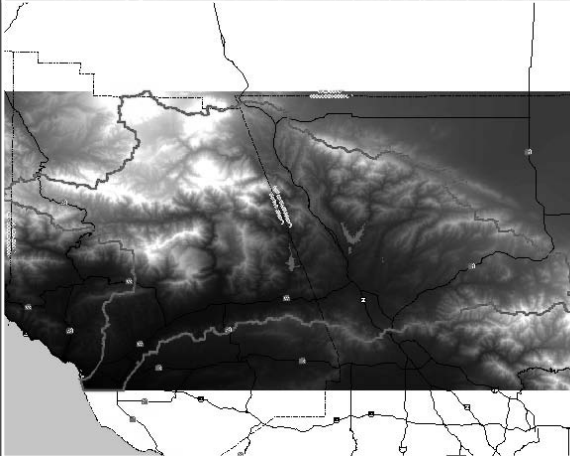
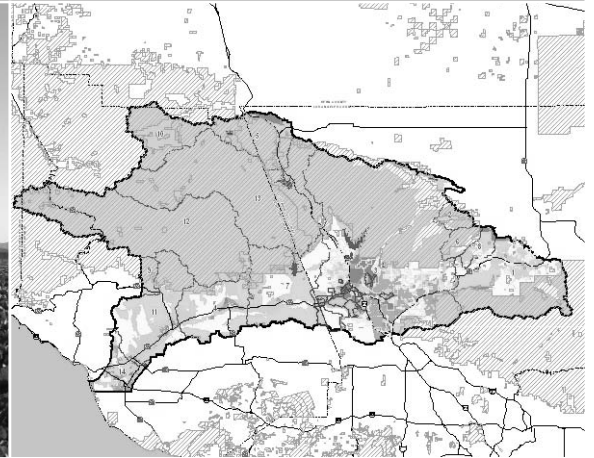


DRAFT



Santa Clara River Watershed Study



OCTOBER 2008

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Santa Clara River Watershed Study

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION.....	1
1.1 Purpose of Watershed Study	1
2.0 METHODS	2
2.1 Assemblage of Baseline Data	2
2.2 Compilation of Approved and Proposed Wetland Impact Permits.....	2
2.3 Impacts from Planned and Approved Projects.....	3
2.4 Impact of Proposed Newhall Land Development.....	4
3.0 RESULTS	4
3.1 Baseline Data	5
3.1.1 Current Land Use Classifications	5
3.1.2 Vegetation and Land Cover Types	23
3.1.3 Geologic Types	24
3.1.4 Soil Types	24
3.1.5 Elevations.....	31
3.1.6 Slope	31
3.1.7 Existing Public Lands	37
3.2 Cumulative Impacts to Jurisdictional Waters and Wetlands within the Watershed	41
3.3 Impacts of Planned and Approved Projects in the SCRW.....	43
3.3.1 Current Land Use Classifications	43
3.3.2 Vegetation.....	45
3.3.3 Geologic Types	49
3.3.4 Soil Types	49
3.3.5 Elevations.....	49
3.3.6 Slopes.....	53
3.4 Analysis of Newhall Land Project Area	54
3.4.1 Current Land Use Classifications	54
3.4.2 Sub-Basins	58
3.4.3 Vegetation Communities	59
3.4.4 Geologic Types	63
3.4.5 Soil Types	67
3.4.6 Elevations.....	67

Santa Clara River Watershed Study

TABLE OF CONTENTS *(Continued)*

<u>Section</u>	<u>Page</u>
3.4.7 Slopes.....	73
3.4.8 CNDDDB Elements.....	73
3.4.9 Wildlife Corridors and Habitat Linkages.....	77
4.0 DISCUSSION.....	89
5.0 REFERENCES.....	95

APPENDICES

Appendix A Detailed Watershed Breakdown Tables

FIGURES

1	Regional Map.....	9
2	Vicinity Map	11
3	Current Land Use Classifications	19
4	Existing Vegetation Types.....	21
5	Existing Geologic Types.....	27
6	Existing Soil Types	29
7	Elevations.....	33
8	Santa Clara Watershed Slopes	35
9	Existing Public Lands and Open Space Areas	39
10.	Cumulative Impacts and Mitigation from Corps Permits	42
11.	Cumulative Impacts and Mitigation from CDFG Permits.....	42
12	Current Land Use Classifications in Relation to Newhall Land Projects.....	55
13	Existing Vegetation Types in Relation to Newhall Land Projects	61
14	Existing Geologic Types in Relation to Newhall Land	65
15	Existing Soil Types in Relation to Newhall Land Projects.....	69
16	Elevations in Relation to Newhall Land Projects	71
17	Slopes in Relation to Newhall Land Projects	75
18	Least-Cost Union for Mountain Lion, Mule Deer, and American Badger	81
19	Least-Cost Corridor for Mountain Lion.....	83
20	Least-Cost Corridor for Mule Deer.....	85
21	Least-Cost Corridor for American Badger	87

Santa Clara River Watershed Study

TABLE OF CONTENTS *(Continued)*

	<u>Page</u>
TABLES	
1	Santa Clara River Watershed Sub-Basins and Current Land Use Classifications.....7
2	Vegetation Communities and Land Cover Types in the Santa Clara River Watershed15
3	Conversion of Lands for Agriculture and Urban Uses by Sub-Basin as of 199918
4	Geologic Types in the Santa Clara River Watershed in Relation to Current Land Use Classifications25
5	Soil Types in the Santa Clara River Watershed in Relation to Current Land Use Classifications26
6	Elevations in the Santa Clara River Watershed in Relation to Current Land Use Classifications32
7	Slopes in the Santa Clara River Watershed in Relation to Current Land Use Classifications32
8	Existing Public Lands37
9	Current Land Use Classifications by County.....44
10	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Current Land Use Classifications.....44
11	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Sub-Basins.....45
12	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Vegetation Communities and Land Cover Types47
13	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Geologic Types51
14	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Soil Types.....52
15	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Elevations.....53
16	Planned and Approved Projects in the City of Santa Clarita and Los Angeles County In Relation to Slopes.....54
17	Planned Development on Newhall Land Property in Relation to Current Land Use Classifications57
18	Planned Development on Newhall Land Property in Relation to Sub-Basins.....59
19	Planned Development on Newhall Land Property in Relation to Vegetation Communities63
20	Planned Development on Newhall Land Property in Relation to Geologic Types67
21	Planned Development on Newhall Land Property in Relation to Soils.....68

