial numbers of wildlife from accessing areas necessary for their survival. Impacts would be less than significant. Notable foraging resources and breeding areas other than the above mentioned and water resources for amphibian breeding are not known from the site.

- B. *Restrict substantial numbers of wildlife from utilizing their natural movement patterns (i.e., those path-ways used when given the choice absent human interference;*

The site contains areas that function both as subregional and local wildlife corridors and linkages. The project site is a large block of relatively undisturbed habitat bounded on the east by I-15 and connected on the west to the relatively undeveloped San Marcos Mountains. However, to the north and south, the site is generally bounded by agricultural lands with limited wildlife habitat and corridor function. The project design preserves the majority of the northern half of the site, including most of the frontage along I-15, interconnecting dirt roads, and a major connection to the San Marcos Mountains to allow continued wildlife use and movement to connect to existing trails around development areas to retain the wildlife use of these trails for local wildlife movement, therefore impacts would be less than significant.

- C. *Further constrain a narrow wildlife corridor by reducing width, removing available vegetative cover, creating substantially adverse edge effects, or placing barriers in the movement path;*

The project design allows individual and genetic interchange from an east to west direction because it retains more than 60 percent of the nearly three mile frontage with I-15 as natural preserve, contiguous connections through the project site and by maintaining the existing undeveloped nature of most of the 0.3 mile frontage. Additionally, the design maintains substantial habitat connection with Merriam ownership along Twin Oaks Valley Road and the San Marcos Mountains (and thereby retaining the potential for wildlife movement between the Merriam and San Marcos Mountains. Therefore, the existing subregional connection from east to west (Merriam Mountains to San Marcos Mountains) is substantially maintained. Because of existing agricultural and large-lot residential uses, there is probably little wildlife movement north and south of the site; therefore, impacts would be less than significant.

- D. *Create artificial corridors that do not functionally connect already utilized core habitat areas or existing linkages.*

Lawrence Welk Court is proposed as a two-lane access road from the southern development area, through the central and eastern portion of the northern part of the site, joining the existing Lawrence Welk Court. This road would have a relatively low traffic volume estimated at 320 average daily trips. This road will cause some wildlife mortality and thus act as barrier to wildlife moving east and west through the central portion of the site. This barrier is limited because of the relatively low trip count and because vehicle trips would be more frequent in the daytime hours when wildlife is typically less active.

While the project design maintains wildlife corridors and linkages from east to west and to the north, it limits such movement in the southern part of the site by developing large blocks of residential land uses that are relatively impermeable to wildlife movement. Although east-west wildlife movement is already limited by steep slopes and north-south oriented canyons, it will be further limited by residential development areas. The proposed project would limit wildlife movement within the site by directly removing 48 percent of the native and naturalized habitats and redirecting animal movement from existing trails to new connecting trails and to and from new wildlife underpasses. This impact is considered significant (BIO-5). .

Impact Bio-5 – The proposed project would limit wildlife movement within the development footprint by directly removing 48 percent of the native and naturalized habitats and redirecting animal movement from existing trails to new connecting trails.

### **Sensitive Species Impacts**

*Guideline 7: Direct, Indirect, and/or Cumulative Impacts that could Effect Long-term Survival of Sensitive Plant and Animal Species*

Sensitive Plant Species: The site contains three plant species that are included on the County special lists; Summer Holly, Ramona Horkelia and Engelmann Oak.

Summery Holly [County List A] was observed at 17 locations, generally one or two at a time. Summer Holly is widespread in chaparral on the site and would be impacted proportionally with the loss of chaparral. This species is fairly common in low numbers in the chaparral to the north, east, and west of the project site, and impacts are not significant and not detrimental to the regional long-term survival of the species.

Ramona Horkelia [County List A] was observed in a single location with about six individuals. The observed Horkelia specimens lacked vigor due of the old growth chaparral cover, and this single observed location does not constitute a population as it is not likely to be viable in the long term. The project site may also contain other areas with low numbers of Horkelia that were not seen due to the rough terrain and dense chaparral cover. Impacts are not significant and not detrimental to the regional long-term survival of the species.

Several Engelmann oaks [County List D] were scattered in a small area of coast live oak woodland on the southeast corner of the site and would be impacted by the project. This species is fairly common in low numbers throughout the region and has a low sensitivity rating. Impacts are not significant and not detrimental to the regional long-term survival of the species.

Sensitive Animal Species: The project would remove 27.3 acres of Diegan Coastal Sage Scrub habitat including both the project site and offsite improvements, some of which is occupied by state and federal listed threatened California Gnatcatchers. Diegan Coastal Sage Scrub is a regionally declining habitat and the project would remove 65 percent of the habitat on the site plus an additional 3.0 acres for off site improvements along Deer Springs Road and Meadow Park Lane.

The site contains or is expected to contain several wildlife species considered regionally declining, including Northern Red-diamond Rattlesnake, San Diego Horned Lizard, Orange-throated Whiptail, Coastal Whiptail, San Diego Desert Woodrat, California Thrasher and Red-shouldered Hawk. Due to the dense nature of the site's chaparral, these species are considered potentially present over the entire site, although in relatively low densities. The project would result in direct loss of these species proportional to the loss of 48 percent of the existing habitats. The loss of habitat, some of which is used by threatened or otherwise sensitive plants and animals is regarded as a significant impact (Impact BIO-6).

Impact Bio-6      Direct impacts to sensitive plant and animal species are regarded as significant.

Indirect construction and impacts over time would affect these sensitive species on the site, because of the addition of 2,700 dwelling units (with additional acres for fuel breaks, roads and associated activities). There would be an expanded boundary between developed areas and preserve areas ("urban/wildland interface"), with the potential increase in effects of lighting, runoff, unsupervised pets and children into the natural habitats. Additionally, the presence of landscaping and irrigation in and around developed areas will substantially increase the diversity of habitats on the site, creating new and expanded habitats for native and non-native bird and insect species that thrive in suburban environments. In the absence of implementation of the RMP to prevent habitat degradation and to minimize indirect edge effects impacts would be significant (This impact is consistent with Impacts BIO-3, BIO-7 and BIO-9, no additional impacts would result).

*Guideline 8:      Construction Activities within 4,000 feet of an active Golden Eagle Nest*

Although the site contains a historic Golden Eagle nesting site, this site has been abandoned and has not been used by eagles since the early 1980's. Recent land use changes in the local area would likely preclude use of this nesting spot in the future.

Impacts to Golden Eagle nests would be less than significant since the historic nest on the site has not been occupied and is not likely to be occupied in the future as a result of local land use changes. The project would not have any effect on an active Golden Eagle nest site.

*Guideline 9: Impacts to Nesting Birds and Raptors*

As discussed in Guidelines 1 and 2 above, the project would impact approximately 48 percent of the habitat on the project site, plus approximately 53.7 acres associated with road improvements and utilities in off site areas. During construction activities, edge effects may result in nest disturbance due to activities near nests due to noise during clearing, grading and construction. California Gnatcatchers are known to nest on the site and tree-nesting raptors such as Red-tailed Hawks and Cooper's Hawks may well nest on the site. Implementation of the project would result in disturbance of as much as 48% of the habitats on the project site through grading, clearing and/or other construction activities.

Impact Bio-7 – Project related impacts to nesting California Gnatcatcher and tree nesting raptors during construction activities would be significant.

*Guideline 10: Loss of Raptor Foraging Habitat*

As discussed in Guideline 1 and 2 above, the project would result in the loss of about 17.6 acres on Non-native grassland onsite, 1.9 acres placed in fuel modification area and 1.2 acres associated with roadway improvements along Deer Springs Road. Therefore of the existing 23.2 acres of Non-native Grassland, a habitat typically used by raptorial birds for foraging, 20.7 acres would be impacted. Additionally, the project would remove Granitic Southern Mixed Chaparral, substantially-reducing the potential of raptor foraging habitat due to its dense, tall growth resulting from being unburned for 100+ years consisting of the following; 479 acres within the development impact onsite, 526.7 acres within the fuel modification area, 59.3 acres associated with access roads, and 14.2 acres along Meadow Park Lane (total of 1079.2 acres). Raptors undoubtedly also use the site's existing dirt roads for occasional foraging as well. The project's provision for fuel treatment and addition of landscape plantings will probably result in an increased area for potential foraging because it would result in more open habitats. Additionally, the project would preserve a large block of Southern Mixed Chaparral, purchase offsite Non-native grassland and restoration of Non-native grassland on site. The loss of habitats of actual or potential raptor foraging habitat is regarded as a significant impact.

Impact Bio-8 – Project impacts resulting in the removal of Non-native grassland and Southern Mixed Chaparral would reduce raptor foraging habitat. This removal of foraging habitat is regarded as significant.

## Indirect Impacts

### *Guideline 11: Result in Adverse Urban-type Edge Effects*

As discussed in Guideline 1 and 2 above, the project would impact approximately 48 percent of the habitats on site, plus an additional 53.7 acres of various habitats from off site transportation and utilities improvements, while retaining approximately 52 percent of the onsite habitats in Biological Open Space. The Biological Open Space has been configured as a large habitat block in the northern portion of the property, traversed only by a secondary access road (Lawrence Welk Court) and a gated, emergency access route (Camino Mayor).

Implementing the proposed project will result in human activities, located adjacent to the Biological Open Space. Potential edge effects could include the following; non-permitted activities within the Biological Open Space, introduction of invasive animal or plant species, and debris from recreational users. Sensitive vegetation communities or sensitive plants that will be preserved onsite could be potentially impacted during construction activities. Therefore, the potential for short-term or construction-related impacts resulting from the proposed project through grading, clearing and/or other construction activities would be significant (This impact is consistent with Impacts BIO-3, BIO-7 and BIO-9, no additional impacts would result).

The proposed project includes a design, which concentrates development in the southern part of the project site and preserves habitats in the eastern and northern parts of the project, attempts to reduce and buffer impacts to the preserved areas that would be generated from the development areas. Furthermore, recreational use in the Biological Open Space will be limited to trails along existing dirt pathways and trail overlooks as noted in the Merriam Mountains Specific Plan (see Appendix C).

Implementation of the proposed project would impact 1183 acres (including offsite improvements) of habitat by clearing, grubbing, and grading, along with construction of roads, utilities and residential housing, some of which would be adjacent to sensitive resources identified above. Unintended impacts from construction-related activities and the subsequent occupation of new residential housing and other uses are regarded as a significant impact.

Impact Bio-9 - Occupation of residential housing uses and commercial area near sensitive resources would result in significant edge effects

### *Guideline 12: Habitat Viability Not Directly Impacted*

Refer to discussion under Guideline 11

## Regulatory Compliance

### *Guideline 13: Conformance to County Resource Protection Ordinance Requirements*

RPO Wetlands (refer to discussion under Guideline 5). RPO requires avoidance of wetlands. RPO also requires avoidance of the wetland buffer adjacent to the wetlands. The County RPO prohibits certain uses within RPO-defined wetlands and requires wetland buffers to protect the environmental and functional habitat values of wetlands, with buffer widths from 50 to 200 feet in width, based on various factors. The wetlands being maintained onsite would be located within the Biological Open Space, which are located a minimum of 300 feet from pad sites and development. Therefore adequate buffers for wetlands would be provided because the wetlands being maintained onsite are located within the Biological Open Space. Wetlands being conserved outside of the project boundaries include wetlands to the south of the proposed alignment of Deer Springs Road. The project design minimizes impacts to wetlands south of the proposed Deer Springs Road alignment through the construction of a retaining wall to ensure adequate distance between the roadway and wetland areas are maintained.

The project would impact 27.3 acres both onsite and offsite of occupied coastal sage scrub in the southeastern corner of the project. The presence of coastal sage scrub habitat occupied by the threatened coastal California gnatcatcher at the Mesa Rock Road cul-de-sac constitutes RPO Sensitive Habitat Lands. Impacting this occupied habitat by the project would be considered “take” of habitat and would require a Habitat Loss Permit (HLP) from the County. Measures to offset impacts to California Gnatcatcher-occupied habitat include purchase of a 32-acre site known as Captain’s Associates, located along the I-15 corridor 0.5 mile south of the intersection of Nelsen Way and Old Highway 395 (see discussion above under Guideline 7).

Because none of the areas supporting sensitive plants found on the Merriam site constitute Sensitive Habitat Lands under RPO (see discussion above under Guideline 7), the project is consistent with Sensitive Habitat Lands for sensitive plants populations.

As described previously under Guideline 6, the Merriam site does not contain wildlife movement corridors as defined by the RPO; however, the large blocks of intact native habitat onsite do constitute an important core area of undeveloped habitat west of I-15 in the north-central portion of San Diego County. Protection of habitat blocks in the Merriam Mountains and the San Marcos Mountains to the west of Merriam and protection of existing linkages between the two mountainous landform masses is called for in the draft North County Multiple Species Conservation Program (NCMSCP).

The Merriam project would contribute to the draft North County Multiple Species Conservation Program (NCMSCP) goals by conserving approximately 1,192 acres of native habitat in the

northern portion of the site in a configuration that provides for a large block of habitat and protects the onsite contribution to the Merriam/San Marcos Mountains linkage; this linkage contribution is located east and west of Twin Oaks Valley Road as it traverses the Merriam site and includes the Gopher Canyon tributary along Twin Oaks Valley Road. The habitat block to be conserved in the northern portion of the Merriam site incorporates onsite dirt roads and trails currently used by common mammals for wildlife movement, and would provide significant revegetation to degraded areas.

In the absence of conveyance and management of the Biological Open Space area impacts to conformance with the RPO requirements would be considered a significant impact (M-BIO-10).

Impact Bio-10 – Inconsistencies with RPO requirements would be a significant impact.

*Guideline 14: Conformance with the County's HLP and NCCP*

In addition to the County of San Diego's HLP process as noted in Section 1.0 Project Description, the project must demonstrate conformance with overall goals and policies of the NCCP, and may also be required to make the specific findings applicable to issuance of Incidental Habitat Loss Permits (HLPs). Through hardline negotiations with the Wildlife Agencies, and in signing a hardline agreement for the draft NCMSCP, the project has demonstrated conformance with the general principles. If NCMSCP has not been adopted at the time of project approval, the specific findings applicable to NCCP will be made. The hardline agreement has established that the project footprint is consistent with preserve design principles under the NCCP.

As part of the NCMSCP, findings have been prepared for the Preserve Design Principles for the proposed project (see Appendix G). As seen in these findings the project would be consistent with a majority of the Preserve Design Principles. Principles include an orderly conveyed management of Merriam Biological Open Space.

As seen in Appendix G, a NCCP Draft 4(d) Findings in Support of the Issuance of a Habitat Loss Permit has been prepared for the proposed project. The following Findings were assessed, Finding 1.a: The habitat loss does not exceed the five percent guideline, Finding 1.b: The habitat loss will not preclude connectivity between areas of high habitat values, Finding 1.c: The habitat loss will not preclude or prevent the preparation of the subregional NCCP (The project has a hardline agreement for consistency with the subregional NCCP), Finding 1.d: Habitat loss has been minimized and mitigated to the maximum extent practicable in accordance with Section 4.3 of the NCCP Process Guidelines (the all south clustered development), Finding 2: The habitat loss will not appreciably reduce the likelihood of survival and recovery of listed species in the wild.

The project would impact one pair of gnatcatcher and 27.3 acres of Diegan Coastal Sage Scrub both onsite and offsite. The project would retain approximately 5.5 acres of Diegan Coastal Sage Scrub in small patches within the Biological Open Space. Mitigation land within the future preserve area will adequately mitigate for the loss without reducing the likelihood of survival of the gnatcatcher and will provide for the preservation of gnatcatcher at the Captains Associate parcel. The findings prepared in the Biological Resources Technical Report indicate that issuance of a Habitat Loss Permit is appropriate for the proposed development (see Appendix G).

Connectivity is maintained because the major wildlife corridors are reduced to less than significant and the major linkage is maintained.. Therefore the project is in conformance with the Habitat Loss Permit ordinance because the 4(d) findings can be made for the project and impacts due to inconsistency with NCCP would be less than significant.

*Guideline 15: Conformance with the County's HCP, HMP, and SAMP*

There are no existing County HCPs, HMPs or SAMPS for the project site area and therefore there would be no impacts.

*Guideline 16: Conformance to Goals and Requirements of Federal and/or State Regulations*

As discussed in Guideline 1, the project would impact approximately 48 percent of the habitats occurring on site, plus an additional 53.7 acres of habitats occurring off site because of transportation and utility requirements, while retaining approximately 52 percent of the site in Biological Open Space. Some of the habitats that would be impacted by the project have been shown or could be used by resources protected under the Federal Endangered Species Act, Migratory Bird Treaty Act, Bald Eagle Protection Act, Clean Water Act, Porter-Cologne Water Quality Act, and the California Fish and Game Code.

The project is in conformance with the goals and requirements of applicable federal or state regulations, including but not limited to the Federal Endangered Species Act, Migratory Bird Treaty Act, Bald Eagle Protection Act, Clean Water Act, Porter-Cologne Water Quality Act, and the California Fish and Game Code because conditions of approval will require that the proposed project to obtain applicable permits and implement avoidance of migratory birds, raptors, eagles and conform to the projects SWMP plan.

### 3.2.4 Cumulative Impact Analysis

Potential impacts to biological resources were examined for 69 projects in north-central San Diego County (assessment area) including the entire cumulative project list because this specific cumulative impact area has similar biological resources (chaparral, coastal sage scrub, and oak woodlands). This analysis includes projects located in the City of San Marcos, City of Vista, City of Escondido and the County of San Diego, including proposed and recently approved projects. For those projects located within or adjacent to the I-15 corridor, California Gnatcatchers are of particular interest, because the associated habitats may serve as a conduit for longitudinal and occasional latitudinal movement about the freeway. Gnatcatchers are relatively uncommon east of the freeway compared to areas to the west. Data regarding biological resources was not available for 36 of the 69 projects (52 percent), either because of incomplete application information, or lack of biological resource data in jurisdiction files. There is also no indication of the total size of each project, so no cumulative total of project sizes can be calculated. Appendix G lists the Project application number, a consecutive project number (unique to this table), major vegetation types (where stated), with stated impacts, and a note relating to the project.

The summary of proposed impacts to biological resources derived from Appendix G is shown in Table 3.2-7. It is assumed that, during the project review and approval process, that all the impacts to important biological resources would be mitigated at appropriate ratios as shown on Table 3.2-9.

As can be seen from Table 3.2-7, the Merriam project would result in substantial percentages of the total impacts within the assessment area due to the large size of the Merriam project relative to the cumulative projects in the cumulative study area. Average project size of cumulative projects in the study area is 30 acres or less as compared to the Merriam project of 2327 acres. As shown in Table 3.2-7 the Merriam project would contribute about 91 percent of the total cumulative contribution to chaparral impacts along with 33 percent and 49 percent respectively to riparian and wetland impacts. The contribution expressed in percentage terms reflect the large size of the Merriam project compared to other cumulative projects. These contributions are not considered significant due to the Merriam project contribution to MSCP goals as noted below.

Analysis of cumulative effects on individual sensitive species is less clear because of the paucity of information from other projects. Impacts to the California Gnatcatcher is shown in Appendix G, which indicates that 15 Gnatcatcher loci (assumed to be either mated pairs or individuals) would be impacted; this project includes one pair, or approximately 6.7 percent of the reported impacted gnatcatchers. The project site and the cumulative projects are within the boundaries of the North County MSCP planning area. All these projects must contribute to achievement of planning goals for the North County MSCP including preservation of linkages and cores and sensitive resources. The North County MSCP is still in draft form and is being processed as an

amendment to the County's approved MSCP Subarea Plan. The MSCP addresses the conservation needs of identified covered species in the context of projected growth within the MSCP planning area. The MSCP and associated environmental documentation address projected cumulative and growth inducing impacts to covered species and their habitats. Since the proposed project would be consistent with and contribute to achievement of MSCP goals in the North County area, the proposed project would avoid cumulative biological impacts to covered species and their habitats would be less than significant.

The wildlife agencies have concurred that the proposed Biological Open Space areas as the hardline is the appropriate area for analysis of the proposed draft NCMSCP. Therefore even though the project would impact as much as 1079.2 acres of chaparral habitat, this impact would be less than considerable because it is mitigated by preservation and active management of chaparral in the Biological Open Space that would substantially contribute to maintaining the ecological functions of the larger North County Segment of the draft NCMSCP.

Cumulative Impacts are also discussed in the Cumulative Technical Report provided as Appendix R of this Draft EIR and Biological Technical Report included in Appendix G.

### **3.2.5 Growth Inducing Impact**

As discussed in the Growth Inducement Technical Report (Appendix S), the growth induction analysis prepared for the proposed project determined that the project could generate an additional 720 dwelling units within the immediate vicinity of the proposed project boundary. The development of 720 dwelling units could result in impacts to biological resources; however. Each individual project would be required to identify these impacts and provide mitigation measures to reduce those potential impacts to less than significant levels. In addition, it should be noted that the Biological Open Space proposed by the project would prevent development from occurring within area block of habitat identified by the County, USFWS, and CDFG as having a significant biological value. Therefore, potential impacts generated from the additional growth potentially generated by the proposed project would be less than significant.

#### *Summary of Project Impacts*

The following biological impacts have been identified:

#### *Guideline 1: Degradation of Native Habitat*

Impact Bio-1a Project-related impacts to 27.3 acres of Diegan Coastal Sage Scrub would be significant.

Impact Bio-1b	Project-related impacts to 1079.2 acres of Southern Mixed Chaparral would be significant.
Impact Bio-1c	Project-related impacts to 20.7 acres of Non-native Grassland would be significant.
Impact Bio- 1d	Project-related impacts to 1.3 acres of South Coast Live Oak Riparian Forest would be significant.
Impact Bio-1e	Project-related impacts to 0.3 acres of Southern Willow Scrub/Mule Fat Scrub would be significant.
Impact Bio-1f	Project-related impacts to 0.2 acres of Mule Fat Scrub would be significant.
Impact Bio-1g	Project-related impacts to 0.3 acres of Southern Willow Scrub would be significant.
Impact Bio-1h	Project-related impacts to 2.4 acres of Coast Live Oak Woodland would be significant.
Impacts Bio-1i	Project-related impacts to 0.8 acres of Non-vegetated channel and 0.1 acres of unvegetated channel would be significant.

*Guideline 2: Impacts to Natural Biological Diversity*

Impact Bio-2	Project-related impacts to the natural biological diversity would be significant.
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*Guideline 3: Short term and Construction Impacts on Native or Naturalized Habitat*

Impact Bio-3	Project related impacts for short-term or construction related impacts to native and naturalized habitats would be significant.
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*Guideline 5: Impacts to Wetlands*

Impact Bio-4	Project-related impacts to 2.1 acres of RPO Wetlands onsite and 0.9 acres offsite along Deer Springs Road would be significant.
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*Guideline 6: Impacts to Wildlife Corridors and Wildlife Movement*

Impact Bio-5      The proposed project would limit wildlife movement within the development footprint by directly removing native and naturalized habitats and redirecting animal movement from existing trails to new connecting trails.

*Guideline 7:      Impacts that could Effect Long-term Survival of Sensitive Plant and Animal Species*

Impact Bio 6      Direct impacts to sensitive plant and animal species are regarded as significant.

*Guideline 9:      Short-term and Construction Related Impacts to Nesting Birds and Raptors*

Impact Bio-7      Project-related impacts to nesting Gnatcatcher and tree nesting raptors during construction activities would be significant.

*Guideline 10:      Loss of Raptor Foraging Habitat*

Impact Bio-8      Project impacts resulting in the removal of Non-native grassland and Southern Mixed Chaparral would reduce raptor foraging habitat. This removal of foraging habitat is regarded as significant.

*Guideline 11:      Result in Adverse Urban-type Edge Effects, including a reduced habitat viability*

Impact Bio-9      Occupation of residential housing uses and commercial area near sensitive resources would result in significant edge effects.

*Guideline 13:      Conformance to County Resource Protection Ordinance Requirements*

Impact Bio-10      Inconsistencies with RPO requirements would be a significant impact.

### **3.2.6      Mitigation Measures**

*Significant Impact BIO-1:      Degradation of Native Habitat*

M-BIO-1      The Merriam Mountains RMP shall be implemented in conjunction with project implementation. RMP features that are specifically related to the significant impact associated with the loss of natural habitat include:

Objective B-1: Include large blocks of key biological resource areas within the Merriam Biological Open Space.

- Include within the Merriam Biological Open Space 1,192 acres of natural habitat; representative populations of sensitive plant and animal species observed onsite; existing dirt trails and canyon bottoms currently used by wildlife for movement across the site; and the north/south trending tributary to Gopher Canyon along Twin Oaks Valley Road, which provides linkage opportunities to the San Marcos Mountains.

Objective B-3: Provide resource management for the offsite mitigation area.

- Provide mitigation for impacts to coastal sage scrub and the California Gnatcatcher consistent with the October 2005 Points of Agreement, consisting of acquiring the 32-acre Captains Associate property, which will be incorporated into the County's North County MSCP preserve system and will be protected and managed consistent with management regimes established by the County as part of the draft North County MSCP.

Objective B-5: Track changes in the physical and biological conditions in Biological Open Space to determine active management strategies.

- The habitat manager will provide regular site inspections, which include recording and mapping changes in the biological and physical environment that may affect the Biological Open Space integrity.

Objective B-6: Prevent Habitat Degradation.

- The following shall be prohibited in the Biological Open Space: grading, placement of structures, grazing, dumping, and vegetation removal. Provide for various potentially adverse effects of human use within the Biological Open Space through trash removal, preventing squatting, and use of firearms for hunting and poaching/collecting.

Objective B-12: Protect Critical Biological Resources during Construction.

- Install conspicuous temporary construction fencing where proposed grading or clearing exists within 100 feet of the Biological Open Space, Other Open Space, or offsite native vegetation.
- Employ a construction monitor to perform the following duties: be onsite weekly during vegetation clearing, grubbing, and grading, when these activities are within 300 feet of Biological Open Space or offsite native

vegetation to ensure that all habitat protection measures are in place; inspect fencing and erosion control measures adjacent to preserved areas at least once per week and daily during rain events, and report deficiencies immediately to the DPW Construction Inspector; periodically monitor the work area for excessive dust generation; train contractors, and construction personnel, including the purpose for resource protection, a description of the gnatcatcher and its habitat, and the conservation measures that should be implemented during project construction; halt work when deficiencies require mediation, and notify DPW Construction Inspector within 24 hours if it is necessary to halt work; produce weekly reports to keep at the project site; produce a final report at the completion of each phase or unit and submit to the Director of the DPLU; confer with the Wildlife Agencies within 24 hours any time protected habitat or endangered species are being affected by construction; determine if nesting migratory birds will be affected by clearing and grading and direct construction activities away from nesting areas; and be responsible for notification and oversee remediation if impacts to preserved habitat should occur.

- Restrict all brushing and clearing such that none will be allowed within 100 feet of native or naturalized habitats during the migratory bird breeding season, unless the Biological Monitor determines that no migratory bird nests will be affected. This is defined as occurring from February 1 through August 31.

M-BIO-1a      Diegan Coastal Sage Scrub Mitigation

Impacts to 27.3 acres Diegan Coastal Sage Scrub shall be mitigated at a ratio of 2:1 by a combination of: onsite preservation of 5.5 acres of Diegan Coastal Sage Scrub in the Biological Open Space; acquisition of Captains Associate Parcel (32 acres); and a Coastal Sage Scrub/Grassland mosaic restoration onsite in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plan (Appendix X to this EIR). The Hardline Points of Agreement concluded that the Wildlife Agencies agree to consider the Captains Associate parcel as adequate MCSP mitigation for Diegan Coastal Sage Scrub impacts to contribute to the assembly of the draft NCMSCP preserve.

M-BIO-1b      Southern Mixed Chaparral Vegetation Mitigation

Impacts to 1079.2 acres of Southern Mixed Chaparral vegetation shall be mitigated at a ratio of 0.5:1 The project design places 1091.6 acres of Southern

Mixed Chaparral vegetation in Biological Open Space, in accordance with the requirements of the Merriam Mountains' RMP.

**M-BIO-1c      Non-native Grassland Vegetation Mitigation**

The loss of 20.7 acres of Non-native Grassland shall be mitigated at a ratio of 0.5:1 by the combination of onsite preservation in Biological Open Space (3.7 acres), and through creation/enhancement within the Biological Open Space (see Figures 3.2-3a through 3.2-3c) prior to issuance of grading permits, in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plan (Appendix X).

**M-BIO-1d      Southern Coast Live Oak Woodland Riparian Forest Mitigation**

Impacts to 1.3 acres of Southern Coast Live Oak Woodland Riparian Forest shall be mitigated offsite by creation/enhancement at a 3:1 ratio at an offsite location prior to issuance of grading permits, in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plans (Appendix X).

**M-BIO-1e      Southern Willow Scrub/Mule Fat Scrub Mitigation**

Impacts to 0.3 acres of Southern Willow Scrub/Mule Fat Scrub shall be mitigated onsite by restoration/enhancement at a 3:1 ratio at the abandoned airstrip location (see Figures 3.2-3a through 3.2-3c) prior to issuance of grading permits, in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plans (Appendix X).

**M-BIO-1f      Mule Fat Scrub Mitigation**

Impacts to 0.2 acres of Mule Fat Scrub shall be mitigated onsite by restoration/enhancement at a 3:1 ratio at the abandoned airstrip location (see Figures 3.2-3a through 3.2-3c) prior to issuance of grading permits, in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plans (Appendix X).

**M-BIO-1g      Southern Willow Scrub Mitigation**

Impacts to 0.3 acres of Southern Willow Scrub shall be mitigated onsite by restoration/enhancement at a 3:1 ratio at the abandoned airstrip location (see Figures 3.2-3a through 3.2-3c) prior to issuance of grading permits, in accordance

with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plans (Appendix X).

M-BIO-1h      Coast Live Oak Woodland Mitigation

Impacts to 2.4 acres of Coast Live Oak Woodland shall be mitigated at a 3:1 ratio by the combination of onsite preservation and restoration in Biological Open Space (see Figures 3.2a through 3.2c) and by identifying an offsite location prior to issuance of grading permits, in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plans (Appendix X).

M-BIO-1i      Non-vegetated Channel and Unvegetated Channel

Impacts to 0.8 acres of Non-vegetated channel shall be mitigated onsite at a 1:1 ratio and impacts to 0.1 acres of unvegetated channel shall be mitigated at a ratio of 3:1 at the abandoned airstrip location (see Figures 3.2-3a through 3.2-3c) prior to issuance of grading permits, in accordance with the Merriam Mountains' Uplands and Wetlands Conceptual Revegetation Plans (Appendix X ).

*Significant Impact BIO- 2:      Impacts to Natural Biological Diversity*

M-BIO-2      The Merriam Mountains' RMP shall be implemented in conjunction with project implementation. RMP features specifically related to the significant impacts associated with the preservation of natural biological diversity on the project site include the following:

Objective B-1:      Include large blocks of key biological resource areas within the Biological Open Space (see M-BIO-1)

Objective B-2:      Enhance and restore sensitive resources within the Biological Open Space.

- Maintain revegetation/creation areas within the Biological Open Space as shown in the Conceptual Uplands and Wetlands Revegetation Plans (Appendix X). Maintain County/ACOE/CDFG wetlands within the Biological Open Space.

Objective B-4:      Effectively manage the Biological Open Space to protect, maintain, and enhance resources.

- Identify a Habitat Manager for the Biological Open Space and Captains Associate Parcel acceptable to the County. The manager shall maintain the integrity of the preserved habitats by monitoring for changes in the baseline conditions, annual reporting, and updating the RMP every five years based on data collected during the annual reporting efforts.

Objective B-6: Prevent Habitat Degradation (see M-BIO-1)

Objective B-9: Identify and provide for permitted uses within the Biological Open Space consistent with the overall goal of resource protection.

- Recreation users shall be limited to trails, overlooks, and trailheads within the Merriam Biological Open Space. The habitat manager will regularly monitor trail use to identify unauthorized trails. Two secondary access roads (Lawrence Welk Court and Camino Mayor) shall be permitted within the Biological Open Space. Two water tanks (North Tank and Coogan Tank) exist on separate parcels bounded by the Biological Open Space. Fuel management activities shall be permitted along the secondary access roads located within the Biological Open Space.

*Significant Impact BIO- 3: Short term and Construction Impacts to Native or Naturalized Habitat*

M-BIO-3 The Merriam Mountains' RMP shall be implemented in conjunction with project implementation. RMP features specifically related to construction impacts to native or naturalized habitat that would be preserved on the site include the following:

Objective B-12: Protect Critical Biological Resources from Impacts during Construction (see M-BIO-1).

*Significant Impact BIO-4: Impacts to Wetlands*

M-BIO-4 The RMP contains specific management guidelines to address preservation and enhancement of wetlands, including the following:

Objective B-2: Enhance and restore sensitive resources within the Merriam Biological Open Space. (see M-BIO-2)

Objective B-12: Protect Critical Biological Resources during Construction. (see M-BIO-1)

M-BIO-4a Wetlands and Jurisdictional Area Mitigation

The project tentative maps and grading permits shall be conditioned to obtain the following permits (as appropriate) prior to any clearing, grubbing, ground disturbance or grading of any tentative map area of the site: ACOE 404 permit, Regional Water Quality Control (RWQCB) 401 permit, and/or CDFG Code 1600 Streambed Alteration Permit (SAA).

M-BIO-1d Southern Coast Live Oak Woodland Riparian Forest Mitigation.

M-BIO-1e Southern Willow Scrub/Mule Fat Scrub Mitigation.

M-BIO-1f Mule Fat Scrub Mitigation.

M-BIO-1g Southern Willow Scrub Mitigation.

*Significant Impact BIO-5: Impacts to Wildlife Corridors and Wildlife Movement*

M-BIO-5: The RMP contains specific management guidelines to address potential wildlife movement impacts, including the following objectives:

Objective B-1: Include large blocks of key biological resources areas within the Merriam Biological Open Space (see M-BIO-1).

Objective B-2: Enhance and restore sensitive resources within the Merriam Biological Open Space (see M-BIO-2).

Objective B-3: Provide resource management for the offsite mitigation area (see M-BIO-1).

*Significant Impact BIO-6: Direct, Indirect, and/or Cumulative Impacts that could Effect Long-term Survival of Sensitive Plant and Animal Species*

M-BIO-6 The RMP includes mitigation for the regionally declining species that occur onsite.

Objective B-2: Enhance and restore sensitive resources within the Biological Open Space (see M-BIO-2).

Objective B-3: Provide resource management for the offsite mitigation area (see M-BIO-1).

Objective B-5: Track changes in the physical and biological conditions in Biological Open Space to determine active management strategies (see M-BIO-1).

Objective B-6: Prevent habitat degradation (see M-BIO-1).

Objective B-7: Control and Remove Invasive, Exotic Plant Species.

- Exotic plant species should be targeted for complete elimination from the Biological Open Space area prior to becoming established. Existing locations of eucalyptus or other exotic trees should be evaluated for their removal from the Biological Open Space.

Objective B-8: Control and Remove Invasive, Exotic Animal Species;

- All trash shall be removed from the Biological Open Space area; legal culling of exotic (non-native) species shall be conducted by the habitat manager with approval of the County, CDFG and USFWS. Control the effects of domestic pets on wildlife within the Biological Open Space through educating local residents through measures such as signage and newsletters. Chronic problems related to uncontrolled pets will be reported by the habitat manager to the Animal Control Officer.

Objective B-9: Identify and provide for permitted uses within the Merriam Biological Open Space consistent with the overall goal of resource protection (see M-BIO-2).

*Significant Impact BIO-7 – Short term and Construction Impacts to Nesting Birds and Raptors*

M-BIO-7 The RMP shall be implemented in conjunction with project implementation. Features specifically related to the significant impact associated with impacts to nesting birds or raptors include the following:

Objective B-12: Protect Critical Biological Resources during Construction (see M-BIO-1).

M-BIO-7a Seasonal Limitation on Clearing, Grubbing, and Grading

For each phase of grading, a one-time biological survey for nesting bird species must be conducted within the proposed impact area approximately 72 hours prior to construction. This survey is necessary to assure avoidance of impacts to

nesting sensitive bird species and/or birds protected by the federal Migratory Bird Treaty Act. If any active nests are detected, the area will be flagged and mapped on the construction plans along with a minimum of a 25-foot buffer and up to a maximum of 300 feet for raptors (i.e., California Gnatcatchers, Red-tailed Hawks, and Cooper's Hawks), as determined by the project biologist, and will be avoided until the nesting cycle is complete.

*Significant Impact BIO-8: Loss of Raptor Foraging Habitat*

M-BIO-8 The Merriam Mountains' RMP shall be implemented in conjunction with project implementation. RMP objectives specifically related to the significant impact associated with the loss of potential raptor foraging habitat identified include the following:

Objective B-1: Include large blocks of key biological resource areas within the Merriam Biological Open Space.(see M-BIO-1)

Objective B-2: Enhance and restore sensitive resources within the Merriam Biological Open Space (see M-BIO-2).

Objective B-6: Prevent Habitat Degradation (see M-BIO-1).

M-BIO-1c: Non-native Grassland Mitigation

*Significant Impact BIO-9: Result in Adverse Urban-type Edge Effects including reduced habitat viability*

M-BIO-9 The Merriam Mountains; RMP shall be implemented in conjunction with project implementation. The RMP includes the following specific objectives related to impacts associated with placing urban development adjacent to the proposed Biological Open Space resulting in adverse urban type edge effects.

Objective B-1: Include large blocks of key biological resource areas within the Merriam Biological Open Space (M-BIO-1).

Objective B-6: Prevent Habitat Degradation. (M-BIO-1)

Objective B-7: Control and Remove Invasive, Exotic Plant Species (see M-BIO-6).

Objective B-8: Control and Remove Invasive, Exotic Animal Species (see M-BIO-6);

Objective B-12: Protect Critical Biological Resources during Construction (see M-BIO-1).

Objective B-13: Establish and maintain public awareness and education programs to foster community support for the Resource Management Plan.

- The habitat manager will attend meetings of the local community to inform them of the status of the habitat management program and to enlist their cooperation and support. Interpretative signage will be installed that will help educate users/neighbors of the Merriam area about the ecology of the area and purpose of the Biological Open Space.

M-BIO-9a Secondary Effects of Grading Mitigation

Grading and/or applicable permits for any permitted activities on the site shall require County-required best management techniques to control fugitive dust, water, runoff, and noise to protect adjacent preserve areas. Additionally, any sensitive habitat area should be clearly identified with signage and construction fencing to protect such areas during construction activities.

M-BIO-7a Seasonal Limitation on Clearing, Grubbing and Grading.

*Significant Impact BIO-10: Conformance to County Resource Protection Ordinance Requirements*

M-BIO-10: The project includes a Resource Management Plan (RMP) that addresses all resources covered by the RPO and is included as the functional equivalent to RPO. Through consolidating open space and management of RPO resources, the RMP provides for a more comprehensive approach to resource protection and management than would occur under RPO.

### 3.2.7 Conclusion

Impacts to sensitive vegetation communities (Impact BIO-1a through BIO-1i) would be reduced to a level below significance with implementation of Mitigation Measures M-BIO-1 through M-BIO-1i because through preservation (1) the most rare habitats regionwide, are mitigated at a higher ratio while more common habitats are mitigated at a lower ratio, (2) conditions of

approvals will require that mitigation land will be of like kind and value (3) the mitigation land will be preserved and managed in perpetuity, and (4) restoration/creation of habitats will occur within proximity to the project to contribute to naturally functioning ecosystem.

Impacts to natural habitats onsite (Impact BIO-2) would be mitigated to a level below significance by implementation of M-BIO-2 that would preserve core habitat in the Merriam Mountains as a large habitat block, including contributing to a potential future linkage to the San Marcos Mountains. The identified impacts would be reduced to a level below significance because, taken together, the project design features (including preservation and enhancement of habitats as shown in the RMP), M-BIO-1a through M-BIO-1i and M-BIO-2 would preserve core habitat in the Merriam Mountains as a large habitat preserve. The Biological Open Space would be preserved in perpetuity and managed according to the requirements of the Merriam Mountains RMP. Project impacts to biological diversity and habitat diversity have been reduced by the provision of 52 % of the site as Biological Open Space and adherence to an RMP, as well as onsite revegetation of Oak Woodlands and Non-native Grasslands to compensate for the loss of diversity as discussed in the Uplands and Wetlands Revegetation Plans (see Appendix X) and purchase of the Captains Associate Property. Orderly conveyance and management of the Biological Open Space area, would reduce impacts associated with natural biological diversity to less than significant.

Short term construction impacts to natural and naturalized habitats during construction, as identified in (Impact BIO-3) would be mitigated to a level below significance through features incorporated in the RMP through implementation of the M-BIO-3, because inadvertent dust, noise, erosion, and human/vehicle-caused damage would be avoided.

Significant impacts to County-defined wetlands would occur to 2.1 acres onsite and 0.9 acres offsite of wetlands (Impact BIO 4). Elements of the project design (preservation of 5.9 acres of wetlands in the Biological Open Space and management provided by the RMP) and conditioning the project to require mitigation measures M-BIO-4, M-BIO-4a (which requires permits and creation/enhancement measures prior to impacts), M-BIO-1d, M-BIO-1e, M-BIO-1f and M-BIO-1g (which require creation/enhancement of impacted wetlands) would reduce the impacts to a less than significant level because impacts to wetlands are mitigated at 3:1 ratio, conditions of approvals will require that mitigation land will be preserved and managed in perpetuity, and restoration/creation of habitats will occur within proximity to the project to contribute to naturally functioning ecosystem. Through impacted vegetation communities' revegetation onsite or through an offsite purchase as discussed in Appendix X to the EIR, impacts would be reduced to a level below significance because the mitigation would be held to the "no net loss" standard of 3:1, because the mitigation would occur in proximity to the impacts, and because no long-term reduction in species composition, diversity, or abundance will occur.

Impacts to or adjacent to local wildlife corridors, subregional or regional linkages or other areas utilized for wildlife movement would be significant (Impact BIO-5). The identified impacts would be mitigated to a level below significance by features incorporated in the project design (preservation of 1,192 acres of Biological Open Space) and mitigation measures M-BIO-5, which requires maintenance of the Biological Open Space such that provides for long-term management and protection of wildlife, enhances wildlife trail connections where there is the opportunity to do so, and provides for genetic interchange through an existing corridor with the San Marcos Mountains to facilitate wildlife movement. The identified impacts would be reduced to a level below significance because, taken together, the project design features and M-BIO-5, would preserve core habitat in the Merriam Mountains as a large habitat block, including a linkage to the San Marcos Mountains and preserve a functioning element in the I-15 habitat corridor away from the Merriam site.

Impacts to the long term survival of a sensitive plants and animal were determined to be significant due to the removal of Diegan Coastal Sage Scrub occupied by California Gnatcatcher (Impact BIO-6). Impacts to sensitive species on the site from indirect effects would be reduced to less than significant by elements of the project design and conditioning the project to require mitigation measure M-BIO6, M-BIO-6a, and M-BIO-6b because the Biological Open Space would preserve a core habitat for these sensitive species and the RMP would provide management of the habitat for the benefit of these species in perpetuity.

Impacts to nesting California Gnatcatchers, and ground-and tree-nesting raptors, would be significant during construction activities (Impact BIO-7). The identified impacts would be mitigated to a level below significance by mitigation measures M-BIO-7, which provides measures to reduce impacts during construction including erosion control, exclusion fencing, dust control, etc. and M-BIO-7a, which includes seasonal limitation of clearing, grubbing and grading. Through policies included within the RMP pertaining to construction and M-BIO- 7a limiting construction activities during nesting season impacts would be reduced to a level below significance because, taken together, the proposed measures would minimize impacts to ground and tree-nesting raptors.

The removal of vegetation containing raptor foraging habitats both onsite and off site would be significant (Impact BIO-8). The identified impacts would be mitigated to a level below significance by features incorporated in the project design (preservation of 1,192 acres of Biological Open Space and the RMP) and mitigation measure M-BIO-8 which require acquisition or enhancement of habitats to compensate for those raptor foraging habitats impacted on site. The identified impacts would be reduced to a level below significance because, taken together, the design features and M-BIO-8 would preserve core habitat in the Merriam Mountains a large habitat block and acquire, enhance and restore degraded areas that contain raptor foraging habitat.

Impacts to natural resources and habitat viability would be significant due to urban edge effects and construction activities adjacent to sensitive resources (Impact BIO9). The identified impacts would be mitigated to a level below significance by features incorporated in the project design (preservation of 1,192 acres of Biological Open Space and the RMP) and mitigation measures M-BIO-9, M-BIO-91 and M-BIO-7a which includes seasonally limit clearing, grubbing and grading, and best management practices to be conditioned to grading or other applicable permits.

In the absence of conveyance and management of the Biological Open Space impacts to conformance with the RPO would be significant (M-BIO-10). The project would be fully consistent with RPO with the exception of unavoidable impacts to 2.1 acres of RPO wetlands onsite and 0.9 acres offsite. These impacts are unavoidable given the project goals of concentrating development in the southern portion of the property to create a biological preserve in the northern portion of the property, providing a core habitat block in the Merriam Mountains. An amendment to RPO is proposed as part of the project to add an Exemption to Section 86.605 of the RPO. The exemption would exempt “any project located within the approximately 2,327 acres property known as “Merriam Mountains Specific Plan” if determined to be consistent with a comprehensive Resource Management Plan (RMP) which has been adopted by the Board of Supervisors as the functional equivalent of RPO”. Implementation of the RMP (M-BIO-10), which addresses all RPO resources and describes features incorporated in the project to protect and manage those resources, would reduce impacts to a level below significance because the RMP completed for the proposed project identified benefits of implementing a RMP rather than adhering to the strict requirements of the RPO.

**TABLE 3.2.1**  
**Vegetation Communities**

Vegetation Community		Holland Code	Acres (percent coverage)
DH	Disturbed Habitat	11300	27.3 (1%)
UD	Urban Developed	12000	13.0 (<1%)
ORC	Orchard	18100	2.4 (<0%)
IA	Intensive Agriculture	18200	4.9(<0%)
DCSS	Diegan Coastal Sage Scrub	32500	28.6 (1%)
SMC	Southern Mixed Chaparral (Granitic Type)	37121	2156.6(92%)
SMC	Mafic Chaparral	37122	57.4(2%)
NNG	Non-native Grassland	42200	23.2(1%)
FWM	Freshwater Marsh	52410	0.1(<0%)
South CLOWRF	South Coast Live Oak Riparian Forest	61310	2.3(<0%)
SAW	Sycamore Alluvial Woodlands	62100	1.6(<0%)
SWS/MFS	Southern Willow Scrub/ Mule-Fat Scrub	63300	0.3(<0%)
MFS	Mule-Fat Scrub	63310	0.2(<0%)
SWS	Southern Willow Scrub	63320	2.6<0%)
SWS/TS	Southern Willow Scrub/ Tamarisk Scrub	63320	0.6(<0%)
CLOW	Coast Live Oak Woodland	71160	4.2(<0%)
EW	Eucalyptus Woodland	11100	1.5(<0%)

**TABLE 3.2-2**  
**RPO Wetlands and Other Jurisdictional Wetlands**

Wetlands Habitats	Existing (Acres)
Freshwater Marsh	0.1
Mule-Fat Scrub	0.2
Oak Riparian Forest	2.3
Southern Willow Scrub	2.6
Southern Willow Scrub/Mule Fat Scrub	0.3
Southern Willow Scrub/Tamarisk Scrub	0.6
Sycamore Alluvial Woodland	1.6
Unvegetated Wetlands	0.2
<b>Total RPO Wetlands</b>	<b>7.9</b>
<b>Other Jurisdictional Unvegetated Waters</b>	
<b>Total ACOE**</b>	<b>7.1</b>
<b>Total CDFG**</b>	<b>7.3</b>

Source: Pacific Southwest Biological Services, Inc., June 2006

\*\* included for disclosure but not considered to be RPO wetlands.

**TABLE 3.2-3**  
**Potentially Occurring Sensitive Plant Species**

<b>Species Name</b>	<b>Status Federal/State/ CNPS</b>	<b>Habitat Requirements</b>	<b>Probability Of Occurrence</b>	<b>San Diego County Status</b>
<i>Astragalus brauntonii</i> Braunton's Milk-vetch	FE/None/1B(3-3-3)	Closed-cone coniferous forest, chaparral, coastal scrub, valley & foothill grassland, esp. recent burns or disturbed areas, in stiff gravelly clay soils overlying granite or limestone, 4-640 m.	No appropriate habitat onsite: Low	NA
<i>Acanthomintha ilicifolia</i> San Diego Thorn-mint	FT/CE/1B (2-3-2)	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, endemic to active verticol clay soils of mesas & valleys, on clay lenses 2/in grassland or chaparral communities, 10-935 m.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road; not observed during numerous visits	List A
<i>Adophia californica</i> California Adolphia	None/None/2 (1-3-1)	Chaparral, CSS, valley & foothill grassland, from sandy/gravelly to clay soils within grassland, CSS, or chaparral; various exposures, 15-300 m.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road; not observed during numerous visits	List B
<i>Ambrosia pumila</i> San Diego Ambrosia	FE/None/1B (3-3-2)	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, especially in sandy loam or clay soil, in valleys; persists where disturbance has been superficial, 20-415 m.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road; not observed during numerous visits	List A
<i>Arctostaphylos glandulosa</i> ssp <i>crassifolia</i> Del Mar Manzanita	FE/None/1B (3-3-2)	Chaparral, closed-cone coniferous forest, especially sandy coastal mesas & ocean bluffs, in chaparral or Torrey Pine forest.	The more common, inland species ( <i>A. g. zacaensis</i> ) is found on site	List A
<i>Arctostaphylos rainbowensis</i> Rainbow Manzanita	None/None/1B (3-3-3)	Chaparral; previously called <i>A. peninsularis</i> or considered a hybrid between <i>A. glandulosa</i> & <i>A. glauca</i> ; found in gabbro chaparral in RIV & SD Cos., 270-790 m.	The more common, inland species ( <i>A. g. zacaensis</i> ) is found on site	List A
<i>Baccharis vanessae</i> Encinitas Baccharis	FT/SE/1B (2-3-3)	Chaparral, endemic to San Diego County, esp on sandstone soils in steep, open, rocky areas w/chaparral associates, 60-720 m.	Not known from granodiorite habitats on site	List A

**TABLE 3.2-3 (CONT.)**  
**Potentially Occurring Sensitive Plant Species**

<b>Species Name</b>	<b>Status Federal/State/ CNPS</b>	<b>Habitat Requirements</b>	<b>Probability Of Occurrence</b>	<b>San Diego County Status</b>
<i>Brodiaea filifolia</i> Thread-leaved Brodiaea	FT/CE/1B (3-3-30)	Cismontane woodland, coastal scrub, playas, valley & foothill grassland, vernal pools, usu associated w/annual grassland & vernal pools, often surrounded by shrubland habitats, clay soils, 35-855 m.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road, vernal pools, or seep-related habitats to support this species; not observed	List A
<i>Brodiaea orcuttii</i> Orcutt's Brodiaea	FSC/None/1B (1-3-2)	Vernal pools, valley & foothill grassland, closed-cone coniferous forest, cismontane woodland, chaparral, meadows, mesic, clay habitats, sometimes serpentine, in vernal pools & small drainages, 30-1615 m.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road, vernal pools, or seep-related habitats to support this species; not observed	List A
<i>Ceanothus verrucosus</i> Wart-stemmed Ceanothus	FSC/None/2 (2-2-1)	Chaparral, 1-380 m.	Known from mountains south of San Marcos, but not found on site; only <i>C. tomentosus</i> found on site	List B
<i>Centromadia parryi</i> ssp. <i>Australis</i> Southern Tarplant	FSC/None/1B (3-3-2)	Marshes & swamps (margins), valley & foothill grassland, vernal pools, oft in dist sites near coast; also in alkaline soils sometimes with saltgrass; also vernal pools, 0-425 m.	No appropriate habitat onsite: Low	List A
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i> Orcutt's Pincushion	None/None/1B (2-3-2)	Coastal bluff scrub, coastal dunes. Sandy sites, 3-100 m.	No appropriate habitat onsite: Low	List A
<b><i>Comarostaphylos diversifolia</i> ssp. <i>diversifolia</i> Summer Holly</b>	<b>FSC/None/1B (2-2-2)</b>	<b>Chaparral, often in mixed chaparral in California, sometimes post-burn, 30-550 m.</b>	<b>Present on the site</b>	<b>List A</b>
<i>Eryngium aristulatum</i> var. <i>parishii</i> San Diego Button-celery	FE/CE/1B (2-3-2)	Vernal pools, coastal scrub, valley & foothill grassland, esp in San Diego mesa hardpan & claypan vernal pools & southern interior basalt flow vernal pools; usually surrounded by scrub, 15-620 m	No vernal pools present on site.	List A

**TABLE 3.2-3 (CONT.)**  
**Potentially Occurring Sensitive Plant Species**

<b>Species Name</b>	<b>Status Federal/State/ CNPS</b>	<b>Habitat Requirements</b>	<b>Probability Of Occurrence</b>	<b>San Diego County Status</b>
<i>Eryngium aristulatum</i> var <i>parishii</i> San Diego Button-celery	FE/CE/1B (2-3-2)	Vernal pools, coastal scrub, valley & foothill grassland, esp in San Diego mesa hardpan & claypan vernal pools & southern interior basalt flow vernal pools; usually surrounded by scrub, 15-620 m	No vernal pools present on site.	List A
<i>Harpagonella palmeri</i> Palmer's Grapplinghook	FSC/-/2 (1-2-1)	Chaparral, coastal scrub, valley & foothill grassland, esp clay soils, open grassy areas, 15-830 m.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road; not observed	List D
<b><i>Horkelia truncata</i></b> <b>Ramona Horkelia</b>	<b>None/None/1B (3-1-2)</b>	<b>Chaparral, cismontane woodland, esp in habitats mixed chaparral, vernal streams, &amp; disturbed areas near roads, clay soil, 400- 1300 m.</b>	<b>A single population of 7 individuals of this plant was located in the southeastern portion of the site; not associated with mapped or site- specific mafic soil</b>	List A
<i>Isocoma menziesii</i> var <i>decumbens</i> Decumbent Goldenbush	None/None/1B (2-2-2)	Coastal sage, sandy soil, often in disturbed sites, 10- 910 m.	Site is too far inland for this species; <i>I. m.</i> <i>vernonioides</i> , a common species, was found on the site	List A
<i>Iva haysesiana</i> San Diego Marsh-elder	FSC/None/2 (2-2-1)	Marshes & swamps, playas, esp in riverwashes, 10-500 m.	No appropriate habitat onsite: Low	List B
<i>Lepechinia cardiophylla</i> Heart-leaved Pitcher Sage	None/None/1B (3-2-2)	Closed-cone coniferous forest, chaparral, cismontane woodland, 550-1370 m.	Sought on peaks onsite but not encountered	List A
<i>Lepidium virginicum</i> var. <i>robinsonii</i> Robinson's Pepper-grass	None/None/1B (3-2-2)	Chaparral, coastal scrub. Dry soils, shrubland. 1-945 m.	No found on site	List A
<i>Lessingia</i> [ <i>Corethrogyne</i> ] <i>filaginifolia</i> var. <i>linifolia</i> Del Mar Sand Aster	FPT/None/1B (3-2-3)	North coastal areas in sandy soil	Site beyond normal range of this species	List A
<i>Monardella hypoleuca</i> ssp. <i>Lanata</i> Felt-leaved Monardella	None/None/1B (2-2-2)	Chaparral, cismontane woodland, esp. in understory in mixed chaparral, chamise chaparral & so. oak woodland; esp. sandy soil, 300-1190 m.	Searched for and not found on site	List A

**TABLE 3.2-3 (CONT.)**  
**Potentially Occurring Sensitive Plant Species**

<b>Species Name</b>	<b>Status Federal/State/ CNPS</b>	<b>Habitat Requirements</b>	<b>Probability Of Occurrence</b>	<b>San Diego County Status</b>
<i>Navarretia fossalis</i> Spreading Navarretia	FT/None/1B (2-3-2)	Vernal pools, chenopod scrub, marshes & swamps, playas, esp in San Diego hardpan & San Diego claypan vernal pools, in swales & vernal pools, often surr . By other habitat types, 30-1300 m.	No vernal pools on site	List A
<b><i>Quercus engelmannii</i></b> <b>Engelmann Oak</b>	<b>None/None/4(1-2-2)</b>	<b>Chaparral, cismontane woodlands, riparian woodland, valley &amp; foothill grassland</b>	<b>A few of this species occur in the Southern Oak Woodland at the southern corner of the property</b>	List D
<i>Satureja chandleri</i> San Miguel Savory	None/None/4 (1-2-2)	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley & foothill grassland, esp Gabbroic or Metavolcanic substrate, 120-1,005 m	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road; not observed	List A
<i>Tetracoccus dioicus</i> Parry's Tetracoccus	FSC/None/1B (3-2-2)	Chaparral, coastal scrub, esp stony fine sandy decomposed gabbro soil, 600-1500 ft.	Clay soils (Las Posas) on site limited to preserve area west of Twin Oaks Valley Road; not observed	List A

**Bold** Indicates Present on the Project Site

Source: Pacific Southwest, June 2007

**TABLE 3.2-4**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
Riverside Fairy Shrimp <i>Streptocephalus woottoni</i>	FE/None/CSC	<u>Group 1, Narrow Endemic</u>	Endemic to western RIV and SD Cos, in area of tectonic swales, earth slump basins, in grassland & coastal sage scrub; esp. inhabits seasonally astatic pools, filled by winter/spring rains; hatch in warm water later in the season.	<u>Low:</u> No ponded water habitat on site
San Diego Fairy Shrimp <i>Branchinecta sandiegonensis</i>	FE/None/None	<u>Group 1, Narrow Endemic</u>	Vernal pools	<u>Low:</u> No ponded water habitat on site
Quino Checkerspot Butterfly <i>Euphydryas editha quino</i>	FE/None/None	<u>Group 1</u>	Sunny openings within chaparral & coastal sage shrublands in parts of Riverside and San Diego Counties; esp on hills & mesas near the coast, w/high densities of food plants <i>Plantago erecta</i> , <i>P. insularis</i> , <i>Orthocarpus purpurescens</i> .	<u>Low:</u> Unlikely to occur because of dense chaparral habitats on site
Thorne's Hairstreak Butterfly <i>Callophrys [Mitoura] thornei</i>	FSC/None/None	<u>Group 1</u>	Endemic to San Diego County, where host plant, Tecate Cypress occurs, including Otay Mountain (Little Cedar Canyon)	<u>Low:</u> No Tecate Cypress on site
Hermes Copper <i>Hermelcycaena hermes</i>	FSC/None/CSC	<u>Group 1</u>	Endemic to SD Co. Continuous stands of southern mixed chaparral/coastal sage scrub with both host plant <i>Rhamnus crocea</i> and primary nectaring plant <i>Eriogonum fasciculatum</i> in very close proximity. Species usually found along fairly open dirt roads/trails. Fallbrook is most northern record. Flight season: late May-early July	<u>Low:</u> <i>Rhamnus crocea</i> occurs on site, but directed search for Hermes Copper during optimal flight season (late May-early July) has not been made. Project site is north of most recent records for this species
Harbison's Dun Skipper <i>Euphys vestris harbisoni</i>	FSC/None/None	<u>Group 1</u>	Silverado Cyn, Orange Co., through San Diego Co foothills; associated w/drainages containing <i>Carex spissa</i> . Flight season: mid May - mid July	<u>Low:</u> Known from Daley Ranch and extreme E-part of Escondido, among other areas. Although another <i>Carex</i> has been found on the site, additional searches for the host plant and surveys for the butterfly should be conducted if appropriate

**TABLE 3.2-4 (CONT.)**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
Wandering Salt Marsh Skipper <i>Panoquina errans</i>	FSC/None/CSC	<u>Group 1</u>	Confined to coastal salt marshes from Santa Barbara through Baja California peninsula; host plant <i>Distichlis spicata</i> . Flight season: July-Sept.	<u>Low</u> : No salt marsh habitat onsite
Northern Red-diamond Rattlesnake <i>Crotalus exsul ruber</i>	FSC/None/CSC	<u>Group 2</u>	Chaparral, woodland, grassland & desert areas, esp in rocky areas & dense vegetation	<u>High</u> : Detected on site
Western Spadefoot <i>Spea [Scaphiopus] hammondi</i>	FSC/None/CSC	<u>Group 2</u>	Grassland habitats, valley-foothill woodlands, requires vernal pools for breeding	<u>Low</u> : No appropriate breeding habitat on site or in vicinity
Arroyo Toad <i>Bufo californicus</i>	FE/None/CSC	<u>Group 1</u>	Semi-arid regions near washes or intermittent streams, incl. Valley-foothill & desert riparian, desert wash, etc., esp rivers w/sandy banks, willows, cottonwoods, sycamores w/loose, gravelly areas	No appropriate breeding habitat on site or in vicinity and the site is not within 1 km of any known breeding habitat
California Red-legged Frog <i>Rana aurora draytonii</i>	FT/None/CSC	<u>Group 1, Narrow Endemic</u>	Marshes, streams, lakes, reservoirs, ponds and other permanent water sources.	Low: No perennial streams to provide habitat for this species
Southwestern Pond Turtle <i>Emys [Clemmys] marmorata</i>	FSC/None/CSC	<u>Group 1</u>	Permanent or nearly permanent water in many habitat types; below 6000 ft, esp w/basking sites	Low: No appropriate breeding habitat on site or in vicinity
San Diego Horned Lizard <i>Phrynosoma coronatum blainvillei</i>	FSC/None/CSC	<u>Group 2</u>	Coastal Sage Scrub, Chaparral in arid and semi-arid climate, esp. friable, rocky, or shallow sandy soils	<u>High</u> : Detected on site
Coronado Skink <i>Eumeces skiltonianus interparietalis</i>	FSC/None/CSC	<u>Group 2</u>	Grassland, chaparral, pinon-juniper sage woodland, pine-oak & pine forests in coastal ranges in so. Calif., esp prefers early successional stages or open areas, found in rocky areas close to streams & on dry hillsides	<u>High</u> : Probably occurs on site, but not observed

**TABLE 3.2-4 (CONT.)**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
<b>Belding's Orange-throated Whiptail</b> <i>Aspidoscelis</i> <i>[Cnemidophorus] hyperythrus beldingi</i>	FSC/None/CSC	<u>Group 2</u>	Coastal Scrub (low elev.), Chaparral, Valley-foothill Hardwood, esp washes & sandy areas w/patches of brush & rocks	<u>High:</u> Detected on site
<b>Coastal Whiptail</b> <i>Aspidoscelis</i> <i>[Cnemidophorus] tigris stejnegeri</i>	FSC/None/None/None	<u>Group 2</u>	Deserts & semiarid areas w. sparse vegetation & open areas, also in woodland & riparian areas, esp. where ground may be firm soil, sandy, or rocky	<u>High:</u> Detected on site
Silvery Legless Lizard <i>Anniella pulchra</i>	FSC/None/CSC	<u>Group 2</u>	Sparse vegetation of chaparral and riparian, loose soil for burrowing.	<u>Low:</u> Site lacks extensive sandy soil areas
Coastal Rosy Boa <i>Charina trivirgata</i>	FSC/None/Protected	<u>Group 2</u>	Desert & chaparral from coast to Mojave & Colorado Deserts, esp in moderate to dense vegetation & rocky cover; habitats w/mix of brushy cover & rocky soil like coastal canyons & hillsides, desert canyons, washes & mountains	<u>Moderate:</u> May occur on site, but not detected so far
Coast Patch-nosed Snake <i>Salvadora hexalepis virgultea</i>	FSC/None/CSC	<u>Group 2</u>	Brushy or shrubby vegetation in coastal so. CA, esp. use small mammal burrows for refuge	<u>Moderate:</u> May occur on site; not observed
San Diego Mountain Kingsnake <i>Lampropeltis zonata pulchra</i>	None/None/CSC	<u>Group 2</u>	Variety of habitats, incl. Valley-foothill hardwood, coniferous, chaparral, riparian and wet meadows.	<u>Low:</u> Site below species normal elevation; not observed
Two-striped Gartersnake <i>Thamnophis hammondi</i>	FSC/None/CSC	<u>Group 1</u>	Coastal CA., fr/ Salinas to NW Baja, fr/sea level to approx. 7000 ft ; esp. highly aquatic, found in or near permanent fresh water, often along streams w/rocky beds & riparian growths	<u>Low:</u> May occur on site; not observed
Northern Harrier <i>Circus cyaneus</i> (breeding)	None/None/CSC	<u>Group 1</u>	Coastal salt marsh & fresh-water marsh, nest and forage in grasslands and farmlands	<u>Low:</u> No extensive open grassland habitat on site
Sharp-shinned Hawk <i>Accipiter striatus</i>	None/None/CSC	<u>Group 1</u>	Riparian woodlands, forests at edges of open habitats	<u>Moderate:</u> May occasionally use oak or riparian habitat on site; not observed
Cooper's Hawk, <i>Accipiter cooperi</i>	None/None/CSC	<u>Group 1</u>	Woodland, usu. Open, interrupted or marginal type, nests mainly in riparian areas	<u>High:</u> Probably occurs on site, but not observed

**TABLE 3.2-4 (CONT.)**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
Swainson's Hawk <i>Buteo swainsoni</i>	FSC/CT/None	<u>Group 1</u>	(nesting) Breeds in stands w/few trees in juniper-sage flats, riparian areas, & in oak savannah. Req adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	<u>Low:</u> No extensive open grassland habitat on site
Ferruginous Hawk <i>Buteo regalis</i>	None/None/CSC	<u>Group 1</u>	Winters in so. CA. Forages over agricultural lands, grasslands, scrub.	<u>Low:</u> No extensive open grassland habitat on site
Golden Eagle <i>Aquila chrysaetos</i>	None/None/CSC	<u>Group 1</u>	Foothills, mountains grasslands, deserts, and shrub habitats	<u>Low:</u> Historic nest on site, but not observed during numerous field visits
American Peregrine Falcon <i>Falco peregrinus anatum</i>	FP/SE/None	<u>Group 1</u>	Variety of habitats, concentrating in coastal area in San Diego County	<u>Low:</u> Absence of open water probably precludes this species
Canada Goose <i>Branta canadensis</i>	None/None/None	<u>Group 2</u>	Abundant but localized winter visitor in San Diego County	<u>Low:</u> No valley grasslands on site
Mountain Plover <i>Charadrius montanus</i> (wintering)	FPT/None/CSC	<u>Group 2</u>	(Wintering) Short grasslands, freshly plowed fields, newly sprouting rain fields, sometimes sod farms. Short vegetation, bare ground, flat topography. Pref grazed areas & areas w/burrowing rodents	<u>Low:</u> No extensive open grassland habitat on site
Burrowing Owl <i>Athene [Speotyto] cunicularia</i> (burrow sites)	FSC/None/CSC	<u>Group 1, Narrow Endemic</u>	<b>Open dry annual or perennial grasslands, desert &amp; scrublands w/low growing vegetation, uses ground squirrel burrows for nesting</b>	<b><u>Moderate:</u> This species was detected in the 1978 surveys for Safa Ranch, which covered the northern part of the central valley of the present Merriam site. The 1978 report had no discussion on this species; any detection of this species must have been in the grassy area of the central valley. No observations have been made of this species in the numerous field visits since 1978.</b>
Western Willow Flycatcher, <i>Empidonax traillii extimus</i>	FE/SE/None	<u>Group 1</u>	Extensive thickets of low, dense willows, often near streams; 2000-8000 ft elev.	<u>Low:</u> No appropriate breeding habitat on site or in immediate vicinity
Loggerhead Shrike <i>Lanius ludovicianus</i>	FSC/None/CSC	<u>Group 1</u>	Open habitats with scattered shrubs & other perches.	<u>Low:</u> Site lacks open grassy or low shrub habitats; not observed

**TABLE 3.2-4 (CONT.)**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
Least Bell's Vireo <i>Vireo bellii pusillus</i>	FE/CE/None	<u>Group 1</u>	Summer resident in So. Calif., inhabits low riparian growth in vic. Of water or in dry river bottoms, below 2000 ft, usu. Willow, baccharis mesquite	<u>Low</u> : No appropriate breeding habitat on site or in vicinity
Coastal Cactus Wren <i>Campylorhynchus brunneicapillus couesi</i>	None/None/CSC	<u>Group 1</u>	Southern California coastal sage scrub, esp w/tall opuntia cactus for nesting	<u>Low</u> : No appropriate breeding habitat on site or in vicinity
<b>Coastal California Gnatcatcher</b> <b><i>Polioptila californica</i></b>	<b>FT/None/CSC</b>	<b><u>Group 1</u></b>	<b>Coastal sage scrub, below 2,500 ft in So. California, esp low coastal scrub in arid washes, mesas &amp; slopes</b>	<b><u>High</u>: Detected on site</b>
Western Bluebird <i>Sialia mexicana</i>	None/None/None	<u>Group 2</u>	Small groups in fields or open woodlands, often perched on wires or fences.	<u>Moderate</u> : Not detected but probably occurs during winter months
<b>California Thrasher</b> <b><i>Toxostoma redivivum</i></b>	<b>None/None/None</b>	<b><u>NA</u></b>	<b>Fairly common to common resident and closely associated with chaparral in San Diego County</b>	<b><u>High</u>: Detected on site</b>
Yellow Warbler <i>Dendroica petechia brewsteri</i>	None/None/SC	<u>Group 2</u>	Riparian plant associations, prefers willows, cottonwoods, aspens, sycamores & alders for nesting & foraging, esp nests in montane shrubbery in open conifer forests.	<u>Moderate</u> : May occur in preserved eastern or western riparian habitats during spring summer periods; not detected
Yellow-breasted Chat <i>Icteria virens</i>	None/None/CSC	<u>Group 1</u>	Summer resident in riparian thickets of willow & other brushy tangles near watercourses, nests in low, dense riparian habitat.	<u>Moderate</u> : May occur in eastern or western riparian habitats during spring summer periods; not detected
Southern California Rufous-crowned Sparrow <i>Aimophila ruficeps canescens</i>	FSC/None/CSC	<u>Group 1</u>	Coastal sage scrub, sparse chaparral, esp rel. steep, often rocky hillsides w/grass & forb patches	<u>Moderate</u> : Probably occurs on site, but not observed
Bell's Sage Sparrow <i>Amphispiza belli</i>	FSC/None/CSC	<u>Group 1</u>	Coastal chaparral, coastal sage scrub, and sagebrush desert habitat.	<u>Moderate</u> : May occur on site but not detected
Grasshopper Sparrow <i>Ammodramus savannarum</i>	None/None/CSC	<u>Group 1</u>	Dense grassland w/tall forbs & scattered shrubs for singing perches.	<u>Low</u> : No extensive grassy habitats required by this species
Tricolored Blackbird <i>Agelaius tricolor</i> (colony)	FSC/None/CSC	<u>Group 1</u>	Breeds near fresh water in emergent wetlands w/dense cattails or tules. Feeds in grassland & cropland.	<u>Low</u> : No appropriate foraging or nesting habitat

**TABLE 3.2-4 (CONT.)**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
Yellow-headed Blackbird <i>Xanthocephalus canthocephalus</i>	None/None/CSC	<u>NA</u>	Uncommon to rare migrant and winter visitor and very rare summer visitor in freshwater marshes in coastal lowland of San Diego County (Unitt 1984)	<u>Low</u> : No extensive freshwater marsh, croplands, or grasslands on site -
California Leaf-nose Bat <i>Macrotus californicus</i>	None/None/CSC	<u>Group 2</u>	Distribution poorly known; strongly associated w/desert riparian & wash habitats; roost in mine shafts & caves.	<u>Low</u> : Primarily confined to desert mountain ranges in the Colorado River basin. -
Yuma Myotis <i>Myotis yumanensis</i>	FSC/None/CSC	<u>Group 2</u>	Open forest & woodlands. Closely tied to bodies of water.	<u>Moderate</u> : Very little roosting habitat on site. May forage in riparian areas with water.
Long-eared Myotis <i>Myotis evotis</i>	FSC/None/CSC	<u>Group 2</u>	Trees, buildings, caves, and mines. Brush, woodland, forest, > 4,000 ft.	<u>Low</u> : Very limited roosting habitat on site.
Western Red Bat <i>Lasiurus blossevillii</i>	None/None/None	<u>Group 2</u>	Trees along or near waterways with open foraging areas. Feeds over grasslands, shrublands, woodlands & forests.	<u>Moderate</u> : may occur along riparian areas during migration
Townsend's Big-eared Bat <i>Corynorhinus townsendii</i>	FSC/None/CSC	<u>Group 2</u>	Day roosts include caves & mines, but may be found in buildings. Distribution not well known. Prefers mesic habitats.	<u>Low</u> : No appropriate day roosting (cave or cave-like) habitat on site.
Big Free-tailed Bat <i>Nyctinomops macrotis</i>	None/None/CSC	<u>Group 2</u>	Small colonies in rocky cliffs or crevices. Found in desert scrub, desert riparian, scrublands, pinyon-juniper woodlands. Rocky areas with high cliffs.	<u>Low</u> : Very little day roosting (cliff faces) habitat on site. May forage over the site.
Western Mastiff Bat <i>Eumops perotis californicus</i>	FSC/None/CSC	<u>Group 2</u>	Small colonies in rocky cliffs or crevices. Variety of open habitats including woodlands, coastal sage scrub, grasslands, chaparral, desert scrub, and urban.	<u>Low</u> : Very little day roosting (cliff faces) habitat on site. May forage over the site.
San Diego Black-tailed Jackrabbit <i>Lepus californicus bennettii</i>	FSC/None/CSC	<u>Group 2</u>	Variety of habitats including coastal sage scrub, chaparral, & desert scrub.	<u>Moderate</u> : May occur on site but not detected
Dulzura (California) Pocket Mouse <i>Chaetodipus californicus femoralis</i>	FSC/None/CSC	<u>Group 2</u>	Variety of habitats incl coastal scrub, chaparral, sagebrush, & grassland. Attracted to grassland-chaparral edges	<u>Moderate</u> : May occur on site but not detected

**TABLE 3.2-4 (CONT.)**  
**Potentially Occurring Sensitive Animal Species**

Species Name	Status Federal/ State/ CDFG	San Diego County Status	Habitat Requirements	Probability of Occurrence
Stephens' Kangaroo Rat, <i>Dipodomys stephensi</i>	E/T/None	<u>Group 1</u>	Annual & perennial grasslands, also coastal scrub, sagebrush, esp w/buckwheat, chamise, brome grass & filaree; will burrow into firm soil.	<u>Low:</u> No appropriate habitat on site
<b>San Diego Desert Woodrat</b> <i>Neotoma lepida intermedia</i>	<b>FSC/None/CSC</b>	<u>Group 2</u>	<b>Mixed &amp; chamise-redshank chaparral, sagebrush &amp; other habitats. Prefers rocky areas to build stick nest</b>	<u>High:</u> Detected on site
American Badger, <i>Taxidea taxus</i>	None/None/None	<u>Group 2</u>	Uncommon resident throughout the state. Abundant in drier open shrub, forest and herbaceous habitats with friable soils.	<u>Low:</u> Site lacks extensive open areas of grassland open shrublands
Mountain Lion, <i>Felis (Puma) concolor</i>	None/None/Protected	<u>Group 2</u>	Widespread, uncommon resident ranging from sea level to alpine meadows. Variety of habitats except xeric regions of the deserts..	<u>Low:</u> Nearby residents indicate this species occurred on extreme NE part of site but not seen in several years
<b>Southern Mule Deer</b> <i>Odocoileus hemionus</i>	None/None/Game Species	<u>Group 2</u>	Common to abundant with a wide distribution throughout the state. Prefers mosaic of various-aged vegetation habitats, brushy areas and tree thickets are important for escape cover.	<u>Moderate:</u> Detected on site during early surveys of property.

**Bold** Indicates Present on the Project Site

Source: Pacific Southwest, June 2007

## CODES FOR TABLES 3.2-3 AND 3.2-4

### CNPS Lists

List 1A	Plants Presumed Extinct in California
List 1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2	Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
List 3	Plants About Which We Need More Information--A Review List
List 4	Plants of Limited Distribution--A Watch List

### CNPS R-E-D Code

#### R (Rarity)

1	Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time
2	Distributed in a limited number of occurrences, occasionally more if each occurrence is small
3	Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported.

#### E (Endangerment)

1	Not endangered
2	Endangered in a portion of its range
3	endangered throughout its range

#### D (Distribution)

1	More or less widespread outside California
2	Rare outside California
3	Endemic to California

### State-Listed/Designated Species

CE	State-listed, endangered
CT	State-listed, threatened
CR	State-listed, rare
CC	Candidate for State listing
CSC	California Special Concern species (Department of Fish and Game)

### Federally-Listed/Designated Species

FE	Federally-listed, endangered
FT	Federally-listed, threatened
FPT	Federally-proposed, endangered
FSC	Federal Special Concern Species

**TABLE 3.2-5**  
**Merriam Existing Vegetation, Development Areas,**  
**Fuel Management Areas/Other Open Space, Secondary Access Roads, and Biological Open Space (Areas in Acres)**

Vegetation Type	Existing		Impacts						Conserved	
	Existing Acres	% of Total Project	Development <sup>1</sup> Acres	% of Total Vegetation	Other Open Space <sup>3</sup> Acres	% of Total Vegetation	Secondary Access Roads <sup>2</sup>	% of Total Vegetation	Biological Open Space <sup>2</sup> Acres	% of Total Vegetation
Disturbed Habitat	27.3	1	2.1	7	0.0	0			25.2	92
Urban Developed	13.0	<1	12.5	95	0.6	4			0.0	0
Orchard	2.4	<0	0.3	12	1.0	41	0.1	4	1.0	41
Intensive Agriculture	4.9	<0	3.6	73	1.3	27			0.0	0
Eucalyptus Woodland	1.5	<0	1.5	100	0.0	0			0.0	0
<b>Total Disturbed, Urban Developed, Orchard and Intensive Agriculture Habitats:</b>	49.1		20		2.9		0.1		26.2	
Diegan Coastal Sage Scrub	28.6	1	18.7	65	4.0	13	0.4	1	5.5	19
Southern Mixed Chaparral	2156.6	92	479	22	526.7	24	59.3	2	1091.6	50
Mafic S-Mixed Chaparral	57.4	2	0.0	0.0	0.0	0			57.4	100
Non-native Grassland	23.2	1	17.6	75	1.9	8			3.7	16
Freshwater Marsh	0.1	<0	0.0	0	0.0	0			0.1	100
Southern Coast Live Oak Riparian Forest	2.3	<0	1.1	48	0.1	4			1.1	48
Willow/Oaks/Sycamore Woodland	1.6	<0	0.0	0	0.0	0			1.6	100
Southern Willow Scrub/Mule Fat Scrub	0.3	<0	0.3	100	0.0	0			0.0	0
Mule-Fat Scrub	0.2	<0	0.0	0	0.2	100			0.0	0
Southern Willow Scrub	2.6	<0	0.2	8	0.1	3			2.3	88
Southern Willow Scrub/Tamarisk Scrub	0.6	<0	0.0	0	0.0	0			0.6	100
Coast Live Oak Woodland	4.2	<0	1.0	19	1.1	39	0.2	4	1.9	37
Unvegetated Wetlands	0.2	<0	0.1	<0	0.0	0			0.0	0
<b>Total: Native/Naturalized Habitats</b>	2,277.9		518		534.1		59.9		1165.8	
<b>TOTAL</b>	<b>2,327.0</b>	<b>100%</b>	<b>538.0/23%</b>		<b>537/23%</b>		<b>60.0/3%</b>		<b>1192/51%</b>	

<sup>1</sup> The impact area does not include off-site impacts for Meadow Park Lane which includes: 0.9 acres of disturbed Habitat; 1.2 acres of Diegan Coastal Sage Scrub; 14.2 acres of Southern Mixed Chaparral; 1.3 acres of Urban Development; 0.1 acres of Scrub Oak Woodland, 0.1 acres of Southern Coast Live Oak Riparian Forest and 0.2 acres of Eucalyptus Woodland.

<sup>2</sup> Onsite Secondary Access Roads consist of Lawrence Welk Court and Camino Mayor.

<sup>3</sup> Other Open Space totals include impacts to proposed sewer easement which include: 1.2 acres of southern mixed chaparral

**TABLE 3.2-6**  
**Onsite Encroachment into RPO Wetlands and Other Jurisdictional Waters**

Vegetation/ land cover	Existing (acres)	Impacts (acres)*	Mitigation Ratio	Required Mitigation (acres)	Area Preserved Onsite (acres)	Area Created/ Enhanced Onsite (acres)	Mitigation Required Offsite (acres)
<b>RPO Wetlands</b>							
Freshwater Marsh	0.1	0.0	3:1	0.0	0.1	0.0	0.0
Mule-Fat Scrub	0.2	0.2	3:1	0.6	0.0	0.6	0.0
Oak Riparian Forest	2.3	1.2	3:1	3.6	1.1	3.6	0.0
Southern Willow Scrub	2.6	0.3	3:1	0.9	2.3	0.9	0.0
Southern Willow Scrub/Mule Fat Scrub	0.3	0.3	3:1	0.9	0.0	0.9	0.0
Southern Willow Scrub/Tamarisk Scrub	0.6	0.0	3:1	0.0	0.6	0.0	0.0
Sycamore Alluvial woodland	1.6	0.0	3:1	0.0	1.6	0.0	0.0
Unvegetated Wetlands	0.2	0.1	3:1	0.3	0.1	0.3	0.0
<b>Total RPO Wetlands</b>	<b>7.9</b>	<b>2.1</b>		<b>6.3</b>	<b>5.8</b>	<b>6.3</b>	<b>0.0</b>
<b>Other Jurisdictional Waters of the U.S. and State</b>							
ACOE/CDFG*	7.3	2.0	N/A	NA	N/A	N/A	N/A

\* Impacts for disclosure but not considered encroachment into RPO Sensitive Habitat or Wetlands; mitigation would be determined in conjunction with future resource agency permitting.

Impact area includes Development Acres, Other Open Space Acres and Secondary Access Roads

The impact area does not include off-site impacts for Meadow Park Lane which includes 0.1 acres of Southern Coast Live Oak Riparian Forest.

Onsite Secondary Access Roads consist of Lawrence Welk Court and Camino Mayor.

NA = not applicable

**TABLE 3.2-7**  
**Comparison of Cumulative Vegetation Impacts from Assessment Area**  
**with Impacts from the Merriam Project**

Vegetation Type	Cumulative	Merriam SP	Merriam SP
	Impact/ Total	Cumulative Contribution (ac)	Cumulative Contribution (%)
Eucalyptus Woodland	6.6	3.1	46.6
Disturbed Habitat	35.3	4.1	11.6
Urban Developed	68	35	51.4
Agriculture	81.1	8.2	10.1
Diegan Coastal Sage Scrub	366.2	27.3	7.5
Chaparral	1185.4	1079.3	91.0
Non-native Grassland	111.7	20.7	18.5
Grassland	0.0	0.0	0.0
Riparian	3.8	1.3	33.6
Wetland	4.2	2.1	49.5
Coyote Bush Scrub	0.6	0.0	0.0
Southern Willow Scrub	5.5	0.6	10.9
Scrub Oak Woodland	2.9	0.0	0.0
Oak	22.9	2.4	10.4
<b>Total</b>	<b>1894.6</b>	<b>1184.1</b>	<b>N. A.</b>

**TABLE 3.2-8**  
**Deer Springs Road**

<b>Vegetation Type</b>	<b>Impact (Acres)</b>
Disturbed Habitat	1.1
Urban Developed	20.5
Orchard	0.6
Eucalyptus Woodland	1.4
Intensive Agriculture	1.3
Disturbed Coastal Sage-Chaparral Scrub	3.0
Non-native Grassland	1.2
Coast Live Oak Woodland*	0.1
Non-Vegetated Channel	0.8
<b>Total</b>	<b>30</b>

\* CDFG/RPO (associated with stream)

**TABLE 3.2-9**  
**Impacted Vegetation and Mitigation Required**

Vegetation Type	Existing (on site)	Develop ment Impact (on site)	Other Open Space (on site)	Access Road Impact (on site) <sup>B</sup>	Meadow Prk Ln Impact (off site) <sup>C</sup>	Deer Springs Rd Impact (off site)	Total Impact (on site + off site)	Mitigation Ratio	Required Mitigation Prior to Preservation On Site <sup>D</sup>	Preserved On Site	Remaining Mitigation Requirement <sup>E</sup>
Disturbed Habitat	27.3	2.1	0.0	0.0	0.9	1.1	4.1	0	0.0	25.2	0.0
Urban Developed	13.0	12.5	0.6	0.0	1.3	20.5	34.9	0	0.0	0.0	0.0
Orchard	2.4	0.3	1.0	0.1	0.0	0.6	2.0	0	0.0	1.0	0.0
Intensive Agriculture	4.9	3.6	1.3	0.0	0.0	1.3	6.2	0	0.0	0.0	0.0
Eucalyptus Woodland	1.5	1.5	0.0	0.0	0.2	1.4	3.1	0	0.0	0.0	0.0
Diegan Coastal Sage Scrub <sup>A</sup>	28.6	18.7	4	0.4	1.2	3.0	27.3	2	54.6	5.5	49.1
Granitic Southern Mixed Chaparral	2156.6	479	526.7	59.3	14.2	0.0	1079.2	0.5	539.6	1091.6	-552.0
Mafic S-Mixed Chaparral	57.4	0.0	0.0	0.0	0.0	0.0	0.0	3	0.0	57.4	0.0
Non-native Grassland	23.2	17.6	1.9	0.0	0.0	1.2	20.7	0.5	10.3	3.7	6.6
Freshwater Marsh	0.1	0.0	0.0	0.0	0.0	0.0	0	3	0.0	N/A	0.0
Southern Coast Live Oak Riparian Forest	2.3	1.1	0.1	0.0	0.1	0.0	1.3	3	3.9	N/A	3.9
Sycamore Alluvial Woodland	1.6	0.0	0.0	0.0	0.0	0.0	0	3	0.0	N/A	0.0
Southern Willow Scrub/Mule Fat Scrub	0.3	0.3	0.0	0.0	0.0	0.0	0.3	3	0.9	N/A	0.9
Mule-Fat Scrub	0.2	0.0	0.2	0.0	0.0	0.0	0.2	3	0.6	N/A	0.6
Southern Willow Scrub	2.6	0.2	0.1	0.0	0.0	0.0	0.3	3	0.9	N/A	0.9
Southern Willow Scrub/Tamarisk Scrub	0.6	0.0	0.0	0.0	0.0	0.0	0	3	0.0	N/A	0.0
Coast Live Oak Woodland	4.2	1.0	1.1	0.2	0.0	0.1	2.4	3	7.2	1.9	5.3
Non-vegetated Channel	0.0	0.0	0.0	0.0	0.0	0.8	0.8	1	0.8	0.0	0.8
Unvegetated Wetlands	0.2	0.1	0.0	0.0	0.0	0.0	0.1	3	0.3	N/A	0.3
<b>TOTALS</b>	<b>2,327</b>	<b>538</b>	<b>537</b>	<b>60</b>	<b>17.9</b>	<b>30</b>	<b>1183</b>			<b>1192</b>	
[53.7ac total off site]											

<sup>A</sup> Includes Coast Sage Scrub-Chaparral Scrub & Disturbed CSS-CS

<sup>B</sup> Includes Lawrence Welk Court & Camino Mayor

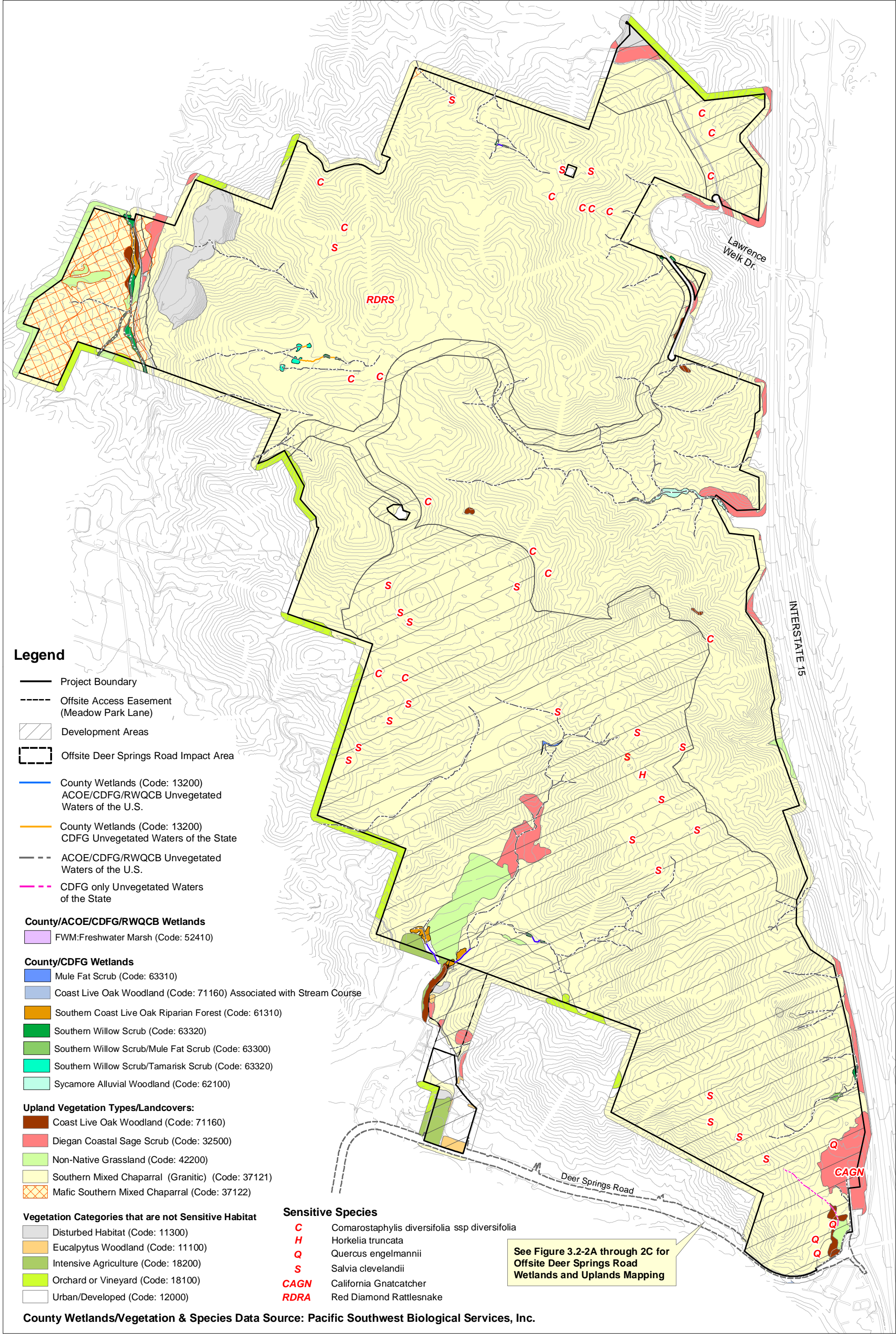
<sup>C</sup> Includes Off-site Sewer Easement