Santa Clara River Watershed Study

TABLE OF CONTENTS (*Continued*)

	<u>Page</u>
22	Planned Development on Newhall Land Property in Relation to Elevations68
23	Planned Development on Newhall Land Property in Relation to Slopes73
24	CNDDDB Element Occurrences on Newhall Land Property.....77

1.0 INTRODUCTION

1.1 Purpose of Watershed Study

The purpose of the Santa Clara River Watershed (SCRW) study is to analyze the cumulative impacts of development; including past projects, current land use classifications, and future approved and planned projects; to biological and abiotic resources and ecological functions and processes within the watershed. While the vast majority of the SCRW is composed of natural lands, land alterations in the form of agriculture and residential, commercial, and industrial urban uses have occurred in the Santa Clara River Valley and adjacent foothills, and substantial future development will occur.

The framework of the study is to describe existing and potential future development in the entire SCRW. This study relies on available data for baseline conditions, current land use classifications, planned and approved projects (only available for the Los Angeles County portion of the watershed¹), existing vegetation and land use cover types, soils, geology, elevation and slopes, special-status biological resources and conceptual regional wildlife corridors and habitat linkages in the SCRW. These data and information are used to establish the current baseline conditions within the SCRW and the potential future conditions, under current land use classifications and with build-out of approved and planned projects. Information from permits issued between 1988 and 2006² by the U.S. Army Corps of Engineers (Corps) and California Department of Fish and Game (CDFG) regarding jurisdictional wetlands and waters impacts and mitigation were also analyzed. This information allows for a specific analysis of cumulative jurisdictional wetlands/waters impacts within the SCRW. Within the watershed-wide context, the proposed projects of the Newhall Land and Farming Company (Newhall Land) are then analyzed in the context of overall cumulative impacts to the SCRW. This analysis demonstrates that the ultimate additional impacts in the SCRW resulting from the Newhall Land projects are relatively small in proportion to the overall watershed and are substantially reduced from what would occur under the current land use classifications.

It should be noted that two other studies have examined existing and future conditions in the Santa Clara River Watershed: *Ecological Impact Assessment of Urban Development on the Santa Clara River Watershed, California* (CBI 2005) and *Santa Clara River Upper Watershed Conservation Plan* (TNC 2006).

¹ Dudek contacted Ventura County to obtain digital spatial information for planned and approved projects, but those data were not available from the county.

² The permits from CDFG date back to 1983, but the information provided on those permits was insufficient to quantify impacts. Therefore, impacts were quantified beginning from 1988.

2.0 METHODS

2.1 Assemblage of Baseline Data

Baseline data for the analyses presented here were compiled from several data sources:

- Current land use classifications and existing public lands and open space areas based on county and city general plans: U.C. Davis (2004)
- Watershed and sub-basin data: CalWater Version 2.2 (CIWMC 1999)
- Vegetation: California Gap Analysis Project (GAP) (U.C.S.B. Biogeography Lab 1999)
- Soils: National Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (2007)
- Elevation and slope: U.S. Geological Survey (USGS) National Elevation Data (2007).

For special-status biological resources, California Natural Diversity Database (CNDDDB) element occurrences within the SCRW for vegetation communities and state- and/or federally listed threatened and endangered species were included. For the analysis of regional wildlife corridors and habitat linkages, two main documents were used: the *South Coast Missing Linkages Project: A Linkage Design for the Santa Monica–Sierra Madre Connection* (SCMLP) (Penrod et al. 2006) and the *Missing Linkages: Restoring Connectivity to the California Landscape* (Penrod 2000).

2.2 Compilation of Approved and Proposed Wetland Impact Permits

A measure of cumulative impacts to wetland and aquatic resources in the SCRW is the number of past projects processed and approved by CDFG and the Corps that impact state and federal waters and wetlands. CDFG provided Dudek a list of Streambed Alteration Agreements, and the Corps provided a list of Nationwide Permits (NWPs) and Individual Permits (IPs) issued by the respective agencies within the SCRW between 1988 and 2006. The information provided in the permits and related documents includes: (1) acreages of temporary and permanent impacts to jurisdictional wetlands and waters of the state and/or U.S.; (2) mitigation measures; (3) net loss or gain of jurisdictional waters/wetlands; and (4) special-status species impacted by a project. While, generally, there was overlap of projects in the CDFG and Corps lists, not every project occurs in both tables; in some cases, project information may have been available from only one of the agencies.

In order to obtain additional information for the analysis, Dudek staff spent a total of 4 days at the Ventura office of the Corps and 10 days at various Southwestern Regional offices of CDFG,

Santa Clara River Watershed Study

reviewing and compiling the permits and related information from the permit files made available by the agencies. Dudek reviewed Corps and CDFG files and compiled information in each of the following categories wherever possible: permit number, applicant, project description, temporary impacts to waters or wetlands, permanent impacts to waters or wetlands, total mitigation, net gain/loss of waters of the state and/or U.S., permit type, related actions, special-status species, mitigation, and any relevant notes. To calculate the net gain/loss of waters/wetlands for a particular project, the total permanent impacts were subtracted from the total mitigation (e.g., if a project permanently impacted 2 acres of wetlands/waters and mitigation was 6 acres, the net gain of the project was 4 acres). There were cases where it was unclear whether the mitigation was entirely defined as jurisdictional waters/wetlands, such as preserving 40 acres through a conservation easement but without indicating whether all 40 acres were jurisdictional. In these cases, the mitigation listed in the spreadsheet was used or the best available information provided in the permit file was used. If there was no specific mitigation acreage listed in the spreadsheet or found in the permit and related documents, mitigation was not credited to the project.

The variability of the information in the CDFG and Corps permit files did not allow for a precise quantitative description and analysis of cumulative impacts of projects on jurisdictional areas. However, the analysis is based on the best available information.

2.3 Impacts from Planned and Approved Projects

As noted above in *Subsection 2.1*, current land use classification information was obtained from U.C. Davis (2004) study. However, because this dataset is based on county and city general plans, the actual approved and planned projects in an area may be quite different from what is designated in the general plans; general plan amendments and zone changes are common as land planning becomes more detailed and specific to a project. It is relatively common for specific plan and individual project-level, on-the-ground impacts to be substantially less than what would be allowed under original general plan land use designations.

In order to provide a more accurate portrayal of future development and open space planning in the SCRW, data for planned and approved projects within the watershed were obtained from the City of Santa Clarita and Los Angeles County. These include both Newhall Land projects and other projects. Several attempts were made to obtain specific quantitative project data for Ventura County, but specific project footprint information was not available. Consequently, the analysis of planned and approved projects is limited to Los Angeles County and, at this time, projections for Ventura County can only be based on the current general plan land use classification information, which, as noted above, likely overstates the actual impacts.

2.4 Impact of Proposed Newhall Land Development

The approved and planned project dataset includes future Newhall Land projects and allows for a comparison to the current land use classifications with regard to future impacts in the SCRW. Newhall Land projects were classified as development, or as non-developed lands within the following categories: Conservation Easement, High Country Special Management Area (SMA), Salt Creek area, River Corridor SMA, and Open Area. Open Area includes areas that will not be developed, but are not specifically designated as reserves or conservation easements. With regard to watershed function, open space would retain pervious surfaces, most in a natural state, but with some tributary areas re-engineered to elevations above their current condition. In addition, the Newhall Land project data are compared to the baseline data in the context of the percent of the total area (sub-basin, vegetation type, etc.) that will be preserved and developed as compared to existing baseline conditions and current land use classifications for potential development and open space.

3.0 RESULTS

This section presents the results of the analyses conducted for this study.

- *Subsection 3.1* presents the baseline information for the SCRW based on current land use classifications, vegetation, geologic types, soils, elevations, and slopes.
- *Subsection 3.2* presents the results of the Corps and CDFG jurisdictional impacts and mitigation analysis for permits issued between 1988 and 2006. This subsection analyzes the relationship between impacts and the cumulative net increase in jurisdictional acreage through mitigation.
- *Subsection 3.3* presents the results of the projected impacts of planned and approved projects in the Los Angeles County portion of the SCRW in the context of the entire watershed and the watershed sub-basins, and how these project impacts relate to the potential impacts under the current land use classification baseline data presented in *Subsection 3.1*. This subsection demonstrates that planned and approved projects would result in a substantial reduction of impacts to the SCRW compared to those under the current general plan land use classifications.
- *Subsection 3.4* takes the *Subsection 3.3* analysis to the level of Newhall Land projects and again compares the proposed Newhall Land project impacts to those under the current general plan land use classifications, to demonstrate whether and how the proposed Newhall Land projects substantially reduce impacts in the watershed compared to what could occur under current land use classifications.

Santa Clara River Watershed Study

For ease and clarity of presentation, the data in the tables presented in the main body of this document have been simplified to illustrate the main points of the analyses. The following tables show Classified Developed and Open Space designations. *Appendix A* to this document presents comprehensive tables that show breakdowns for these different development classifications—Commercial, Residential, and Mixed Use—and their densities (Very Low, Low, Medium and High) where applicable, and Open Space designations: Open Space and Urban Reserve.

3.1 Baseline Data

3.1.1 Current Land Use Classifications

Table 1 provides the baseline data for the currently classified land uses in the SCRW, broken down into the 14 sub-basins that comprise the watershed.³ It includes the total acres and percentage in each of the sub-basins and the grand total for the SCRW and the acres and percentages of current classified development and open space for each sub-basin. Current classified development in *Table 1* and all following tables includes commercial (low-density, high-density, and industrial), residential (very low-, low-, medium-, and high-density and planned development), and mixed use. Open space includes urban reserve lands (U.C. Davis 2004). The reader is directed to *Table A-1* of *Appendix A* for the specific breakout of these categories.

The SCRW drains approximately 1,036,571 acres (1,620 square miles) of natural and urban areas north and east of Los Angeles in Southern California (*Figure 1*). The watershed is divided into 14 sub-basins shown in *Figure 2*. These sub-basins range in size from 7,433 acres (Sisar in the western part of the watershed) to 291,730 acres (Eastern). Most of the 14 sub-basins are relatively small, and only three sub-basins have more than 100,000 acres—Eastern, Upper Piru, and Topa Topa—accounting for 60% of the total watershed.

³ The current land use classifications refer to general plan designations only and do not reflect whether the land has actually been developed or not. For example, an area classified as commercial may currently support undeveloped, agriculture, or residential land uses. The acreages of land use classifications cannot be directly compared to existing acreages of current land uses.