<sup>D</sup> See Jurisdictional Impact Table for Additional Details

<sup>E</sup> Negative numbers mean no off site mitigation necessary

**TABLE 3.2-10**  
**Merriam Biological Open Space Preserve Conveyance Plan (acres)**

<b>Open Space No.</b>	<b>Neighborhood</b>	<b>Development Area</b>	<b>Non-Bio Open Space</b>	<b>Impact Acre</b>	<b>Bio Preserve</b>
OS-2 & OS-3	1	121.0	197.2	318.2	333.5
OS-16	2	65.7	175.4	241.1	252.8
OS-5	3	58.3	56.1	114.4	120.4
OS-7	4	92.6	0	92.6	97.7
OS-6,8,15	5	147.0	163.0	310.0	325.6
OS-4	Estate Lots	53.4	5.3	58.7	62.0
<b>Total</b>		<b>538.0</b>	<b>597.0</b>	<b>1,135.0</b>	<b>1,192.0</b>



Biological Resources Map - Onsite

MERRIAM MOUNTAINS  
SPECIFIC PLAN EIR

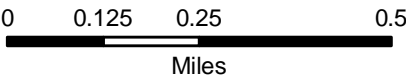
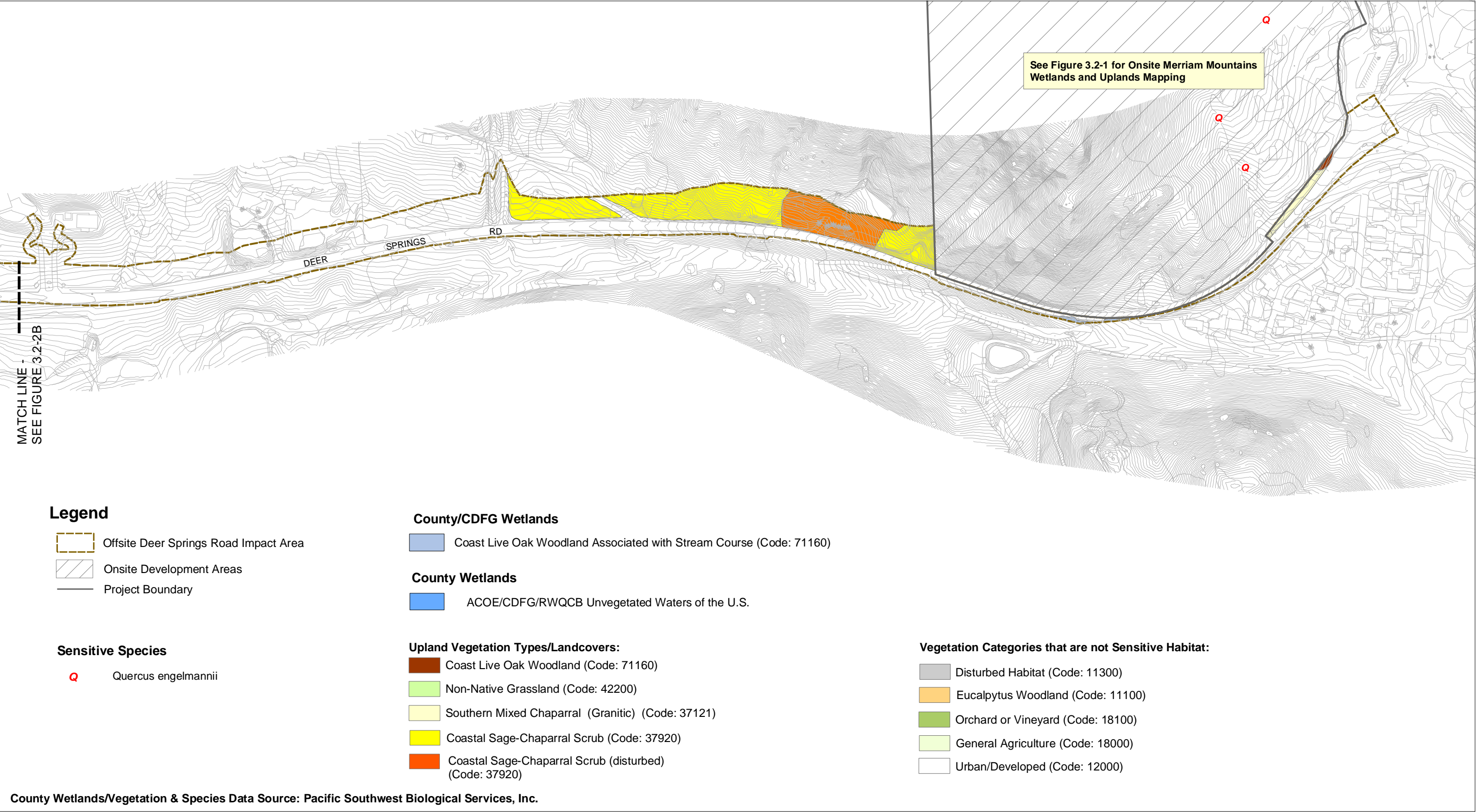
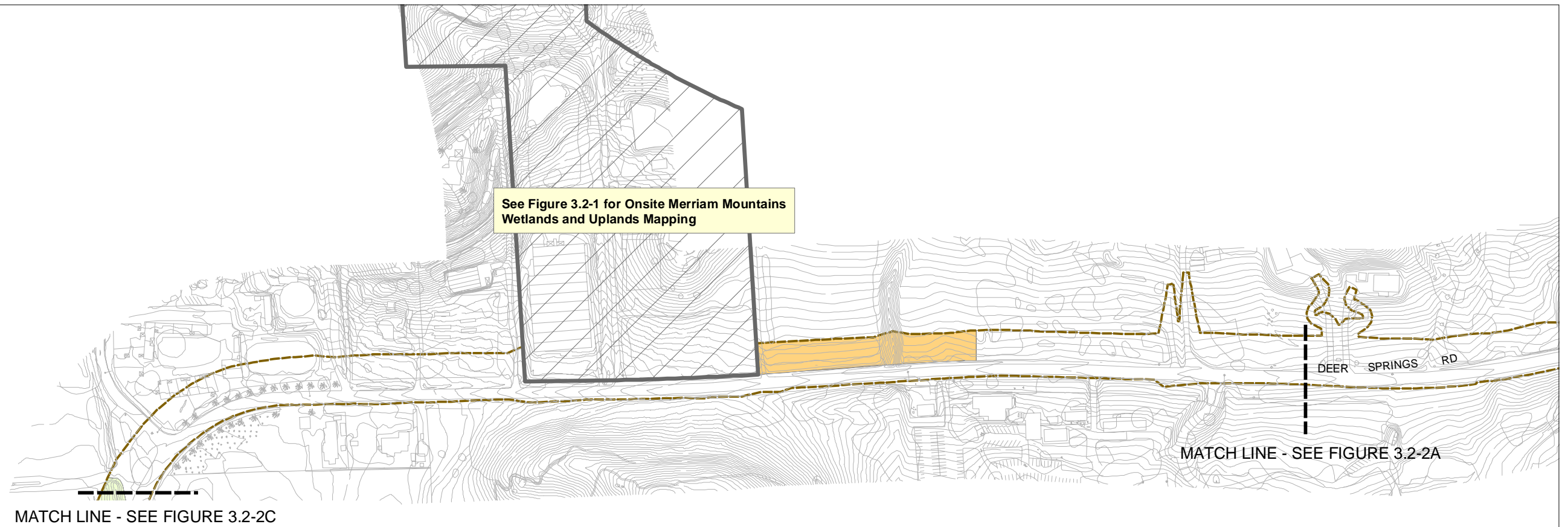


FIGURE  
3.2-1





**Legend**

- Offsite Deer Springs Road Impact Area
- Onsite Development Areas
- Project Boundary

**County/CDFG Wetlands**

- Coast Live Oak Woodland Associated with Stream Course (Code: 71160)

**County Wetlands**

- ACOE/CDFG/RWQCB Unvegetated Waters of the U.S.

**Upland Vegetation Types/Landcovers:**

- Coast Live Oak Woodland (Code: 71160)
- Non-Native Grassland (Code: 42200)
- Southern Mixed Chaparral (Granitic) (Code: 37121)
- Coastal Sage-Chaparral Scrub (Code: 37920)
- Coastal Sage-Chaparral Scrub (disturbed) (Code: 37920)

**Vegetation Categories that are not Sensitive Habitat:**

- Disturbed Habitat (Code: 11300)
- Eucalyptus Woodland (Code: 11100)
- Orchard or Vineyard (Code: 18100)
- General Agriculture (Code: 18000)
- Urban/Developed (Code: 12000)

County Wetlands/Vegetation & Species Data Source: Pacific Southwest Biological Services, Inc.

## Biological Resources Map - Offsite Deer Springs Road Impact Area

MERRIAM MOUNTAINS  
SPECIFIC PLAN EIR

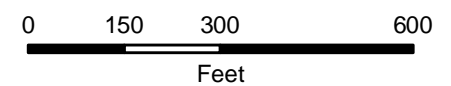
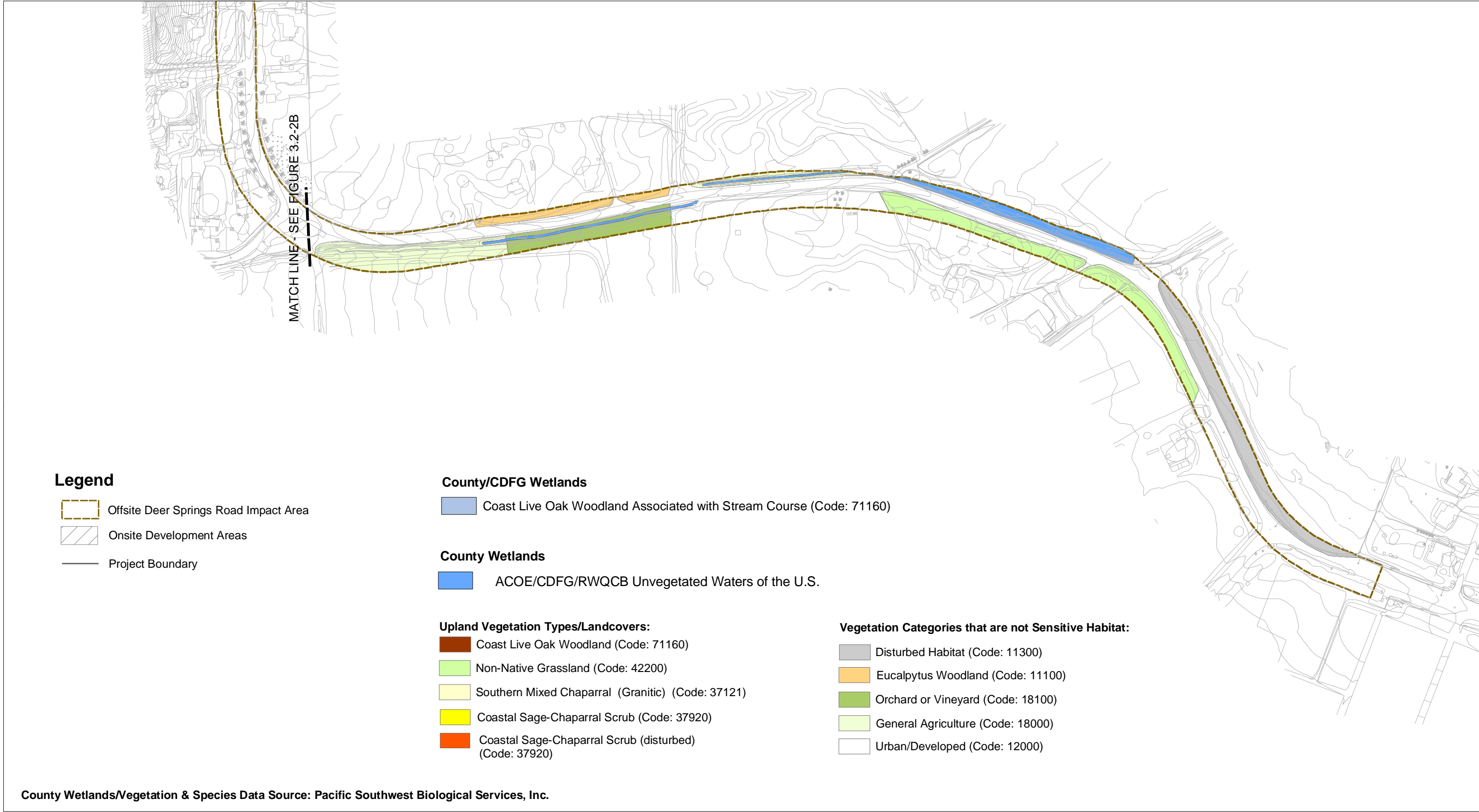
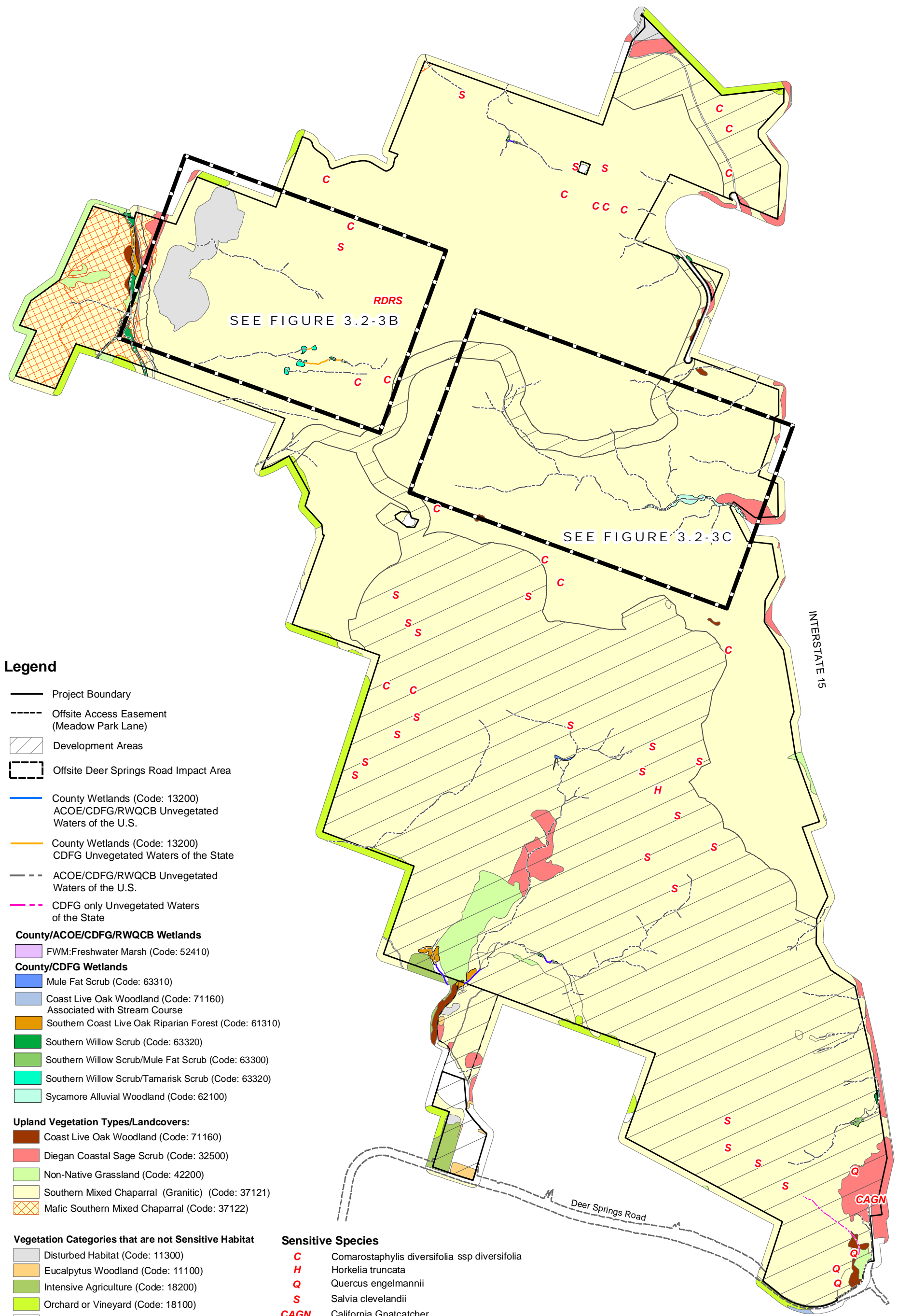


FIGURE  
3.2-2B





County Wetlands/Vegetation & Species Data Source: Pacific Southwest Biological Services, Inc.

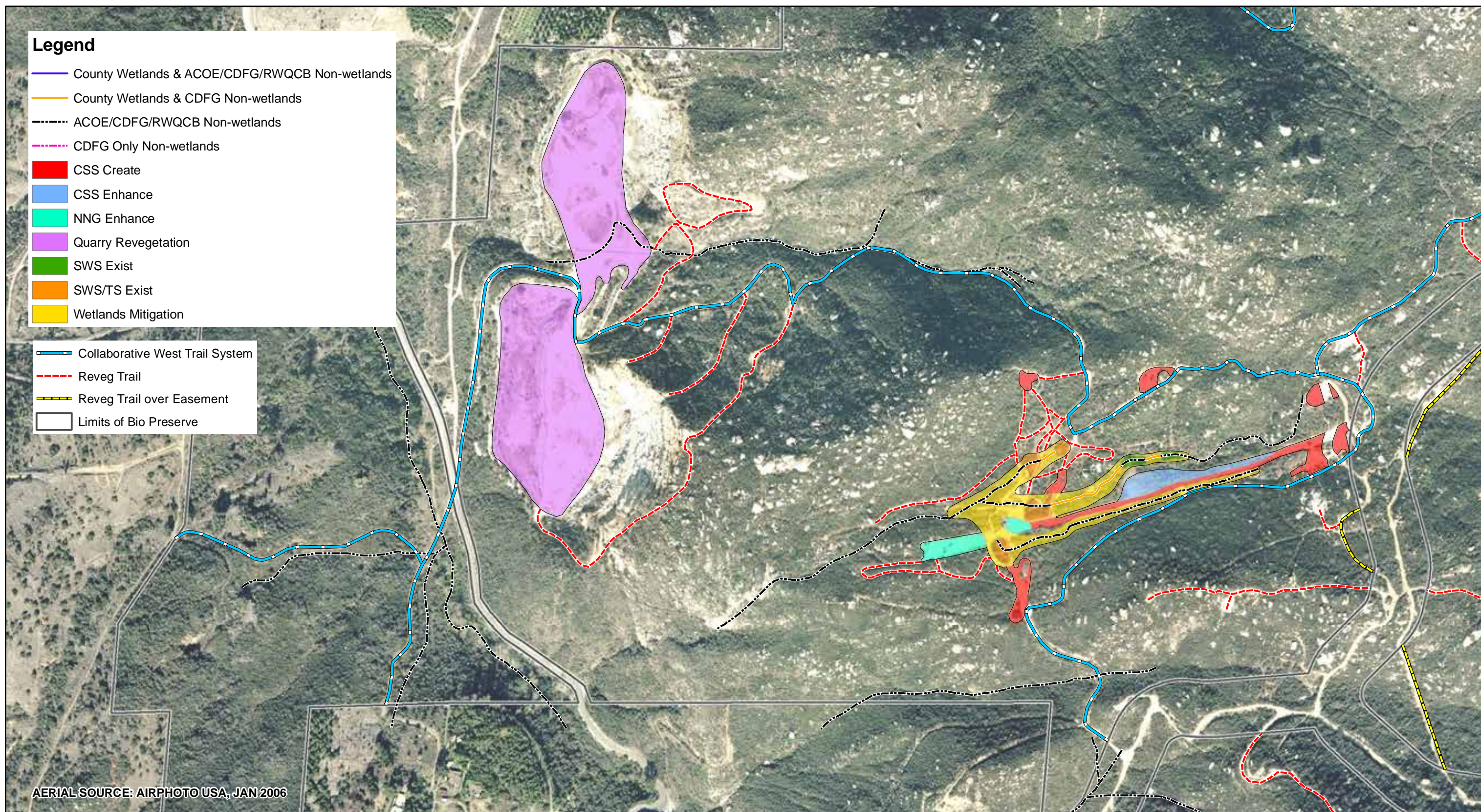
# Wetlands and Uplands Onsite Mitigation Conceptual Revegetation Plan Index

FIGURE 3.2-3A

MERRIAM MOUNTAINS  
SPECIFIC PLAN EIR

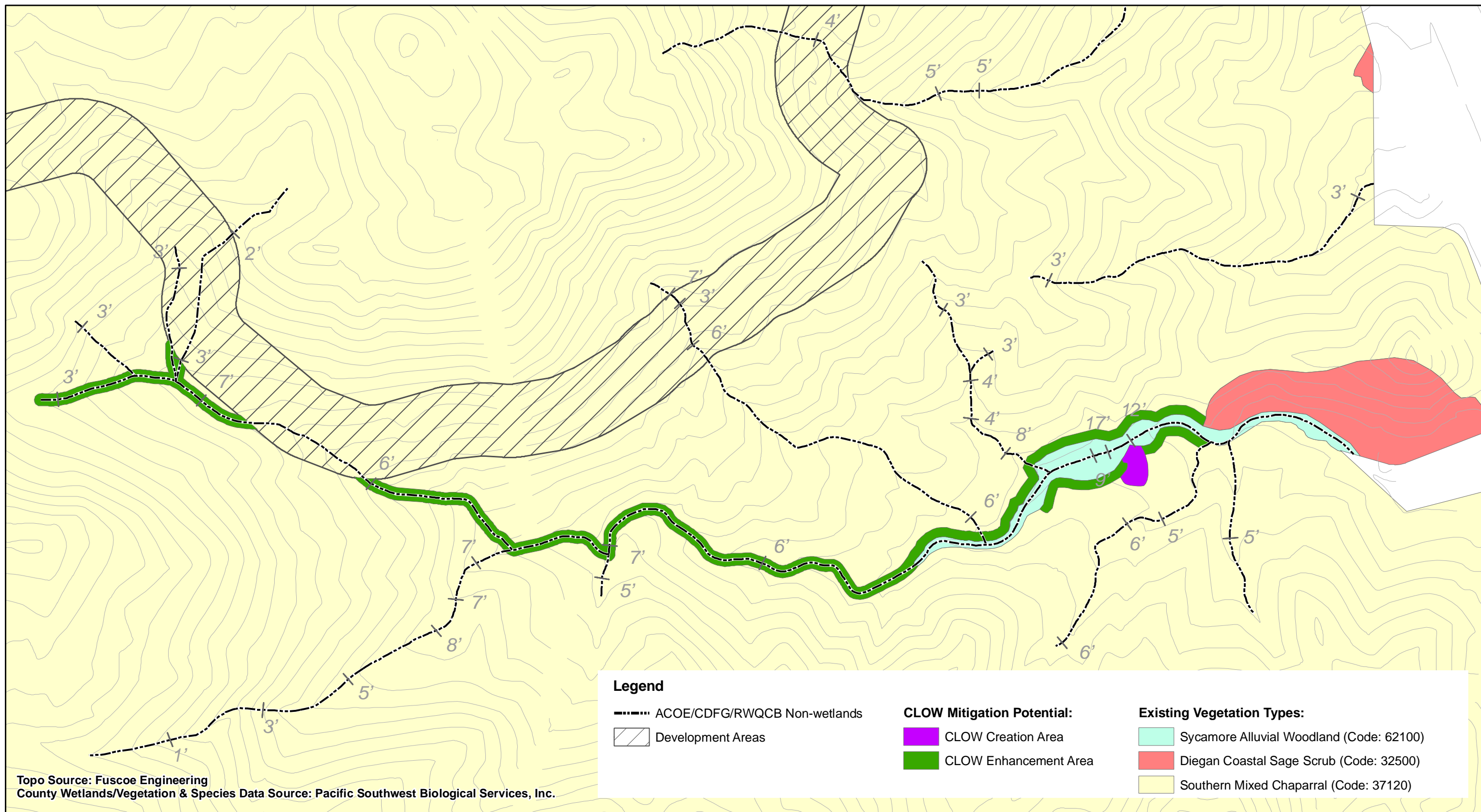
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Miles





Willow Scrub Wetlands and Coastal Sage Scrub Uplands Revegetation at Abandoned Airstrip and Quarry

FIGURE  
3.2-3B



Coast Live Oak Woodland Mitigation Potentials at Main Onsite Open Space Drainage

FIGURE  
3.2-3C

## SUBCHAPTER 2.5

### CULTURAL RESOURCES

## **2.5      Cultural Resources**

Data regarding cultural resources were obtained through a literature review, record search and field survey conducted by Gallegos & Associates as detailed in the July 2007 Cultural Resource Report (see Appendix H).

### **2.5.1      Discussion of Existing Conditions Relating to Cultural Resources**

Eight previously recorded cultural resource sites (CA-SDI-4370, -4371, -4558, -5639, -5640, -9253, -9822, -10747H), one isolate (SDM-W-3880C) and one Historic Location are located in the proposed project boundary and off-site improvement areas. In addition, two newly recorded cultural resource sites (CA-SDI-17264 and CA-SDI-17265); and one new isolate (P-37-025968) were identified within the Merriam SP area. Sites CA-SDI-4370, CA-SDI-4371, CA-SDI-5639, and CA-SDI-5640 are all milling stations that have been destroyed by development, and therefore are not identified as significant resources. The two isolates that have been identified within the project site (SDM-W-3880C and P-37-025968) do not constitute a site according to the State of California and therefore are not considered significant. Sites CA-SDI-9253, -10747H, -17264, and -17265 were tested and identified as not significant. Sites CA-SDI-4558 and CA-SDI-9822 have been previously tested and identified as significant under the County of San Diego and California Environmental Quality Act (CEQA) criteria. On the basis of human remains and a pictograph feature at CA-SDI-9822, and that CA-SDI-4558 was identified as eligible for placement on the National Register of Historic Places, both sites are identified as significant. The 1901 historic structure/location identified within the project site is also identified as a significant resource; if present, subsurface privies, refuse dumps and architectural foundations could provide information on early homesteading in north San Diego County. Subsequent field-testing at these sites conducted by Gallegos & Associates in March 2004 redefined site boundaries.

#### **Previously Recorded Sites**

CA-SDI-4370. Site CA-SDI-4370 was not relocated and appears to have been destroyed by previous grading for housing and ranch development. The site was originally recorded as a single milling slick.

CA-SDI-4371. Site CA-SDI-4371 was originally recorded as a milling slick and was not relocated within the project area. The majority of CA-SDI-4371 is located outside of the proposed project area, and it is likely that the feature has been destroyed by construction of a road or is located outside of the proposed project site.

CA-SDI-4558. Site CA-SDI-4558 was relocated during the current study, and two additional bedrock milling features were identified. This site appears to be in the same condition as reported by Cook et al. (1977). One foundation was identified in the central portion of the site, and another foundation was identified adjacent to the north of the site. Both foundations appear to be the remains of residential structures that were described by Cook et al. (1977). Disturbance noted includes foot traffic, the construction of Deer Springs Road, construction of houses, paved access roads, grading, agricultural use, and trash dumping.

CA-SDI-5639. Site CA-SDI-5639 was originally recorded as a milling site. The site was not relocated and appears to have been destroyed as a result of the construction of Twin Oaks Valley Road and the San Diego Aqueduct.

CA-SDI-5640. Site CA-SDI-5640 was originally recorded as a single milling site. The site was not relocated, as it has been destroyed by the development of Twin Oaks Valley Road.

CA-SDI-9253. Site CA-SDI-9253 was originally recorded as a multiple bedrock milling features consisting of several slicks. The site was relocated during the current survey. Four bedrock milling features and debitage were noted. A portion of the site has been impacted by the construction of a post-1930s homestead (see site CA-SDI-10747H), however the majority of the site appears to be in good condition.

CA-SDI-9822. Site CA-SDI-9822 was relocated during the current survey. Bedrock milling features and the rock with the red pigment pictograph were relocated. Surface artifacts noted includes debitage, pottery, a ceramic pipe, and burned bone. Rodent disturbance, modern trash dumping and foot traffic were also noted. A protective fence installed by Palomar College is still in place around most of the site area; however the fence has been partially torn down along Deer Springs Road. The southern portion of site, north of Deer Springs Road, is currently eroding into the road.

CA-SDI-10747H. Site CA-SDI-10747H was relocated adjacent to site CA-SDI-9253, and includes the remains of a house, a collapsed wood structure, and a rock and mortar hearth/chimney structure. Disturbance at the site includes foot traffic on the adjacent trail, minor trash dumping, and some off-road vehicle activity.

SDM-W-3880C. The isolate was identified within a highly disturbed graded dirt road and no additional cultural materials were located.

Historic Structure. The location for a historic structure, identified on the 1901 Escondido and San Luis Rey USGS maps, was not relocated and the structure appears to have been destroyed. If present, privy pits, refuse dumps, and architectural foundations may be present on-site and could provide information on early homesteading in north San Diego County.

### **Newly Recorded Sites**

CA-SDI-17264. Site CA-SDI-17264 consists of a lithic scatter located in the southwest portion of the project area. This site consists of a single bifacial mano and three debitage within a dirt road. Because of the dense vegetation, the site boundary is unknown.

CA-SDI-17265. Site CA-SDI-17265 consists of a single bedrock milling feature located in the west portion of the project area, within a flat valley. The single milling feature consists of a large slick, approximately 60 cm by 30 cm in area. No surface artifacts were noted. Disturbance noted included off-road vehicle use adjacent to the site.

P-37-025968. Isolate P-37-025968 was located within the northeast off-site improvement area. This isolate is a single piece of debitage that was collected. No features or additional artifacts were noted.

### **2.5.2 Guidelines for the Determination of Significance**

The following guidelines of significance will be considered substantial evidence that a significant impact to cultural resources would occur if:

- 1) The project, as designed, causes a substantial adverse change in the significance of an historical or archaeological resource as defined in Section 15064.5 of the State CEQA Guidelines;
- 2) The project is inconsistent with the County RPO relative to prehistoric and historic sites;
- 3) The project, as designed disturbs any human remains, including those interred outside of formal cemeteries.

#### Guideline Sources:

The identified guidelines for significant cultural resource impacts are based on the County Guidelines, including the RPO, and CEQA Appendix G Guidelines.

Guideline No. 1 was chosen because Sections 21083.2 of CEQA and 15064.5 of the State CEQA Guidelines require evaluation of whether or not a proposed action would have a significant effect on unique archaeological resources. Any project that would have an adverse (direct or indirect) impact on significant cultural resources would be considered a significant impact, pursuant to the cited sections.

Guideline No. 2 was chosen because both Section 15064.5 of the CEQA Guidelines and the County RPO require evaluation of whether or not a proposed action would have a significant effect on unique historical resources (sites and structures). The County RPO does not allow non-exempt activities or uses damaging to significant prehistoric or historic lands on properties under County jurisdiction unless completed for a scientific investigation. The project is required to be in conformance with applicable County standards related to County cultural resources, including the noted RPO criteria on prehistoric and historic sites. Non-compliance would result in a project that is inconsistent with County standards.

Guideline No. 3 was included due to the potential for ceremonial/habitation activity (and resultant burials) based on the presence of pictographs in the vicinity and CEQA Guidelines Section 15064.5(d) and the Native American Graves Protection and Repatriation Act (Publication 101-601).

### **2.5.3 Analysis of Project Effects and Determination of Significance**

Six sites (CA-SDI-4558, CA-SDI-9253, CA-SDI-9822, CA-SDI-10747H, CA-SDI-17264, and CA-SDI-17265) were tested to determine site significance, in compliance with County of San Diego and CEQA guidelines. Sites CA-SDI-4370, CA-SDI-4371, CA-SDI-5639, and CA-SDI-5640 were not tested, as these sites have been destroyed by development, mismapped, and/or located outside of the project area. Isolated finds (P-37-025968 and SDM-W-3880C) were identified as not significant. The 1901 historic structure/location is identified as significant; if present, privy pits, refuse dumps, and architectural foundations could provide information on early homesteading in north San Diego County. The testing program, for all sites except the 1901 historic structure/location, included a review of previous work, surface collection, documentation of milling features, excavation of Shovel Test Pits (STP) and test units, artifact analysis, and a determination of site significance.

*Guideline 1: Change in Significance to an Historical or Archaeological Resource*

Given the poor site integrity, and low amount of artifacts (human made items) and ecofacts (non-human made tools, such as shell, bone and plant seeds) recovered, sites CA-SDI-9253, CA-SDI-10747H, CA-SDI-17264, and CA-SDI-17265 are identified as not significant under County of San Diego and CEQA criteria. Sites CA-SDI-4370, CA-SDI-4371, CA-SDI-5639, and CA-SDI-5640 are milling stations that have been destroyed by development and as such are also identified as not significant under County of San Diego and CEQA criteria.

Sites CA-SDI-4558 and CA-SDI-9822 are identified as significant under County of San Diego and CEQA. The 1901 historic structure/location is also identified as significant under CEQA. The proposed project has the potential to disturb or damage these sites.

CA-SDI-4558. Site CA-SDI-4558 is located within the proposed development impact area and is classified as significant under CEQA and County of San Diego RPO criteria. A portion of this site would be directly impacted by Deer Springs Road improvements (Impact CR-1). The remainder of this site would be avoided and placed within an open space easement; however, indirect impacts would occur from construction, increased accessibility, and the potential for pot-hunters/looters (Impact CR-2).

CA-SDI-9822. Site CA-SDI-9822 is located within the proposed development area and is identified as significant under CEQA and RPO criteria. Portions of this site would be directly impacted by Deer Springs Road improvements (Impact CR-3). The remainder of this site would be avoided and placed within an open space easement. Indirect impacts from increased accessibility and the potential for pot-hunters/looters would result to the remainder of this site from implementation of improvements to Deer Springs Road (Impact CR-4).

1901 Historic Structure/Location. The 1901 historic structure/location is within the proposed project development impact area. The 1901 historic structure/location was not relocated and the structure appears to have been destroyed, however, this site is identified as significant under CEQA as subsurface features may be present that can provide information on early homesteading in northern San Diego County. Potential direct impacts may result from proposed grading activities (Impact CR-5).

Isolates SDM-W-3880C and P-37-025968 do not constitute a site by State of California definition and therefore are identified as not significant.

Senate Bill 18. The Native American Heritage Commission was contacted to request information and/or input regarding Native American concerns either directly or indirectly associated with the Merriam Mountains project as well as names of individuals in the area who should be contacted prior to completion of this study. Those individuals identified by the Native American Heritage Commission were contacted by letter, and information as to cultural resources within the project area was requested (refer to Appendix H of the Cultural Resources Technical Report). A representative from the San Luis Rey Band of Mission Indians and the Pechanga Band of Luiseno Mission Indians have provided monitoring services for survey and test excavation fieldwork conducted. In addition, a meeting at the County of San Diego to address Native American concerns was conducted on November 9, 2004. Senate Bill 18 requires cities and counties to contact, and consult with, California Native American tribes prior to amending or adopting a general plan or specific plan, or designating land as open space. As mentioned above open space easements will be provided for the areas of sites CA-SDI-4558 and CA-SDI-9822 that will not be directly impacted by improvements to Deer Springs Road. The project will continue to coordinate with the Native Americans in regard to the project related cultural resources.

*Guideline 2: Project's Consistency with RPO*

Implementation of the project would result in significant unavoidable impacts to sites CA-SDI-4558 and CA-SDI-9822, which are both considered significant cultural sites under CEQA and the County's RPO. The project design avoids these sites to the extent feasible. As described in Section 1.0, the project proposes an amendment to the RPO. Documentation of the reasons for and conformance to the benefits of the proposed project are detailed in the RMP. With implementation of the proposed project, which includes a RPO amendment, the project would be consistent with RPO.

*Guideline 3: Disturbance to Human Remains*

See responses to *Guidelines for Determination of Significance 1 and 2* above.

## **2.5.4 Cumulative Impact Analysis**

According to CEQA, the importance of cultural resources comes from the research value and the information that they contain. Therefore, the issue that must be explored in a cumulative analysis is the cumulative loss of information. For sites considered less than significant, the information is preserved through recordation and test excavations. Significant sites that are placed in open space easements avoid impacts to cultural resources and also preserve the data. Significant sites

that are not placed within open space easements preserve the information through recordation, test excavations, and data recovery programs that would be presented in reports filed with the County of San Diego and the South Coastal Information Center. The artifact collections from any potentially significant site would be curated at the San Diego Archaeological Center and would be available to other archaeologists to study.

A Cultural Resources Cumulative Impact Study was prepared by Gallegos & Associates for the proposed project (See Appendix H). As part of the study, an evaluation of cumulative impacts was prepared. The cumulative study included a review of cultural resources within a 20 square mile area including the Merriam Project Area and the area within one mile of the Merriam Project Area. Three impact approaches were used (see Appendix R) in order to determine the potential cumulative impacts that would result from implementation of the proposed project: (1) Review of 69 Development Projects, (2) Merriam I-15 Corridor Study and (3) Review of Cultural Resources within one mile of Merriam Project Area.

Each cumulative impact approach included a review of previously recorded sites and archeological studies for the purpose of identifying previously recorded cultural resources; the present status of these resources; and, to relatively determine cumulative impacts to cultural resources. A record search and literature review were completed at the South Coastal Information Center (SCIC) at San Diego State University, as well as at the California Department of Transportation (Caltrans). Fieldwork to revisit sites in order to field-truth the database or correct mismapped resources was not conducted.

Approach 1 included a review of 69 developments, of which only 16 of the 69 development projects discuss cultural resources. Given these 16 projects few if any identify cultural resources, impacts or mitigation measures. On the basis of the unevenness of these 69 development reports, cumulative impacts could not be quantified and evaluated. Approach 2 included a review of I-15, of which a total of 7,820 acres were reviewed for previous work and previously recorded cultural resources. Approximately 1,160 acres have been previously studied; however, 6,660 acres have not been previously studied. For the I-15 Corridor, cumulative impacts are noted for non-significant cultural resources; however, sites identified as significant have for the most part been avoided of direct impacts. Lastly, Approach 3 included a review of cultural resources within one mile of the Merriam Project Area. A total of 34 cultural resource sites and three isolate finds have been recorded within the proposed project and within one mile of the Merriam project area. Mitigation measures to reduce impacts to these sites to a level below significance are listed below.

A total of 34 cultural resource sites and 3 isolate finds have been recorded within 20 square mile area. The Merriam Project is anticipated to result in impacts to five cultural resource sites (CA-SDI-4558, CA-SDI-9822, CA-SDI-17264, CA-SDI-17265 and Historic Structure); two of which are RPO significant sites (CA-SDI-4558 and CA-SDI-9822) that will be directly impacted by Deer Springs Road. One, cultural resource is not considered RPO significant (Historic Structure) but is CEQA significant and the other two cultural sites (CA-SDI-17264, CA-SDI-17264) were determined to be not significant. The proposed project's impacts to cultural resources would be significant and unavoidable, and mitigation would include a pre-grade and data recovery program, capping, the placement of portions of significant sites within an open space easement, the curation of all artifacts obtained during the testing and data recovery programs, and recordation of all sites within the project footprint. Therefore, because the proposed project would be mitigated to the extent feasible and those projects within the cumulative impact study area are mitigated through the placement of cultural resources within open space easements, data recovery, curation, and/or reporting, the proposed project would not cumulatively contribute to a significant impact to cultural resources.

Cumulative Impacts are also discussed in the Cumulative Technical Report provided as Appendix R of this Draft EIR.

### **2.5.5 Growth Inducing Impact**

As discussed in Section 1.7 and Appendix S of this EIR the growth that would be generated by the project, based on, the maximum units allowable under existing General Plan designations, is estimated to be approximately 720 dwelling units. Development of these units would be subject to normal county review and processing requirements including CEQA review for all project proposals requiring discretionary actions. As part of such CEQA review, it is anticipated that potential cultural resource impacts would be analyzed and addressed for each of these project proposals. Therefore, potential growth inducing impacts to cultural resources would be mitigated as part of future associated discretionary actions, should they occur.

#### *Summary of Impacts*

The following cultural resource impacts have been identified.

- CR-1 Direct impacts to a portion of site CA-SDI-4558 due to improvements to Deer Springs Road.

- CR-2 Indirect impacts to site CA-SDI-4558 due to improvements to Deer Springs Road and increased accessibility with the implementation of the proposed project.
- CR-3 Direct impacts to a portion of site CA-SDI-9822 due to improvements to Deer Springs Road.
- CR-4 Indirect impacts to site CA-SDI-9822 due to improvements to Deer Springs Road and increased accessibility with the implementation of the proposed project.
- CR-5 Direct impact to potential features that may be present at the 1901 historic structure/location.

### **2.5.6 Mitigation Measures**

The following mitigation measures have been provided to minimize the cultural resource impacts discussed above. It should be noted that the following mitigation measures shall be assured through the RMP prepared for the proposed project.

- M-CR-1a Site CA-SDI-4558 - Prior to approval of grading plans the project applicant shall contract with a County certified archaeologist to implement a grading monitoring and data recovery program to the satisfaction of the Director of Planning and Land Use (DPLU) and the research design detailed in the Cultural Resources Report, prepared by Gallegos and Associates, dated July 2007. Verification of the contract shall be presented in a letter form from the Project Archaeologist to the Director of DPLU. This program shall include, but not limited to the following:
1. The consulting archaeologist shall contract with a Native American Observer to be involved with the grading and monitoring program.
  2. During the original cutting of previously undisturbed deposits, the archaeological monitor(s) (and Native American Observer) shall be onsite depending on the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features.
  3. In the event that previously unidentified potentially significant cultural resources are discovered, the archaeologist shall have the authority to divert or temporarily halt ground disturbance operation in the area of discovery to allow evaluation of potentially significant cultural resources. The County Archaeologist must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural

resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the County Archaeologist, then carried out using professional archaeological methods. If any human bones are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

4. Before construction activities are allowed to resume in the affected area, the artifacts shall be recovered and features recorded using professional archaeological methods. The archaeological monitor(s) and Native American Observer shall determine the amount of material to be recovered for an adequate artifact sample for analysis.
5. In the event that previously unidentified cultural resources are discovered, all cultural material collected during the grading monitoring program shall be processed and curated according to current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation.
6. In the event that previously unidentified cultural resources are discovered, a report documenting the field and analysis results and interpreting the artifact and research data within the research context shall be completed and submitted to the satisfaction of the Director of Planning and Land use prior to the issuance of any building permits. The report will include Department of Parks and Recreation Primary and Archaeological Site forms.
7. In the event that no cultural resources are discovered, a brief letter to that effect shall be sent to the Director of Planning and Land Use by the consulting archaeologist that the grading monitoring activities have been completed.
8. The grading monitoring and data recovery program will involve the excavation of 35 1x1-meter units, artifact analysis, special studies, and a report of finding. The grading monitoring and data recovery program completed, along with a re-analysis of previously collected materials, as well as special studies, will provide a database to address research questions in a technical report of findings for this site. The research design includes, but is not limited to the following: (1) The research orientation for the precontact study will focus on chronology, lithic technology, settlement and subsistence strategy, environmental settling, and trade and travel. (2) The research

orientation for the history study will focus on functional pattern recognition, consumerism economic indexing, consumption pattern analysis and dietary studies. All artifacts and ecofacts recovered will be washed, analyzed, and special studies will be completed as needed, which may include lithic, shell, bone, radiocarbon dating, obsidian sourcing, precontact ceramics, protein residue analyses, and historic artifact analyses.