Santa Clara River Watershed Study

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Santa Clara River Watershed Study

Table 1
Santa Clara River Watershed Sub-Basins and Current Land Use Classifications

Sub-Basin	Sub-Basin Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Acton	88,787	8.6%	37,251	51,536	42.0%	58.0%
Bouquet	8,699	0.8%	1,290	7,409	14.8%	85.2%
Eastern	291,730	28.1%	131,631	160,099	45.1%	54.9%
Fillmore	49,154	4.7%	26,641	22,513	54.2%	45.8%
Hungry Valley	39,300	3.8%	2,625	36,675	6.7%	93.3%
Mint Canyon	10,836	1.0%	3,537	7,299	32.7%	67.3%
Santa Felicia	78,066	7.5%	29,994	48,072	38.4%	61.6%
Sierra Pelona	9,677	0.9%	6,624	3,053	68.5%	31.5%
Sisar	7,433	0.7%	1,313	6,120	17.7%	82.3%
Stauffer	37,470	3.6%	10,327	27,143	27.6%	72.4%
Sulfur Springs	66,033	6.4%	31,635	34,398	47.9%	52.1%
Topa Topa	160,416	15.5%	4,204	156,212	2.6%	97.4%
Undefined	19,805	1.9%	11,960	7,845	60.4%	39.6%
Upper Piru	169,166	16.3%	4,014	165,152	2.4%	97.6%
Total Watershed	1,036,571	100.0%	303,045	733,526	29.2%	70.8%



IMAGE SOURCE: USGS 24K Quad

FIGURE 1

Newhall Land - Santa Clara River Watershed
Regional Map

DUDEK

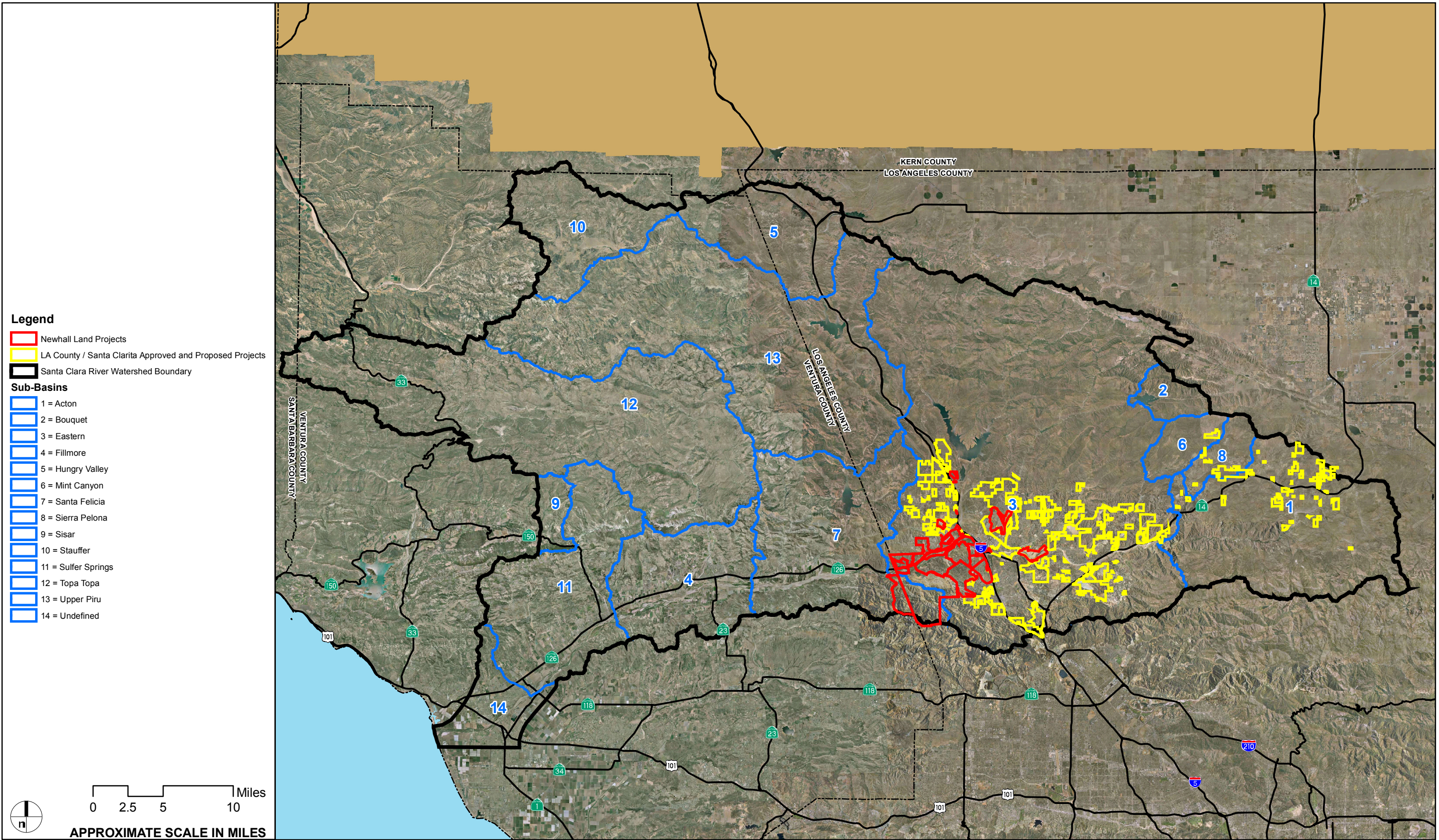


FIGURE 2

Newhall Land - Santa Clara River Watershed
Vicinity Map

Santa Clara River Watershed Study

Based on the California GAP data, as of 1999 (the last update of the vegetation database), approximately 100,000 acres (10%) of the SCRW had been converted to agriculture or some type of developed or disturbed land cover (see *Table 2* and *Subsection 3.1.2* for discussion of vegetation communities and land cover types) (U.C.S.B. Biogeography Lab). Under current land use classifications, approximately 303,045 acres of the SCRW are currently classified as some type of development (including potential conversion of 85% of agricultural lands to urban uses), which could result in some type of man-made conversion in 29% of the watershed at build-out. About 157,500 acres (52%) of this is classified as very low-density residential (see *Table A-1* of *Appendix A*). It should be noted that, in Ventura County, proposed urban development of agricultural lands has been successfully challenged by SOAR (Save Open-Space and Agricultural Resources). Nine jurisdictions within Ventura County have enacted SOAR ordinances/initiatives. The SOAR boundaries (also called City Urban Restriction Boundaries (CURB)) in Ventura County require city voter approval before any land located outside CURB lines can be developed under the city's jurisdiction for urban purposes, and thus provide the public the right to vote before development occurs on agricultural and open space lands.