- M-CR-1b All cultural resources except burial-related artifacts and unless otherwise required by law, excavated or removed from prehistoric or historic sites during testing and/or data recovery programs, along with all associated project data, will be permanently curated at a qualified repository as defined by the “State of California Guidelines for the Curation of Archaeological Collections.” Curation includes, but is not limited to, field notes, photographs, catalogues, and final reports. Collections from previous excavations at sites CA-SDI-4558 and CA-SDI-9822 shall be combined with the collection recovered as a result of the current study and any future extended testing and/or data recovery programs. These artifacts and associated documentation are necessary to produce a comprehensive report for sites CA-SDI-4558 and CA-SDI-9822. Additionally, the owner agrees to execute a release of title form and to pay the required curation fees in effect at the time of curation. All curation shall be accomplished within six (6) months from completion of the project.
- M-CR-2a The portion of site CA-SDI-4558 that will be avoided and placed within open space (i.e., indirectly impacted) shall be temporarily fenced around the areas designated as environmentally sensitive if construction activities would occur near the site. Construction equipment shall be directed away from the site, and construction personnel shall be directed to avoid entering the area. Permanent ranch-style fencing shall be installed after road construction to protect that portion of the site not capped for road construction. The portion of the site within the open space easement shall be cleared of non-native vegetation; however, native vegetation will remain. Non-native trees will be cut to level with roots left in place. Non-native grasses and brush will be cleared by hand or weed-whacker. The cement foundation shall be carefully removed, and capping using clean fill soil shall be used to fill in the foundation area. Minor capping, where possible, shall consist of three-to-six inches of clean fill soil. A one-time hydro seeding for shallow-rooted native plants shall provide a protective layer to the site. No underground sprinkler system or water system shall be used to promote vegetation.

- M-CR-2b      If necessary, during the construction phase, after-hours monitoring of the open space easements by a private security company will be employed to maintain a high visibility presence and observe through patrols for signs of trespassing, vandalism, pot-hunting, or other site damage; then, taking action and/or reporting any incidents to their client, employer, and the County of San Diego. Significant sites located within open space easements will be managed according to the RMP. Specific activities prohibited within the open space easements should include (but not be limited to) construction of homes and buildings, surface mining activities, industrial uses, and commercial uses. In addition, periodic inspection of the property to verify compliance with the open space easement guidelines should be conducted by the County of San Diego or a qualified archeologist.
- M-CR-3      Site CA-SDI-9882 - Prior to approval of grading plans the project applicant shall contract with a County certified archaeologist to implement a grading monitoring and data recovery program to the satisfaction of the DPLU and the research design detailed in the Cultural Resources Report, prepared by Gallegos and Associates, dated July 2007. Verification of the contract shall be presented in a letter form from the Project Archaeologist to the Director of DPLU. This program shall include, but not limited to the following:
1. M-CR-1a (1 through 7).
  2. The grading monitoring and data recovery program will involve the excavation of 100 1x1-meter sample units, artifact analysis, and reanalysis of previously collected materials completed by the Palomar Community College, special studies and a report of finding. The data recovery, along with a re-analysis of previously collected materials, will provide a database to address research questions in a technical report of findings. The research design includes, but is not limited to the following: (1) The research orientation for the precontact study will focus on chronology, lithic technology, settlement and subsistence strategy, environmental settling, and trade and travel. (2) The research orientation for the history study will focus on functional pattern recognition, consumerism economic indexing, consumption pattern analysis and dietary studies. All artifacts and ecofacts recovered will be washed, analyzed, and special studies will be completed as needed, which may include lithic, shell, bone, radiocarbon dating, obsidian sourcing, precontact ceramics, protein residue analyses, and historic artifact analyses. Mitigation measure M-CR-1b shall also be implemented to mitigate this direct impact.

- M-CR-4 Indirect impacts to Site CA-SDI-9822 shall be mitigated through temporary fencing and minor capping as needed. The temporary fencing shall be constructed around the areas designated as environmentally sensitive, if construction activities would occur near the site. Construction equipment shall be directed away from the site, and construction personnel shall be directed to avoid entering the area. Minor capping as needed shall consist of three-to-six inches of clean soil and shall only cover the surface of the site; however, the pictograph feature shall not be capped, and to the extent possible, the bedrock milling features shall not be capped. Seeding for shallow-rooted native plants shall be used within the boundaries to provide a protective layer to the site. Photo documentation and re-analysis of the pictograph feature shall also be conducted by a professional archaeologist. Mitigation measure M-CR-1b shall also be implemented to mitigate this indirect impact.
- M-CR-5 For the 1901 historic structure location, a pre-grade and data recovery program shall be completed to locate buried features, analysis of materials recovered, and completion of a report of findings. This plan shall include a controlled backhoe excavation to determine the presence and/or absence of buried historic resources. If subsurface features and artifacts are identified, then a data recovery program shall be conducted and include manual excavations of 3-by-3-foot recovery units followed by block excavations and feature excavations if necessary, as well as an analysis of artifacts. Special studies may include, but will not be limited to glass, ceramic, metal and faunal analysis to address the research questions posed. Mitigation measure M-CR-1b shall also be implemented to mitigate this direct impact.

### **2.5.7 Conclusion**

Implementation of the project would result in significant unavoidable impacts to sites CA-SDI-4558 and CA-SDI-9822 (Impact CR-1 and CR-3), which are both considered significant cultural sites under CEQA and the County's RPO. Implementation of M-CR-1a, M-CR-1b and M-CR-3 would include a grading monitoring and data recovery program; however impacts would remain significant and unavoidable because portions of the cultural sites would be directly impacted during roadway improvements. As described in Section 1.0, the project proposes an amendment to the RPO. Documentation of the reasons for and conformance to the benefits of the proposed project are detailed in the RMP. With implementation of the proposed project, which includes a RPO amendment, the project would be consistent with RPO. Indirect impacts to sites CA-SDI-4558 and CA-SDI-9822 have been identified as Impact numbers CR-2 and CR-4. Mitigation

measures M-CR-2a, M-CR-2b and M-CR-4 would reduce indirect impacts to a level below significance through measures such as the placement of temporary fencing to prevent access to the sites and minor capping. An alternative alignment for the construction of Deer Springs Road has been provided in Section 5.7 to this EIR. The alternative alignment for Deer Springs Road would include capping a portion of the cultural resource sites located within the roadway alignment and impacts under this alternative would be mitigated through a data recovery program for portions of the sites that would not be capped. The impact to 1901 historic structure/location is identified as Impact CR-5. Mitigation measure M-CR-5 would reduce impacts to these resources to below a level of significance because data recovery would allow historic information to be obtained prior to removal.

## 2.17 Global Climate Change

This section provides background information on global climate change in addition to evaluating the unincorporated County of San Diego greenhouse gas (GHG) contributions and an evaluation of the General Plan Update's consistency with the goals and strategies of AB 32. Potential adverse impacts as a result of global climate change on the County are also addressed. Information contained in this section has been compiled from the San Diego Foundation Regional Focus 2050 Study (San Diego Foundation 2008), the San Diego County Greenhouse Gas Inventory (EPIC 2008), the County of San Diego Greenhouse Gas Emissions Inventory (DPLU 2009g), and other sources as cited throughout the document.

A summary of the global climate change impacts identified in Section 2.17.3 is provided below.

### Global Climate Change Summary of Impacts

Issue Number	Issue Topic	Project Direct Impact	Project Cumulative Impact	Impact After Mitigation
1	Compliance with AB 32	Potentially Significant	Significant Cumulative Contribution	Less than Significant
2	Potential Effects of Global Climate Change on the Proposed General Plan Update	Potentially Significant	Significant Cumulative Contribution	Less than Significant

### 2.17.1 Existing Conditions

#### 2.17.1.1 *Climate Change Overview*

Global climate change refers to any substantial change in measures of climate (such as temperature, precipitation, or wind) lasting for decades or longer. Global warming is an average increase in the temperature of the atmosphere, which can contribute to changes in global climate patterns. Some GHG, such as water vapor, occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted through human activities.

According to the EPA, the Earth's climate has changed many times during the planet's history, with events ranging from ice ages to long periods of warmth. Historically, natural factors such as volcanic eruptions, changes in the Earth's orbit, and the amount of energy released from the Sun have affected the Earth's climate. Beginning late in the 18th century, human activities associated with the Industrial Revolution have also changed the composition of the atmosphere and therefore very likely are influencing the Earth's climate. For over the past 200 years, the burning of fossil fuels, such as coal and oil, and deforestation has caused the concentrations of heat-trapping GHG to increase substantially in the atmosphere.

The accumulation of GHG in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effects of GHG, the earth's temperature would be about 34 degrees Celsius (°C) cooler. However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

The Global Carbon Project recently released an update of the global carbon budget. The atmospheric carbon dioxide (CO<sub>2</sub>) concentration in 2007 was 383 parts per million (ppm), 37 percent above the concentration at the start of the Industrial Revolution (about 280 ppm in 1750). The 2007 concentration was the highest known concentration during the last 650,000 years and probably during the last 20 million years. Results show that anthropogenic CO<sub>2</sub> emissions have been growing about four times faster since 2000 than the previous decade. The annual mean growth rate of atmospheric CO<sub>2</sub> was 2.2 ppm per year in 2007, up from 1.8 ppm in 2006.

### **2.17.1.2 Greenhouse Gases**

GHG are gases that trap heat in the atmosphere, analogous to the way a greenhouse retains heat. Common GHG include water vapor, CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxides (N<sub>2</sub>O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>), ozone (O<sub>3</sub>), and aerosols. Global atmospheric concentrations of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

Individual GHGs have varying potential to contribute to global warming (GWP) and atmospheric lifetimes (see Table 2.17-1). The CO<sub>2</sub> equivalent (CO<sub>2</sub>e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent measure. The reference gas for GWP is CO<sub>2</sub>; therefore, CO<sub>2</sub> has a GWP of one. By comparison, the GWP of CH<sub>4</sub> is 21. This means that CH<sub>4</sub> has a greater global warming effect than CO<sub>2</sub> on a molecule per molecule basis. One million metric tons of CO<sub>2</sub> equivalent (MMT CO<sub>2</sub>e) is the mass emissions of an individual GHG multiplied by its GWP.

State law defines GHGs to include the following compounds: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub> (Health and Safety Code, Section 38505(g).) Descriptions of these compounds and their sources are provided below.

#### **Carbon Dioxide (CO<sub>2</sub>)**

CO<sub>2</sub> enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions such as through the manufacturing of cement. The largest source of CO<sub>2</sub> emissions globally is the combustion of fossil fuels such as coal, oil and gas in power plants, automobiles, industrial facilities and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production and the use of petroleum-based products can also lead to CO<sub>2</sub> emissions. Carbon dioxide is also removed from the atmosphere (or “sequestered”) when it is absorbed by plants as part of the biological carbon cycle. Natural sources of CO<sub>2</sub> occur within the carbon cycle where billions of tons of atmospheric CO<sub>2</sub> are removed from the atmosphere by oceans and growing plants, also known as ‘sinks,’ and are emitted back into the atmosphere annually through natural processes also known as ‘sources.’ When in balance, the total carbon dioxide emissions and removals from the entire carbon cycle are roughly equal. Since the Industrial Revolution in the 1700s, human activities, such as the burning of oil, coal and gas or deforestation, have increased CO<sub>2</sub> concentrations in the atmosphere. In 2005, global atmospheric concentrations of CO<sub>2</sub> were 35 percent higher than they were before the Industrial Revolution (EPA 2008b).

### **Methane (CH<sub>4</sub>)**

CH<sub>4</sub> is emitted from a variety of both human-related and natural sources. Human-related activities include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. CH<sub>4</sub> is emitted during the production and transport of coal, natural gas, and oil. CH<sub>4</sub> emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills. It is estimated that 60 percent of global CH<sub>4</sub> emissions are related to human-related activities. Natural sources of CH<sub>4</sub> include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. CH<sub>4</sub> emission levels from a source can vary significantly from one country or region to another, depending on many factors such as climate, industrial and agricultural production characteristics, energy types and usage, and waste management practices. For example, temperature and moisture have a significant effect on the anaerobic digestion process, which is one of the key biological processes that cause CH<sub>4</sub> emissions in both human-related and natural sources. Also, the implementation of technologies to capture and utilize CH<sub>4</sub> from sources such as landfills, coal mines, and manure management systems affects the emission levels from these sources (EPA 2008b).

### **Nitrous Oxide (N<sub>2</sub>O)**

N<sub>2</sub>O is produced by both natural and human-related sources. N<sub>2</sub>O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste. Primary human-related sources of N<sub>2</sub>O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N<sub>2</sub>O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. N<sub>2</sub>O emission levels from a source can vary significantly from one country or region to another, depending on many factors such as industrial and agricultural production characteristics, combustion technologies, waste management practices, and climate. For example, heavy utilization of synthetic nitrogen fertilizers in crop production typically results in significantly more N<sub>2</sub>O emissions from agricultural soils than that occurring from less intensive, low-tillage techniques. Also, the presence or absence of control devices on combustion sources, such as catalytic converters on automobiles, can have a significant affect on the level of N<sub>2</sub>O emissions from these types of sources (EPA 2008b).

### **Fluorinated Gases**

HFCs, PFCs, and SF<sub>6</sub> are synthetic, powerful GHGs that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of Chlorodifluoromethane (HCFC-22), commonly used in air conditioning applications. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances, such as CFCs, Hydrochlorofluorocarbons (HCFCs), and halons. These gases are typically emitted in smaller quantities, but have higher GWP than other GHGs (EPA 2008b).

#### **2.17.1.3 GHG Emissions**

In an effort to evaluate and reduce the potential adverse impact of global climate change, international, State and local organizations have conducted GHG inventories to estimate their

levels of GHG emissions and removals. The following summarizes the results of these global, national, State and countywide GHG inventories.

### **Global**

Worldwide anthropogenic emissions of GHG in 2006 were approximately 49,000 million metric tons (MMT) of CO<sub>2</sub>e, including ongoing emissions from industrial and agricultural sources and emissions from land use changes (i.e., deforestation, biomass decay) (IPCC 2007). CO<sub>2</sub> emissions from fossil fuel use accounts for 56.6 percent of the total emissions of 49,000 MMT CO<sub>2</sub>e (includes land use changes) and all CO<sub>2</sub> emissions are 76.7 percent of the total. CH<sub>4</sub> emissions account for 14.3 percent and N<sub>2</sub>O emissions for 7.9 percent of GHG (IPCC 2007).

### **United States (U.S.)**

The EPA publication, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006*, provides a comprehensive emissions inventory of the nation's primary anthropogenic sources and sinks of GHG. In 2006, total U.S. GHG emissions were 7,054.2 teragrams (Tg) or MMT CO<sub>2</sub>e. Overall, total U.S. emissions have risen by 14.7 percent from 1990 to 2006, while the U.S. gross domestic product has increased by 59 percent over the same period. Emissions fell from 2005 to 2006, decreasing by 1.1 percent (75.7 MMT CO<sub>2</sub>e). The publication indicated that the following factors were primary contributors to this decrease: 1) compared to 2005, 2006 had warmer conditions, which decreased consumption of heating fuels, as well as cooler summer conditions, which reduced demand for electricity, 2) restraint on fuel consumption caused by rising fuel prices, primarily in the transportation sector, and 3) increased use of natural gas and renewables in the electric power sector (EPA 2008c).

### **California**

The State of California is a substantial contributor of GHG as it is the second largest contributor in the U.S. and the 16th largest in the world. According to the California Air Resources Board (CARB), California generated 484 MMT CO<sub>2</sub>e in 2004. Table 2.17-2 provides CARB data on California GHG emissions by sector in 2004. GHG emissions in California are mainly associated with fossil fuel consumption in the transportation sector (38 percent) with the industrial sector as the second-largest source (20 percent). Electricity production, from both in-state and out-of-state sources, agriculture, forestry, commercial, and residential activities comprise the balance of California's GHG emissions. Emissions of GHG were offset slightly in 2004 by the sequestration (intake) of carbon within forests, reducing the overall emissions by 4.7 MMT CO<sub>2</sub>e, resulting in net emissions of about 480 MMT CO<sub>2</sub>e.

### **San Diego County**

In addition to the State of California GHG Inventory, a more specific regional GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center (EPIC) in 2008. This San Diego County GHG Inventory is a detailed inventory that takes into account the unique characteristics of the region in calculating emissions. A summary of the inventory results, by category and percent contribution for the year 2006, is provided in Table 2.17-3.

Table 2.17-3 shows that in 2006, a total of 34.4 MMT CO<sub>2</sub>e was generated by the County of San Diego. This total includes both the incorporated and unincorporated areas. Not surprisingly, the

largest contributor of GHG was from the on-road transportation category, which comprised 46 percent (16 MMT CO<sub>2</sub>e) of the total amount. The second highest contributor was the electricity category, which contributed 9 MMT CO<sub>2</sub>e, or 25 percent of the total. Together the on-road transportation and electricity category comprised 71 percent of the total GHG emissions for the County. The remaining amount was contributed by natural gas consumption, civil aviation, industrial processes, off-road transportation, waste, agriculture, rail, water-borne navigation, and other fuels.

Emissions associated with the County's operations and its jurisdictional land use area (the unincorporated area) were calculated by the County in an inventory prepared for this EIR (DPLU 2009g). The inventory is discussed in greater detail in Section 2.17.3.1 below and is included in Appendix K of the EIR. The County's inventory includes 2006 emissions, which can be considered a subset of the 2006 emissions in the EPIC inventory. Tables 2.17-4, 2.17-6, and 2.17-7 include the 2006 County emissions. A total of 5.6 MMT CO<sub>2</sub>e was generated by the unincorporated communities and 0.16 MMT CO<sub>2</sub>e from County government operations. These emissions account for about 17 percent of the total emissions from the region. Similar to the region, the two highest contributors for the unincorporated communities were the on-road transportation and electric categories with 52 and 25 percent, respectively. For the government operation, employee commute, buildings, and vehicle fleet, comprised the large majority of the contributions with 45, 34, and 19 percent of the emissions, respectively.

#### **2.17.1.4      *Potential Effects of Global Climate Change***

Many elements of human society and the environment are sensitive to climate variability and change. Human health, agriculture, natural ecosystems, coastal areas, and heating and cooling requirements are examples of climate-sensitive systems. Rising average temperatures are already affecting the environment. Some observed changes include shrinking of glaciers, thawing of permafrost, later seasonal freezing and earlier break-up of ice on rivers and lakes, lengthening of growing seasons, shifts in plant and animal ranges and earlier flowering of trees. Global temperatures are expected to continue to rise as human activities continue to add carbon dioxide, methane, nitrous oxide, and other GHG (or heat-trapping) to the atmosphere.

The extent of climate change effects, and whether these effects prove harmful or beneficial, will vary by region, over time, and with the ability of different societal and environmental systems to adapt to or cope with the change (EPA 2008b). The IPCC estimates that for increases in global mean temperature of less than 1-3 °C (1.8-5.4 degrees Fahrenheit (°F)) above 1990 levels, some places and sectors will see beneficial impacts while others will experience harmful ones. However, some low-latitude and polar regions are expected to experience adverse effects even for small increases in temperature. For increases in temperature greater than 2-3 °C (3.6-5.4 °C), the IPCC says it is very likely that all regions will experience either declines in beneficial effects or increases in adverse effects. "Taken as a whole," the IPCC concludes, "the range of published evidence indicates that the net damage costs of climate change are likely to be significant and to increase over time" (EPA 2008b).

## **2.17.2 Regulatory Framework**

### **2.17.2.1 International**

#### **United Nations Framework Convention on Climate Change (UNFCCC)**

On March 21, 1994, the U.S. joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and

adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

#### **Intergovernmental Panel of Climate Change (IPCC)**

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

#### **Kyoto Protocol**

The treaty known as the Kyoto Protocol was created as a result of UNFCC efforts. Countries signed the treaty to demonstrate their commitment to reducing GHG emissions or to engaging in emissions trading. More than 160 countries representing 55 percent of global emissions (not including the U.S.) are currently participating in the protocol. In 1998, U.S. Vice President, Al Gore, symbolically signed the Protocol; however, in order for the Protocol to be formally ratified the U.S. Congress must adopt it, which has not yet occurred.

### **2.17.2.2 Federal**

#### **U.S. Environmental Protection Agency (EPA)**

The EPA is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The EPA also has jurisdiction over emission sources outside State waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

The EPA currently does not regulate GHG emissions from motor vehicles. In a recent court case, *Massachusetts v. EPA* (Supreme Court Case 05-1120) it was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that EPA regulate four GHG, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was rendered

on April 2, 2007, in which the Court held that petitioners have standing to challenge the EPA and that the EPA has statutory authority to regulate emission of GHG from motor vehicles. EPA is now in the midst of the rulemaking process to respond to this ruling. On May 19, 2009, President Obama proposed a new national fuel economy program which adopts uniform federal standards to regulate both fuel economy and GHG emissions while preserving the legal authorities of DOT, EPA and California. Development of this program is underway.

### **Federal Clean Air Act (CAA)**

The Federal CAA, as amended, establishes air quality standards for several pollutants. These standards are divided into primary standards and secondary standards. Primary standards are designed to protect public health, and secondary standards are intended to protect public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. The CAA requires that regional plans be prepared for non-attainment areas illustrating how the federal air quality standards could be met. The CARB approved the most recent revision of the SIP in 1994, and submitted it to the EPA. The SIP, approved by the EPA in 1996, consists of a list of ROG and NO<sub>x</sub> control measures for demonstrating future attainment of ozone standards. The steps to achieve attainment will continue to require significant emissions reductions in both stationary and mobile sources.

### **Lieberman-Warner Climate Security Act**

The Lieberman-Warner Climate Security Act (S. 2191) is the first GHG cap-and-trade legislation approved by a full Congressional committee on December 5, 2007. The bill, as passed by the Senate Environment and Public Works Committee in an 11-8 vote, would establish a cap-and-trade program within the U.S. requiring a 70 percent reduction in GHG emissions from covered sources, which represent over 80 percent of total U.S. emissions. The bill as amended also includes complementary policies, such as a low carbon fuel standard and provisions aimed at enhancing energy efficiency. The cap on facilities producing HFCs would start in 2010 at 300 MMT CO<sub>2</sub>e and decline to 90 MMT CO<sub>2</sub>e by 2037, remaining at that level through 2050. Emissions from all other covered facilities would be capped at 5,775 MMT CO<sub>2</sub>e in 2012, with this cap decreasing annually to 1,732 MMT CO<sub>2</sub>e in 2050. The two caps combined would result in roughly a 19 percent reduction from 2005 levels in 2020 and a 70 percent reduction from 2005 levels by 2050. Taken together, the bill would reduce overall U.S. GHG emissions by 63 percent by 2050.<sup>1</sup>

## **2.17.2.3 State**

### **California Air Resources Board (CARB)**

The CARB, a part of the California EPA (Cal EPA) is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, the CARB conducts research, sets State ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular

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<sup>1</sup> The Pew Center on Global Climate Change, U.S. Federal Action on Climate Change, <[www.pewclimate.org/federal/analysis/congress/110/lieberman-warner](http://www.pewclimate.org/federal/analysis/congress/110/lieberman-warner)>, accessed April 28, 2008.

emissions. The CARB also has primary responsibility for the development of California's State Implementation Plan, for which it works closely with the federal government and the local air districts.

### **California Code of Regulations (CCR) Title 24**

Although it was not originally intended to reduce GHGs, California Code of Regulations Title 24 Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Energy Commission adopted 2008 Standards on April 23, 2008 and the Building Standards Commission approved them for publication on September 11, 2008. The 2008 updates will become effective on August 1, 2009. The Energy Commission adopted the 2008 changes to the Building Energy Efficiency Standards for the following reasons to: 1) provide California with an adequate, reasonably priced, and environmentally sound supply of energy; 2) respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its GHG emissions to 1990 levels by 2020; 3) pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs; 4) act on the findings of California's Integrated Energy Policy Report (IEPR), which finds that Standards are the most cost effective means to achieve energy efficiency; expects the Building Energy Efficiency Standards to continue to be upgraded over time to reduce electricity and peak demand; and recognizes the role of the Standards in reducing energy related to meeting California's water needs and in reducing GHG emissions; 5) meet the West Coast Governors' Global Warming Initiative commitment to include aggressive energy efficiency measures into updates of State building codes; and 6) meet the Executive Order in the Green Building Initiative to improve the energy efficiency of nonresidential buildings through aggressive standards. Energy efficient buildings require less electricity, and electricity production by fossil fuels results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions.

### **California Assembly Bill (AB) 1493**

California AB 1493 (Pavley) enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce climate change emissions from the light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.<sup>2</sup> However, the Federal EPA has not issued a waiver needed by the State in order to enforce this law. The waiver was denied in 2007 but is currently being reconsidered.

### **Executive Order S-3-05**

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels. The California Climate Action Team's first Report (CAT Report) to the Governor in 2006, contains recommendations and strategies to help ensure

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<sup>2</sup> California Air Resources Board, *Fact Sheet, Climate Change Emission Control Regulations*, December 2004, <[www.arb.ca.gov/cc/factsheets/cc\\_newfs.pdf](http://www.arb.ca.gov/cc/factsheets/cc_newfs.pdf)>, accessed April 28, 2008.

the targets in Executive Order S-3-05 are met.<sup>3</sup> A second report is currently in draft form and available on the California Climate Action Team website:

<http://www.climatechange.ca.gov/publications/cat/index.html>.

**Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (Health and Safety Code Section 38500 et seq.)**

In September 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG in California. GHG as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Under AB 32, CARB has the primary responsibility for reducing GHG emissions and continues the CAT to coordinate Statewide efforts and promote strategies that can be undertaken by many other California agencies. AB 32 requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to State-wide levels in 1990 by 2020.

In general, AB 32 directs the CARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the Statewide GHG limit and the measures required to achieve compliance with the Statewide limit;
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020;
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures;
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the Statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that CARB finds necessary to achieve the Statewide GHG emissions limit; and
- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

Regarding the first two bullets, CARB has already made available a list of discrete early action GHG emission reduction measures. CARB has also published a staff report titled *California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit* that determined the Statewide levels of GHG emissions in 1990. CARB identified 427 MMT CO<sub>2</sub>e as the total Statewide aggregated GHG 1990 emissions level and 2020 emissions limit. In December 2008, CARB adopted the AB 32 Scoping Plan which contains the main strategies California will use to reduce the GHGs that cause climate change. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program.

<sup>3</sup> State of California, Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*, March 2006.

AB 32 requires CARB to prepare a Scoping Plan to achieve reductions in GHG emissions in California. The AB 32 Scoping Plan contains the main strategies California will use to reduce the GHGs that contribute to climate change. The Scoping Plan includes a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. These measures have been introduced through four workshops that were held between November 30, 2007 and April 17, 2008. A draft Scoping Plan was released for public review and comment on June 26, 2008 followed by more workshops in July and August 2008. The Proposed Scoping Plan was released on October 15, 2008 and approved at the Board hearing on December 11, 2008. The plan utilizes SB 375 as the mechanism to achieve land use and vehicle mile travel reduction goals and proposes full deployment of the California Solar Initiative, high-speed rail, water-related energy efficiency measures and a range of regulations to reduce emissions from trucks and from ships docked in California ports. There are also measures designed to safely reduce or recover a range of very potent GHG, such as CH<sub>4</sub> and N<sub>2</sub>O, which have a much higher GWP than CO<sub>2</sub> (see Table 2.17-1).

### **Executive Order S-01-07**

Governor Arnold Schwarzenegger signed Executive Order S-01-07 on January 18, 2007. The order mandates that a State-wide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The process for meeting the 2020 target includes coordination between Cal EPA, the University of California, and the California Energy Commission to develop and propose a draft compliance schedule to meet the 2020 Target by June 30, 2007. The order also requires that a Low Carbon Fuel Standard for transportation be established for California.

### **Senate Bill (SB) 97**

SB 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs OPR to develop draft CEQA Guidelines "for the mitigation of GHG emissions or the effects of GHG emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the State CEQA Guidelines. The Natural Resources Agency will conduct formal rulemaking prior to certifying and adopting the amendments. In accordance with CEQA Guidelines Section 15007, this EIR will not need revisions as a result of the changes to the CEQA Guidelines if they go into effect after the EIR is sent out for public review.

### **Senate Bill (SB) 375**

SB 375 provides a land use and transportation policy to meet the goals of AB 32. SB 375 builds on the existing regional transportation planning process (which is overseen by local elected officials with land use responsibilities) to connect the reduction of GHG emissions from cars and light trucks to land use and transportation policy. SB 375 requires the CARB to establish the GHG emission reduction targets for each region (as opposed to individual cities or households) and to review the region's determination that its plan achieves those targets. SB 375 has three goals to: 1) use the regional transportation planning process to help achieve AB 32 goals; 2) use CEQA streamlining as an incentive to encourage residential projects which help achieve AB

32 goals to reduce GHG emissions; and 3) coordinate the regional housing needs allocation process with the regional transportation planning process.

### **Senate Bill (SB) 1368**

SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the California Energy Commission (CEC) was tasked with establishing a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO<sub>2</sub> per megawatt-hour). A “new long-term commitment” refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the State’s publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the PUC of 1,100 pounds of CO<sub>2</sub> per megawatt hour.

### **Senate Bill (SB) 1078**

SB 1078 establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 107 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcomes of this legislation will impact regional transportation powered by electricity.

### **Additional California Climate Change Initiatives**

The Western Regional Climate Action Initiative was signed on February 26, 2007 by five states: 1) Washington, 2) Oregon, 3) Arizona, 4) New Mexico, and 5) California. British Columbia, Canada joined on April 20, 2007. The Initiative calls for collaboration to identify, evaluate, and implement ways to reduce GHG emissions in the states collectively and to achieve related co-benefits. The Initiative calls for designing a regional market-based multi-sector mechanism, such as a load-based cap and trade program by August 2008. In addition, a multi-state registry will track, manage, and credit entities that reduce GHG emissions. California is also exploring the possibility of cap and trade systems for GHGs. The Market Advisory Committee to CARB published draft recommendations for designing a GHG cap and trade system for California.<sup>4</sup>

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<sup>4</sup> Recommendations of the Market Advisory Committee to the California Air Resources Board, *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*, June 30, 2007, p. iii.

In December 2007, the CEC adopted requirements that new residential construction be designed to meet zero net energy by 2020 with commercial construction meeting this requirement by 2030.<sup>5</sup>

### **2.17.2.4 Local**

#### **San Diego Air Pollution Control District (APCD)**

The APCD has jurisdiction over air quality programs in San Diego County. The APCD regulates most air pollutant sources, except for mobile sources, which are regulated by the CARB or EPA. State and local government projects, as well as projects proposed by the private sector, are subject to APCD requirements if the sources are regulated by the APCD. Additionally, the APCD, along with the CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County. These stations are used to measure and monitor criteria and toxic air pollutant levels in the ambient air.

Under the requirements of the CCAA, each local air district is required to develop its own strategies to achieve both State and federal air quality standards for its air basin. Accordingly, the San Diego Regional Air Quality Strategy (RAQS) was developed pursuant to CCAA requirements and identifies feasible emission control measures to provide expeditious progress in San Diego County toward attaining the State ozone standard. The APCD is responsible for the overall development and implementation of the RAQS.

The ARB's Scoping Plan includes a role for APCD in adopting standards, inventories, and enforcement procedures for reducing GHG, similar to the way in which criteria pollutants are currently regulated in the County. APCD's strategy for regulating GHGs would be developed once the ARB adopts final regulations and programs pursuant to AB 32.

## **2.17.3 Analysis of Project Effects and Determination of Significance**

### **2.17.3.1 Issue 1: Compliance with AB 32**

#### **Guidelines for Determination of Significance**

The CARB has authority to regulate GHG emissions as necessary to meet the emission reduction goals of AB 32. This may include establishing GHG emission reduction requirements for new land use projects and recommendations for Statewide GHG significance thresholds for CEQA studies. However, the CARB has not yet acted on either item.

CEQA gives a lead agency the discretion to determine the significance of environmental impacts identified in its CEQA documents. The County of San Diego has not yet established guidelines for determining significance for climate change. In order for the proposed General Plan Update to not conflict with the goals and strategies of AB 32, the County needs to reduce GHG emissions to 1990 levels by 2020. As a result, achievement of 1990 emission levels by 2020 has been selected as the significance threshold for this project.

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<sup>5</sup> Keith Roberts, Greenhouse Gas Coordinator, City of Sacramento, Written Communication, May 2008.

## **Impact Analysis**

As part of the EIR process for the General Plan Update, the County of San Diego conducted an inventory of GHG emissions for the unincorporated County for the years 1990, 2006 (baseline conditions), and 2020 (project conditions). Although the horizon year for the General Plan Update may be as far out as 2050 based on the draft SANDAG 2050 forecasts adopted in 2010, AB 32 requirements indicate the year 2020 as the limit by which GHG emissions need to be reduced to 1990 levels. Therefore, in order to determine the required reduction necessary for the County to comply with AB 32, the future year of 2020 is used for this analysis. The full report is provided in Appendix K of this EIR. The GHG inventory is divided into two sources: emissions from 1) County government facilities and operations (Government Operations Analysis); and 2) emissions related to land uses within the unincorporated area (Community Analysis).

### **Governmental Operations Analysis**

The GHG emissions for both the 1990 and 2006 Government Operations Analysis were calculated using the Clean Air & Climate Protection (CACP) model which was developed by the National Association of Clean Air Agencies (NACAA), the International Council for Local Environmental Initiatives (ICLEI) and Torre Smith Associates. This program was chosen to be used over the Local Government Operations Protocol released in September 2008 due to the lack of detailed data needed to use the newly released protocol.

The Government Analysis inventory focused on GHG emissions that result from five categories:

1. Electricity and natural gas usage from operation of County buildings;
2. Fuel consumption from operation of the County owned vehicles;
3. Fuel consumption from County employee-owned vehicles (commutes);
4. Water usage from County operations; and
5. Waste generation from County operations.

Emission estimates for 2006 are the most accurate, and are discussed first. Limited data was available for the 1990 inventory. Where data was unavailable, regressive estimates were made using assumptions from 2006 data. Projections of 2020 emissions were calculated using the CACP model based on existing (2006) emission rates. Results and assumptions of the Governmental Operations Analysis are discussed below. Table 2.17-4 summarizes the results of the GHG emissions from government operations.

### ***Government Buildings***

Overall, 2006 data for energy and natural gas consumption from County government buildings was readily available and provided by SDG&E. In 2006, the County's electricity consumption from all its buildings, including street lights, was 115,354,851 kWh. The total County operational natural gas consumption for 2006 was 2,540,445 therms. Based on these results, the CACP model calculated the 2006 GHG emissions from the County's electricity and natural gas consumption to be 54,429 metric tons of CO<sub>2</sub>e.

Operation data for electricity and natural gas consumption in 1990 was not available from SDG&E. In order to estimate 1990 totals, electricity and natural gas usage were regressed

using a methodology based on employee usage rates. The 2006 overall electricity and natural gas consumption was divided by the number of employees to get an annual usage rate per employee. These numbers were then multiplied by the number of employees the County had in 1990 to calculate the total kWh and therms. Based on these results, the CACP model calculated the 1990 GHG emissions from the County's electricity and natural gas consumption to be 48,399 metric tons of CO<sub>2</sub>e.

The projections for 2020 GHG emissions from County government buildings under a "Business as Usual" (BAU) scenario are estimated to increase to 71,022 metric tons of CO<sub>2</sub>e. This scenario does not include any measures incorporated by the County designed to reduce GHG emissions.

### ***Vehicle Fleet***

Although 2006 information on County's vehicle fleet mix and fuel consumption was readily available, 1990 data was limited to fuel consumption only. Therefore, an assumption on the 1990 composition of the fleet mix was based on existing (2006) data.

In 2006, the County's fleet consumed 2,675,949 gallons of unleaded gasoline, 383,391 gallons of diesel and 14,315 gallons of natural gas. The details of the vehicles and equipment that compose the County's fleet are included in Appendix K. Fuel consumption for each vehicle category is based on its proportion within the entire County fleet. For example, the County owns 1,045 vehicles in the light truck/SUV/pickup vehicle category, which comprises about 32 percent of the overall fleet of gasoline engines. Therefore, this category is assumed to consume 32 percent of the gasoline usage for 2006. It was assumed that 100 percent of the diesel consumed was in the CACP category of heavy trucks and the 100 percent of the natural gas consumed was applied to the CACP vehicle passenger vehicle category. In 2006, the total GHG emissions for the County's fleet were estimated at 22,071 metric tons CO<sub>2</sub>e.

Fuel consumption data for 1990 by the County's fleet is estimated to be 1,976,629 gallons of gasoline and 281,690 gallons of diesel. No natural gas vehicles were included in the County's fleet in 1990. Information regarding the 1990 County fleet mix is unavailable, so the 2006 fleet mix proportions were applied to the 1990 fuel consumption total. Using these assumptions, the total CO<sub>2</sub>e for the County's fleet in 1990 was estimated at 22,071 metric tons.

The projections for 2020 GHG emissions from operation of the County's vehicle fleet under the BAU scenario is estimated to increase to 29,696 metric tons of CO<sub>2</sub>e.

### ***Employee Commute***

Generation of GHG from County employee commuter trips was estimated using vehicle miles traveled (VMT) data for fuel types. According to SANDAG, the region-wide daily average one-way work commute distance in 2006 was 13.3 miles. This was then multiplied by 2 for the round trip then by the number of County employees (17,573) for that year to get a daily amount of 467,442 VMT and an annual amount of 121,534,868 VMT from the employee commute.<sup>6</sup> Average vehicle mix and fuel types were then assumed and the emissions from employee commuter trips in 2006 were estimated at 72,797 metric tons CO<sub>2</sub>e.

<sup>6</sup> This is a conservative estimate that includes 5 commuting days/week and 52 weeks/year and does not account for employee holidays, sick days, or vacations.

According to SANDAG, the region-wide daily average one-way work commute distance in 1990 was 10.27 miles. Using the same approach in calculating total annual VMT (89,991,080) and using the same percentages of vehicle mix for the employee commute as the existing (2006) condition, the total CO<sub>2</sub>e in 1990 was estimated at 63,255 metric tons.

The projection of GHG emissions from employee commutes in 2020 is estimated to be 70,201 metric tons of CO<sub>2</sub>e. This projection is the output from the CACP model, which is based on previous assumptions for the 1990 levels and the base year of 2006.

### **Water**

In 2006, the County used approximately 703 million gallons of water as a part of its government operations. According to the Demand Response Research Center, Water Supply Related Electricity Demand in California 2006, the embodied energy in water is equivalent to 0.0085 kWh/gal. This number multiplied by the total 2006 County water usage is 5.97 million kWh. According to the CACP model, that translates to 2,080 metric tons of CO<sub>2</sub>e.

Total water consumption data by the County for 1990 was not readily available. Using the 2006 data, a per employee annual water consumption kWh rate was calculated by dividing the total kWh from water consumption by the number of employees. This number was then multiplied by the number of 1990 employees (16,851 employees) for a total 5.73 million kWh from water usage. Using this number the CACP model calculated a total of 1,799 metric tons of CO<sub>2</sub>e.

The CACP model bases 2020 projections on previous water consumption assumptions for the 1990 levels and the base year of 2006. The CACP model estimates the 2020 County's operational water usage will result in the GHG emission rate of 2,939 metric tons of CO<sub>2</sub>e.

### **Waste**

Estimations of GHG emissions from the generation of waste products were also estimated for County operations. The following categories of waste are included in the CACP model: paper products, food waste, plant debris, wood/textiles, and other waste. Most of the waste generated by the County is paper products from office work and packaging products. Waste amounts per category were based on default California waste characterization for "public administration" from the California Integrated Waste Management Board. The same percentages were used for the 2006, 1990, and 2020 totals.

Records on the amount waste generated by the County and its operations were not readily available. To calculate waste totals in tonnage, the waste generation rate provided by the Office of Federal Environmental Executive of 1.6 pounds per employee per day was used. In 2006, there were 17,573 County employees, totaling 3,515 tons of waste per year. Using "Managed Landfill" as the waste disposal technology used, the 2006 total CO<sub>2</sub>e from waste was calculated to be 1,751 metric tons.

In 1990, there were 16,851 County employees, which amount to 3,370 tons of waste per year. This amount generates a total of 1,680 of CO<sub>2</sub>e from waste from County operations.

Assuming no net increase in the number of County employees in 2020, the CACP model, bases its 2020 projections on the previous waste assumptions used for the 1990 levels and the base year of 2006. Based on this usage, the projection of GHG emissions for 2020 from employee

waste is estimated to be 1,751 metric tons of CO<sub>2</sub>e, which is equivalent to the base year of 2006.

## Community Analysis

A specific regional GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center (EPIC)<sup>7</sup>. The EPIC study is a detailed inventory that takes into account the unique characteristics of the region in calculating emissions. The GHG inventory calculated GHG emissions for 1990, 2006 and projected out emissions for 2020. To the extent possible the EPIC inventory followed the same calculation methodology used by the CARB to develop the State-wide GHG inventory. However, in some instances when doing so would yield more accurate data, the EPIC inventory modified the CARB method.

The County has chosen to use the EPIC study as the basis of the Community Analysis GHG Inventory. Totals for the various categories were calculated using either a per capita or per VMT approach. The per capita methodology uses SANDAG population numbers for the 1990, 2006 and 2020 estimates. Table 2.17-5 includes the population numbers for both the entire region and the unincorporated area of San Diego County for the years 1990, 2006 and 2020. Table 2.17-6 summarizes the results of the emissions estimates provided for each community sector.

The Community Analysis inventory focused on GHG emissions that result from the following categories:

1. Electricity;
2. Waste;
3. On-road Transportation;
4. Off-Road Equipment and Vehicles;
5. Natural Gas;
6. Other Fuels;
7. Wildfires; and
8. Agriculture (Livestock).

### ***Electricity***

According to the EPIC inventory, the GHG emissions from the electricity sector for the entire region in 2006 were 9 MMT CO<sub>2</sub>e. The electricity sector included all of the following uses when calculating total electricity consumption: residential; commercial; industrial; mining; agriculture; transportation, communication, and utilities (TCU); and street lighting. The 2006 population for the entire County (both incorporated and unincorporated areas) was 3,065,077. This equates to a per capita CO<sub>2</sub>e of 2.9 metric tons. This per capita equivalent was then multiplied by the population of the unincorporated area in 2006 (439,374) to get a total of 1,391,224 metric tons of CO<sub>2</sub>e for the electricity sector of the unincorporated area.

The 1990 levels were calculated in the same manner. According to the EPIC inventory, the total CO<sub>2</sub>e for the entire region in 1990 was 6.5 MMT. In 1990 the population for the entire County, including all jurisdictions, was 2,498,016. This equates to a per capita CO<sub>2</sub>e of 2.6 metric tons.

<sup>7</sup> The document is titled, "San Diego County Greenhouse Gas Inventory: An Analysis of Regional Emissions and Strategies to Achieve AB 32 Targets" and is available online at <http://www.sandiego.edu/epic/ghginventory/>.

When multiplied by the 1990 population of the unincorporated area (397,763) the result is a total of 1,035,005 metric tons of CO<sub>2</sub>e for the electricity sector of the unincorporated area.

Similarly, the 2020 forecasts for the unincorporated area were calculated on a per capita approach based on the EPIC inventory's 2020 numbers. The total GHG emissions forecast for the region were divided by SANDAG's projected regional population (3,635,855), and then multiplied by SANDAG's projected population for the unincorporated area (627,142) for a total of 1,897,370 MMT CO<sub>2</sub>e.

The EPIC inventory considered all electricity consumed in the San Diego region, which includes electricity used by commercial (the greatest consumer of electricity), industrial and residential uses. Since most of the commercial uses are found in the incorporated jurisdictions of the County, the per capita approach is a very conservative approach and probably overestimates the CO<sub>2</sub>e for the unincorporated area of the County.

### **Waste**

Emissions from landfills and wastewater treatment constitute about 2 percent of GHG in the region. Biodegradable, carbon-bearing wastes decompose under largely anaerobic conditions to produce landfill gas composed of approximately 50 percent CH<sub>4</sub> and 50 percent CO<sub>2</sub>. CH<sub>4</sub> is a more powerful GHG by a factor of 21 than CO<sub>2</sub> and degradable wastes in landfill continue to degrade for several decades. The treatment of domestic wastewater also results in the release of CH<sub>4</sub> as well as NO<sub>x</sub>.

The GHG emission total for the San Diego region in 2006 from landfill and wastewater treatment was 700,000 metric tons CO<sub>2</sub>e. This equates to a per capita annual rate of 0.23 metric tons of CO<sub>2</sub>e. When multiplied by the population of the unincorporated area for the year 2006, the total for waste was 100,287 metric tons CO<sub>2</sub>e.

According to the EPIC inventory, the total waste emissions in 1990 were actually higher than the 2006 levels at 900,000 metric tons CO<sub>2</sub>e. Since at least 1997, both biogas and landfill gas have been captured for combustion and electricity production. This resulted in a nearly 30 percent reduction in GHG emissions. Using the per capita approach, the average person generated 0.36 metric tons of CO<sub>2</sub>e per year. When multiplied by the population of the unincorporated area for the year 1990, the total for waste was 143,308 metric tons CO<sub>2</sub>e.