Because of inherent topography, historical land uses, and ownership patterns, existing and classified land uses are variable among the sub-basins. *Table 3* summarizes the amount of land conversion for agriculture and urban development that had occurred in the sub-basins as of 1999 according to the California GAP data (U.C.S.B. Biogeography Lab). In terms of total area converted, the Eastern sub-basin has the most land conversion at 27,353 acres (9% of sub-basin) (*Figure 3*). The Sulfur Springs and Fillmore sub-basins have the most agricultural conversion at 12,404 acres (19%) and 15,360 acres (31%), respectively. In terms of percentage converted, the undefined sub-basin that includes the City of Ventura is the most converted at 79%. Most of the agriculture and urban development in the SCRW has occurred within and is classified for the river valley area and along the State Route 14 (SR-14) corridor (*Figures 3* and *4*), which includes from west to east the “undefined” sub-basin that includes the City of Ventura (60% classified developed), Sulfur Springs sub-basin (48% classified developed), Fillmore sub-basin (54% classified developed), Santa Felicia sub-basin (38% classified developed), Eastern sub-basin (45% classified developed), and Acton sub-basin (42% classified developed) (*Table 1*). At 291,730 acres, Eastern is the largest sub-basin in the watershed, comprising 28% of the sub-basin. Combined, these sub-basins comprise about 593,575 acres (57%) of the SCRW and about 242,469 acres (80%) of the 303,045 acres of currently classified as development in the watershed. It is important to note, however, that most of the upper part of the Eastern sub-basin is open space (contained within the Angeles National Forest) (*Figure 3*).

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Santa Clara River Watershed Study

Table 2
Vegetation Communities and Land Cover Types in the Santa Clara River Watershed

Vegetation and Land Cover Type ^a	Vegetation Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Big sagebrush scrub	4,996	0.5%	2,120	2,877	42.4%	57.6%
Coastal Scrubs						
Coastal sage/chaparral scrub	2,452	0.2%	207	2,245	8.4%	91.6%
Riversidean sage scrub	29,418	2.8%	13,534	15,884	46.0%	54.0%
Southern alluvial fan scrub	5,062	0.5%	4,564	498	90.2%	9.8%
Venturan coastal sage scrub	144,932	14.0%	73,469	71,463	50.7%	49.3%
Subtotal	181,864	17.5%	91,774	90,090	50.5%	49.5%
Chaparrals						
Buck brush chaparral	88,367	8.5%	7,729	80,638	8.7%	91.3%
Ceanothus crassifolius chaparral	76,116	7.3%	13,663	62,453	18.0%	82.0%
Chamise chaparral	131,091	12.6%	26,536	104,555	20.2%	79.8%
Interior live oak chaparral	73,273	7.1%	16,161	57,113	22.1%	77.9%
Mesic north slope chaparral	1,778	0.2%	0	1,778	0.0%	100.0%
Mixed montane chaparral	2,676	0.3%	20	2,656	0.8%	99.2%
Montane ceanothus chaparral	3,582	0.3%	299	3,283	8.4%	91.6%
Northern mixed chaparral	70,033	6.8%	14,167	55,865	20.2%	79.8%
Scrub oak chaparral	67,134	6.5%	3,291	64,083	3.9%	95.5%
Semi-desert chaparral	6,695	0.6%	176	6,519	2.6%	97.4%
Upper Sonoran manzanita chaparral	30,291	2.9%	3,291	26,999	10.9%	89.1%
Subtotal	551,035	53.2%	85,094	465,942	15.4%	84.6%
Non-native grassland	22,240	2.1%	9,454	12,786	42.5%	57.5%
Riparian/Wetland						
Mulefat scrub	2,587	0.2%	1,145	1,443	44.2%	55.8%
Permanently-flooded lacustrine habitat	5,014	0.5%	396	4,618	7.9%	92.1%
Southern coast live oak riparian forest	1,392	0.1%	0	1,392	0.0%	100.0%

Santa Clara River Watershed Study

Table 2
Vegetation Communities and Land Cover Types in the Santa Clara River Watershed

Vegetation and Land Cover Type ^a	Vegetation Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Southern cottonwood/willow riparian forest	4,641	0.4%	2,103	2,539	45.3%	54.7%
Southern sycamore/alder riparian woodland	111	0.0%	0	111	0.0%	100.0%
Southern willow scrub	539	0.1%	159	380	29.5%	70.5%
Subtotal	14,283	1.4%	3,802	10,481	26.6%	73.4%
Woodland & Forest						
Bigcone spruce/canyon oak forest	15,974	1.5%	310	15,664	1.9%	98.1%
Black oak forest	925	0.1%	0	925	0.0%	100.0%
California walnut woodland	3,624	0.3%	1,373	2,251	37.9%	62.1%
Canyon live oak forest	1,951	0.2%	0	1,951	0.0%	100.0%
Interior live oak forest	1,783	0.2%	0	1,783	0.0%	100.0%
Jeffrey pine forest	10,169	1.0%	0	10,169	0.0%	100.0%
Jeffrey pine/fir forest	5,258	0.5%	22	5,236	0.4%	99.6%
Mojavean pinyon and juniper woodlands	98,151	9.5%	21,848	76,303	20.3%	77.7%
Sierran mixed coniferous forest	5,251	0.5%	0	5,251	0.0%	100.0%
Westside ponderosa pine forest	10,124	1.0%	409	9,715	4.0%	96.0%
Subtotal	153,210	14.8%	23,963	129,248	15.6%	84.4%
Other Natural Land Covers						
Bare exposed rock	702	0.1%	0	702	0.0%	100.0%
Sandy area other than beaches	8,191	0.8%	4,421	3,769	54.0%	46.0%
Subtotal	8,892	0.9%	4,421	4,471	49.7%	50.3%
Agricultural Lands						
Agricultural land	28,791	2.8%	22,944	5,847	79.7%	20.3%
Evergreen orchard	6,236	0.6%	5,722	515	91.7%	8.3%
Orchard or vineyard	16,676	1.6%	15,537	1,139	93.2%	6.8%
Subtotal	51,703	5.0%	44,202	7,501	85.5%	14.5%