The same approach was used to generate 2020 forecasts for the unincorporated area based on the EPIC inventory's 2020 numbers. The total GHG emissions forecasted for the region (900,000 metric tons) were divided by SANDAG's projected regional population (3,635,855), and then multiplied by SANDAG's projected population for the unincorporated area (627,142) for a total of 155,239 metric tons of CO<sub>2</sub>e.

### **On-Road Transportation**

On-road transportation is the single largest contributor of GHG emissions in the San Diego region. According to the SDCGHCI, the total CO<sub>2</sub>e emissions related to transportation for the entire region was 16 MMT in 2006, which accounted for 46 percent of the total GHG inventory. On-road transportation sources include the following vehicles traveling on roadways in the San Diego region: passenger cars; light-, medium-, and heavy-duty trucks; buses; motor homes; and motorcycles. The SDCGHCI report followed the same calculation methodology used by the

CARB, modified as applicable to yield more precise results. The analysis considered CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>.

In the on-road transportation category, the methodology uses a percentage of the total VMT as a more accurate predictor of GHG emissions than the per capita method. The total daily VMT for the unincorporated area was divided by the total daily VMT for the entire region (provided by SANDAG based on its regional traffic models) to determine the percentage of trips in the unincorporated area of the County. This percentage (18.27) was then multiplied by the 16 MMT CO<sub>2</sub>e calculated for 2006 to get a total of 2.92 MMT CO<sub>2</sub>e emissions associated with on-road transportation.

The 1990 CO<sub>2</sub>e total for the transportation sector was calculated in the same manner. The SDCGHI report estimates the total 1990 emissions from on-road transportation as 14.3 MMT CO<sub>2</sub>e. The total daily VMT for the unincorporated area was divided by the total daily VMT for the entire region to determine the percentage of trips in the unincorporated area of the County. This percentage (19.16) was then multiplied by the 14.3 MMT CO<sub>2</sub>e for 1990 to get a total of 2.74 MMT CO<sub>2</sub>e emissions associated with on-road transportation.

2020 VMT totals for the unincorporated area were not readily available from SANDAG so the 2006 percentage (18.27) was applied to the estimated 2020 GHG totals from the on-road transportation sector as reported in the EPIC inventory to get a total of 3.5 MMT CO<sub>2</sub>e for the unincorporated 2020 total.

### ***Off-Road Equipment and Vehicles***

In addition to emissions from on-road vehicles such as cars and trucks, off-road equipment and vehicles emit GHG. The four largest sources of GHG in this category are construction and mining, industrial, pleasure craft (boats), and agriculture. These four categories account for about 80 percent of off-road emissions in 2006<sup>8</sup>. This category was responsible for 1.3 MMT CO<sub>2</sub>e for the entire region in 2006. A per capita approach (0.42 metric tons) was used to calculate the total CO<sub>2</sub>e emissions for the unincorporated area for this category, which was estimated at 186,247 metric tons of CO<sub>2</sub>e in 2006.

The 1990 levels for this category were estimated in the same manner. The 1990 CO<sub>2</sub>e total for the entire region was 1 million metric tons. The GHG emissions for the unincorporated area were estimated using the per capita (0.40 metric tons) approach and totaled 175,889 metric tons of CO<sub>2</sub>e.

The same approach was used to calculate the 2020 GHG emissions. The total GHG emissions forecast for the region (1.8 MMT CO<sub>2</sub>e) was divided by SANDAG's projected regional population (3,635,855), and then multiplied by SANDAG's projected population for the unincorporated area (627,142) to get a total of 275,981 metric tons of CO<sub>2</sub>e in 2020.

### ***Natural Gas***

Natural gas consumption (including commercial, industrial, and residential use) other than that used for electricity production is a substantial source of GHG emissions. In San Diego County, emissions from natural gas consumption, such as space and water heating, account for about 9

<sup>8</sup> It should be noted that this category does not include GHG emissions from civil aviation, water-borne navigation, or rail, which are accounted for separately in the SDCGHI report.

percent of regional GHG emissions. According to the EPIC inventory, the 2006 total CO<sub>2</sub>e emissions were 3 MMT resulting from commercial, industrial and residential use of natural gas. This results in a per capita CO<sub>2</sub>e emission of 0.98 metric tons. When multiplied by the population of the unincorporated area in 2006, the total CO<sub>2</sub>e emissions related to natural gas was 429,801 metric tons.

Surprisingly, the total CO<sub>2</sub>e emissions related to natural gas consumption in 1990 were essentially the same as 2006. This is due in part from a decrease in industrial consumption of natural gas since 1990 and greater efficiencies within the residential sector. Using the unincorporated population in 1990, the per capita CO<sub>2</sub>e emissions were estimated at 1.2 metric tons. This approach resulted in a total of 477,695 metric tons CO<sub>2</sub>e associated with natural gas combustion for the unincorporated area in 1990.

The same approach was used to calculate the 2020 GHG emissions. The total natural gas GHG emissions forecast for the unincorporated County in 2020 are estimated to be 620,957 metric tons CO<sub>2</sub>e.

### ***Other Fuels***

Other fuels include distillate (other than in power production), coal (other than in power production), kerosene, gasoline (other than in transportation), liquefied petroleum gas (LPG), residual fuel oil (other than in power production), and wood. According to the EPIC inventory, there was no primary data available for this sector at the County level. Subsequently, Statewide averages were used and scaled down to the San Diego County level using appropriate economic or population data.

For 2006, the other fuels category was estimated to generate 1.1 MMT CO<sub>2</sub>e. Multiplying the per capita equivalent (0.36 metric ton) by the population of the unincorporated area in 2006 provides an estimated total of 157,594 metric tons CO<sub>2</sub>e.

Estimates of the region-wide 1990 emissions of GHG from other fuels were higher than 2006 levels at 1.4 million metric tons of CO<sub>2</sub>e. The cause for this trend is not known, but it may be due to a decrease in overall manufacturing operations since 1990. Multiplying the per capita equivalent for 1990 (0.64 metric ton) by the population of the unincorporated area in 1990 provides an estimated total of 222,924 metric tons CO<sub>2</sub>e.

The SDCGHCI report indicates an overall decreasing trend for this sector from 1990 levels to a level of 1.3 MMT CO<sub>2</sub>e, or approximately 16 percent more than 2006 levels, but 13 percent less than 1990 levels. The total GHG emissions from other fuels forecast for the unincorporated County in 2020 is estimated to be 224,235 metric tons CO<sub>2</sub>e, using the per capita method.

### ***Wildfires***

When natural vegetation burns it releases the carbon that is inherently stored in vegetation. Wildfires are a common occurrence in Southern California. Historical records show that two to five firestorms per century have occurred since 1425 in the Southern California region. Firestorms have affected Southern California twice in the last decade. The EPIC inventory has used GIS burn data combined with vegetation data to estimate land cover burned each year. The burn areas in San Diego County during the 2003 and 2007 Firestorms were each about 10 times larger than the annual totals seen during the non-firestorm years 1990-2001. The large fires in 2003 and 2007 together released an estimated 14 MMT CO<sub>2</sub>e. In 1990, emissions from

wildfires resulted in 200,000 metric tons CO<sub>2</sub>e. Data for 2006 is not yet available, but the EPIC inventory based the 2006 estimate on the average from 1990-2001, which is 300,000 metric tons CO<sub>2</sub>e. This average was also used to predict GHG emissions in 2020. As the majority of the wildfires often occur in the unincorporated area, the entire totals are assumed to be in the County's jurisdiction.

During non-firestorm years, emissions from wildfires are typically offset by carbon sequestration from vegetation. However, if the local climate should change and become either hotter, drier, or both, the severity of fires could be expected to increase, making long-term carbon sequestration through plant growth in undeveloped areas difficult.

### ***Agriculture (Livestock)***

Agricultural operations generate GHG from livestock emissions, land emissions from forest land, and emissions from aggregate sources such as biomass burning, liming, managed soils, and rice cultivation. In addition, operational emissions are also associated with electricity, natural gas, and fuel consumption from off-road equipment. Land use and operational emissions have been accounted for in other sections of the EPIC inventory, and data from biomass burning, fertilizer rates, and soils are not readily available. Therefore, the discussion of GHG emissions from agriculture in this section focuses on livestock emissions. Livestock emissions are divided into two categories: enteric fermentation and manure management. Enteric fermentation is defined as a fermentation process that takes place in the stomach of ruminant animals, such as cattle. This process produces methane that is released through belching and flatulence. Manure management is the process of gathering and disposing of manure from livestock. As the manure breaks down, methane is released. In 2006, manure management accounted for 65 percent of the GHG emissions in this category while enteric fermentation accounted for 35 percent.

Agricultural emissions make up only a small portion of the GHG inventory for San Diego. Emissions from livestock are less than one percent of the total regional GHG levels. Livestock emissions have consistently been decreasing each year during the period of 1990-2006. The decrease is due to the displacement of farms by urban growth extending into rural areas of the County. The EPIC inventory used data from the San Diego County 2006 Crop Statistics and Annual Report and the U.S. Department of Agriculture National Agricultural Statistics (USDA 2008). Some interpolation and extrapolation was necessary to complete the data sets, which were then combined. Emission estimates for 2020 were projected using a logarithmic decay model.

For manure management, chickens, dairy cows, beef cows, other cows, breeding sheep and hogs were all included for calculations of GHGs. Emissions from enteric fermentation resulted primarily (over 99 percent) from cattle (beef, dairy, and other cows). The estimated GHG emissions from livestock in 1990 were approximately 145,000 metric tons CO<sub>2</sub>e. In 2006, the GHG emissions were reduced to approximately 65,000 metric tons CO<sub>2</sub>e and forecasts for 2020 further reduce the total to 30,000 metric tons CO<sub>2</sub>e. There is no primary data that separates location of livestock according to jurisdiction. Since maintaining livestock requires larger land tracts and appropriate zoning, it is assumed that the entirety of these emissions fall in the County's jurisdiction.

## **Federal, State and Local Regulations and Existing Regulatory Processes**

Multiple federal, State and local regulations exist to reduce GHG emissions throughout the unincorporated County. The proposed General Plan Update is required to comply with AB 32, which is the State regulation requiring GHG emissions be reduced to 1990 levels by 2020. The proposed General Plan Update is also required to comply with CARB rules and regulations that would achieve the GHG reductions stated in AB 32. Any future development, consistent with land uses proposed under the General Plan Update, would be required to comply with Title 24 energy efficiency standards, which would help reduce proposed project GHG emissions. Additionally, all future projects would be required to comply with SB 97, which requires CEQA analysis of GHG emissions and the effects of GHG emissions. Required compliance with air quality standards, such as those of the APCD, CARB, and CAA, would reduce criteria GHG emissions throughout the unincorporated County.

Currently, the County has a number of aggressive outreach and small business assistance programs that promote ways to reduce air and water pollution. This includes a Green Building Program which is designed to educate builders and provide incentives for the incorporation of green building standards (<http://www.sdcounty.ca.gov/dplu/greenbuildings.html>). Additionally, outreach programs are in place that focus on the importance of reducing air quality impacts (lawn mower trade-in program) and reducing solid waste by recycling (compost bin giveaways and transfer station events). The County is also actively engaged in regional efforts to address climate change such as preparation of plans to address SB 375 and coordination on green building approaches, GHG inventories, and CEQA mitigation strategies.

The County is also making its own effort to reduce its GHG emissions. The County has various internal policies in place to reduce GHG emissions from County operations. County Board Policy B-67 requires that preference be given to products which conform to the Minimum Recycled Content Standards. This includes purchases and is used by the County of San Diego, its contractors, and its grantees in its procurement practices. Similarly, the County has established design standards (Board Policy G-15) for County facilities that set forth appropriate techniques, materials, and technology to improve public accessibility, energy performance, resource utilization, and the work environment. In the recent past, several County facilities either have been built to LEED standards or have incorporated renewable energy resources such as photovoltaic technology.

## **Proposed General Plan Update Goals and Policies**

The proposed General Plan Update includes goals and policies within the Land Use and Conservation Element and Open Space Element that were developed to reduce GHG emissions throughout the unincorporated County. Within the Land Use Element, Goal LU-5 addresses climate change and land use by creating a land use plan and associated development techniques and patterns that reduce emissions of local GHG in accordance with State initiatives, while promoting public health. Goal LU-5.3 would support this goal by preserving existing undeveloped and rural areas (e.g., forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas) to provide carbon sequestration benefits.

Within the Conservation and Open Space Element, Goal COS-15 promotes sustainable architecture and building techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment. Policies,

COS-15.1, COS-15.2, and COS-15.3 would support this goal by encouraging design and construction of new buildings and upgrades of existing buildings to maximize energy efficiency and reduce GHG. Goal COS-17 promotes sustainable solid waste management. Policies COS-17.1 and COS-17.5 would support this goal by reducing GHG emissions through waste reduction techniques and methane recapture. Goal COS-18 promotes energy systems that reduce consumption of non-renewable resources and GHG. Policy LU-18.2 would support this goal by encouraging methane sequestration and other sustainable strategies to reduce GHG emissions from waste disposal sites. Goal COS-20 promotes GHG reduction through governance and administration. Policies COS-20.1, COS-20.2, and COS-20.4 would support this goal by requiring the preparation of a Climate Change Action Plan, establishing a program to monitor GHG emissions, and promoting public education on GHG emission reduction techniques.

In addition to the goals and policies identified above, Table I-1 in the proposed General Plan document identifies policies that carry out the primary objectives of AB 32. Please refer to this table for General Plan policies that propose strategies to reduce GHG and adapt to affects of climate change.

### **Summary**

Table 2.17-7 summarizes the combined GHG emissions in the unincorporated County from government operations and community sources. By the year 2020, GHG emissions are projected to increase to 7.1 MMT CO<sub>2</sub>e (from 5.3 MMT CO<sub>2</sub>e in 1990) without incorporation of any GHG-reducing policies or mitigation measures. This amount represents an increase of 24 percent over 2006 levels, and a 36 percent increase from estimated 1990 levels. This is considered a potentially significant impact.

By the year 2020, the GHG emissions associated with the County's governmental operations is projected to increase by an approximate total of 0.038 MMT over 1990 levels, from 0.137 MMT in 1990 to 0.176 MMT in 2020. To reduce the County's operational GHG emissions back to the levels estimated in 1990, the County will have to reduce its operational emissions by approximately 33 percent below 2020 levels to comply with the goals of AB 32.

Meanwhile the GHG community emissions from the entire unincorporated area are expected to increase from 5.1 MMT in 1990 to about 7.0 MMT in 2020. To achieve 1990 GHG levels by 2020, the unincorporated area community emissions would have to be reduced by approximately 36 percent below 2020 levels.

Overall, the GHG emissions from the community sector of the County represent the overwhelming source of GHG for the County, comprising 98 percent of the overall total. Therefore, measures incorporated at the community level would result in the most substantial reductions in GHG emissions.

### **2.17.3.2     *Issue 2: Potential Effects of Global Climate Change on the General Plan Update***

#### **Guidelines for Determination of Significance**

Currently, no thresholds or guidelines exist for the determination of significance of the effects of global climate change on a project. Therefore, in the absence of published thresholds, global climate change would be considered to have a significant effect if it would subject development associated with the General Plan Update to substantial climate-related risks to public health or safety.

#### **Impact Analysis**

The San Diego Foundation's Regional Focus 2050 Working Paper and Technical Assessment explored what the San Diego region would be like in the year 2050 if current climate change trends continue. The range of impacts presented in the Focus 2050 Working Paper and Technical Assessment are based on projections of climate change on the San Diego region using three climate models and two emissions scenarios drawn from those used by the IPCC. A summary of the potential adverse effects of Climate Change on the County of San Diego, as projected in the Focus 2050 Working Paper and Technical Assessment, is provided below.

#### **Climate**

From observations and model historical simulations, it appears that temperatures began to warm more substantially in the 1970s. Some scientists attribute the change to the response to the effects of GHG accumulation, which began to increase substantially during this time. All of the climate model simulations exhibit warming across San Diego County, ranging from about 1.5 °F to 4.5 °F, with some differences in the timing and geographic distribution of the changes. The models predict greater warming in the summer than in winter, with surface air temperatures warming from 0.7 °F to more than 2 °F over that found in winter. Temperature changes for areas along the coast would be moderated by the influence of the Pacific Ocean, but interior areas, where the greatest population growth would occur, would experience the greatest temperature increase.

The months when San Diego County experiences the most extreme warm temperatures, currently mostly in July and August, will likely begin in June and extend until September. It is estimated that the inland portion of the County may have more than a threefold increase in hot days in 2050. Experts generally conclude that rainfall will continue to vary widely from year to year, leaving San Diego County highly vulnerable to drought. The changes in climate would have the potential to impact future development under the General Plan Update because the majority of the unincorporated County is located inland, where more extreme temperature increases are expected. Therefore, the unincorporated County would be vulnerable to potential drought, wildfires, and public health risks resulting from changes in climate in the County, as described below.

#### **Sea Level**

If current climate change trends continue, rising sea levels will have a major impact on the San Diego region's environment and economy, particularly in coastal areas. When high tide occurs

during a large storm, particularly in El Niño winters, flooding will threaten homes, businesses, and hotels in low-lying coastal communities such as Imperial Beach, Coronado, Mission Beach, La Jolla Shores, Del Mar, and Oceanside. Flooding may also impact military, port and airport operations. High surf events will last for more hours, with waves causing even greater coastal erosion and related damage. Rising sea levels will wear away the foundations of sea bluffs, such as those found in Solana Beach or Torrey Pines and significantly change the County coastline. Sandy beaches and nearby wetlands serve as a barrier to protect coastline developments from high surf. As these areas shrink from more intense wave activity, there may be a greater need for beach sand replenishment. More seawalls and breakwaters may need to be built to defend homes and businesses from coastal flooding. In addition to being extremely costly, these structures will destroy beaches and wetlands that do not have space to shift inland. Wetlands and estuaries could be devastated, leaving beaches exposed to more pollutants that endanger human and marine life. While most of the unincorporated County is located inland and would not be directly impacted by sea level rise, future development under the General Plan Update in the San Dieguito CPA would have the potential to be at risk for flooding because of its proximity to the coast. The coastal area of the Pendleton/De Luz CPA would also be at risk for flooding associated with sea level rise; however, this area is within the jurisdiction of USMC Camp Pendleton, not the County of San Diego.

### **Water Supply**

The County Water Authority predicts an increase in water demand for San Diego County of around 24 percent, from 668,000 acre-feet/year (the 2001-2005 average) to about 830,000 acre-feet/year in 2030. About 70 percent of this demand is expected to come from imported sources. By 2050, the expected demand will increase to 915,000 acre-feet/year, which is an increase of 37 percent over the 2001-2005 period. By 2050, about 80 percent of the water supply is expected to be imported.

Drought years, which have historically increased water demand by another seven percent, might occur as much as 50 percent as often and be considerably drier. In drought years, parched soil soaks up more surface water and groundwater, increasing the need for imported and other water supplies. At the same time that the County demand for water would increase, climate change could shrink the Colorado River flow (a major source of imported water for the County) by 20 percent or more. A decline in the Sierra Nevada snowpack, aggravated by increased temperatures, could impact the water flow of many Northern California Rivers which serve as primary sources of water to the California Aqueduct, a major source of imported water for the County. San Diego's water supply plans are likely to be severely challenged by climate change. Even with plans in place to conserve, recycle, and augment our available water, it is estimated San Diego County could face an 18 percent shortfall in water supply by 2050 (San Diego Foundation 2008). As discussed in Section 2.16.3.4, Issue 4: Adequate Water Supplies, due to uncertainties surrounding the implementation of future water supply projects, water supplies may be inadequate to serve the build out of the proposed General Plan Update. Additional reductions in water supply as a result of climate change would further impact the availability of water to support future development under the General Plan Update.

### **Water Quality**

Increased temperatures and changes in precipitation patterns can also affect the quality of water supplies (EPA 2009a). For example, changes in runoff patterns can result in additional pollution and sedimentation in surface waters; and changes in evaporation rates or sea level rise can increase salinity within freshwater bodies and within groundwater basins.

As discussed in Section 2.8.1.4, Water Quality, increased pollutants can lead to contaminated drinking water for humans and animals, potentially leading to adverse public health issues. Moreover, excessive sedimentation can adversely affect aquatic organisms, hinder photosynthesis, and disrupt lifecycle and behavioral activities of wildlife.

### **Wildfires**

Fire occurrence has steadily increased in Southern California, in direct proportion to human population growth as most ignitions are caused by human activities. Most fires start during the summer, when coastal sage and chaparral vegetation have dried to a highly flammable state. Fires that start during the fall, however, burn many more acres because flames are intensified and spread by hot, dry Santa Ana winds. It is not entirely clear from climate change models how Santa Ana conditions will affect San Diego regional fire regimes in the future. Some models predict a decrease in the frequency and intensity of Santa Ana conditions while others predict an increase, particularly during the fire season. If Santa Ana conditions increase significantly earlier in the fire season, this shift could increase the incidence of massive Santa Ana fires, because the winds will begin gusting during the time of year when most fires start. More frequent fires would threaten native plant species by not allowing sufficient recovery time before they burn again. This would allow weedy, non-native species, which thrive in post-fire conditions, to multiply. Weedy invaders dry out earlier in the year, catch fire more easily, and burn faster than native plants.

Additionally, if current trends continue, the San Diego region will experience a population increase, with more development and human activities in backcountry areas over the coming decades. As a result of climate change, we can expect higher spring temperatures, scorching summers, drier vegetation, and longer fire seasons. A simultaneous occurrence of all of these factors will increase the likelihood of more devastating firestorms similar to those that destroyed many homes and lives in the unincorporated County during 2003 and 2007. As discussed in Section 2.7.3.8, Issue 8: Wildland Fires, the vast majority of the unincorporated County is already ranked as having a high or very high fire hazard risk. Future development under the General Plan Update would increase the population in the unincorporated County, which would result in greater wildland fire risks to people and structures. Climate change has the potential to increase the already high fire hazard risk to future development projects occurring under the General Plan Update.

### **Ecosystems**

San Diego County beaches, canyons, mountains and deserts support a vast variety of plants and animals, some of which are found nowhere else on the planet. This biodiversity is already under stress from human population growth and land use changes that have broken up and reduced species habitat into fragmented areas. The impacts of climate change will add to the pressures on habitats and the species that live in the County. As a result, the locations where the temperature, moisture, and other environmental conditions are suitable for a particular species will shift. Plant and animal species are generally able to adapt to shifting habitats, but under existing trends, climate change would occur so rapidly that ecological conditions may shift faster than species are able to follow. To survive, some animals and plants will have to move up to 95 miles over the next century to find new habitat or they will face extinction. Drought and unusually warm years have already led to growing insect populations, such as bark beetles, which have attacked and killed drought-stressed trees in San Diego County. With warmer weather, the County's forests will lose even more trees. Ecological changes will cascade, as

the loss of one species will challenge the ability of other species up and down the same food chain to survive. Top predators like coyotes may be lost if habitat patches become too small or isolated, and that can lead to an increase in smaller predators that prey on native songbirds. As discussed in Section 2.4.3.1, Issue 1: Special Status Plant and Wildlife Species, future development under the General Plan Update would have the potential to impact plant and wildlife species in the County through direct removal of habitat or indirectly through impacts such as water quality, fugitive dust emissions, and introduction of non-native species. Climate change would increase the severity of impacts to biological resources that would occur from future development under the General Plan Update.

## **Public Health**

Increased heat, air pollution, wildfires, and infectious disease will cause illness and death in San Diego County, especially among the elderly, children, and the chronically ill. Californians experience the worst air quality in the nation, and San Diego is currently out of compliance with the federal ozone standard. By 2050, more hot sunny days will increase ozone air pollution levels, which can exacerbate asthma and other respiratory and cardiovascular diseases. Fire-related injuries and death are likely to increase as intense wildfires occur more frequently. Wildfires can also be a significant contributor to air pollution. Wildfire smoke contains numerous toxic and hazardous pollutants that are dangerous to breathe and can worsen lung disease and other respiratory conditions. As discussed above, the project area is already at risk for wildfire and climate change would potentially increase the risk. Therefore, future development proposed under the General Plan Update would be exposed to air pollution and associated health risks as a result of increased wildfires. Additionally, future development proposed under the General Plan Update would be exposed to a regional increase in ozone air pollution levels and associated health impacts as a result of climate change.

Warmer temperatures year-round could lead to growing mosquito populations, increasing the occurrence of West Nile Virus in the San Diego region. Hot weather could also bring tropical diseases such as malaria and dengue fever to the region for the first time. In coastal waters, conditions are likely to favor more frequent “red tides” or harmful algal blooms, which can harbor toxic bacteria and other diseases. In 2050, with an aging population and more residents living in areas with extreme-heat conditions and poor air quality, the San Diego region will face intensified public health concerns. As discussed above, inland areas of the County are expected to experience greater increases in temperature than coastal areas. The majority of the unincorporated County is located in inland areas; therefore, future development under the General Plan Update would potentially be exposed to increased health risks from increased temperature due to climate change.

## **Energy Needs**

If current climate change trends continue, warmer temperatures and a growing population will translate into big challenges for the San Diego region’s energy supply by 2050. The main impact will be higher demand for electricity as a result of the greater need for summer cooling, especially in inland areas where both regional population growth and temperature increases will be highest. Hotter summers and more frequent, longer and intense heat waves will increase peak demand for electricity, which could result in blackouts and power outages without adequate planning. As discussed in Section 2.16.3.8, Issue 8: Energy, the construction or expansion of energy facilities would be required to support future development under the General Plan Update. Additionally, the majority of the unincorporated County is located inland,

where temperature increases are expected to be the greatest. Climate change would increase the need for new or expanded energy facilities in the County to provide summer cooling for future development projects proposed under the General Plan Update. It would also increase the potential for future development under the General Plan Update to be subject to blackouts and power outages.

### **Federal, State and Local Regulations and Existing Regulatory Processes**

Compliance with CEQA would be required for all future discretionary development projects. Depending on the type and size, the individual project may be required to assess and mitigate the potential adverse effects associated with climate change. Additionally, multiple federal, State and local regulations exist to reduce GHG emissions throughout the unincorporated County, and such reductions would also reduce the adverse effects associated with climate change. The proposed General Plan Update would be required to comply with AB 32, which is the State regulation requiring GHG emissions to be reduced to 1990 levels by 2020. The proposed General Plan Update would also be required to comply with CARB rules and regulations that would achieve the GHG reductions stated in AB 32. Future development consistent with land uses proposed under the General Plan Update would be required to comply with Title 24 energy efficiency standards, which would help reduce GHG emissions. Required compliance with air quality standards, such as those of the APCD, CARB, and CAA, would reduce criteria GHG emissions throughout the unincorporated County. In addition, multiple County policies, such as BOS Policies B-67 and G-15, exist to assist in the reduction of GHG emissions and adverse effects associated with climate change.

### **Proposed General Plan Update Goals and Policies**

There are multiple goals and policies within the proposed General Plan Update that would reduce the adverse effects of climate change. Table I-1 in the proposed General Plan document identifies multiple policies in the San Diego County General Plan that would reduce adverse impacts associated with climate change. Please refer to this table in the General Plan to see the full inventory of policies that propose strategies to reduce GHG and adapt to effects of climate change.

### **Summary**

Climate change impacts that would be most relevant to the unincorporated County are the effects on water supply, wildfires, energy needs, and impacts to public health. The climate change scenarios described above project impacts to the year 2050, which is further in the future than the scope of the General Plan Update, which plans for development to the year 2030. Also, the climate system is inherently complex and predictions of effects are likely to be refined as information becomes more readily available. Regardless, impacts that may affect the County as a result of climate change impacts are considered potentially significant.

## **2.17.4 Cumulative Impacts**

### **2.17.4.1 Issue 1: Compliance with AB 32**

Climate change is a global phenomenon which is cumulative by nature, as it is the result of combined worldwide contributions of GHG to the atmosphere over many years. Therefore,

impacts associated with the proposed General Plan Update discussed above also serve as the proposed project's cumulative impact.

#### **2.17.4.2     *Issue 2: Effects of Global Climate Change on the General Plan Update***

Climate change is a global phenomenon which is cumulative by nature, as it is the result of combined worldwide contributions of GHG to the atmosphere over many years. Therefore, significant direct impacts associated with the proposed General Plan Update discussed above also serve as the proposed project's cumulative impact.

### **2.17.5        Significance of Impact Prior to Mitigation**

Prior to mitigation, the proposed General Plan Update would have a potentially significant impact associated with compliance with AB 32. Additionally, future development consistent with the land uses proposed under the General Plan Update would be significantly impacted by the adverse effects of climate change. The direct impacts discussed in Section 2.17.3.1, Issue 1: Compliance with AB 32 and Section 2.17.3.2, Issue 2: Effects of Global Climate Change on the General Plan Update, also serve as the cumulative impacts for climate change. Therefore, the proposed project would have a potentially significant cumulative impact.

### **2.17.6        Mitigation**

#### **2.17.6.1     *Issue 1: Compliance with AB 32***

To achieve 1990 levels of GHG for both the County's operations and for the community emissions, mitigation measures would be necessary. The goal of AB 32 is to reduce 2020 emissions to 1990 levels. The proposed General Plan Update would allow for additional growth in the County that would contribute to additional GHG emissions. General Plan Update policies and mitigation measures (described below), have been identified that would minimize the potentially significant impact to AB 32. However, as detailed in the State's Scoping Plan, in order to achieve AB 32 levels, action will be required at all levels of government. Several federal and State programs will have a significant role in reducing emissions. Many of these programs are already underway; however, some are in their infancy and full implementation has not yet been realized and others are merely anticipated. While the State's commitment to AB 32 provides some assurances that these efforts will come to complete fruition, they are beyond the authority of the County. Without them, a greater burden would be placed on the County in order to achieve the AB 32 targets. Nevertheless, the County has committed to achieving the 1990 emission levels by 2020 in the proposed General Plan Update. This commitment is supported by numerous General Plan Update policies and mitigation measures listed below. Therefore, impacts related to GHG emissions and compliance with AB 32 would be reduced to a less than significant level.

#### **General Plan Update Policies**

Implementation of the following General Plan Update policies, in combination with those listed in Table I-1 of the proposed General Plan Update, and mitigation measures listed below would reduce proposed project impacts related to compliance with AB 32 to below a significant level.

**COS-10.7: Recycling of Debris.** Encourage the installation and operation of construction and demolition (C&D) debris recycling facilities as an accessory use at permitted (or otherwise authorized) mining facilities to increase the supply of available mineral resources.

**COS-15.1: Design and Construction of New Buildings.** Require that new buildings be designed and constructed in accordance with “green building” programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.

**COS-15.2: Upgrade of Existing Buildings.** Promote and, as appropriate, develop standards for the retrofit of existing buildings to incorporate architectural features, heating and cooling, water, energy, and other design elements that improve their environmental sustainability and reduce GHG.

**COS-15.3: Green Building Programs.** Require all new County facilities and the renovation and expansion of existing County buildings to meet identified “green building” programs that demonstrate energy efficiency, energy conservation, and renewable technologies.

**COS-17.1: Reduction of Solid Waste Materials.** Reduce greenhouse gas emissions and future landfill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with State law.

**COS-17.5: Methane Recapture.** Promote efficient methods for methane recapture in landfills and the use of composting facilities and anaerobic digesters and other sustainable strategies to reduce the release of GHG emissions from waste disposal or management sites and to generate additional energy such as electricity.

**COS-18.2: Energy Generation from Waste.** Encourage use of methane sequestration and other sustainable strategies to produce energy and/or reduce GHG emissions from waste disposal or management sites.

**COS-20.1: Climate Change Action Plan.** Prepare, maintain, and implement a climate change action plan with a baseline inventory of GHG emissions from all sources, GHG emissions reduction targets and deadlines, and enforceable GHG emissions reduction measures.

**COS-20.2: GHG Monitoring and Implementation.** Establish and maintain a program to monitor GHG emissions attributable to development, transportation, infrastructure, and municipal operations and periodically review the effectiveness of and revise existing programs as necessary to achieve GHG emission reduction objectives.

**COS-20.4: Public Education.** Continue to provide materials and programs that educate and provide technical assistance to the public, development professionals, schools, and other parties regarding the importance and approaches for sustainable development and reduction of GHG emissions.

### **Mitigation Measures**

The County’s governmental operational emissions for 2020, assuming a BAU scenario, would total approximately 175,609 MT of CO<sub>2</sub>e. This is approximately 38,405 MT of CO<sub>2</sub>e more than

the 1990 level of 137,204 MT of CO<sub>2</sub>e. The mitigation measures discussed below are projected to reduce the County governmental operational GHG emissions to a level below the 1990 levels. Table 2.17-8, shows the projected emission reductions associated with each category. Reductions identified in Table 2.17-8 are based on the 2020 BAU projection. The GHG Reduction Climate Change Action Plan, which would be prepared as a mitigation measure, would further detail the County's GHG emissions and where the reductions will occur.

The Community emissions for 2020, assuming no mitigation, would total approximately 6,975,287 MT of CO<sub>2</sub>e. This is 1,835,466 MT of CO<sub>2</sub>e more than the 1990 level of 5,139,821 MT of CO<sub>2</sub>e. The mitigation measures discussed below are projected to reduce the Community GHG emissions to 1990 levels when combined with federal, State, and regional programs. Table 2.17-9, shows the projected emission reductions associated with each section in the Community category. Reductions identified in Table 2.17-9 are based on the 2020 BAU projection. The GHG Reduction Climate Change Action Plan, which would be prepared as a mitigation measure, would further detail the community GHG emissions, and describe where and how the reductions would occur.

- CC-1.1** Update the County Green Building Program to increase effectiveness of encouraging incentives for development that is energy efficient and conserves resources through incentives and education.
- CC-1.2** Prepare a County Climate Change Action Plan with an update baseline inventory of greenhouse gas emissions from all sources, more detailed greenhouse gas emissions reduction targets and deadlines; and a comprehensive and enforceable GHG emissions reduction measures that will achieve a 17% reduction in emissions from County operations from 2006 by 2020 and a 9% reduction in community emissions between 2006 and 2020. Once prepared, implementation of the plan will be monitored and progress reported on a regular basis.
- CC-1.3** Work with SANDAG to achieve regional goals in reducing GHG emissions associated with land use and transportation.
- CC-1.4** Review traffic operations to implement measures that improve flow and reduce idling such as improving traffic signal synchronization and decreasing stop rate and time.
- CC-1.5** Coordinate with the San Diego County Water Authority and other water agencies to better link land use planning with water supply planning with specific regard to potential impacts from climate change and continued implementation and enhancement of water conservation programs to reduce demand. Also support water conservation pricing (e.g., tiered rate structures) to encourage efficient water use.
- CC-1.6** Implement and expand County-wide recycling and composting programs for residents and businesses. Require commercial and industrial recycling.
- CC-1.7** Incorporate the California ARB's recommendations for a climate change CEQA threshold into the County Guidelines for Determining Significance for Climate Change. These recommendations will include energy, waste, water, and

transportation performance measures for new discretionary projects in order to reduce GHG emissions. Should the recommendation not be released in a timely manner, the County will prepare its own threshold.

- CC-1.8** Revise County Guidelines for Determining Significance based on the Climate Change Action Plan. The revisions will include guidance for proposed discretionary projects to achieve greater energy, water, waste, and transportation efficiency.
- CC-1.9** Coordinate with APCD, SDG&E, and the California Center for Sustainable Energy to research and possibly develop a mitigation credit program. Under this program, mitigation funds will be used to retrofit existing buildings for energy efficiency to reduce GHG emissions.
- CC-1.10** Continue to implement the County Groundwater Ordinance, Watershed Protection Ordinance (WPO), Resource Protection Ordinance (RPO), MSCP and prepare MSCP Plans for North and East County in order to further preserve wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas and other open space that provide carbon sequestration benefits and to restrict the use of water for cleaning outdoor surfaces and vehicles. The WPO also implements low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on-site can drastically reduce the need for energy-intensive imported water at the site.)
- CC-1.11** Revise the Ordinance Relating to Water Conservation for Landscaping to further water conservation to:
- Create water-efficient landscapes and use water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
  - Use reclaimed water for landscape irrigation.
  - Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff.
  - Provide education about water conservation and available programs and incentives.
- CC-1.12** Continue to coordinate with resource agencies, CALFIRE, and fire districts to minimize potential wildfire risks in the County and to plan for the potential increase in future risk that may result from Climate Change.
- CC-1.13** Continue to implement and revise as necessary the Regional Trails Plan as well as the Community Trails Master Plan to connect parks and publicly accessible open space through shared pedestrian/bike paths and trails to encourage walking and bicycling.
- CC-1.14** Provide public education and information about options for reducing greenhouse gas emissions. In addition to addressing land development, education should also address purchasing, conservation, and recycling.

- CC-1.15** Reduce VMT and encourage alternative modes of transportation by implementing the following measures:
- During Community Plan updates, establish policies and design guidelines that: encourage commercial centers in compact walkable configurations and discourage “strip” commercial development
  - Expand community bicycle infrastructure.
  - Revise the Off-Street Parking Design Manual to include parking placement concepts that encourage pedestrian activity and concepts for providing shared parking facilities.
  - Establish comprehensive planning principles for transit nodes such as the Sprinter Station located in North County Metro.
  - Continue to locate County facilities near transit facilities whenever feasible.
  - Coordinate with SANDAG, Caltrans, and tribal governments to maximize opportunities to locate park and ride facilities.
  - Continue to coordinate with SANDAG, Caltrans, and transit agencies to expand the mass transit opportunities in the unincorporated county and to review the location and design of transit stops. Establish a DPLU transit coordinator to ensure land use issues are being addressed.
  - Update the Zoning Ordinance to require commercial, office, and industrial development to provide preferred parking for carpools, vanpools, electric vehicles, and flex cars.
- CC-1.16** Develop and implement a Strategic Energy Plan to increase energy efficiency in existing County buildings and set standards for any new County facilities that will ultimately reduce GHG emissions. This will include implementation of the following measures as will be detailed within the Plan:
- Improve energy efficiency within existing operations through retrofit projects, updated purchasing policies, updated maintenance/operations standards, and education.
  - Improve energy efficiency of new construction and major renovations by applying design criteria and participating in incentive programs.
  - Provide energy in a reliable and cost-effective manner and utilize renewable energy systems where feasible.
  - Monitor and reduce energy demand through metering, building controls, and energy monitoring systems.
  - Increase County fleet fuel efficiency by acquiring more hybrid vehicles, using alternative fuels, and by maintaining performance standards for all fleet vehicles.
- CC-1.17** Develop and implement a County Operations Recycling Program. This will include implementation of the following measures as will be detailed within the Program:

- Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.
- Recover by-product methane to generate electricity.
- Provide education and publicity about reducing waste and available recycling services.

**CC-1.18** Develop and implement a County Operations Water Conservation Program.

**CC-1.19** Revise the Zoning Ordinance to facilitate recycling salvaged concrete, asphalt, and rock.

### **2.17.6.2    *Issue 2: Effects of Global Climate Change on the General Plan Update***

The proposed General Plan Update policies and corresponding mitigation measures identified above in Section 2.17.6.1, Issue 1: Compliance with AB 32, in combination with applicable regulations including the CAA, Lieberman-Warner Climate Security Act, CARB standards, Title 24 standards, Executive Order S-3-05, AB 32, Executive Order S-01-07, SB 97, SB 1368, SB 1078, APCD standards and existing County programs and policies, would mitigate direct and cumulative impacts to development from adverse effects of climate change. Additional relevant proposed General Plan Update policies and corresponding mitigation measures that would address impacts from climate change on the General Plan Update are identified in the respective issue sections in this EIR. Because climate change is a global issue, the efforts made by the County and even the State to reduce GHG emissions will not avoid the consequences of excessive GHG emissions throughout the world. However, with AB 32, the State of California has committed to addressing its share of the issue and with the General Plan Update, the County would be committing to their share as well. Additionally, the policies and mitigation measures proposed with the General Plan Update enable the County to readily respond to adverse consequences from global climate change. Therefore, the impacts related to effects of climate change on the General Plan Update would be reduced to a less than significant level.

## **2.17.7       Conclusion**

The discussion below provides a synopsis of the conclusion reached in each of the above impact analyses, and the level of impact that would occur after mitigation measures are implemented.

### **2.17.7.1    *Issue 1: Compliance with AB 32***

By the year 2020, GHG emissions are projected to increase to 7.1 MMT CO<sub>2</sub>e (from 5.3 MMT CO<sub>2</sub>e in 1990) without incorporation of any GHG-reducing policies or mitigation measures. This amount represents an increase of 24 percent over 2006 levels, and a 36 percent increase from estimated 1990 levels. Therefore, the proposed project would result in a potentially significant impact related to compliance with AB 32. Additionally, the proposed project would result in a

potentially significant cumulative impact. The proposed General Plan Update policies and mitigation measures would reduce direct and cumulative impacts related to compliance with AB 32 and would mitigate these impacts to a level below significant.

#### **2.17.7.2    *Issue 2: Effects of Global Climate Change on the General Plan Update***

Climate change impacts that would be most relevant to the unincorporated County, and the proposed General Plan Update, include effects on water supply, wildfires, energy needs, and impacts to public health. The proposed General Plan policies and mitigation measures discussed above, in addition to compliance with applicable regulations such as the CAA, Lieberman-Warner Climate Security Act, CARB standards, Title 24 standards, Executive Order S-3-05, AB 32, Executive Order S-01-07, SB 97, SB 1368, SB 1078, APCD standards and existing County programs and policies, would mitigate the potential direct and cumulative impacts of global climate change to a level below significant.

**Table 2.17-1. Global Warming Potentials and Atmospheric Lifetimes of Basic GHGs**

<b>GHG</b>	<b>Formula</b>	<b>100-year global warming potential<sup>(1)</sup></b>	<b>Atmospheric lifetime (yrs)</b>
Carbon dioxide	CO <sub>2</sub>	1	Variable
Methane	CH <sub>4</sub>	21	12 (± 3)
Nitrous oxide	N <sub>2</sub> O	310	120
Sulphur hexafluoride	SF <sub>6</sub>	23,900	3,200

<sup>(1)</sup> The warming effects over a 100-year time frame relative to other GHGs.

Source: EPA 2006

**Table 2.17-2. State of California GHG Emissions by Sectors in 2004**

<b>Sector</b>	<b>Total Emissions (MMT CO<sub>2</sub>e)</b>	<b>Percent of Total Emissions</b>
Agriculture	27.9	6
Commercial	12.8	3
Electricity Generation	119.8	25
Forestry (excluding sinks)	0.2	<1
Industrial	96.2	20
Residential	29.1	6
Transportation	182.4	38
Misc*	16.0	--
Total (Gross) Emissions	484.4	N/A
Forestry Sinks	-4.7	--
Net Emissions	479.7	N/A

\* Unspecified fuel combustion which could not be attributed to an individual sector.

Percents may not total 100 due to rounding.

Source: CARB 2007

**Table 2.17-3. County of San Diego GHG Emissions by Category (2006)**

<b>Sector</b>	<b>Total Emissions (MMT CO<sub>2</sub>e)</b>	<b>Percent of Total Emissions</b>
On-Road Transportation	15.6	46
Electricity	8.5	25
Natural Gas Consumption	3	9
Civil Aviation	1.7	5
Industrial Processes & Products	1.6	5
Other Fuels / Other	1.1	4
Off-Road Equipment & Vehicles	1.3	4
Waste	0.7	2
Agriculture/Forestry/Land Use	0.4	2
Rail	0.3	1
Water-Borne Navigation	0.1	0.4
<b>Total</b>	<b>34.4</b>	<b>100</b>

Note: Numbers may not total to 100 percent due to rounding

Source: Energy Policy Initiative Center, University of San Diego School of Law, 2008

**Table 2.17-4. County of San Diego Government Operational GHG Emissions  
(metric tons CO<sub>2</sub>e)**

<b>Category</b>	<b>1990 Totals</b>	<b>2006 Totals</b>	<b>2020 Projections<sup>(1)</sup></b>
Buildings	48,399	54,429	71,022
Vehicle Fleet	22,071	29,719	29,696
Employee Commute	63,255	72,797	70,201
Water	1,799	2,080	2,939
Waste	1,680	1,751	1,751
<b>Total</b>	<b>137,204</b>	<b>160,776</b>	<b>175,609</b>

<sup>(1)</sup> Assumes a Business as Usual scenario, i.e., development of the General Plan without incorporation of GHG reduction measures.