Santa Clara River Watershed Study

Table 2
Vegetation Communities and Land Cover Types in the Santa Clara River Watershed

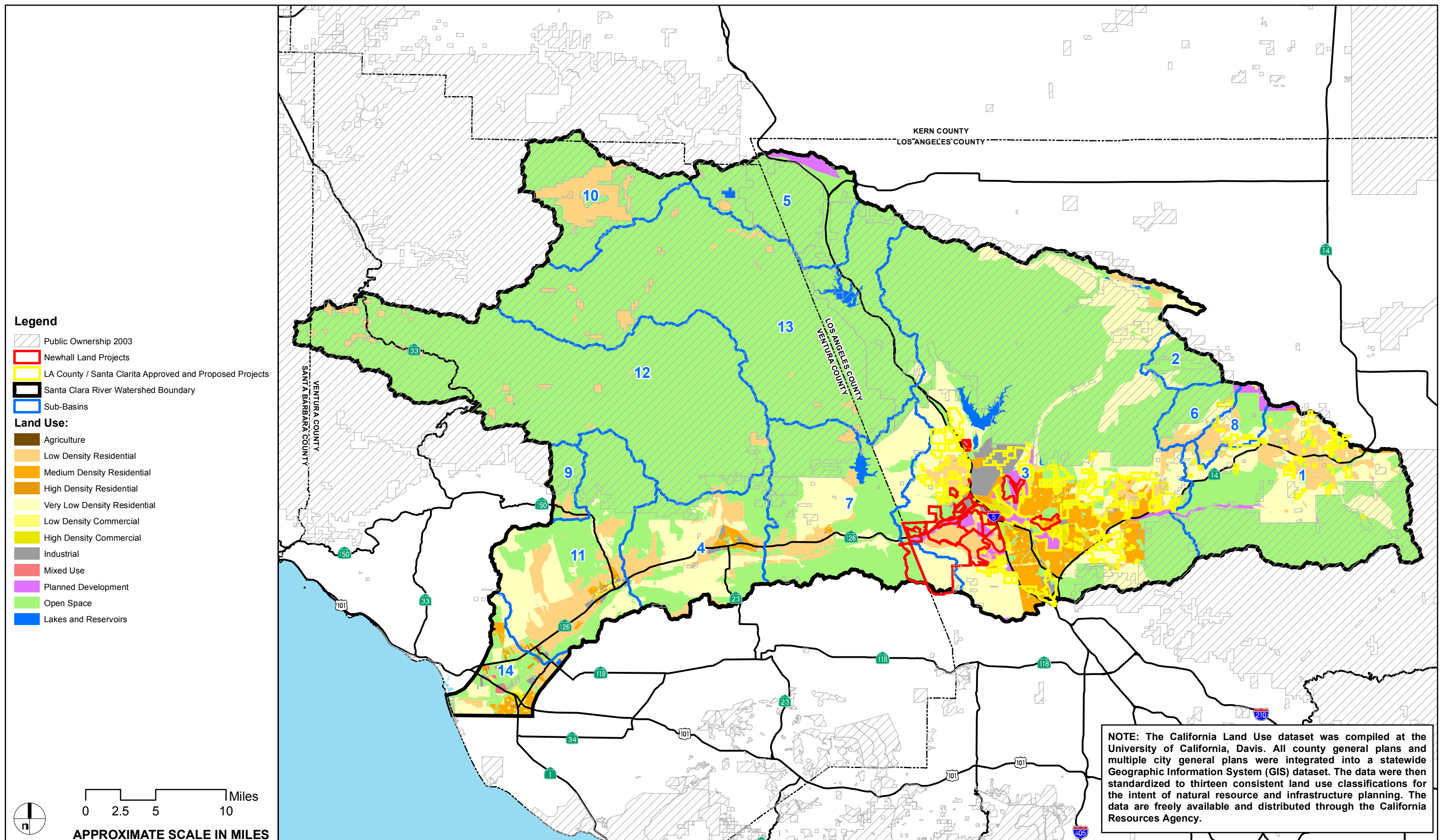
Vegetation and Land Cover Type ^a	Vegetation Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Developed/Disturbed Lands						
Open pit mines, quarries, and gravel pits	1,056	0.1%	169	887	16.0%	84.0%
Urban or built-up land	47,286	4.6%	38,045	9,241	80.5%	19.5%
<i>Subtotal</i>	<i>48,342</i>	<i>4.7%</i>	<i>38,214</i>	<i>10,129</i>	<i>79.0%</i>	<i>21.0%</i>
Grand Total	1,036,567		303,044	733,523	29.2%	70.8%

^a Nomenclature for the vegetation communities and land cover types follows Holland (1986), which is used for the state vegetation dataset and which is the only vegetation dataset available for the entire SCRW.