Source: DPLU 2009g

**Table 2.17-5. San Diego County Population Estimates**

<b>Year</b>	<b>San Diego County (entire region)</b>	<b>Unincorporated Area</b>
1990	2,498,016	397,763
2006	3,065,077	473,801
2020	3,635,855	627,142

Source: SANDAG 2008

**Table 2.17-6. Community GHG Emissions for Unincorporated County  
(metric tons CO<sub>2</sub>e)**

Category	1990 Totals	2006 Totals	2020 Projections
Electricity (includes water usage)	1,035,005	1,391,224	1,897,370
Solid Waste	143,308	108,206	155,239
On-Road Vehicles	2,740,000	2,923,373	3,471,505
Off-Road Vehicles & Equipment	175,889	200,955	275,981
Other Fuels	222,924	170,039	224,235
Natural Gas	477,695	463,741	620,957
Wildfire	200,000	300,000	300,000
Agriculture (Livestock)	145,000	62,000	30,000
<b>Total</b>	<b>5,139,821</b>	<b>5,619,538</b>	<b>6,975,287</b>

Source: DPLU 2009g

**Table 2.17-7. Combined Operation and Community  
GHG Emissions for Unincorporated County  
(metric tons CO<sub>2</sub>e)**

Category	1990 Totals	2006 Totals	2020 Totals <sup>(1)</sup>
Government Operations	137,204	160,776	175,609
Community	5,139,821	5,619,538	6,975,287
<b>Total</b>	<b>5,227,025</b>	<b>5,780,314</b>	<b>7,150,896</b>

<sup>(1)</sup> Assumes a Business as Usual scenario

Source: DPLU 2009g

**Table 2.17-8. County Operation Estimated GHG Emissions Reductions  
(metric tons CO<sub>2</sub>e)**

Category	2020 Projections <sup>(1)</sup>	Projected GHG Reductions	2020 Projections	1990 Estimates
Buildings	71,022	-29,199	41,823	48,399
Vehicle Fleet	29,696	-7,424	22,272	22,071
Employee Commute	70,201	-15,444	54,757	63,255
Water	2,939	-1,000	1,939	1,799
Waste	1,751	-500	1,251	1,680
<b>Total</b>	<b>175,609</b>	<b>-53,567</b>	<b>122,042</b>	<b>137,204</b>

<sup>(1)</sup> Assumes a Business as Usual scenario

Source: DPLU 2009g

**Table 2.17-9. Community Projected GHG Emissions Reductions for Unincorporated County (metric tons CO<sub>2</sub>e)**

<b>Category</b>	<b>2020 Projections<sup>(1)</sup></b>	<b>Projected GHG Reductions</b>	<b>2020 Projections</b>	<b>1990 Estimates</b>
Electricity (includes water usage)	1,897,370	-702,026	1,195,344	1,035,005
Natural Gas	620,957	-49,676	571,281	477,695
On-Road Vehicles	3,471,505	-902,591	2,568,914	2,740,000
Off-Road Vehicles & Equipment	275,981	-103,493	172,488	175,889
Solid Waste	155,239	-51,229	104,010	222,924
Other Fuels	224,235	-56,059	168,176	143,308
Wildfire	300,000	--	300,000	200,000
Agriculture (Livestock)	30,000	--	30,000	145,000
<b>1990 Total</b>	--			<b>5,139,821</b>
<b>Total</b>	<b>6,975,287</b>	<b>-1,865,074</b>	<b>5,110,213</b>	1,035,005

<sup>(1)</sup> Assumes a Business as Usual scenario

Source: DPLU 2009g

County of San Diego  
**CLIMATE  
ACTION  
PLAN**

Adopted June 2012



# CONTENTS

<b>Acknowledgements</b>	IV
<b>Ch. 1 Introduction</b>	1
Purpose of the Climate Action Plan	3
Climate Change Science	4
Local Effects of Climate Change	7
Public Health	8
Relationship to Other State and County Documents	10
Plan Adjustments and Flexibility	10
Scope and Content of the CAP	12
<b>Ch. 2 Emissions Inventory, Forecasts, and Targets</b>	13
Baseline Emissions Inventory	14
Business-as-Usual Projections	18
Greenhouse Gas Emissions-Reduction Targets	20
<b>Ch. 3 Community Measures and Actions</b>	21
Water	26
Buildings and Energy	28
Increase Renewable Energy Generation	35
Land Use and Transportation	38
Agriculture	44
Landscaping and Open Space	48
2035 Reductions	49

<b>Ch. 4 Local Government Measures and Actions</b>	<b>53</b>
<b>Ch. 5 Adaptation</b>	<b>59</b>
Adaptation in San Diego County	60
Climate Adaptation Strategies	64
<b>Ch. 6 Monitoring and Project Compliance</b>	<b>67</b>
Monitoring	69
Relationship to the County of San Diego General Plan EIR	71
Project Consistency with the CAP	72
<b>Ch. 7 Conclusion</b>	<b>75</b>
<b>Appendices</b>	<b>77</b>
A. Acronym List	A-1
B. Legislative Detail	B-1
C. Greenhouse Gas Emissions Inventory and Forecasts Details and Assumptions	C-1
D. Greenhouse Gas Reduction Strategies Details and Assumptions	D-1
E. User's Guide	E-1
F. Alternative 2035 Scenario	F-1
G. CAP Compliance Checklist	G-1
H. Photo Sources	H-1

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Ch. 1

# Introduction

## More than 3 million people call San Diego County home,

where they enjoy access to coastal and terrestrial amenities and a temperate climate year round.

The County of San Diego (County) serves as the local government for more than 500,000 residents.

Growth in population and employment is expected in the unincorporated areas of the County over the next several decades. Because of this, the profile of the County and the services needed by County residents will change.

Since growth will likely occur in areas both near and far from emergency services, local potable water resources, and other infrastructure, the County will continue to focus its planning efforts to ensure responsible, sustainable growth within its borders.

As part of its planning efforts, the County is addressing the impacts of climate change on its residents, businesses, and environment. The County is committed to enhancing the safety and livability of its communities through the efficient application of land use programs that balance growth and conservation.



# PURPOSE OF THE CLIMATE ACTION PLAN

The County of San Diego developed this Climate Action Plan (CAP)<sup>1</sup> to address the issues of growth and climate change, and to safeguard the environment for residents and visitors. The CAP will also help to make the County a more attractive place to live through decreased traffic congestion, better air quality, more efficient use of energy and water, less solid waste generation, safer streets for pedestrians and cyclists, more local amenities, and more local jobs. The CAP was designed to support the following primary functions:

- Mitigate the impacts of climate change by achieving meaningful greenhouse gas (GHG) reductions within the County, consistent with Assembly Bill (AB) 32, the governor's Executive Order S-3-05, and California Environmental Quality Act (CEQA) guidelines.
- Allow lead agencies to adopt a plan or program that addresses the cumulative impacts of a project.
- Provide a mechanism that subsequent projects may use as a means to address GHG impacts under CEQA, in accordance with the 2011 statement by the Attorney General.<sup>2</sup>
- Comply with the 2011 adopted County General Plan Environmental Impact Report (EIR) Mitigation Measure CC-1.2, Preparation of a Climate Action Plan.

Although efforts are underway at the global, national, state, and regional level, local actions are essential to address climate change effects. According to a 2010 survey of San Diego County voters, prepared for the San Diego Foundation, 72% of voters surveyed agreed that the County should take a statewide leadership position in setting goals for reducing GHG emissions.<sup>3</sup> This demonstrates that residents of the County would like to see local jurisdictions take actions, like those discussed in this CAP, to reduce GHG emissions. CAPs are the primary tool for jurisdictions across the world, including many California cities and counties, to reduce GHG emissions. More than 50 CAPs have been adopted within California at the city and county level. Locally, all cities within San Diego County have prepared a GHG emissions inventory, and five have created CAPs with emissions-reduction targets that are the same as or more aggressive than the County's emissions-reduction target (see Table 1.1). By creating this CAP, the County is doing its part to mitigate climate change and comply with state and federal mandates.

**TABLE 1.1 | 2020 GHG REDUCTION TARGETS OF OTHER CITIES IN SAN DIEGO COUNTY**

CITY	GHG EMISSIONS-REDUCTION TARGET
Chula Vista	20% below 1990
Encinitas	12% below 2005
Escondido	15% below 2005
National City	15% below 2005
San Diego	15% below 1990

<sup>1</sup> A list of acronyms is provided in Appendix A.

<sup>2</sup> [http://ag.ca.gov/cms\\_attachments/press/pdfs/n2056\\_santa\\_clarita\\_letter.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n2056_santa_clarita_letter.pdf)

<sup>3</sup> [www.sandiego.gov/environmental-services/sustainable/pdf/jobsfinal.pdf](http://www.sandiego.gov/environmental-services/sustainable/pdf/jobsfinal.pdf)

# CLIMATE CHANGE SCIENCE

The sun provides energy that drives the Earth's climate. Solar radiation enters the Earth's atmosphere and is trapped by certain "greenhouse" gases (GHGs) that increase the temperature, making the planet habitable by humans (see "The Greenhouse Effect" illustrated on the next page). Without GHGs, the average temperature on Earth would be about -2 degrees Fahrenheit (°F).<sup>1</sup>

GHGs from human activities, such as burning fossil fuels for use in buildings and transportation and production of methane from agricultural practices, are trapping more of the sun's heat in the Earth's atmosphere and warming the Earth.

## GHG, GWP, AND CO<sub>2</sub>E

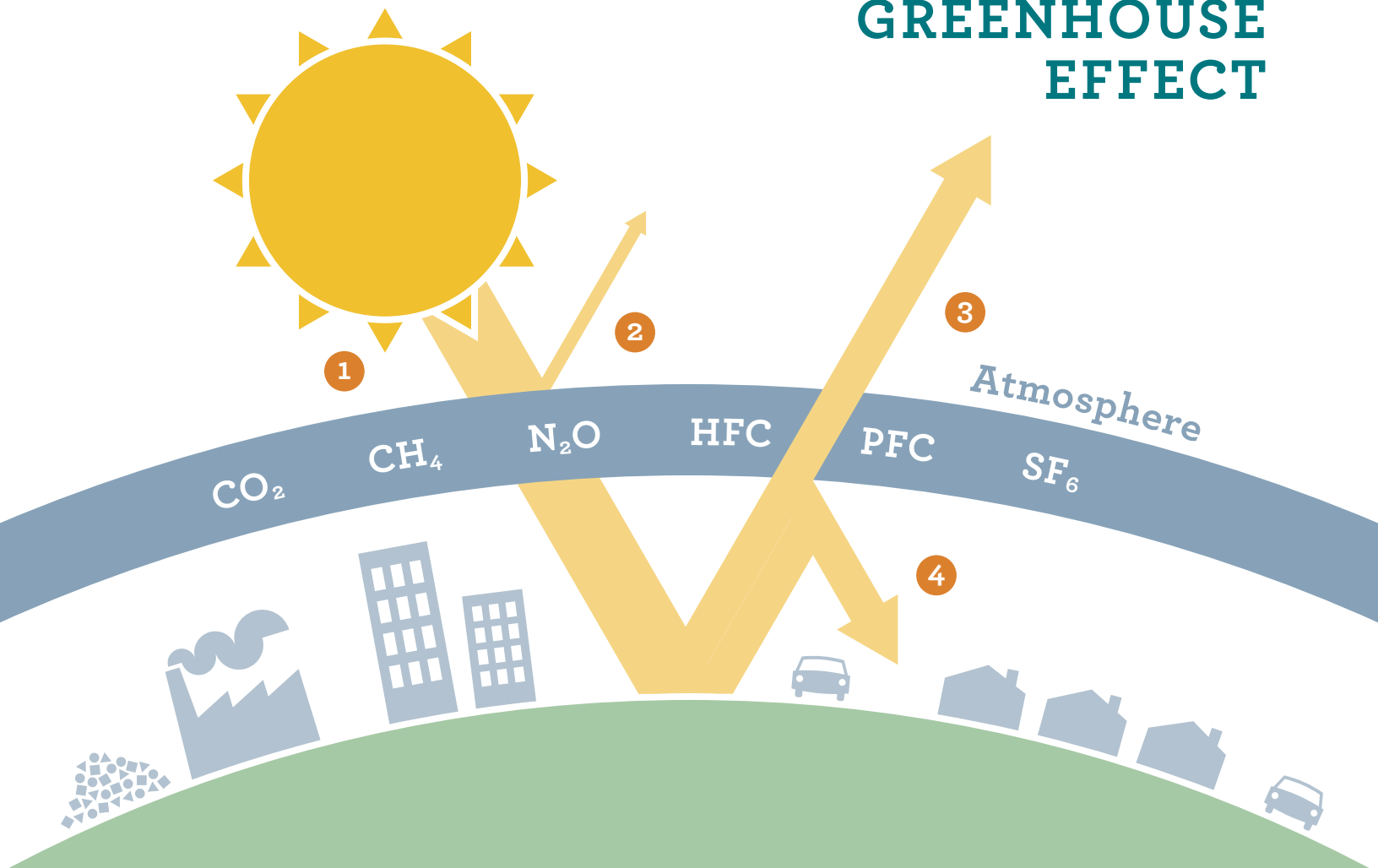
Although there are dozens of GHGs, the International Panel on Climate Change (IPCC) identifies six primary GHG compounds, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) as the predominant GHGs found in non-industrial processes. Each type of GHG has a different capacity for trapping heat. Therefore, GHG emissions are "equalized" by their global warming potential (GWP) and are

reported in this CAP in "CO<sub>2</sub> equivalents" (CO<sub>2</sub>e). For example, 1 ton of CH<sub>4</sub> has the same contribution to the greenhouse effect as approximately 21 tons of CO<sub>2</sub> on a 100-year timescale, and would, therefore, have a CO<sub>2</sub>e of 21 tons. Listed below are the primary GHGs, along with their symbols, GWP, and common anthropogenic (human-caused) sources.

SYMBOL	NAME	GWP	ANTHROPOGENIC SOURCES
CO <sub>2</sub>	Carbon Dioxide	1	Fossil fuel combustion, forest clearing, cement production
CH <sub>4</sub>	Methane	21	Fossil fuel combustion, landfills, livestock, rice cultivation
N <sub>2</sub> O	Nitrous Oxide	310	Fossil fuel combustion, nylon production
HFC	Hydrofluorocarbons	140–14,800	Refrigeration gases, semiconductor manufacturing
PFC	Perfluorocarbons	6,500–12,200	Aluminum production, semiconductor manufacturing
SF <sub>6</sub>	Sulfur Hexafluoride	23,900	Electrical transmissions and distribution system, circuit breakers

<sup>1</sup> [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_appendix.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_appendix.pdf)

# THE GREENHOUSE EFFECT



- 1 Solar radiation passes through the atmosphere.
- 2 A small amount of solar radiation is reflected before entering the atmosphere.
- 3 After reaching the Earth's surface, some radiation is emitted back through the atmosphere.
- 4 Some infrared radiation is absorbed by greenhouse gases and stays in the atmosphere. The more greenhouse gases there are, the more infrared radiation, or heat, is trapped in the atmosphere.

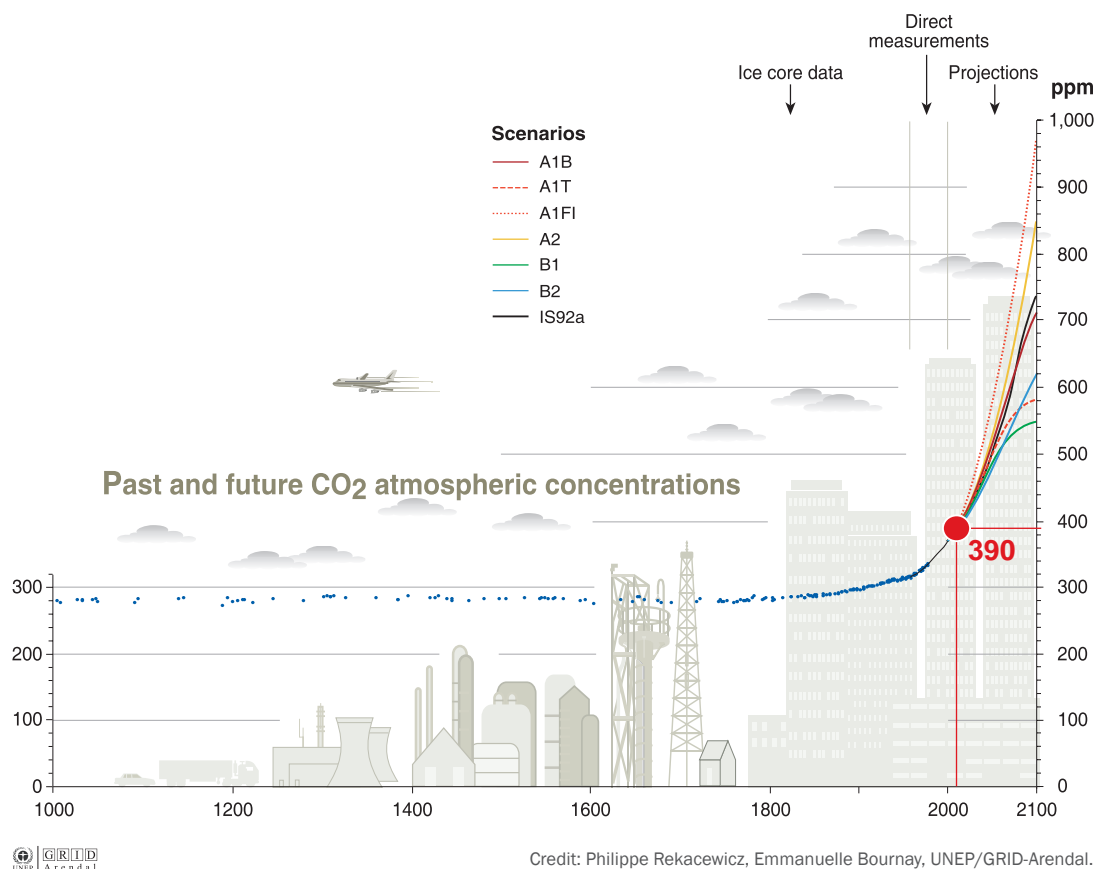
The present level of CO<sub>2</sub> concentration (390 parts per million [ppm]) is the highest in 800,000 years,<sup>1</sup> and likely the highest for the past 15 million years.<sup>2</sup>

Over the last century, average global temperatures rose by more than 1°F, and some regions warmed by as much as 4°F, with predictions for continued temperature increases in the coming years.

In its fourth assessment of climate change, the United Nations IPCC provided a comprehensive overview of the impacts of climate change and the potential global emissions scenarios for the coming century. The scenarios vary from a best-case scenario characterized by low population growth, clean technologies, and low GHG emissions, to a worst-case scenario where high population and fossil-fuel dependence result in extreme levels of GHG emissions. Future concentration of CO<sub>2</sub> in

the atmosphere could range from 550 to nearly 1,000 ppm by the end of the century (see image below).

In addition to temperature increases, other climate effects are expected as a result of increased GHG concentrations, including increased evaporation; sea-level rise; more severe weather; and a rise in the spread of disease and pests that carry disease, like mosquitoes. These changes are cumulatively referred to as global climate change. If these projections become reality, climate change will threaten our economic well-being, public health, and environment. While some degree of climate change is inevitable, most climate scientists agree that, to avoid serious climate change effects, atmospheric GHG concentrations need to be stabilized as quickly as possible.



Credit: Philippe Rekacewicz, Emmanuelle Bournay, UNEP/GRID-Arendal.  
Scenarios refer to IPCC-developed emissions projections based on changes in economic growth, population, and technology, detailed at [http://www.ipcc-data.org/ddc\\_co2.html](http://www.ipcc-data.org/ddc_co2.html).

<sup>1</sup> Lüthi, D., et al. 2008. High-Resolution Carbon Dioxide Concentration Record 650,000–800,000 years before present. *Nature* 453, 379–382.

<sup>2</sup> Tripathi, A.K, C.D. Roberts, and R.A. Eagle. Coupling of CO<sub>2</sub> and Ice Sheet Stability Over Major Climate Transitions of the Last 20 Million Years. *Science* 326 (5958): 1394–1397.

# LOCAL EFFECTS OF CLIMATE CHANGE

Climate change is one of the most urgent global issues, and scientists are already seeing the effects of climate change around the world. Regionally, climate change is beginning to affect California residents and businesses through events such as reduced snow pack in the Sierra Nevada Mountains—affecting drinking water supplies in areas that depend on snow pack from this region, including San Diego County—and increased salinity in the Bay Delta. Locally, the County is expected to experience changes such as the following:

- higher temperatures,
- a greater number of extremely hot days,
- changes in the pattern and amount of precipitation,
- decreased water supplies accompanied by increased demand,
- increased wildfire risk,
- changes in ecosystems, and
- decline or loss of plant and animal species.

All of these changes have the capacity to affect the economy, environment, public health, and lifestyle of people throughout the San Diego region. More extreme weather events, including a greater number of extremely hot days, can lead to heat-related health issues, especially for those who cannot access cool areas. Indirectly, climate change affects water, air, and food systems, as well as ecosystems as a whole, since climate change reduces an ecosystem's ability to maintain a healthy environment.

In addition, the environment is closely linked to the economy and public health, and changes in temperature and precipitation have rippling effects socially and economically. Some of the potential economic impacts of climate change include disruptions to agriculture and food production, strains on the health care system and labor market due to health-related illnesses and deaths, declines in recreation opportunities and tourism, and changes in energy costs due to regional shifts in cooling and heating demand.

# PUBLIC HEALTH

County residents who are already more vulnerable to health challenges are likely to be among the most affected by climate change, as they face more difficulty accessing medical services; pay more for healthy food as a proportion of income; and are more likely to live in conditions that leave them vulnerable to flooding, high temperatures, and degraded air quality. The graphic on the opposite page shows potential climate change health effects such as heat-related illness and death as a result of an increase in extreme heat days. This will lead to increased hospitalization rates and the need for health care facilities to be better prepared to respond to emergencies, which also has potential planning and economic impacts.

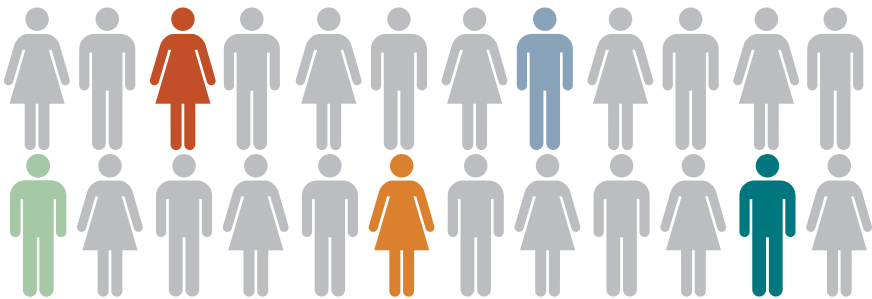
The graphic below shows how the population may be affected by climate change through public health impacts. The extent to which these changes produce negative impacts will depend on actions taken today to ensure resilience in the face of climate change and adaptation to its impacts. Additional detail is provided in Chapter 5, Adaptation.

Over the short term, implementing GHG-reduction measures that could also improve public health is an important part of the CAP. The County’s “Live Well, San Diego!, Building Better Health” initiative is a 10-year strategic vision for improving health and wellness and combating the toll of chronic diseases, including obesity, with aspects of the program focusing on increasing levels of physical activity and improving the accessibility of nutritious foods. **Many of the CAP measures are directly aligned with the projects being implemented under the County’s public health initiative,** such as working with land use and transportation planners

to increase opportunities for residents to be physically active, thereby reducing the risk for obesity and chronic diseases. Other measures are designed to improve air quality indoors, where Californian’s spend more than 90% of their time, and outdoors, where chronic health conditions such as asthma can be exacerbated under adverse conditions.






The following strategies promote healthy communities while reducing GHG emissions, and are included in this CAP (and further described in Chapter 3):

STRATEGY	PUBLIC HEALTH IMPLICATION
Building Retrofits	Improve indoor air quality
Mixed-Use Development	Increase physical activity and decrease vehicle emissions and related air pollutants through more walkable communities
Walking and Biking	Increase physical activity
Transit Use	Decrease vehicle emissions and related air pollutants
Electric Vehicle Use	Decrease vehicle emissions and lower noise levels
Ridesharing	Encourage social engagement, support, and cohesion
Landscaping and Open Space	Increase opportunities for formation of close social bonds through community green space access; reduce stress



**CLIMATE CHANGE AND VULNERABLE POPULATIONS:**  
 Climate change will not affect everyone equally. People with a high probability of exposure, increased sensitivity, and without resources to adapt and prepare will be hit harder by climate change. The most vulnerable tend to be the young and the old, the poor, and those who are already sick.

# POTENTIAL CLIMATE CHANGE HEALTH EFFECTS<sup>1</sup>

CLIMATE CHANGE EFFECT	EXAMPLES OF HUMAN HEALTH RISKS
 <b>Increase in Extreme Heat Events</b>	Heat-Related Illness/Death Worsening of Chronic Health Conditions
 <b>Increased Air Pollution</b>	Increased Respiratory Illness and Seasonal Allergies
 <b>Floods, Droughts, Wildfires, Storms, Changes in Weather Patterns</b>	Injury/Death Respiratory Illness Waterborne Illness Foodborne Illness Displacement Stress-Related Disorders Mental Health Impacts Increase/Shift in Infectious Disease
 <b>Higher Food Prices and Food Scarcity</b>	Increased Hunger Decreased Nutrition
 <b>Sea-Level Rise, Storm Surge, Longer Red Tides (toxic algae blooms in the ocean)</b>	Injury/Death Wastewater System Impacts Displacement Stress-Related Disorders Mental Health Impacts Poisoning from Contaminated Shellfish

<sup>1</sup> This graphic provides an overview of the impacts of climate change on human health; it is not meant to be an exhaustive list of health impacts. Additional information on the relationship between climate change and public health can be found at the Centers for Disease Control and Prevention's Climate Change and Public Health website: <http://www.cdc.gov/climatechange/>.

While the measures included in this CAP focus on those that will lead to quantifiable GHG reductions, there are many other examples of strategies that can serve to benefit public health while reducing GHG emissions and are supported by this CAP and other County programs. A part of the “Live Well, San Diego! Building Better Health”

initiative, for example, is to increase consumption of healthy and locally grown food. This may improve access to healthy food and, although difficult to quantify, reduce emissions related to transporting food from non-local sources.

## RELATIONSHIP TO OTHER STATE AND COUNTY DOCUMENTS

Climate change legislation and policy have been in place at the state level since 2005 (Table 1.2). Local governments have a responsibility to promote these efforts and are considered “essential partners” in achieving GHG reductions.

This CAP documents the County’s plan to meet the obligations defined in AB 32. The CAP creates a framework for ensuring that emissions reductions are in compliance with the County’s obligations while also safeguarding equity among residents and businesses. In addition, the County’s goals reflect the goals shared by other local and state governments, and draw on lessons learned through the efforts of others.

This CAP incorporates already-established County goals described in the recently adopted General Plan and in the County Strategic Energy Plan (SEP), which identifies

measures to develop a cohesive, long-term strategy that addresses climate change. The CAP includes more specific approaches for the actions outlined by the General Plan, and broadens the SEP’s scope to include water conservation, waste reduction, land use strategies, and adaptation, while also extending the County’s emissions reduction goals to 2020 and beyond.

Other public agencies and private developers may also use this CAP to comply with CEQA through tiering for projects that trigger CEQA review. A lead agency may determine that a project’s GHG impact is not cumulatively considerable if the project demonstrates consistency with this CAP (CEQA Guidelines Section 15183.5[h][3]), thereby reducing overall project costs. Details of project-level compliance are provided in Chapter 6.

## PLAN ADJUSTMENTS AND FLEXIBILITY

This 2012 CAP represents the County’s strategies, at the time of preparation, to respond to the threat of climate change. It is a guiding document that will be used by the County, businesses, and residents to reduce GHG emissions from energy, transportation, solid waste, water, and agriculture through 2035. It is a “living” document and will need to be updated as new information, technology, and legislation require. GHG reduction-measure monitoring and regular inventory updates will be necessary to evaluate the efficacy of the CAP, including at least one inventory by 2020.

**TABLE 1.2 | CLIMATE CHANGE LEGISLATION AND POLICY<sup>1</sup>**

BILL & DATE OF ISSUANCE	TITLE	DESCRIPTION	IMPLEMENTING AGENCY
Executive Order S-3-05 (2005)	Greenhouse Gas Initiative	Set statewide GHG emissions targets to 2000 levels by 2010; 1990 levels by 2020; 80% below 1990 levels by 2050	California Air Resources Board (ARB)
Assembly Bill (AB) 32 (2006)	Global Warming Solutions Act	State must reduce GHG emissions to 1990 levels by 2020	ARB
Senate Bill (SB) 97 (2007)	CEQA Guideline Amendments	Guidelines for addressing GHG emissions in CEQA documents must be formulated and adopted	California Office of Planning and Research (OPR)
SB 375 (2008)	Sustainable Communities and Climate Protection Act	GHG emissions from passenger vehicles must be reduced by set targets (developed by ARB) for 2020 and 2035, and planning organizations must prepare sustainable communities strategies	Metropolitan planning organizations (MPO)
AB 1493 (2002)	Pavley	GHG emissions must be reduced from passenger vehicles, light-duty trucks, and other non-commercial vehicles for personal transportation	ARB
Executive Order S-1-07 (2007)	The Low Carbon Fuel Standard (LCFS)	The carbon intensity of California's transportation fuels must be reduced by at least 10% by 2020	ARB
SB X1-2 (2011)	Renewable Portfolio Standard	California investor-owned utilities must provide at least 33% of their electricity from renewable resources by 2020	California Public Utilities Commission
SB 7X 7 (2009)	Statewide Water Conservation	State must achieve 20% reduction in per capita urban water use by 2020	Department of Water Resources
California Code of Regulations (CCR) Subarticle 8 § 95550 (2010)	Regulation for Under Inflated Vehicle Tires (T-4 in the Scoping Plan)	Ensure proper tire inflation; reducing tailpipe GHG emissions by reducing tire rolling resistance and increasing vehicle efficiency	ARB
CCR Subarticle 1 § 95300 (2009)	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure	Require existing trucks/ trailers to be retrofitted with the best available technology and/or ARB-approved technology	ARB

<sup>1</sup> Additional details regarding legislation can be found in Appendix B.

# SCOPE AND CONTENT OF THE CAP

This CAP consists of seven chapters:

Introduction; Emissions Inventory, Forecasts, and Target; Community Measures and Actions; Local Government Measures and Actions; Adaptation; Monitoring and Project Compliance; and Conclusions. The CAP includes appendices that provide additional detail, background, and methodological rationale.

- **Introduction** provides a brief description of the need for GHG-reduction planning in California, gives an overview of the topics covered in the CAP, and describes state actions related to climate change.
- **Emissions Inventory, Forecasts, and Target** outlines key steps taken to develop the CAP, including establishing a 2005 baseline GHG inventory (2006 for local government operations); projecting future emissions in 2020, 2035, and 2050; and setting the County's community-wide GHG reduction targets for 2020 and 2035.
- **Community Measures and Actions** addresses the measures and actions that will help the County meet its 2020 GHG reduction target. For each measure, the CAP includes a description of the measure and actions; estimated GHG reductions in 2020; responsible parties for implementation; cost; co-benefits; and potential funding sources for implementation, where applicable.
- **Local Government Measures and Actions** provides details on how the County hopes to achieve GHG reductions within its governmental operations.
- **Adaptation** discusses the effects and implications of climate change as they pertain to the County.
- **Monitoring and Project Compliance** describes how the CAP will be monitored and revised over time. It also defines the process for determining project-level CEQA compliance with the CAP.
- **Conclusion** reiterates the County's commitment to addressing climate change to protect the high quality of life enjoyed by its residents and businesses, and to responsibly comply with state and federal mandates.



Ch. 2

## **Emissions Inventory, Forecasts, and Targets**

# BASELINE EMISSIONS INVENTORY

The purpose of a GHG emissions inventory is to provide a snapshot of GHG emissions in a given year. The inventory is then used to assist policy makers in effectively implementing cost-effective GHG-reduction policies, actions, and control measures. An accurate inventory is necessary to understand which sectors comprise the largest portion of the GHG inventory, have the most reduction potential, and can be effectively influenced by policies and actions implemented by the County.

The County prepared baseline inventories at the community-wide and local government levels. The community-wide inventory has a baseline year of 2005, and emissions are limited to the County's unincorporated communities. The local government inventory has a baseline year of 2006 and only includes emissions related to County government operations. Each inventory is used to establish a baseline level of emissions, which then serves as the starting point for forming emissions-reduction targets and as a tool to gauge the performance of emissions-reduction measures.

For the purposes of this CAP, the community-wide and local government inventories are shown separately. In general, local government emissions are a subset of community-wide emissions. However, because the County operates in both unincorporated areas and incorporated cities, some of the County-managed facilities are not within the political boundary of the County and are not included in the community-wide emissions inventory. For example, the County manages 10 closed landfills, only three of which—Bonsall, Jamacha, and Valley Center—are within the unincorporated boundaries. The other landfills are included in their respective community-wide inventories. As a result, solid waste emissions are greater in the County government emissions inventory than in the community-wide emissions inventory.

# Information from the baseline inventories is important for understanding the quantity and source of GHGs emitted in the County.

This knowledge is leveraged to create and prioritize reduction strategies that will be most effective in each circumstance.

The County's baseline inventories are organized by emissions sectors. A "sector" is a distinct subset of a market, society, industry, or economy whose components share similar characteristics. An emissions sector may also contain subsectors that provide more specificity about the source of emissions (e.g., natural gas or electricity can be a subsector of energy consumption). The community-wide inventory is divided into seven sectors: transportation, energy, water, agriculture, solid waste, wastewater, and other. The local government inventory is divided into nine sectors: solid waste (landfills), employee commutes, buildings and facilities, vehicle fleet, wastewater facilities, government-generated solid waste, public lighting, airport facilities, and water. All emissions are standardized to metric tons (MT) of CO<sub>2</sub>e, as described on page 4.

## WHAT IS A METRIC TON OF CO<sub>2</sub>E?

GHG emissions are reported as metric tons (MT) of CO<sub>2</sub>e.

Emitting 1 MT CO<sub>2</sub>e is equal to the following:

- 102 gallons of gasoline
- 41 propane cylinders used for home barbecues
- One month's worth of energy used in a house

In contrast, reducing 1 MT CO<sub>2</sub>e would require:

- Growing 25 tree seedlings for 10 years
- Recycling 600 pounds of waste instead of throwing it away

Equivalencies are approximate and were adapted from <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

## COMMUNITY INVENTORY

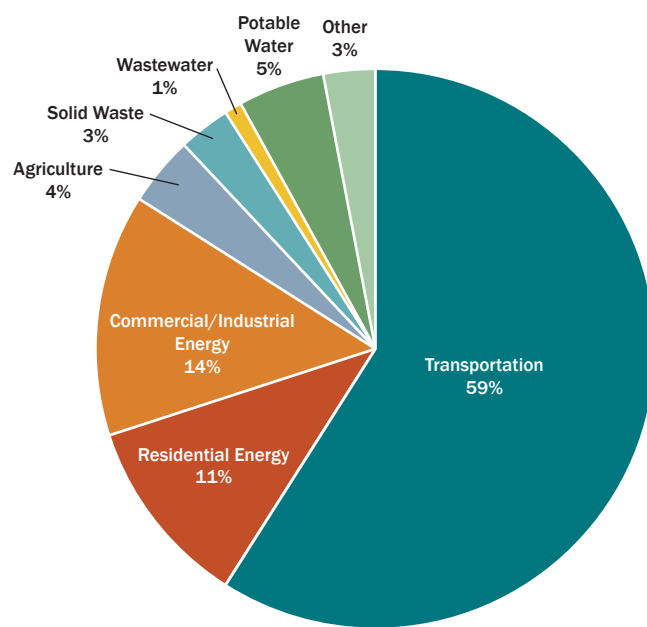
Table 2.1 and Figure 2.1, below, show the baseline community-wide emissions by sector for 2005. The largest source of emissions in the unincorporated County is transportation, which accounts for 59% of total GHG emissions. Of the 4.5 million metric tons (MMT) CO<sub>2</sub>e emitted in 2005 from all sources, more than 2.6 MMT CO<sub>2</sub>e resulted from the transportation sector. The energy sector accounted for nearly 25% of emissions, while agriculture, solid waste, wastewater, and other sources accounted for the remaining 16% of community emissions in 2005. Additional details are provided in Appendix C.

**TABLE 2.1 | COMMUNITY EMISSIONS BY SECTOR**

SECTOR	2005 GHG EMISSIONS (MT CO <sub>2</sub> E)
Transportation	2,636,702
Agriculture	190,025
Solid Waste	144,865
Wastewater	50,412
Potable Water	236,435
Other	132,490
Energy	1,121,650
<b>Total<sup>1</sup></b>	<b>4,512,580</b>

<sup>1</sup> Because of rounding, the total does not equal the sum of sectors.

**FIGURE 2.1 | COMMUNITY EMISSIONS BY SECTOR**



## LOCAL GOVERNMENT INVENTORY

Table 2.2 and Figure 2.2 provide the baseline local government emissions by sector for 2006. The County emitted 220,633 MT CO<sub>2</sub>e in 2006 from government operations. Although all of the County-managed landfills are currently closed, methane emissions continue to be released, and are currently the single largest source of emissions for local government. Emissions from landfills accounted for 29% of all local government emissions, while employee commutes constituted 26% of emissions. Buildings and facilities were the next largest source, with

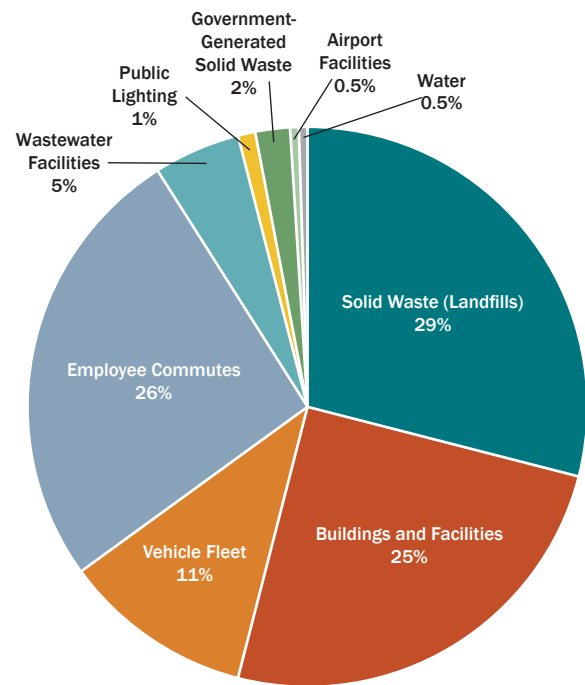
25% of total emissions. The County's sizeable vehicle fleet (more than 2,900 vehicles) accounted for more than 10% of baseline year emissions, while wastewater, solid waste, public lighting, airport facilities, and water accounted for the remaining 9% of 2006 emissions. The large vehicle fleet is a result of the numerous region-wide services that the County provides, including sheriff; infrastructure repair, maintenance, and improvement; care, management, and development of public parks and community centers; and legal services.

**TABLE 2.2 | LOCAL GOVERNMENT EMISSIONS**

SECTOR	2006 GHG EMISSIONS (MT CO <sub>2</sub> e)
Solid Waste (Landfills)	64,192
Buildings and Facilities	55,291
Vehicle Fleet	23,231
Employee Commutes	57,572
Wastewater Facilities	11,656
Public Lighting	2,160
Government-Generated Solid Waste	4,892
Airport Facilities	1,153
Water	488
<b>Total<sup>1</sup></b>	<b>220,633</b>

<sup>1</sup> Because of rounding, the total does not equal the sum of sectors.

**FIGURE 2.2 | LOCAL GOVERNMENT EMISSIONS**



## BUSINESS-AS-USUAL PROJECTIONS

Community-wide GHG emissions were projected for the years 2020, 2035, and 2050 under a business-as-usual (BAU) scenario. The BAU scenario estimates future trends in each sector based on forecasts from the San Diego Association of Governments (SANDAG) for population, housing, agricultural land, and employment for the County, and assuming that historic trends in energy consumption and waste generation continue. The BAU scenarios are what would be likely to occur without implementation of a CAP or other GHG-reducing measures, like the Low Carbon Fuel Standard (LCFS); Pavley legislation, which covers passenger auto and light truck fuel efficiency; and the Renewable Portfolio Standard (RPS). State-level regulations, including those just listed, are part of the

CAP's strategies to achieve the County's targets, and are discussed in detail in Appendix D. Community-wide baseline and projected emissions are shown by sector in Table 2.3.

The County projected future community-wide emissions using land use data from the General Plan and use-specific emissions factors. Community-wide emissions will increase by approximately 680,109 MT CO<sub>2</sub>e per year (15%) from 2005 to 2020, and by approximately 1,839,892 MT CO<sub>2</sub>e per year (41%) from 2005 to 2035. Much of the increase is attributable to the anticipated growth in population and employment in the region (see Figure 2.3).

**TABLE 2.3 | COMMUNITY BASELINE AND PROJECTED EMISSIONS**

SECTOR	2005 BASELINE	2020 BAU	2035 BAU	2050 BAU
	MT CO <sub>2</sub> E			
Transportation	2,636,702	3,098,307	4,004,966	4,785,555
Residential Energy	505,963	566,033	666,952	707,334
Commercial/Industrial Energy	615,687	737,916	818,698	934,503
Agriculture	190,025	159,246	118,134	83,520
Solid Waste	144,865	162,064	190,959	202,521
Wastewater	50,412	56,397	66,452	70,475
Potable Water	236,435	264,506	311,665	330,535
Other	132,490	148,220	174,646	185,221
<b>Total<sup>1</sup></b>	<b>4,512,580</b>	<b>5,192,689</b>	<b>6,352,472</b>	<b>7,299,664</b>
GHG Emissions per Service Population <sup>2</sup>	7.47	7.48	7.80	8.23
GHG Emissions per Population	9.57	9.52	9.83	10.51

<sup>1</sup> Because of rounding, the total does not equal the sum of sectors.

<sup>2</sup> Service population refers to the number of residents and employees in the region. This is often used to provide an equitable evaluation between regions with many employment or commercial centers versus many residential areas.

While projected emissions can vary based on a number of factors, including estimates of growth and economic conditions, forecasted emissions illustrate the anticipated emissions sources and quantities, which allows for more informed planning choices. In the County, GHG emissions (see Table 2.4) associated with transportation are the largest source at the baseline year (2005), and are anticipated to increase over time. By 2020, transportation emissions are expected to account for 60% of emissions and increase to 66% by 2050. Commercial and industrial sources and residential emissions are expected to decline in relative contribution, while only agricultural emissions (4%) are expected to decline in absolute terms, due to fewer lands dedicated to agriculture in the future.

**TABLE 2.4 | COUNTY GOVERNMENT GHG BASELINE AND PROJECTED EMISSIONS**

SECTOR	2006	BAU 2020	BAU 2035	BAU 2050
	MT CO <sub>2</sub> E			
Solid Waste Facilities	64,192	48,516	35,943	26,627
Employee Commute	57,572	63,017	70,776	73,893
Buildings and Facilities	55,291	61,420	67,987	75,256
Vehicle Fleet	23,231	24,960	27,428	28,611
Wastewater Facilities	11,656	13,451	16,232	17,661
Government-Generated Solid Waste	4,892	5,256	5,776	6,025
Public Lighting	2,160	2,493	3,008	3,273
Airport Facilities	1,153	1,331	1,606	1,747
Water	488	524	576	601
<b>Total<sup>1</sup></b>	<b>220,633</b>	<b>220,968</b>	<b>229,331</b>	<b>233,695</b>

<sup>1</sup> Because of rounding, the total does not equal the sum of sectors.