Santa Clara River Watershed Study

Table 3
Conversion of Lands for Agriculture and Urban Uses by Sub-Basin as of 1999

Sub-Basin	Sub-Basin Totals	Agricultural Lands					Developed/Disturbed Lands				Total Converted Lands	
		General Agricultural Lands	Evergreen Orchard	Orchard/Vineyard	Total Agricultural	Percent Agricultural	Open Pit Mines and Quarries	Urban or Built-Up	Total Developed	Percent Developed	Total Acres Converted	Percent Converted
Acton	88,787	0	0	0	0	0.0%	1,050	7,192	8,242	9.3%	8,242	9.3%
Bouquet	8,699	0	0	0	0	0.0%	0	79	79	0.9%	79	0.9%
Eastern	291,730	3,935	0	0	3,935	1.3%	6	23,412	23,418	8.0%	27,353	9.4%
Fillmore	49,154	5	5,278	10,077	15,360	31.2%	0	1,394	1,394	2.8%	16,754	34.1%
Hungry Valley	39,300	0	0	0	0	0.0%	0	0	0	0.0%	0	0.0%
Mint Canyon	10,836	0	0	0	0	0.0%	0	2,372	2,372	21.9%	2,372	21.9%
Santa Felicia	78,066	0	959	5,011	5,970	7.6%	0	0	0	0.0%	5,970	7.6%
Sierra Pelona	9,677	0	0	0	0	0.0%	0	626	626	6.5%	626	6.5%
Sisar	7,433	0	0	272	272	3.7%	0	0	0	0.0%	272	3.7%
Stauffer	37,470	8,060	0	0	8,060	21.5%	0	0	0	0.0%	8,060	21.5%
Sulfur Springs	66,033	11,112	0	1,292	12,404	18.8%	0	2,316	2,316	3.5%	14,720	22.3%
Topa Topa	160,416	0	0	23	23	0.0%	0	0	0	0.0%	23	0.0%
Undefined	19,805	5,683	0	0	5,683	28.7%	0	9,907	9,907	50.0%	15,590	78.7%
Upper Piru	169,166	0	0	0	0	0.0%	0	0	0	0.0%	0	0.0%
Total Watershed	1,036,571	28,795	6,237	16,675	51,707	5.0%	1,056	47,298	48,354	4.7%	100,061	9.7%



LAND USE SOURCE: UC Davis 2004

FIGURE 3

Newhall Land - Santa Clara River Watershed
Current Land Use Classifications

Santa Clara River Watershed Study

The remaining less-developed sub-basins, which tend to comprise the more rugged terrain and higher elevations of the watershed, total approximately 442,997 acres and account for 60,575 acres (20%) of currently classified development. The percentage of classified development in these relatively undeveloped sub-basins ranges from about 2% in Upper Piru to 68% in Sierra Pelona. However, the two largest undeveloped sub-basins—Topa Topa and Upper Piru—account for approximately 321,364 acres (31%) of the watershed and are classified for only 8,218 acres (2.6%) of development, as most of this land is contained within the Los Padres National Forest.

3.1.2 Vegetation and Land Cover Types

Table 2 summarizes the vegetation and land cover types in the SCRW in regard to total acreages and percentages of the watershed and the current land use classifications for each. As described in the methods section, these data are from California GAP (U.C.S.B. Biogeography Lab 1999) and follow the CNDDB vegetation classification system. It is important to understand that these data reflect regional landscape mapping and may differ from project-level vegetation mapping. However, they are useful for landscape-level analyses.

The SCRW supports a total of 40 vegetation and land cover types (*Figure 4*). *Table 2* organizes these 40 types into 9 general communities and cover types: big sagebrush scrub, coastal scrubs, chaparrals, non-native grassland, riparian/wetland, woodland and forest, other non-vegetated natural land covers, agricultural lands, and developed and disturbed lands. Chaparrals are the largest cover component in the watershed, comprising 53% of the watershed, and they dominate the landscape in the rugged hills north of the Santa Clara River (*Figure 4*). Coastal scrubs and woodlands and forests are the next most common vegetation covers at 17% and 15% of the total, respectively. The coastal scrubs dominate the lower foothills along the river valley and the woodlands and forests primarily occur at the higher elevations. These three dominant general communities comprise 85% of the watershed.

Converted lands, including agricultural lands and developed/disturbed lands, currently comprise about 100,000 acres (10%) of the watershed, based on the 1999 California GAP data for vegetation coverage (U.C.S.B. Biogeography Lab). The vast majority of existing converted lands are agriculture located along the river valley and adjacent foothills and the communities of Ventura, Santa Paula, Fillmore, Valencia, and Santa Clarita. There are also significant areas of agriculture in the Stauffer sub-area and northern portion of the Eastern sub-basin.

As noted above in *Subsection 3.1.1* and *Table 1*, about 303,045 acres (29%) of the SCRW are classified for development. In terms of acreages and percentages of the major vegetation communities, current land use classifications would result in the largest impacts to coastal scrubs, at 91,774 acres and 50% of the total. A relatively large acreage of chaparral also would

Santa Clara River Watershed Study

be developed (85,094 acres), but would impact 15% of the total in the watershed. For woodlands and forests, 23,962 acres (16%) would be impacted under current land use classifications. For the smaller vegetation communities, 9,454 acres (42%) of non-native grassland and 3,802 acres (27%) of riparian/wetland would be impacted under current classifications.

3.1.3 Geologic Types

Table 4 summarizes the geologic types in the SCRW. The SCRW is geologically quite diverse, with 19 different geologic types, including a mapping for water (*Table 4* and *Figure 5*). The dominant geologic type—Eocene marine—accounts for 15% of the watershed, and the four most dominant types, including Eocene marine, Miocene marine, Plio-Pleistocene nonmarine and Pliocene nonmarine, and Precambrian rocks, account for about 51% of the total. The remaining 49% of the watershed is underlain by the other 15 types at percentages ranging from 3.1% (Miocene nonmarine) to 9.5% (Mesozoic granitic rocks).