**FIGURE 2.3 | POPULATION AND JOB GROWTH**



# GHG EMISSIONS-REDUCTION TARGETS

The County established a GHG emissions-reduction target of 15% below 2005 levels by 2020 (Figure 2.4), which aligns with the recommendation by the California Air Resources Board (ARB) and the GHG emissions-reduction targets set by other local governments (see Table 1.1).<sup>1</sup>

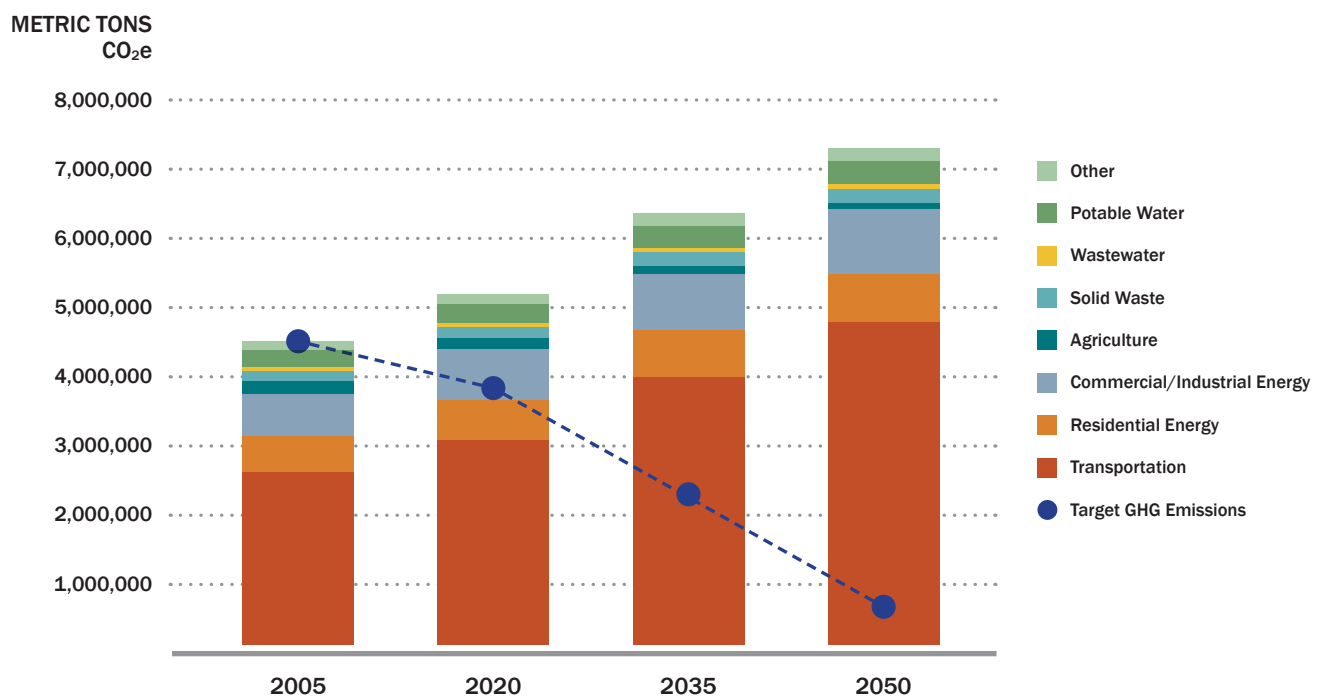
In addition, the County recognizes the goal established by Executive Order S-3-05, which calls for emissions reductions of 80% below 1990 levels by 2050. Therefore, the County developed emissions forecasts

for 2035 and 2050 to demonstrate the BAU path for the County and the emissions reductions that would be needed to meet the 2050 goal. To be on the path toward that goal, the County would need to reach 49% below 2005 levels by 2035.

The following chapter details potential measures and actions that demonstrate how the County can achieve the 2020 reduction target and work toward the 2035 target.

<sup>1</sup> The County of San Diego General Plan EIR stated a 9% reduction from 2005 levels would be achieved by 2020. Subsequent guidance from the state has recommended that local governments achieve 15% reductions from 2005 by 2020. The County is adopting this goal and, therefore, will achieve greater reductions than stated in its General Plan EIR.

**FIGURE 2.4 | COMMUNITY BAU EMISSIONS AND EMISSIONS-REDUCTION TARGETS**





Ch. 3

## **Community Measures and Actions**

## Emissions-reducing actions and objectives

were developed with reference to the regulatory requirements discussed in Chapter 1 and the emissions profile of County residents. Annual per capita emissions in the County were 9.57 MT CO<sub>2</sub>e in 2005. To meet the 2020 emissions targets, each resident of the County would need to reduce annual emissions by an average of 2 MT CO<sub>2</sub>e to achieve emissions of just over 7 MT CO<sub>2</sub>e per year. This goal can be reached through participation by County residents and businesses, corporate partnerships and initiatives, and government policies and programs. The County has demonstrated its ability to meet sustainability goals through effective planning in complying with the California Integrated Waste Management Act (AB 939). The latest County solid waste data (2006) indicates a 54% diversion rate, exceeding the 50% diversion rate set by AB 939. Through the diversion of solid waste, less waste is being sent to landfills, extending their life and reducing GHG emissions caused by waste decomposition. This high diversion rate was achieved and sustained through a process similar to that used for the CAP, whereby the County identified possible areas of action and worked with stakeholders

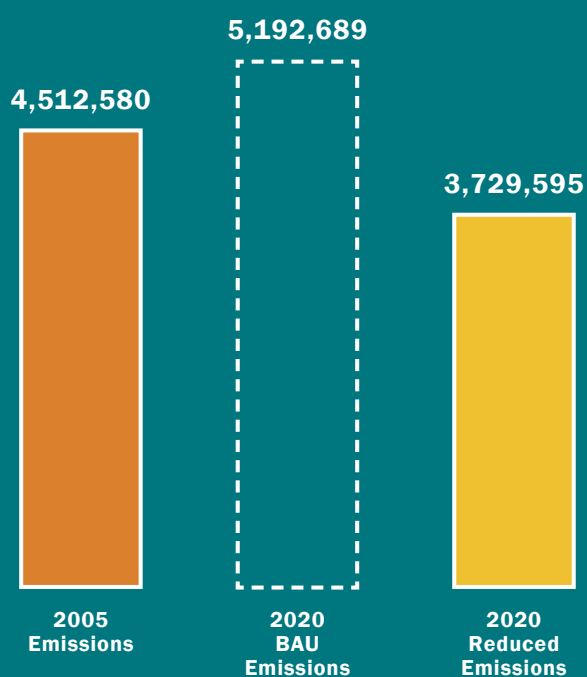
to implement measures that increased waste diversion. The success of this approach can be seen in the portfolio of the 47 waste-diversion programs that assist and encourage County residents and businesses to recycle.

The goals and strategies recommended in the CAP establish the framework for meeting the 2020 target (see graphic on this page). The following sections detail strategies recommended to achieve emissions-reductions goals, which are both described and quantified where possible (see Measure Structure on page 23). Although most actions resulting from the CAP's strategies will yield quantifiable emissions reductions, a few will not. These strategies still merit discussion and monitoring, as they are included as part of the County's comprehensive approach to climate change.

In addition to the description and quantification, co-benefits are identified for each GHG reduction measure. Co-benefits are secondary benefits—beyond GHG reduction—that are generally felt at a local or regional level. Examples of co-benefits are improved water quality from reduced fertilizer use, improved economy by creating “green” jobs, and improved public health through lowered vehicle emissions. The co-benefits identified in this CAP are displayed by icons described on the next page.

Table 3.1 on pages 24 and 25 summarizes each measure and its GHG reduction potential. By implementing the CAP, the County can achieve the goal of reducing emissions to 15% below 2005 levels by 2020. Figure 3.1 shows the GHG reduction potential by sector.

GHG reduction measures are shown by sector: Water, Energy, Land Use and Transportation, Agriculture, and Landscaping and Open Space. Measure structure is shown on the following page and additional details are provided in Appendix C. Specific information related to programs and resources for residents and business owners are provided in Appendix E.



# MEASURE STRUCTURE

Measure Name

Community Co-Benefits illustrate how the measure may positively impact other areas in the community. Below is a key to the icons that are shown in this section.

The measure description provides more detailed information about how the measure will be implemented.

## W1 Water Conservation

**IMPLEMENTATION**

Implementation Partners: SDGWA, Local water districts and County Staff

Performance Indicator: 20% per capita reductions

**COST: Very Low (Public)**

County costs would consist of an existing outreach program costing less than \$10,000 to achieve water conservation goals.

**SAVINGS: Very Low, Recurring (Private)**

Approximately \$40 in annual savings per capita from avoided water purchases.

**POTENTIAL FUNDING SOURCES**

Partnerships with Other Jurisdictions and Organizations, American Recovery and Reinvestment Act (Energy Efficiency Conservation Block Grant)

Community Co-Benefits

GHG Reductions (MT CO<sub>2</sub>e/Year)

**20,200**

In 2009, the state of California passed a package of legislation focusing on improving the quality and availability of water for residents and ecosystems of California. One part of this package was Senate Bill 7X7, which requires local water districts to reduce per capita water usage 20% by 2020. Using this state mandated reduction as a goal, the County has developed a strategy to work with the San Diego County Water Authority and other Local Water Districts that provide water to County residents to promote existing conservation programs, such as rebates for water efficient appliances and design assistance to help homeowners create water smart landscapes around their homes.

**WATER CONSERVATION IS VITAL TO ENSURE THAT FUTURE GENERATIONS HAVE CLEAN AND ABUNDANT WATER**

Implementation Partners include some of the agencies, organizations, and County departments that will help realize the measure, while Performance Indicators explain the anticipated level of participation for each measure.

Cost and Savings list the monetary gains or losses and whether they would be realized by the private or public sector. The box below shows the category of cost and savings.

Potential Funding Sources include current sources of public and private funding. Funding sources change and should be verified at the time of implementation.

GHG Reductions are the anticipated level of reductions achieved in 2020 with full implementation of the measure.

## ECONOMIC ANALYSIS COST AND SAVINGS KEY

### COST TO PRIVATE PARTIES (RESIDENTS, BUSINESSES, ETC.)

Very Low:	\$0–\$100
Low:	\$101–\$250
Medium:	\$251–\$500
High:	More than \$500

### COST TO COUNTY

Very Low:	\$0–\$10,000
Low:	\$10,001–\$50,000
Medium:	\$50,000–\$100,000
High:	More than \$100,000

### PRIVATE SAVINGS

Very Low:	\$0–\$100
Low:	\$101–\$250
Medium:	\$251–\$500
High:	More than \$500

## CO-BENEFIT KEY



Improve  
Water Quality



Reduce  
Water Usage



Improve  
Air Quality



Reduce  
Energy Use



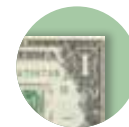
Increase  
Habitat



Improve  
Connectivity



Improve  
Public Health



Improve Local  
Green Economy

**TABLE 3.1 | SUMMARY TABLE OF 2020 GREENHOUSE GAS REDUCTION MEASURES**

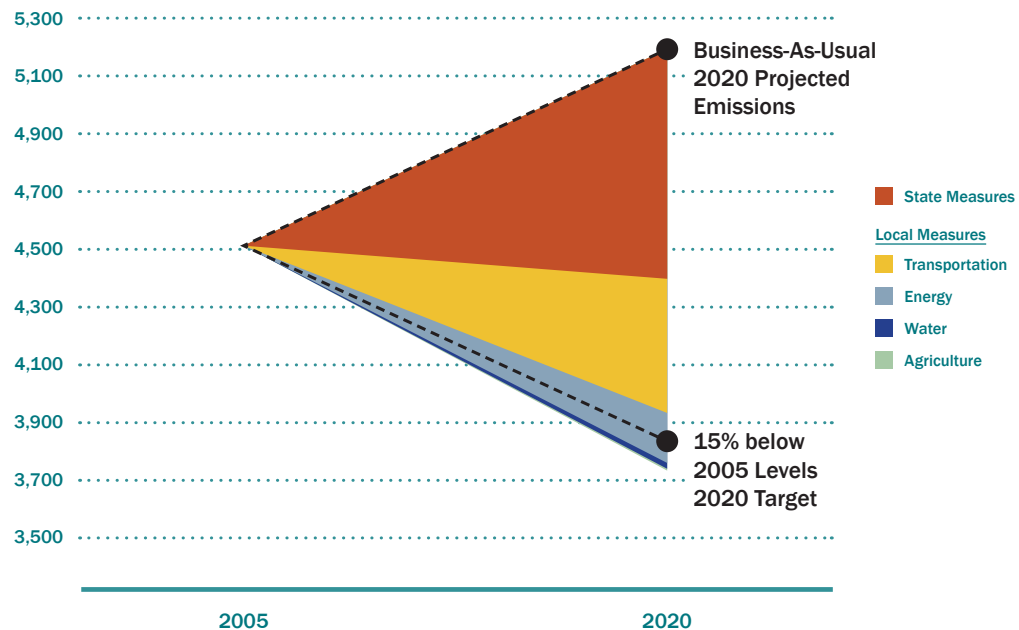
MEASURE NUMBER	MEASURE	ANNUAL MT CO <sub>2</sub> E REDUCTIONS IN 2020 (FROM BAU 2020)	SCALED MEASURE PERFORMANCE (% REDUCTION IN GHG EMISSIONS)	ASSUMPTIONS	
				PARTICIPATION RATE	PERFORMANCE LEVEL
Water					
W1	Water Conservation	20,200	1.4%	100% of residents	20% per capita reductions
Energy					
E1	Energy-Efficient New Development	12,997	0.9%	10% until 2015, 100% after 2015	15% above 2008 Title 24 energy efficiency standards
E2.1	Residential Building Retrofits	27,999	1.9%	15% of pre-2002 residential units	Savings vary per residential type and building vintage
E2.2	Commercial Building Retrofits	5,257	0.4%	30% of pre-2002 commercial units	Reduce energy used for lighting by 40%
E3	Appliance Upgrades	20,060	1.4%	40% of existing homes and 95% of new homes	Average saving of 380 kilowatt hours (kWh) per appliance and 32 kWh per light bulb replaced
E4	Smart Meters	8,880	0.6%	10% of residents with SDG&E accounts will use the enhanced energy monitoring capabilities to reduce energy usage	Reductions in energy consumption: Existing homes: 5% New homes: 6%
R1	Solar Water Heating (Residential and Commercial)	37,618	2.6%	19% of commercial and residential units	Reductions in energy used to heat water: Commercial: 59% Residential: 70%
R2	Alternative Energy Systems (Residential and Commercial)	45,290	2.9%	5% of residential and 8% of commercial energy will be supplied through renewable sources	10 watts per square foot, 5 hours per day
Land Use					
LU1	Mixed-Use Development	124,180	8.5%	25% of new development will occur in high-density areas	4% reduction in vehicle miles traveled (VMT)
Transportation					
T1	Increase Transit Use	62,090	4.2%	2% increase in transit ridership	2% reduction in VMT
T2	Increase Walking and Biking	93,135	6.4%	50% increase of bicycle and pedestrian facilities	3% reduction in VMT
T3	Increase Ridesharing	93,135	6.4%	50% of employers using transportation demand management	3% reduction in VMT
T4	Alternative-Fuel Vehicles	93,135	6.4%	15% increase in electric vehicle purchase	3% reduction in VMT
Agriculture					
A1	Nitrogen Optimization	199	0.0%	5% of farmers reduce nitrogen usage	20% reduction in nitrogen fertilizer usage
A2	Field Equipment Fuel Efficiency	4,433	0.3%	35% of farmers increase fuel efficiency of equipment	15% increase in fuel efficiency of equipment
A3	Agriculture Irrigation Pump Efficiency	1,826	0.1%	40% of farmers increase efficiency of irrigation pumps	50% increase in efficiency of irrigation pumps

MEASURE NUMBER	MEASURE	ANNUAL MT CO <sub>2</sub> E REDUCTIONS IN 2020 (FROM BAU 2020)	SCALED MEASURE PERFORMANCE (% REDUCTION IN GHG EMISSIONS)	ASSUMPTIONS	
				PARTICIPATION RATE	PERFORMANCE LEVEL
Landscaping and Open Space					
LS1	Plant Trees	2,475	0.3%	10,000 trees planted	1,696 MT CO <sub>2</sub> e reduction from energy savings; 779 MT CO <sub>2</sub> e sequestration benefit
Total County Action		652,909	44.6%		
State and Federal					
SF1	Pavley – Passenger Auto and Light Truck Fuel Efficiency	416,210	28.4%	Regulatory	
SF2	Low Carbon Fuel Standard	175,075	12.0%	Regulatory	
SF3	Renewable Portfolio Standard	200,665	13.7%	Regulatory	
SF4	Tire Pressure Program	8,482	0.6%	Regulatory	
SF5	Heavy-Duty Vehicle Aerodynamics	9,753	0.7%	Regulatory	
Total State and Federal Action		810,185	55.4% <sup>1</sup>		
Total Reductions (County, State, and Federal Actions)		1,463,094	100%		
2020 Emissions with Reduction Measures		3,729,595			
Percent Reduction below 2005 Baseline (4,512,580 MT CO <sub>2</sub> e)		17.4%			

<sup>1</sup> Numbers may not total to 100% due to independent rounding.

THOUSAND  
METRIC TONS  
CO<sub>2</sub>E PER YEAR

FIGURE 3.1 | 2020 GHG REDUCTION POTENTIAL BY SECTOR



# WATER

Only 5% of the County's community-wide emissions are related to water use; however, because of the arid nature of San Diego's climate, conservation is vital to ensure that future generations have clean and abundant water.

Water-related GHG emissions are mainly generated by energy used to pump, transport, heat, cool, and treat water and wastewater. In San Diego County, only 18% of the water comes from local sources, with the rest coming from either the Sacramento Delta serving the State Water Project or the Colorado River. Because of the great distance this water travels to reach San Diego, it has high embedded energy and GHG emissions.



# W1 Water Conservation



## IMPLEMENTATION

### Implementation Partners:

San Diego County Water Authority (SDCWA), local water districts, residents, businesses

**Performance Indicator:** 20% per capita reductions

## COST: Very Low (Public)

An existing outreach program costing less than \$10,000 would achieve water conservation goals

## SAVINGS: Very Low, Recurring (Private)

Approximately \$40 in annual savings per capita from avoided water purchases

## POTENTIAL FUNDING SOURCES

Partnerships with other jurisdictions and organizations, American Recovery and Reinvestment Act (ARRA) (Energy Efficiency Conservation Block Grant [EECBG])

## Community Co-Benefits



## GHG Reductions (MT CO<sub>2</sub>e/Year)

# 20,200

In 2009, the State of California passed a legislative package focused on improving the quality and availability of water for residents and ecosystems. Senate Bill (SB) 7X7 was included in that package, and requires local water districts to **reduce per capita water usage 20% by 2020**. Using the state-mandated reduction as a goal, the County developed a strategy to promote existing conservation programs, like those offering rebates for water-efficient appliances and design assistance to help homeowners create water-smart landscapes around homes.

CONSERVATION IS VITAL  
TO ENSURE THAT FUTURE  
GENERATIONS HAVE CLEAN  
AND ABUNDANT WATER

# ENERGY

Residences and commercial operations in the County emit more than 1.1 MMT CO<sub>2</sub>e each year through electricity and natural gas use. Projections of population and business growth in the County, together with the prospect of climate-change-induced heating and cooling demand increases, suggest that County energy demand is likely to grow in the future unless changes are implemented now. The primary ways to reduce GHG emissions generated through energy consumption are by increasing building efficiency and increasing the amount of energy provided by renewable resources.

## BUILDING EFFICIENCY

Investing in energy efficiency is a prudent decision for residents and businesses. Increasing a building's long-term performance can achieve lower operating costs, improve occupant comfort, hedge against utility price increases, and help improve air quality. Given that energy used to cool, heat, and power homes and businesses makes up 25% of the County's GHG emissions and overall energy consumption, the County has focused many of its actions on building efficiency to help achieve its emissions-reduction goals by 2020.



## E1 Energy-Efficient New Development



### IMPLEMENTATION

#### Implementation Partners:

San Diego Gas & Electric (SDG&E), California Energy Commission (CEC), residents, businesses

#### Performance Indicator:

10% of new development exceeds 2008 Title 24 standards by 15% until 2015, when measure becomes mandatory

### COST: High, One Time (Private)

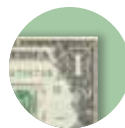
### SAVINGS: Low, Recurring (Private)

Savings of approximately \$225 annually from improved efficiency

### POTENTIAL FUNDING SOURCES

Partnerships with organizations, SDG&E, ARRA (EECBG), self-financing

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

Residential: **5,168**

Commercial: **7,829**

The newest edition of Title 24, California's Building Code, is intended to increase the energy efficiency of retrofits, renovations, and new construction. The County, in coordination with the California Energy Commission (CEC) and San Diego Gas and Electric (SDG&E), will **use incentives to encourage builders to exceed current (2008) energy efficiency standards by 15%**. In 2015, this higher standard will become a regulatory requirement for all new development. Developers and building owners can leverage the assistance provided by the County by also participating in other "green" building programs, such as the Leadership in Energy

and Environmental Design (LEED) or GreenPoint rating programs. By participating in these programs, builders and building owners will be able to add value to their projects and increase the benefits of building green. The County's Green Building Incentive program is designed to decrease the time and cost of "building green." There are also educational programs led by other organization that work with builders to educate them about green building principles and practices. Some examples of these programs are the San Diego Green Building Apprenticeship Readiness Partnership, led by the San Diego Workforce Partnership,

and the San Diego Green Building Training Collaborative, which is offered by the Grossmont-Cuyamaca Community College District. These are just two of the many on-going workforce development programs that will help create the educated and experienced workforce that is needed to take advantage of the County's Green Building Incentive program.

## E2.1 Residential Building Retrofits



### IMPLEMENTATION

#### Implementation Partners:

SDG&E (Energy Upgrade California), California Center for Sustainable Energy (CCSE) (Energy Upgrade California), residents, businesses

#### Residential Performance Indicator:

Retrofit 15% of existing buildings

### COST: High, One Time (Private)

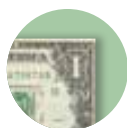
### SAVINGS: Low, Recurring (Private)

Average savings of approximately \$250 per year per retrofit

### POTENTIAL FUNDING SOURCES

ARRA (EECBG), CEC Energy Efficiency Financing, other public finance (Qualified Energy Conservation Bonds [QECBs])

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 27,999

Of the total GHG emissions in the County, 25% are a result of energy used for commercial and residential buildings. Having affordable energy to heat and cool buildings, turn on lights, wash clothes, cook food, run computers, and support the daily functions of home, work, and commerce is essential to a functioning regional economy. Since the vast majority of buildings in the County were built before 2002, there is tremendous potential to increase the overall energy efficiency of buildings in the region with a range of energy efficiency upgrades.

There are a range of state and federal incentives to help promote

and fund energy efficiency upgrades. Energy Upgrade California, a statewide program to help homeowners retrofit and renovate homes with more energy-efficient appliances, heating/cooling systems, and other improvements, lowers the cost barrier by offering rebates based on percent increase in energy efficiency. Retrofits are generally done as part of a “package” of options, such as sealing leaks in air conditioning/heating systems and installing insulation in the walls and ceilings.

Using \$3 million provided by the U.S. Department of Energy through the CEC, the County created

a comprehensive residential building energy retrofit program for the region. This program will encourage energy efficiency retrofits of single- and multi-family residential properties, with a focus on economically disadvantaged communities. This program is designed to **maximize participation in existing energy efficiency retrofit programs in the County**, such as the Energy Upgrade California program or SDG&E's Energy Savings Assistance Program. By working with partners such as the California Center for Sustainable Energy (CCSE), SANDAG, and SDG&E, who are already operating energy efficiency programs in the



San Diego area, the County can focus its resources on providing the information and assistance residents need to take advantage of existing programs. Participating in these existing programs will help residents improve the efficiency, comfort, health, and value of their homes.

THERE IS TREMENDOUS POTENTIAL TO INCREASE THE OVERALL ENERGY EFFICIENCY OF BUILDINGS IN THE COUNTY WITH A RANGE OF ENERGY EFFICIENCY UPGRADES.

## E2.2 Commercial Building Retrofits



### IMPLEMENTATION

#### Implementation Partners:

SDG&E, CCSE, residents, businesses

#### Performance Indicator:

Retrofit 30% of existing businesses

### COST: High, One Time (Private)

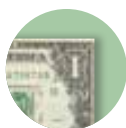
### SAVINGS: Medium-High, Recurring (Private)

Savings from lighting retrofits can reduce operation costs by up to 40% from current costs in commercial buildings, depending on building type and the existing lighting system

### POTENTIAL FUNDING SOURCES

ARRA (EECBG), partnerships with organizations (CCSE), SDG&E Local Government Partnership

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 5,257

Businesses can gain long-term savings from upgrading ceiling and duct insulation; installing an Energy Management System (EMS) that controls air conditioning, heating, and lighting systems, and operates efficiently when needed and shuts off when not needed; converting to light-colored roofs; or simply using more efficient lighting fixtures and bulbs. According to the Database for Energy Efficiency Resources (DEER), a basic energy efficiency package for commercial buildings includes reset/calibration of chilled and hot water systems, addition of heating and cooling time-clocks, and reduction of nighttime lighting levels. SDG&E currently offers

assistance and incentive programs such as the Savings by Design, Direct Install, Rebate, and On-Bill Financing programs to help commercial customers make energy efficiency improvements. The County currently displays all collateral and marketing materials provided by SDG&E to provide business owners a “one-stop shop” to learn about SDG&E programs. With funding from Energy Efficiency and Conservation Block Grants (EECBG), the County is also working to re-start the Green Business Program. **These efforts will help businesses to take advantage of existing energy efficiency programs and reduce their energy use.** Because of the amount of older, inefficient

lighting systems, and because of the SDG&E programs already in place to assist business owners in upgrading their old equipment to energy-efficient technology, it is assumed that the bulk of energy-efficient upgrades will come from the lighting sector. To help facilitate this conversion, the County is using other EECBG funds to partner with SDG&E, and has conducted various recycling programs focused on fluorescent lamps. By giving business owners the option to recycle older, inefficient lamps, the County is making it easier to upgrade to newer technology.

## E3 Appliance Upgrades



### IMPLEMENTATION

#### Implementation Partners:

SDG&E, residents, businesses

#### Performance Indicator:

Energy Star appliances in 40% of existing homes and 95% of new homes

### COST: High, One Time (Private)

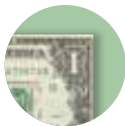
Energy-efficient Energy Star appliances are more expensive than standard appliances. On average, a package composed of a refrigerator, dishwasher, clothes washer, and ceiling fan with the Energy Star certification will cost about \$390 more than a standard appliance package.

### SAVINGS: Very Low, Recurring (Private<sup>1</sup>)

### POTENTIAL FUNDING SOURCES

ARRA (EECBG), partnerships with organizations (SDG&E), SDG&E Local Government Partnership

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

Existing Homes: **14,680**

New Homes: **5,380**

According to the U.S. Environmental Protection Agency (USEPA), devices that have an Energy Star certification, such as office equipment, home appliances, and lighting products, generally use 20% to 30% less energy than required by federal standards. With more Energy-Star-rated home and business appliances, County residents can help to reduce GHG emissions compared to the use of older, less efficient appliances. This measure assumes that **refrigerators, dishwashers, clothes washers, and light bulbs will be upgraded to Energy-Star-rated appliances.**

Upgrades to other Energy Star appliances, such as air conditioning units, computers, televisions, and

photocopiers, would augment the estimated reductions. The County will promote SDG&E's existing programs to increase community awareness of rebates and incentives, the efficiencies that may be gained from Energy-Star-rated appliances, and the cost savings associated with Energy Star appliances.

<sup>1</sup>Appliances in the home are major users of energy, and using Energy Star appliances, which are rated for efficiency by USEPA, can help to reduce residential energy consumption and energy bills. By using a refrigerator, dishwasher, clothes washer, and ceiling fans with the Energy Star certification, households can reduce their electricity bills by about \$450 over the lifetime of the appliances, even after paying back the difference in purchase price over standard appliances. Across the County, this will result in almost \$16 million in savings during the lifetimes of the appliances.

## E4 Smart Meters



### IMPLEMENTATION

#### Implementation Partners:

SDG&E, residents, businesses

#### Performance Indicator:

10% of residents use Smart Meters to reduce energy consumption

### COST: Very Low to High, One Time (Private)

### SAVINGS: Very Low to High, Recurring (Private)

Savings of about \$20 per month per household after monthly cost of equipment; savings of about \$175 million annually across all commercial buildings, not including equipment fees of \$500 per commercial installation

### POTENTIAL FUNDING SOURCES

Partnerships with organizations (SDG&E), SDG&E Local Government Partnership

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

Existing Homes: **1,993**

New Homes: **6,887**

Emerging energy management systems, such as Smart Meters, have been installed by SDG&E throughout its service territory, and this has significantly improved how electricity consumption is managed for building climate control, appliances, and all other uses. These new Smart Meters will eventually provide utility customers with access to detailed, instantaneous energy use and cost information; new dynamic pricing programs based on peak-energy demand; and the ability to program home appliances and devices to respond to energy use preferences based on cost, comfort, and convenience. The County will promote the efforts of SDG&E, other

jurisdictions, and organizations to **accelerate “Smart Grid” integration in the community.** The true value of the Smart Meter program will be fully realized when community residents and businesses begin accessing and using this information to make more informed energy-use decisions based on the two-way communication enabled by these meters. For example, Smart Meters will allow a homeowner to program the washing machine to run when energy is cheapest. Customers will have access to their daily energy usage through the My Account feature on SDG&E’s website, which will help increase awareness and, thus, reduce consumption and energy costs.

THIS HAS  
SIGNIFICANTLY  
IMPROVED HOW  
ELECTRICITY  
CONSUMPTION  
IS MANAGED  
FOR BUILDING  
CLIMATE  
CONTROL,  
APPLIANCES,  
AND ALL  
OTHER USES.

# INCREASE RENEWABLE ENERGY GENERATION

Green building and net-zero energy practices are creating a new framework for how energy is used in homes and businesses. Net-zero refers to the idea that buildings consume no more energy than they produce on-site and produce no annual energy emissions. This is accomplished through three key methods: reducing the building's overall energy demand by using energy-efficient appliances (e.g., heating, ventilation, and air conditioning [HVAC] units; washers and dryers); creating an energy-efficient building envelope with properly sealed doors, windows, and ducts; and installing renewable energy technologies such as solar water heaters and solar panels. The result is a building that can produce as much energy as it consumes. While the measures in this chapter are focused on the most prevalent

renewable systems—solar photovoltaic (PV) and solar hot water—there are other opportunities to generate clean renewable energy, such as large- and small-scale wind power. To assist residents and businesses in developing wind power, the County created a zoning ordinance that lays out the review and steps that property owners must take to produce wind power on their properties. These smaller scale renewable energy developments will work with more established technologies to help the County reach its emissions-reduction goals. Note that this CAP only evaluates proven and cost-effective technologies that are currently on the marketplace; there is a chance that a technological breakthrough will enable future renewable energy systems to be installed at a faster pace than is forecasted in this document.



# R1 Solar Water Heating (Residential and Commercial)

## RESIDENTIAL

### COST: High, One Time (Private)

Solar water heaters are more costly than traditional water heaters, although state incentives help to reduce the larger upfront cost. On average, the state incentive for solar water heaters offsets the cost of purchase and installation by about \$1,050, which reduces the difference in cost from traditional water heaters to just more than \$5,500.

### SAVINGS: Low, Recurring (Private)

By using renewable energy to heat water, solar water heaters provide an efficient solution to water heating, which is a major component of utility costs for households. Solar water heaters save enough money to pay for their higher installation and purchase costs, and save more than \$2,600 over their lifetimes. Across the County, households will save more than \$5.6 million.

## COMMERICAL

### COST: High, One Time (Private)

### SAVINGS: High, Recurring (Private)

Institutional systems generally provide about 40% to 80% of water heating needs.

## IMPLEMENTATION

### Implementation Partners:

CCSE, SDG&E, residents, businesses

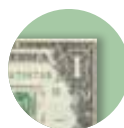
### Performance Indicator:

Solar water heating systems on 19% of residential commercial buildings

## POTENTIAL FUNDING SOURCES

Public finance (Clean Renewable Energy Bonds [CREBs]), partnerships with private companies (Power Purchase Agreements [PPAs], Energy Performance Contract with Energy Service Provider [ESP]), partnerships with organizations

## Community Co-Benefits



## GHG Reductions (MT CO<sub>2</sub>e/Year)

Residential: **21,496**  
Commercial: **16,122**

Solar hot water systems are a simple, reliable, and cost-effective method for harnessing the sun's energy to provide for hot water needs. Solar collectors, usually placed on the roof, absorb the sun's energy to heat water that is stored in a water tank. According to the California Solar Initiative (CSI), a statewide effort to promote solar hot water systems through outreach, education, and incentives, solar hot water systems can lower water heating costs by meeting 50% to 80% of hot water needs over a year. The California Solar Water Heating and Efficiency Act of 2007 (AB 1470) created a 10-year program aimed at installing solar water heaters in

homes and businesses. AB 1470 was designed to lower the initial costs of purchasing a system, which averages around \$3,000 to \$6,000.

**The County will support CSI's Solar Water Heating Incentive program to replace and recycle water heaters in homes and commercial buildings.** Although solar water heater upgrades require an up-front investment from the resident or business owner, there are a range of financing and rebate options to offset these initial investment costs.

## R2 Alternative Energy Systems (Residential and Commercial)

### RESIDENTIAL

#### **COST: One Time (Private); Low to High, Recurring (Public)**

Private: Average cost to install a 4.2-kilowatt (kW) system, the average size system, in San Diego is about \$32,550, including CSI and County incentives. Public: The County has waived the approximately \$200 to \$325 in fees per system since 2002, and has waived more than \$750,000 in fees since that date.

#### **SAVINGS: Medium, Recurring (Private)**

Solar PV systems generate renewable electricity that is used to offset the electricity consumed by households. Although these systems are relatively costly to install, they can pay for themselves and save money on electricity bills. Over a 30-year lifespan, a solar PV system can save about \$14,000 after paying for themselves, and incentives from the state and County have averaged over \$6,500.

### COMMERCIAL

#### **COST: High, One Time (Private)**

#### **SAVINGS: High, Recurring (Private)**

Savings vary based on system size, but typically larger commercial systems earn positive returns more quickly than smaller residential installations.

### IMPLEMENTATION

#### **Implementation Leads:**

CCSE, SDG&E, residents, businesses

#### **Residential Performance Indicator:**

Generate 5% of existing residential electricity

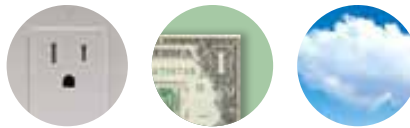
#### **Commercial Performance Indicator:**

Generate 8% of existing commercial electricity

### POTENTIAL FUNDING SOURCES

Partnerships with private companies (PPAs) and other organizations (CCSE), SDG&E Local Government Partnership, public finance (CREBs), existing rebates and incentives

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

**Residential: 16,821**

**Commercial: 28,469**

Alternative energy systems include wind, solar, and geothermal sources to provide energy with low GHG emissions. Many of these systems are being installed in the region as part of SDG&E's compliance with the RPS, while smaller systems are being installed to provide on-site alternative energy to homes and businesses. All are potential resources for the community, and increased use is encouraged by the County; however, solar PV systems are the most common. PV systems generate electrical power by converting solar radiation into direct-current electricity using semiconductors. PV systems can be retrofitted into existing

buildings, usually by mounting them onto an existing roof or walls. According to the CSI ([www.californiasolarstatistics.org](http://www.californiasolarstatistics.org)), there are currently approximately 1,420 solar PV installations in the County, with a total capacity of approximately 15 megawatts (MW). **The County is promoting PV solar panels as a way for residents to harness clean, renewable energy.** Currently, the County offers support in the form of reduced fees and expedited permits. Because the funding for these PV preferential programs is tied to EECBG funds, they will expire in 2012.

# LAND USE AND TRANSPORTATION

The single largest sector contributing to GHG emissions within the County is transportation. The 2.6 MMT CO<sub>2</sub>e accounts for more than 59% of the community's emissions, which are derived from on- and off-road vehicle use. To ensure that emissions-reduction goals are met, this is the area where the most significant reductions must be made.

Reducing vehicle miles traveled (VMT) and replacing older vehicles with more fuel-efficient options are two strategies that will generate significant emissions reductions.

The County can also work with local businesses to expand access to alternative means of travel through actions such as providing additional bike lanes, increasing access to bus and trolley lines, installing recharge stations for electric vehicles, and increasing park and ride centers.

The County can work with other agencies' transportation departments to ensure traffic control efficiency and increase the attractiveness of alternate means of travel through charging for parking to encourage ride sharing or use of mass transit.

An added challenge to reducing VMT in the County results from the significant growth forecast for the coming decades. Given this challenge, planning to ensure use of energy-efficient resources is essential. Under the County's General Plan, the County calls for mixed-use, higher density development near service centers in high-growth areas, which will reduce VMT by locating homes, schools, and businesses near commerce.



## LU1 Mixed-Use Development



### IMPLEMENTATION

#### Implementation Partners:

SANDAG and County staff, Department of Planning and Land Use (DPLU)

#### Performance Indicator:

4% decrease in VMT

### COST: None

County use of regulatory, not financial, incentives

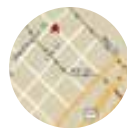
### SAVINGS: Medium, Recurring (Private)

Per capita savings of about \$300 annually from avoided driving costs

### POTENTIAL FUNDING SOURCES

State and regional grants (California Department of Transportation [Caltrans] Planning Grants), partnerships with organizations

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 124,180

Increasing the availability, effectiveness, and use of transit could result in a 4% reduction in overall VMT in the County by 2020. Using the General Plan as a tool to reduce transportation emissions, the County adopted specific language to promote mixed-use, high-density, and transit-oriented development in appropriate locations. However, because this measure will only change the composition and location of future development and redevelopment, the estimated reduction in VMT and emissions come only from decreases in new VMT generated by these projects. To meet the GHG-reduction target, **the County**

**will create additional incentives to encourage new mixed-use development near existing and planned transit corridors.** These additional incentives might include reductions in parking, expedited permitting, reductions in fees, or other similar measures that would be finalized through an update of the County's regulations related to the processing and approval of development proposals. With a combination of new planned developments, existing commercial center retrofits, and mixed-use infill development, the County can increase access to goods and services and options to reach those amenities, thereby reducing

the need for automobile trips. An important co-benefit of incentivizing growth in higher density areas around transportation facilities is the preservation of open space. A majority of the land in the unincorporated area of the County is open space or undeveloped, and includes large tracts of federal, state, or regional parklands, and agricultural production areas.

# T1 Increase Transit Use



## IMPLEMENTATION

### Implementation Partners:

SANDAG, Metropolitan Transit System (MTS), and County staff

### Performance Indicator:

2% decrease in VMT

## COST: Very Low (Public)

Public costs to improve transit facilities, such as bus stops, and expand County rideshare program

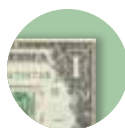
## SAVINGS: Low, Recurring (Private)

Per capita savings of \$150 annually from avoided driving costs

## POTENTIAL FUNDING SOURCES

State and regional grants (Caltrans Planning Grants), partnerships with organizations

## Community Co-Benefits



## GHG Reductions (MT CO<sub>2</sub>e/Year)

# 62,090

Because the County is composed primarily of suburban and rural communities, there is limited access to, and facilities to support, regional transit. The transit system operated by the Metropolitan Transit System (MTS) includes three trolley lines (with a total of 53 miles of track) and 89 fixed bus routes. With development guided by the newly adopted General Plan, it is assumed that more development will occur near existing and planned transit locations. Locating development close to public transit will encourage residents to use these services for daily activities. The County will also encourage SANDAG and MTS to **develop new transit facilities where densities permit and to improve existing facilities** (mainly existing

stations and stops). The County will also work with developers to ensure that all transit facilities required by building ordinances are built. By improving existing transit facilities, SANDAG and MTS will be able to make the transit experience more convenient and appealing to County residents. Combined with facility improvements, these efforts will **expand transit ridership within the County**. Given the potential for increased ridership, County-wide VMT could be reduced by 2% by 2020.

LOCATING  
DEVELOPMENT  
CLOSE TO  
PUBLIC  
TRANSIT WILL  
ENCOURAGE  
RESIDENTS  
TO USE THESE  
SERVICES  
FOR DAILY  
ACTIVITIES.

## T2 Increase Walking and Biking



### IMPLEMENTATION

#### Implementation Partners:

SANDAG and County staff (DPLU and Department of Public Works [DPW])

#### Performance Indicator:

50% increase in bicycle and pedestrian facilities

### COST: Varied

Costs to install 92.5 miles of bike and pedestrian paths vary based on the type of paths chosen, but costs per mile range from \$14,800 per 1 mile for a Class III facility to \$2.6 million per 1 mile for a Class I facility.

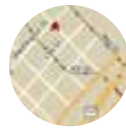
### SAVINGS: Medium, Recurring (Private)

Per capita savings of nearly \$220 annually from avoided driving costs

### POTENTIAL FUNDING SOURCES

State and regional grants (Caltrans Planning Grants), partnerships with organizations

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 93,135

Walking or biking in place of driving reduces GHG emissions, increases personal fitness, and adds to the sense of community as more people interact on sidewalks and bike paths. A number of actions can facilitate walking and biking, as identified below.

The County has adopted Pedestrian Area Plans for portions of five unincorporated communities. Pedestrian Area Plans look at existing pedestrian conditions, identify deficiencies, and recommend solutions. As more Pedestrian Area Plans are prepared in unincorporated communities, they will collectively form the Pedestrian Master Plan. The County also worked with SANDAG to create the “Riding to 2050, San Diego Regional Bicycle Plan,” which is intended to guide the development of

the regional bicycle system by creating interconnected bicycle corridors, support facilities, and programs to make bicycling more practical and desirable to a broader range of people.

Based on the General Plan, Pedestrian Area Plans, and the Regional Bicycle Plan, the County will widen existing sidewalks, complete gaps in the sidewalk network, and extend existing sidewalks to provide access to desired areas. **These efforts will be focused on expanding the pedestrian network to make walking an attractive travel mode.**

The County will also encourage bicycle travel by **developing and implementing off-street bicycle trails** that can be used for recreational travel and commuting purposes. These off-street trails will allow

residents to cycle safely, which will make cycling a more attractive transportation option for cyclists of all levels of expertise. In addition to any facilities that will be developed directly by the County, the County will also coordinate with private development to ensure that facilities are constructed in and adjacent to new development/redevelopment, where appropriate. Another way to promote awareness of bicycling as an alternative means of transportation and encourage road-sharing between bicyclists and motorists is to develop a promotional and awareness campaign for drivers and cyclists to encourage cyclists and make drivers aware of cyclists.

## T3 Increase Ridesharing



### IMPLEMENTATION

#### Implementation Partners:

SANDAG and County staff

#### Performance Indicator:

50% of employers using transportation demand management

### COST: Very Low (Private); Very Low (Public)

Public cost of promoting programs; private costs of telecommuting and transit use, including for home electricity and unreimbursed share of transit passes

### SAVINGS: Low, Recurring (Private)

Per capita savings of about \$300 annually from avoided driving costs

### POTENTIAL FUNDING SOURCES

State and regional grants (Caltrans Planning Grants), partnerships with organizations

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 93,135

Transportation demand management (TDM) is a series of strategies that aim to reduce single-occupancy automobile trips. These strategies frequently target commute trips associated with employment. Private industry employs the majority of employees who work within the County. To facilitate a change in commuting patterns, **the County will encourage private industry to incorporate TDM emissions-reduction measures in the workplace through outreach conducted by County staff.**

It is anticipated that this outreach could be implemented through existing forums involving business owners and operators. Under this measure, private employers will be encouraged, but not required, to implement a

TDM program for their employees, including incentivizing transit use or implementing a rideshare or telecommuting program. **The County will showcase the current local government program as an example, and encourage additional TDM at existing and future businesses.** Where feasible, the County will expand the shuttle network to accommodate additional ridership. This strategy will focus on County staff and what they can do to reduce their use of automobiles to travel to and from County offices. These changes would equate to a 3% County-wide reduction in VMT by 2020.

THIS STRATEGY  
WILL FOCUS ON  
COUNTY STAFF  
AND HOW THEY  
CAN REDUCE  
THEIR USE OF  
AUTOMOBILES  
TO TRAVEL  
TO AND FROM  
COUNTY  
OFFICES.

## T4 Alternative-Fuel Vehicles



### IMPLEMENTATION

#### Implementation Partners:

Ecotality, CCSE, SDG&E, and County staff

#### Performance Indicator:

15% increase in electric vehicle purchase

### COST: High (Private)

Purchase price is higher than comparable vehicles in the same class by approximately \$14,000

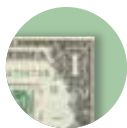
### SAVINGS: None by 2020 (Private)

Just under \$600 in operational savings, but no net savings by 2020 due to high purchase cost

### POTENTIAL FUNDING SOURCES

Partnerships with organizations (SANDAG, CCSE, SDG&E, Ecotality)

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 93,135

Hybrid and electric vehicles emit fewer GHGs than gasoline- and diesel-powered vehicles, and their use could help lower GHG emissions. While some transition to alternative vehicles is accounted for in projections at the state and regional (SANDAG) levels, the County is currently participating in a program that is being implemented by Ecotality and funded by agencies such as the U.S. Department of Energy, SANDAG, and SDG&E to further increase the number of electric vehicles in the community. A key component of this effort is to **facilitate the purchase and use of electric cars through installation of chargers at various public sites**. This is designed to overcome one of the

limitations of electric vehicles: their limited range. As another part of this strategy, the County will provide outreach to encourage purchase and use of electric cars by residents and employees living and working in the unincorporated areas of the County and using County facilities. This strategy will focus solely on an expansion of electric vehicles so that there will be limited overlap with programs that encourage use of hybrid vehicles and other alternative-fueled vehicles that are being implemented by the state of California and the U.S. government.

HYBRID AND ELECTRIC VEHICLES EMIT FEWER GHGS THAN GASOLINE- AND DIESEL-POWERED VEHICLES, AND THEIR USE COULD HELP LOWER GHG EMISSIONS.

# AGRICULTURE

While GHG emissions from the County's agricultural sector are relatively minor, it is important to maximize emissions reductions from all available sectors. To leverage existing programs and minimize program implementation costs, these measures will be implemented by existing staff already working with farmers in the County. This will include farm advisors from the Farm and Home Advisor, which is a collaboration among the County; the U.S. Department

of Agriculture; the University of California; the San Diego County Farm Bureau; and the County's Department of Agriculture, Weights, and Measures. These measures will complement existing program goals by helping to minimize the resources that are required from County farmers, which will help farmers reduce costs and increase the profitability and sustainability of agriculture in the County.



# A1 Nitrogen Optimization



## IMPLEMENTATION

### Implementation Partners:

San Diego Farm Bureau and County staff (the Farm and Home Advisor and Department of Agriculture, Weights, and Measures)

### Performance Indicator:

5% of farmers decrease nitrogen usage

## COST: None

## SAVINGS: Low, Recurring (Private)

Approximately \$230,000 in savings County-wide to 2020

## POTENTIAL FUNDING SOURCES

This measure will leverage existing outreach

## Community Co-Benefits

## GHG Reductions (MT CO<sub>2</sub>e/Year)



# 199

Using organic or mineral nitrogen fertilizers is essential to maintain soil fertility and provide profitable yields. While these fertilizers are necessary, excessive application generates large amounts of nitrous oxide, a potent GHG. The purpose of this measure is to reduce nitrogen fertilizer use by providing information to farmers about optimizing nitrogen application rates, decreasing fertilizer input costs, maintaining crop yields, and decreasing nitrous oxide emissions. Working through the existing programs mentioned above, the County will **educate farmers about the advantages of reducing nitrogen fertilizer, with a goal of reducing use by 20%.**

This effort will use the most recent techniques to maintain crop yields and ensure that County farmers still benefit financially.

THIS EFFORT  
WILL USE THE  
MOST RECENT  
TECHNIQUES  
TO MAINTAIN  
CROP YIELDS  
AND ENSURE  
THAT FARMERS  
BENEFIT  
FINANCIALLY.

## A2 Field Equipment Fuel Efficiency



### IMPLEMENTATION

#### Implementation Partners:

San Diego Farm Bureau and County staff (the Farm and Home Advisor and Department of Agriculture, Weights, and Measures)

#### Performance Indicator:

35% of farmers increase fuel efficiency of field equipment

### COST: None

### SAVINGS: Very Low, Recurring (Private)

Approximately \$400 in savings per farm to 2020

### POTENTIAL FUNDING SOURCES

This measure will leverage existing outreach.

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 4,433

Farms use a considerable amount of fossil fuel within their field operations, but routine maintenance and more efficient equipment operation can provide valuable fuel savings. Engine and equipment upgrades are also expected to increase fuel efficiency. The County will incorporate information about on-farm fuel efficiency into existing outreach and education efforts that are underway through various agriculture resources. This will ensure that farm equipment is in top operating condition, which will save fuel and money, and help reduce repair costs, improve equipment reliability, and reduce harmful exhaust emissions.

ROUTINE  
MAINTENANCE  
AND MORE  
EFFICIENT  
EQUIPMENT  
OPERATION  
CAN PROVIDE  
VALUABLE FUEL  
SAVINGS.

## A3 Agriculture Irrigation Pump Efficiency



### IMPLEMENTATION

#### Implementation Partners:

San Diego Farm Bureau and County staff (the Farm and Home Advisor and Department of Agriculture, Weights, and Measures)

#### Performance Indicator:

40% of farmers increase fuel efficiency of irrigation pumps

### COST: High (Private)

Approximately \$9,000 to purchase and install a variable-speed, 20-horsepower agricultural pump without rebates (information on rebates available through the San Diego Farm Bureau)

### SAVINGS: Medium (Private)

Savings per farm of about \$3,200 in electricity (not including water) through 2020

### POTENTIAL FUNDING SOURCES

SDG&E (Incentives)

### Community Co-Benefits



### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 1,826

Diesel, natural gas, and electric irrigation pumps are used to pump groundwater from agricultural wells and return irrigation tail water for reuse in fields. This measure proposes to reduce irrigation emissions associated with pumping water by **increasing the efficiency of irrigation pumps**. Routine repairs to pump bowl components can decrease pump energy use by one-third. Using the same existing outreach as the other two agriculture measures, the County will provide information through already established programs about incentives and advantages of increasing irrigation pump efficiency.

ROUTINE  
REPAIRS  
TO PUMP  
COMPONENTS  
CAN DECREASE  
PUMP ENERGY  
USE BY  
ONE-THIRD.

# LANDSCAPING AND OPEN SPACE

## LS1 Plant Trees



### IMPLEMENTATION

#### Implementation Partners:

CCSE's Advice and Technical Assistance Center for Urban Forestry, County staff (DPW), residents, businesses

#### Performance Indicator:

10,000 trees planted

### COST: Medium, One Time (Private)

Initial purchase cost of about \$110, and just under \$350 for irrigation, trimming, and pest control over a 40-year tree lifetime

### SAVINGS: Low, Recurring (Private<sup>1</sup>)

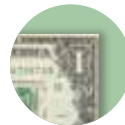
### POTENTIAL FUNDING SOURCES

State and regional grants (CalFire Climate Change Program, California ReLeaf), partnerships with private companies and other organizations

### Community Co-Benefits

### GHG Reductions (MT CO<sub>2</sub>e/Year)

# 2,475



The County recognizes trees as a valuable asset that will provide GHG-reduction benefits and many other co-benefits that will improve the quality of life for all County residents. This measure will encourage residents to plant trees near their home so they can benefit from the shade of the tree in the summer. This shade will decrease the cooling load of a home and allow the resident to reduce electrical usage. Over the lifespan of the tree, this reduction in energy costs will save the homeowner more than \$1,000. To assist residents and business in planting trees around their buildings, the California Center for Sustainable Energy created the Advice and Technical Assistance Center for Urban Forestry,

which has a full catalog of educational information about tree planting. The capacity of a tree to reduce GHG emissions is dependent on its age and species. As trees mature, their canopies increase in size and provide greater amounts of shade, which results in a higher capacity for building cooling in hot weather. To maximize energy savings from shade trees, residents and businesses will need to plan what type of trees to plant and where to plant so that the shade will provide cooling in the summer but not prevent the sun from heating the building in the winter. For further information, see the "planting guide" in Appendix E. Additionally, trees gain carbon-capturing biomass in their trunks

and roots as they absorb carbon from the air to grow. The trees will also provide the County with increased water and air quality, increased habitat for wildlife, decreased urban heat island effect, and beautification of County neighborhoods.

<sup>1</sup>Because trees planted near homes provide shade, they can lower home utility bills by keeping homes in the shade cooler than those that receive direct sun, especially in the afternoon. In addition to the other benefits of planting trees, like improving air quality and increasing real estate value, trees can pay for themselves and lower home utility bills by about \$1,060 over their lifetimes.

## 2035 REDUCTIONS

The County acknowledges Executive Order S-3-05, which sets a GHG-emissions-reduction goal of 80% below 1990 levels by 2050. While this is not a binding mandate, the County is committed to creating a healthy, energy-efficient, and sustainable future for its residents and visitors, and the County recognizes that the need to reduce GHG emissions will not end in 2020. Therefore, as stated in Chapter 2, the County developed an emissions-reduction goal for 2035 to put the County on the path toward the 2050 goal. To be on track to meet the state's emissions goal for 2050, the County determined that emissions reductions of 49% below 2005 levels will be necessary by 2035.

Similar to the 2020 analysis, the County developed a framework for reducing emissions by 2035 that will work in the context of the unincorporated County. The measures developed for the 2020 scenario were also used in the 2035 scenario, but with increased rates of participation. Maintaining the measures developed for 2020 reduces the cost of implementing new measures and builds on existing outreach structure, yielding higher participation over time. In addition, it is anticipated that technology will improve and/or lower in cost, making the measures more feasible for a greater percentage of the population in the future. For example, Measure E 2.1, Residential Building Retrofits, assumes a feasible participation rate of 15% by 2020, but increases to 90% by 2035.

Assuming aggressive, but feasible, goals, Table 3.2 shows the actions, assumptions, and reduction potential by measure that the County will achieve by 2035. The

potential reductions total 2,456,619 MT CO<sub>2</sub>e, or 13.7% below 2005 levels, as shown in Figure 3.2.

While this does not achieve the 49% reduction target, the assumptions in the 2035 scenario include only current technology and existing state and federal regulations. There are likely to be advances in technology that cannot be accounted for now, as well as additional regulations that will enhance the reductions achieved at the state and federal levels by 2035. In the 2020 scenario, state and federal actions account for more than 55% of the reductions needed to achieve the 2020 goal, whereas they account for only 34% of the reductions needed to achieve the 2035 goal.

Meeting GHG-reduction goals beyond 2020 will require even greater participation in existing measures, inclusion of additional measures, guidance from state and federal authorities, additional state and federal regulations, improved technology, and infrastructure changes. As described in Chapter 6, the CAP will be revisited periodically to reflect any changes in emissions projections or reduction potential, and the County will leverage additional or new resources and incentives to further work toward this ambitious target. Monitoring the progress of implementing CAP measures will be essential to understanding which actions are being fulfilled and which are not. A full GHG emissions inventory will be necessary to assess County-wide progress, but progress indicators may be monitored yearly to track the success of specific actions. Chapter 6 discusses this next step in the process of reducing GHG emissions.

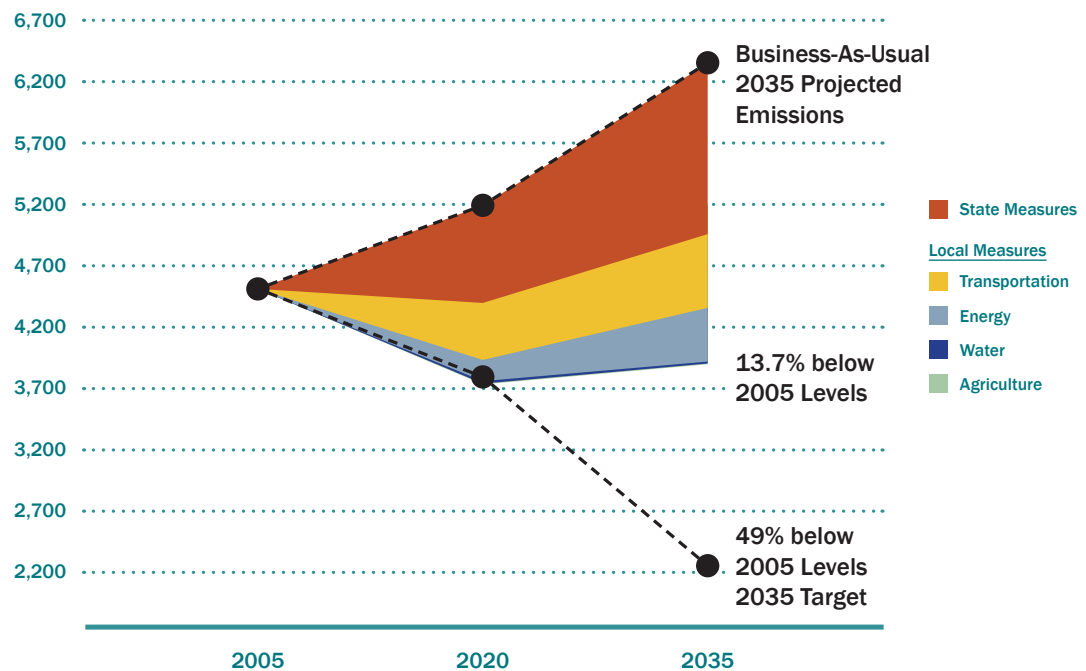
**TABLE 3.2 | SUMMARY TABLE OF 2035 GREENHOUSE GAS REDUCTION MEASURES**

MEASURE NUMBER	MEASURE	ANNUAL MT CO <sub>2</sub> E REDUCTIONS IN 2035 (FROM BAU 2035)	SCALED MEASURE PERFORMANCE (% REDUCTION IN GHG EMISSIONS)	ASSUMPTIONS	
				PARTICIPATION RATE	PERFORMANCE LEVEL
Water					
W1	Water Conservation	16,227	0.7%	100% of residents	20% per capita reductions
Energy					
E1	Energy-Efficient New Development	22,302	0.9%	100% of new development	15% above 2008 Title 24 requirements
E2.1	Residential Building Retrofits	158,662	6.5%	90% pre-2005 residential units	Savings vary per residential type and building vintage
E2.2	Commercial Building Retrofits	14,019	0.6%	90% pre-2005 commercial units	40% reduction in lighting kilowatt hours (kWh)
E3	Appliance Upgrades	53,290	2.2%	90% pre-2005 units; 100% post-2020 units	Average saving of 380 kWh per appliance and 32 kWh per light bulb replaced
E4	Smart Meters	32,106	1.3%	50% of residents with SDG&E accounts will use the enhanced energy monitoring capabilities to reduce energy usage	5% reductions in electrical usage
R1	Solar Water Heating (Residential and Commercial)	71,267	2.9%	Residential: 66% Commercial: 73% (90% colleges/schools, 70% other)	Reductions in energy usage: Residential: 70% Commercial: 59%
R2	Alternative Energy Systems (Residential and Commercial)	85,915	3.5%	Residential: 10% residential electricity from solar Commercial: 100 MW (13% commercial electricity use)	10 watts per square food for 6 hours
Land Use					
LU1	Mixed-Use Development	160,199	6.5%	25% of new development will occur in high-density areas	4% VMT reduction
Transportation					
T1	Increase Transit Use	80,099	4.9%	2% increase in transit ridership	2% VMT reduction
T2	Increase Walking and Biking	120,149	4.9%	50% increase of bicycle and pedestrian facilities	3% VMT reduction
T3	Increase Ridesharing	120,149	3.3%	50% of employers using TDM	3% VMT reduction
T4	Alternative-Fuel Vehicles	120,149	4.9%	15% increase in electric vehicle purchase	3% VMT reduction
Agriculture					
A1	Nitrogen Optimization	177	0.01%	5% growers	20% reduction in nitrogen fertilizer
A2	Field Equipment Fuel Efficiency	3,924	0.2%	35% field equipment	15% fuel efficiency increase
A3	Agriculture Irrigation Pump Efficiency	1,616	0.1%	40% pumps	50% reduction in energy usage

MEASURE NUMBER	MEASURE	ANNUAL MT CO <sub>2</sub> E REDUCTIONS IN 2035 (FROM BAU 2035)	SCALED MEASURE PERFORMANCE (% REDUCTION IN GHG EMISSIONS)	ASSUMPTIONS	
				PARTICIPATION RATE	PERFORMANCE LEVEL
Landscaping and Open Space					
LS1	Plant Trees	2,475	0.2%	10,000 trees planted by 2035	1,696 MT CO <sub>2</sub> e reduction from energy savings; 779 MT CO <sub>2</sub> e sequestration benefit
Total County Action		1,062,724	43.3%		
State and Federal					
SF1	Pavley – Passenger Auto and Light Truck Fuel Efficiency	782,246	31.8%	Regulatory	
SF2	Low Carbon Fuel Standard	180,808	7.4%	Regulatory	
SF3	Renewable Portfolio Standard	198,821	8.1%	Regulatory	
SF4	Tire Pressure Program	10,063	0.4%	Regulatory	
SF5	Heavy-Duty Vehicle Aerodynamics	11,211	0.5%	Regulatory	
Total State and Federal Action		1,393,895	56.7%		
Total Reductions (County, State, and Federal Actions)		2,456,619	100%		
2035 Emissions with Reduction Measures		3,895,853			
Percent Reduction below 2005 Baseline (4,512,580 MT CO <sub>2</sub> e)		13.7%			

THOUSAND  
METRIC TONS  
CO<sub>2</sub>E PER YEAR

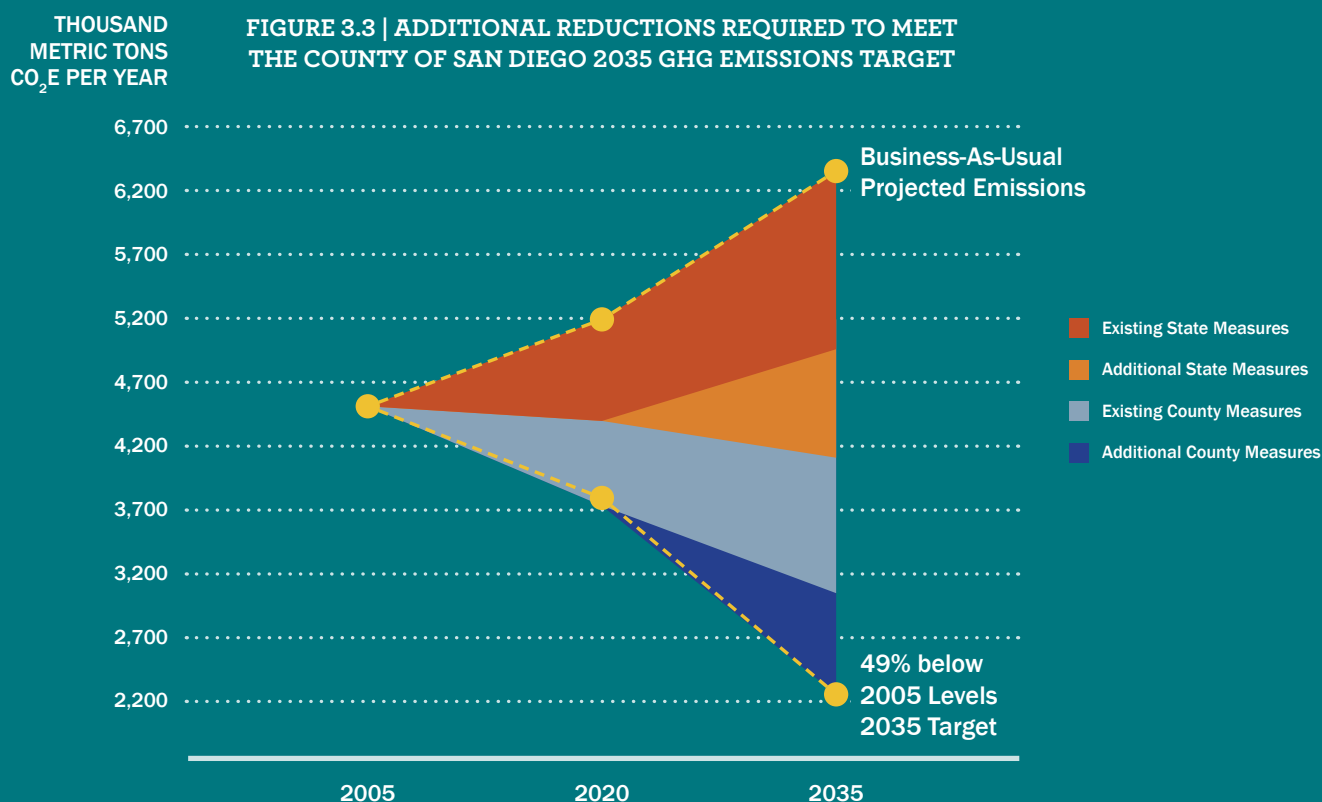
FIGURE 3.2 | 2035 GHG REDUCTION POTENTIAL BY SECTOR



## MEETING THE 2035 TARGET

The current 2035 scenario represents the County's best assessment of what would be achievable given existing conditions. The County is dedicated to meeting legislative goals and has developed scenarios to determine how it could reduce emissions 49% below 2005 levels by 2035. Reducing emissions from a BAU scenario will require mitigating more than 4 MMT CO<sub>2</sub>e, which will only be achievable through additional local, state, and federal actions. Figure 3.3 illustrates the additional reductions that will be needed to meet the target. The level of reductions that were assumed for the local level is proportional to those in 2020 (44.6%), while the remaining gap will need to be filled by additional state and federal measures. Details

of how this scenario could be achieved are provided in Appendix F, and include measures that may not currently be economically, technically, or politically feasible, such as implementing net-zero energy requirements on new buildings, increasing the LCFS to 30% at the state/federal level, and requiring organic waste diversion and 20% reduction in VMT at the local level. This demonstrates the challenge facing the state, and the level of commitment needed at many levels to achieve these ambitious targets. As discussed throughout this CAP, the measures will be monitored and the CAP will be updated to reflect changing conditions, which may make the goal achievable as 2035 approaches.



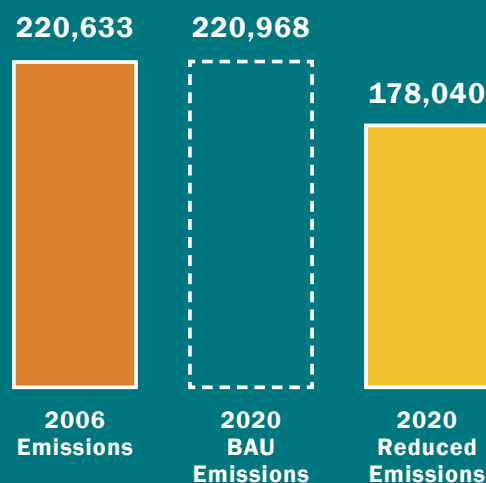


Ch. 4

## Local Government Measures and Actions

# The County of San Diego is a leader in energy conservation,

exemplified within the community and within County operations. Since the energy crisis of 2000, the County has reduced internal consumption by 14% through retrofits, new construction standards, and energy use policies. The County will continue to work toward reducing energy use. There are more than 15,000 County government employees serving more than 3 million residents. There are more than 300 County-operated buildings with nearly 10 million square feet; therefore, this is an area where large, strategically planned reductions can occur. The County devised a Strategic Energy Plan (SEP) to last through 2012 to help reach energy reduction goals. The actions in this CAP align with the SEP goals and extend some of them beyond the 2012 SEP horizon year.



The County's internal operational goals for GHG emissions reductions are the same as those for the community: to achieve 15% below baseline emissions by 2020.<sup>1</sup> The following table summarizes the local government-level strategies and GHG reductions, plus applicable state-level reductions. Through the CAP, the County can exceed its goal and achieve 19% GHG emissions reductions relative to 2006 by 2020.

The County identified five overarching strategies, with many actions within each strategy, to achieve significant reductions by 2020:

- Reduce Energy Consumption
- Energy-Efficient New Construction
- Renewable Energy
- Utility Monitoring and Reporting
- Fleet and Fuel Efficiency

MEASURE NUMBER	STRATEGY	2020 REDUCTIONS MT CO <sub>2</sub> E/YEAR FROM BAU 2020	PERFORMANCE LEVEL
M-1	Reduce Energy Consumption	6,443	Reduce energy consumption 1% per square foot per year
M-2	Energy-Efficient New Construction	2,005	Exceed Title 24 Building Standards for new construction and major renovations
M-3	Renewable Energy	NA <sup>1</sup>	Provide at least 2% of the County's annual electricity usage from renewable energy systems by 2012
M-4	Utility Monitoring and Reporting	NA <sup>1</sup>	Monitor and track energy and water usage of all large facilities
M-5	Fleet and Fuel Efficiency	2,859	5% increase in fuel efficiency by 2013 and 1% increase in fuel efficiency per year from 2014–2020
State	RPS	13,135	Regulatory
State	Pavley	12,362	Regulatory
State	LCFS	5,848	Regulatory
State	Tire Pressure	273	Regulatory
State	HDV <sup>2</sup>	3	Regulatory
<b>2006 Baseline Emissions</b>		<b>220,633</b>	
<b>Business-as-Usual 2020 Emissions</b>		<b>220,968</b>	
<b>Total Reductions</b>		<b>42,928</b>	
<b>Net 2020 Emissions</b>		<b>178,040</b>	
<b>Percent Reduction Below 2006 Baseline</b>		<b>19%</b>	

<sup>1</sup> The emissions reductions from these measures could not be quantified.

<sup>2</sup> Heavy-Duty Vehicle GHG Emission Reduction Measure; applied only to vehicle fleet, not employee commutes.

<sup>1</sup> The County of San Diego General Plan EIR stated that a 17% reduction from 2006 levels would be achieved by 2020; to align the goals with the recommendation from the state, the County is adopting a 15% reduction from 2006 by 2020.

## M-1 Reduce Energy Consumption

The County was proactive in auditing and retrofitting buildings well before AB 32 and other climate change measures were enacted. By 2006, the County had performed retrofits on more than two dozen major facilities. These actions resulted in 14% reductions in electricity usage and 9% reduction in natural gas usage per square foot. The East Mesa Detention Center, North County Regional Center, and Health Services Complex have all undergone retrofits since the baseline inventory, helping to achieve the SEP and CAP goals. Ongoing retrofits, largely funded by the federal government's EECBG, will account for additional reductions by 2012.

Specific actions that the County has or can take are as follows:

- Energy Efficiency Retrofits
- Energy-Efficient Purchasing Policy
- Optimization of Building Operations

	STRATEGY <sup>1</sup>	GHG EMISSIONS REDUCTION POTENTIAL (MT CO <sub>2</sub> E)
Existing SEP Strategy	Reduce energy consumption 1% per square foot per year; 2009–2012	1,828
Continued Strategy	Reduce energy consumption 1% per square foot per year; 2009–2020	6,443

<sup>1</sup> SEP strategies are assumed to be fully implemented and effective; therefore, projected GHG reductions may include past years.

### COUNTY ACTION IN FOCUS

As part of its ongoing effort to reduce energy consumption, the County replaced existing compressors for its 450-ton chiller at the Juvenile Hall Complex with new energy-efficient Turbocor TT400 compressors. These new compressors use magnetic bearings to levitate the rotor shaft and impellers during compression, which reduces noise and vibration during operation. With an integrated variable-frequency drive, energy efficiency is maximized even with a partial or low load. This project helps the County save an estimated \$109,000 per year in energy costs. This is just one of the many energy efficiency projects that have already been completed or are in the construction or planning phases in the County.



## M-2 Energy-Efficient New Construction

The County is currently undertaking major construction projects that provide an opportunity for energy efficiency in new buildings. California's Title 24 establishes standards for energy efficiency in new and renovated buildings; however, the County has committed to exceeding these standards both to reduce emissions and to distinguish itself as a leader of energy efficiency in the community. The San Elijo Nature Center, for example, is LEED Platinum certified—the highest possible certification from the Green Building Rating System. Future plans include achieving LEED Platinum rating for the Planning Commission Facility, set for completion in August 2012, and the County Operations Center, which will encompass a campus of LEED-certified buildings and replace older, less-efficient County buildings.

	STRATEGY <sup>1</sup>	GHG EMISSIONS REDUCTION POTENTIAL (MT CO <sub>2</sub> E)
Existing SEP Strategy	Exceed Title 24 Building Standards for new construction and major renovation 2009–2012	1,320
Continued Strategy	Continue through 2020	2,005

<sup>1</sup> The level of development within County and community operations is uncertain. To assess the potential reductions related to new construction or major renovations, only active projects (approved and funded) were included in the estimates through 2012. For the continued strategy, all active, approved, and proposed projects over the next 5 years were assumed to be constructed by 2020.

### COUNTY ACTION IN FOCUS

Still under construction, the County's new Operations Center represents the ongoing implementation of emissions-reduction measure M-2. It is on track to achieve a LEED Gold rating, and will exceed Title 24 energy requirements by 28% and reduce water consumption by 40%. To maximize energy efficiency, the new buildings will implement the following:

- A 400-kilowatt PV system
- Energy-efficient roofing and glazing systems to reduce heat gain and improve interior day lighting
- High-efficiency lighting and mechanical ventilation systems to reduce energy consumption and improve occupant comfort



## M-3 Renewable Energy

Part of the SEP is to provide at least 2% of the County's annual electricity usage from renewable energy systems by 2012. The County has already begun investing in renewable energy systems. New construction of County buildings (e.g., the recently completed Medical Examiner and Forensic Center, and the current construction of the East Mesa Detention Center and Crime Lab) includes installation of renewable energy systems. This strategy supports M-1 and M-2, which seek to reduce energy in existing and new buildings. While this measure could result in greater emissions reductions, the potential for overlap between measures would make this a supporting measure; therefore, the emissions reductions from this measure were not quantified in this document.

## M-4 Utility Monitoring and Reporting

One of the County goals is to monitor and track energy and water usage of large facilities and to provide this information to facility operators. While this strategy does not call for direct action related to GHG emissions reductions, this type of information is useful in reducing demand, identifying where efficiencies can be achieved, and ultimately reducing GHG emissions. Therefore, the emissions reductions from this measure could not be quantified, but the goal is included as an important supporting measure to the other energy efficiency strategies. This tool will be valuable for the CAP monitoring plan, as discussed in Chapter 7.



## M-5 Fleet and Fuel Efficiency

The County's vehicle fleet provides services to both the unincorporated County and to cities. Sheriff's, Parks and Recreation, Registrar of Voters, and Health and Human Services are just some of the County departments that rely on the fleet's 2,900 vehicles. The nearly 3 million miles traveled in these vehicles accounted for 11% of the County's emissions in 2006. The County is already making progress toward reducing emissions related to its vehicle fleet. The County's vehicle fleet makeup includes 167 hybrid, 25 electric, and 16 compressed natural gas vehicles. To reduce miles traveled, the County uses WebEx to conduct remote meetings, resulting in less fuel used for travel. The large vehicle fleet operated by the County provides an opportunity for significant emissions reductions through the strategies described below. In addition, the mobility of the County fleet provides the added benefit of promoting energy efficiency in the community by example.

	STRATEGY <sup>1</sup>	GHG EMISSIONS REDUCTION POTENTIAL (MT CO <sub>2</sub> E)
Existing SEP Strategy	5% fuel efficiency gain 2009–2012	1,248
Continued Strategy	Continue at 1% greater efficiency per year 2013–2020	2,859

<sup>1</sup> SEP strategies are assumed to be fully implemented and effective; therefore, projected GHG reductions may include past years.

### COUNTY ACTION IN FOCUS

Spanning roughly 4,200 square miles, San Diego County covers an expansive area, with 1,680 government buildings located throughout the region. Because of this, some employees in the same department can often be separated by more than 30 miles. To meet the significant challenge of meeting and communicating over such large distances, the County incorporated WebEx technology into its operations. This telepresence technology allows County employees to meet and discuss work right from their desks. This eliminates the need to drive to meetings, helps reduce carbon emissions, and also helps reduce costs and save taxpayer funds. Costs for meetings have been reduced from \$59 per person for a single meeting to less than \$20 per person for an entire month of meetings. Furthermore, based on cost data tracked for 900 Cisco WebEx sessions and 3,500 employees, the County estimates that this saved taxpayers more than \$45,000 in staff time and travel costs.





Ch. 5

## Adaptation

## ADAPTATION IN SAN DIEGO COUNTY

Although rising awareness and concern regarding potential climate change impacts has led to many policy responses and programs aimed at reducing GHG emissions at the County, state, national, and global level, we are likely already seeing and feeling some impacts of climate change, and other more serious consequences will occur despite climate mitigation efforts. While GHG mitigation initiatives are important for long-term climate stabilization, scientists warn of the time it takes for the climate system to respond to GHG reductions. Regardless of future emissions, the GHG concentrations already in the atmosphere commit us to a likely range of climate change impacts in the near future. Because of this, jurisdictions are recognizing the role of adaptation planning, which is an essential extension of climate change mitigation. Local governments can make important decisions relevant to adaptation, such as emergency preparedness, and are beginning to take a more active role in climate adaptation planning. While this document is not meant to serve as a climate adaptation plan, it is important to recognize the potential effects of climate change in the County, and to highlight potential strategies that may help the County adapt to those effects. This chapter outlines some climate change effects and potential adaptation strategies that the County may consider to best prepare for or co-exist with the actual or expected effects of climate change.

Several studies on the effects of climate change in the County have been conducted. The San Diego Foundation's Focus 2050 Report, San Diego County Water Authority's 2010 Urban Water Management Plan and the 2009 Annual Report, and the 2007 San Diego County Firestorms After Action Report detail some of the possible effects of climate change in the County, including a hotter and drier climate, increased droughts, rising sea level, an increased frequency and severity of wildfires, and decreasing water and energy security. These effects could have a significant impact on property, public health, safety, wildlife, and habitat.

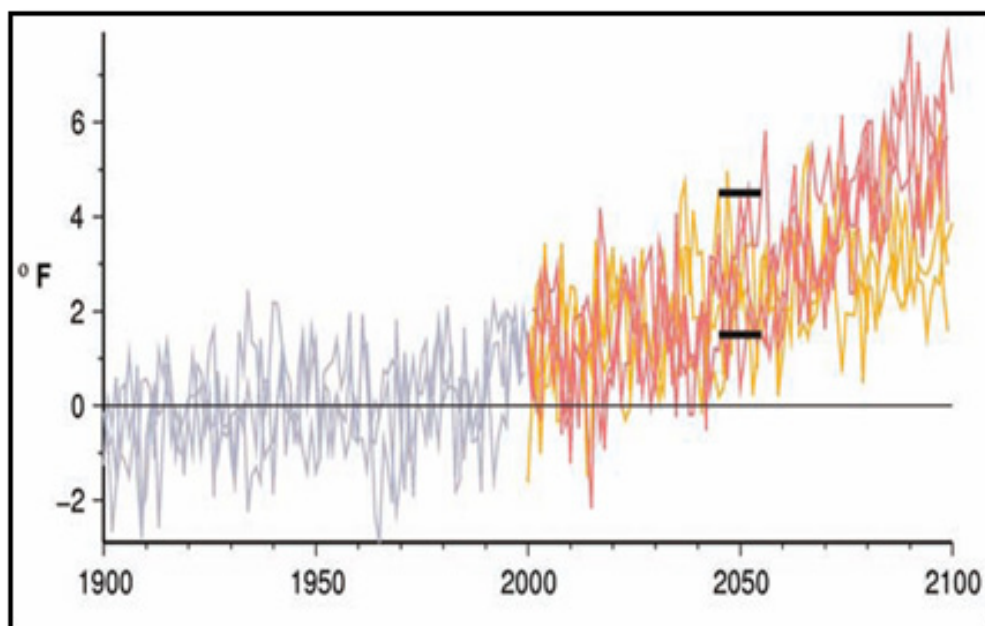
## INCREASING FREQUENCY OF EXTREME WEATHER EVENTS

### HEATWAVES

One of the most significant risks of heat waves is the likely increased levels of heat stress and death caused by extreme temperatures. Heat waves have claimed more lives over the past 15 years than all other declared disaster events combined in California. While many of these deaths occurred in more central parts of the state, the San Diego region reported at least five deaths during the 2006 heat wave. This is of particular concern for older adults and the infirm, as well as for those with heart or respiratory problems. By 2050, almost one-quarter of the region's residents (more than 1 million people) will be 65 and older, with more than half being older than 41. This older population will be more vulnerable to the public health impacts of climate change, such as heat waves and air pollution. With the prevalence of air-conditioner use during high-temperature

events, demand for power may outstrip supply and cause a power blackout; this was the case during the heat waves of 2007 when thousands of residents lost power. This risk is compounded during a heat wave, because even more people and businesses will manage their heat stress with air conditioning. If the outage is sufficient to disrupt public transportation, mass stranding of passengers may also occur. The Focus 2050 report estimates that temperatures in the San Diego region will rise between 1.5°F and 4.5°F by 2050 (see graph below). This warming will be exaggerated in the summer, when temperatures will warm by as much as 2°F more than in the winter, and in the inland areas of the County, where the majority of County residents live, where warming could be as much as 2°F higher than the warming that occurs near the coast.

### PROJECTED TEMPERATURE INCREASE FOR SAN DIEGO COUNTY



Source: San Diego Foundation Regional Focus 2050 Study

## FLASH FLOODING

With a high degree of variability of annual precipitation, San Diego County can be vulnerable to flash flooding, especially in the central and eastern areas where mountain canyons, dry creek beds, and high deserts are the prevailing terrain. These floods have serious impacts on public health, transportation infrastructure, and power service, and can result in severe property damage and even deaths. Even small flooding events have been known to cause public transportation disruptions. Power outages due to storm damage can compound transport delays and put populations dependent on electricity for health needs at risk. Deaths, injuries, and destruction of

property due to storm damage, flash flooding, and erosion of hillsides are also significant risks in these events. Storm events, although providing water inflows, are also a main case of toxin infiltration, because as storm water runoff passes through developed parts of the County, it picks up pollutants such as animal waste, automotive fluids, and anything else in its path. The effects of storm events may be mitigated by habitat restoration projects, which would restore the native vegetation that absorbs floodwaters and slowly releases runoff into watersheds. As a result, these habitats increase the resiliency of adjacent areas in times of significant precipitation.

## ELECTRICAL DEMAND

In addition to the health and public safety risks associated with warmer temperatures, and compounded by the region's growing population, the County faces challenges to its energy supply. In 2006, peak demand for electricity was the highest on record for the region, mostly because of air conditioners

running during that year's unusually hot summer. Additionally, efficiencies of electricity generation and transmission decrease as air temperatures increase, which further inhibit the ability of electric providers to meet the increased demand expected as changes in the climate take place.

# INCREASING VARIABILITY OF PRECIPITATION

## DROUGHT

Water availability is and has been a vital issue in Southern California. Multiyear droughts can push the limits of water supplies, while population growth keeps the demand for water increasing. This will only intensify as climate change stresses water supplies available from the San Diego County Water Authority, with expected demand to increase by as much as 60% (or 39% after adjusting for planned water conservation) by 2035. San Diego's water is supplied from three main sources: the Colorado River (54%), the State Water Project (28%), and local sources (18%). Another source of water for County residents is water pumped from private wells. While the full extent of water availability from these wells is not known, it can be assumed that a growth in population and increased demand due to reduced natural rainfall and increased temperatures will stress this water supply source as well. Each of these sources already faces challenges, which will be further stressed by climate change. The Sierra Nevada snowpack provides water for the State Water Project by accumulating snow during wet winters and releasing it slowly during dry springs and summers. Warmer temperatures will cause smaller snow packs to melt faster and earlier, making it more difficult to store and use. By 2050, scientists project a loss of at least 25% of the Sierra Nevada snowpack. This loss of snowpack means less water will be available for Californians to use in the summer when it is needed the most. The Colorado River is also vulnerable to climate change, with some estimates stating that water flows will decrease by up to 20% by 2050. Climate change is also expected to result in more variable weather patterns throughout California. More variability can lead to longer and more severe droughts. SB 7X 7, discussed in Chapter 3, is already anticipating this change by requiring a significant reduction in urban water consumption by 2020. The most significant and inherent risk of drought is insufficient water supply. While it is a positive sign that many County residents are aware of the scarcity of potable water and have made significant reductions in consumption in recent times, this may also mean that many water savings measures have already been addressed and, with an increasing population, further savings may be challenging.

## WILDFIRES

San Diego's unique combination of fire-prone vegetation and, at times, high temperatures combined with high winds means that fires are not only frequent, but can be large and intense. This was demonstrated by the 2007 firestorms that, at its maximum, consisted of seven fires burning simultaneously. The 2007 fires resulted in 10 civilian deaths, 23 civilian injuries, and 89 firefighter injuries, and consumed approximately 369,000 acres, or about 13% of the County's total land mass. Additionally, the fires destroyed an estimated 1,600 homes, 1,055 outbuildings and structures, and 239 vehicles. The costs incurred to contain the fires are estimated at more than \$40 million, and the total damage costs are expected to exceed \$1.5 billion. As a result of these fires, more than 515,000 County residents received voluntary or mandatory evacuation notices, which exceeded the number of residents evacuated from New Orleans during Hurricane Katrina. As a result of climate change, higher spring temperatures, scorching summers, drier vegetation, and longer fire seasons can be expected, which will all lead to an increased risk of wildfires.



## CLIMATE ADAPTATION STRATEGIES

The effects of climate change will increase over time; however, there are a range of strategies that begin to address the new and different conditions that climate change will bring to the County. Many of the strategies that would be part of a comprehensive adaptation plan for the County also provide immediate benefits, such as improved water supply, public health, and energy efficiency. While not an all-inclusive list, the strategies below provide a useful starting point for the County to begin to adapt to new environmental and legislative realities. Many of the adaptation strategies also overlap with the GHG-reduction strategies listed above. In these cases, the GHG-reduction strategies are noted in italics.

### POTENTIAL STRATEGIES FOR WILDLIFE AND OPEN SPACE

- The Multiple Species Conservation Program (MSCP) protects valuable habitat for sensitive biological species in San Diego County. As climate change affects habitats throughout the County, it is important that species continue to have access to suitable habitats. An expanded MSCP will provide more habitat options for species affected by climate change. It is important that the MSCP be evaluated and updated, where necessary, to ensure that its goals are not compromised by climate change.
- Another benefit of ensuring that land is preserved for wildlife is that the natural process of carbon sequestration in the soil and plants will continue. If this land were developed, carbon sequestration would be stopped, and the carbon that was sequestered would most likely be released.  
*Strategy: Landscaping and Open Space*

## POTENTIAL STRATEGIES FOR WATER AND WASTEWATER

- Encourage the application of Low Impact Development, which would ease peak water flows. For example, require projects to capture and manage a specific amount of rainwater per storm event through on-site infiltration, retention, and biofiltration.
- Expand water recycling and develop local water supplies that would not be affected by climate change. Examples include storm water harvesting, which can assist in both controlling flash flooding events and serve as a water supply, and single-source grey water reuse. *Strategy: Water*
- Implement all best management practices for water use efficiency and encourage the public to implement similar measures to reduce water demand, wastewater discharges, and energy demand. Efficient water use can help the County cope with water shortages, thus reducing economic and environmental impacts. *Strategy: Water*

## POTENTIAL STRATEGIES FOR PUBLIC HEALTH

- Reduce the urban heat island effect through cool-roof technology, consideration of cool roadway materials, addition of shade trees in parking lots and next to sidewalks, and creation of additional green space throughout the County. *Strategy: Energy and Landscaping and Open Space*
- Consider mapping neighborhoods that could be more vulnerable to the effects of climate change, such as sea-level rise, flooding, fire, and the urban heat island effect. Include considerations of housing quality and transportation access.

## POTENTIAL STRATEGIES FOR BUILDINGS AND ENERGY

- Improve building envelopes and encourage the application of green-roof or cool-roof technology to reduce the urban heat island effect of development and reduce the need to cool buildings with air conditioning during hot weather. *Strategy: Energy*
- Plant shade trees and follow up with proper maintenance to ensure that they are able to grow and thrive. A 10% increase in vegetation cover can reduce ambient temperatures by 1°F to 2°F. The trees also provide significant co-benefits such as reducing habitat fragmentation, storm water pollution, and flooding. *Strategy: Landscaping and Open Space*
- Encourage energy conservation, implement energy efficiency strategies, and facilitate renewable energy installation to reduce pressure on the electrical grid during heat waves and drought conditions. *Strategy: Energy*

## POTENTIAL STRATEGIES FOR WILDFIRES

- Develop short- and medium-term climate change adaptation strategies for forests and other fire-prone habitats, and improve development standards to reduce exposure to fire risk at the urban/wildland interface.
- Restore fire-adapted ecosystems that can withstand naturally recurring wildfires.
- The County's fire departments, in conjunction with other regional firefighting agencies, should evaluate and plan for an increased risk of larger and more frequent wildfires.





Ch. 6

## Monitoring and Project Compliance



# MONITORING

The CAP itself does not ensure reductions and, therefore, it is imperative to monitor progress toward the goals set in this document and to revisit and update the CAP periodically. Each strategy in this CAP includes performance indicators that describe how the potential reductions may be achieved, including assumptions about participation rates and efficiencies.

To track the CAP's progress toward GHG emissions-reduction goals, the County's Climate Team will coordinate monitoring efforts at the community and local government levels. A monitoring tool was created to easily assess key components of the CAP annually, and the County will regularly conduct a GHG emissions inventory to gain the full picture of GHG emissions in the County. While a full GHG emissions inventory is necessary to assess community-wide and government-wide progress toward the 2020 goal, the monitoring tool can track progress between inventories and examine the effectiveness of specific actions. This tool, created specifically for use with the County's CAP, includes easily attainable metrics that are related to specific measures. These metrics are generally already available to the County, but can be used with the tool to show progress toward the goals set in the CAP. For example, when commercial applicants apply for a permit to install solar PV systems, the County Department of Planning and Land Use (DPLU) will then know the square footage of anticipated PV to be installed. The CAP includes a goal of achieving 5.5 million square feet of PV on commercial buildings by 2020; the information already collected by the County can be put into the tool to see the progress toward the individual goal, the sector goal, and the overall community-wide goal (see graph at right). The tabular and graphic output will allow for quick understanding of measure performance, which can be used to apply for grants, provide information to decision-makers to reallocate funding, or show compliance with the goals of AB 32.

The County is already undergoing a 2010 GHG emissions inventory that will be submitted to The Climate Registry and may be used as a benchmark of programs implemented since the baseline inventory.

Success of the CAP will rely on the County, public, and private entities participating and becoming engaged in this process.

The County recognizes that reducing GHG emissions is one of the most critical challenges facing the world today. This CAP provides an implementation pathway for the County's GHG reduction efforts. This chapter describes how the County will implement the GHG reduction measures and actions contained in the CAP.

## EXAMPLE OUTPUT FROM MONITORING TOOL

### Community Goals: Percent Complete