Under current land use classifications, all 19 geologic types would have potential development, ranging from 0.7% of upper Cretaceous marine to 75% of alluvium (Quaternary nonmarine and marine), which is located along the river valley (*Table 4* and *Figure 5*). About 73% of Miocene nonmarine, which comprises much of the valley (but 3% of the total watershed), also could be developed under current land use classifications. Large areas of geologic types that dominate the rugged terrain at higher elevations would remain in open space, including Eocene marine (97% in open space), Miocene marine (71% in open space), Precambrian rocks (83% in open space), and Plio-Pleistocene nonmarine and Pliocene nonmarine (65% in open space).

3.1.4 Soil Types

Table 5 summarizes the soil types in the SCRW and *Figure 6* shows their distribution. As with geologic types, the SCRW is highly diverse with 27 primary soil types. About 8,750 acres (<1%) of the watershed do not have mapped soils. As with geologic types, there is no clearly dominant soil type in the watershed, with the Millerton-Lodo-Millshom, which is largely associated with the Eocene marine geologic type, as the most common type but only comprising 15% of the total watershed. However, 13 of the 27 soils comprise 94% of the total soil types in the watershed, and four soils account for about 50% of the types.

Santa Clara River Watershed Study

Table 4
Geologic Types in the Santa Clara River Watershed in Relation to Current Land Use Classifications

Geologic Type	Geologic Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Alluvium (Quaternary nonmarine & marine)	84,305	8.1%	63,535	20,771	75.4%	24.6%
Eocene marine	155,991	15.0%	4,014	151,978	2.6%	97.4%
Granitic and metamorphic rocks, pre-Cenozoic	3,666	0.4%	2,581	1,085	70.4%	29.6%
Mesozoic granitic rocks	98,814	9.5%	22,581	76,233	22.9%	77.1%
Miocene marine	123,761	11.9%	35,993	87,768	29.1%	70.9%
Miocene nonmarine	32,575	3.1%	23,934	8,641	73.5%	26.5%
Oligocene marine	3,508	0.3%	524	2,984	14.9%	85.1%
Oligocene nonmarine	57,235	5.5%	7,311	49,924	12.8%	87.2%
Paleocene marine	22,989	2.2%	676	22,313	2.9%	97.1%
Paleozoic and Permo-Triassic granitic rocks	16,422	1.6%	2,302	14,120	14.0%	86.0%
Pliocene marine	73,392	7.1%	39,175	34,217	53.4%	46.6%
Plio-Pleistocene nonmarine, Pliocene nonmarine	135,755	13.1%	46,944	88,811	34.6%	65.4%
Precambrian granitic rocks	38,984	3.8%	9,241	29,743	23.7%	76.3%
Precambrian rocks, undivided	117,724	11.4%	20,080	97,644	17.1%	82.9%
Schist (metasedimentary or metavolcanic)	38,909	3.8%	11,272	27,637	29.0%	71.0%
Tertiary nonmarine, undivided	12,487	1.2%	2,716	9,771	21.7%	78.3%
Tertiary volcanic flow rocks	12,286	1.2%	9,921	2,365	80.8%	19.2%
Upper Cretaceous marine	5,705	0.6%	43	5,662	0.7%	99.3%
Water	2,057	0.2%	200	1,857	9.7%	90.3%
Total	1,036,567		303,043	733,523	29.2%	70.8%

Santa Clara River Watershed Study

Table 5
Soil Types in the Santa Clara River Watershed in Relation to Current Land Use Classifications

Soil Type	Soil Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Millerton-Lodo-Millsholm	153,429	14.8%	7,558	145,871	4.9%	95.1%
Cieneba-Exchequer-Sobrante	132,462	12.8%	52,017	80,444	39.3%	60.7%
Cieneba-Pismo-Caperton	129,534	12.5%	59,231	70,303	45.7%	54.3%
San Benito-Castaic-Calleguas	99,503	9.6%	40,158	59,346	40.4%	59.6%
Los Gatos-Gamboa-Hilt	90,317	8.7%	2,328	87,989	2.6%	97.4%
Pico-Anacapa-Salinas	84,613	8.2%	66,694	17,919	78.8%	21.2%
Cieneba-Caperton-Gaviota	81,270	7.8%	19,428	61,842	23.9%	76.1%
Aramburu Variant-Modjeska Family-Coarsegold	51,392	5.0%	4,631	46,761	9.0%	91.0%
Hilt-Arrastre-Marpa	42,864	4.1%	3,294	39,571	7.7%	92.3%
Gorman-Oak Glen-Gaviota	36,698	3.5%	1,475	35,223	4.0%	96.0%
Lodo-Sobrante-Gaviota	36,345	3.5%	10,146	26,199	27.9%	72.1%
Badland-Calleguas-Lithic Xerorthents	18,993	1.8%	13,747	5,246	72.4%	27.6%
Rock Outcrop-Chilao-Stonyford	17,800	1.7%	617	17,183	3.5%	96.5%
Soboba-Avawatz-Oak Glen	9,296	0.9%	5,881	3,415	63.3%	36.7%
(No Data)	8,757	0.8%	1,122	7,635	12.8%	87.2%
Sespe-Lodo-Malibu	8,086	0.8%	2,126	5,960	26.3%	73.7%
Oak Glen-Xerofluvents-Dotta	6,564	0.6%	4,976	1,588	75.8%	24.2%
Cieneba-Andregg-Vista	5,582	0.5%	0	5,582	0.0%	100.0%
San Andreas-Arnold-Arujo	5,518	0.5%	850	4,669	15.4%	84.6%
Soper-Chesterton-Rincon	4,443	0.4%	3,179	1,264	71.6%	28.4%
Hambright-Lithic Xerorthents-Rock Outcrop	3,510	0.3%	952	2,558	27.1%	72.9%
Walong-Edmundston-Rock Outcrop	2,853	0.3%	2,075	778	72.7%	27.3%
Beam-Kilmer-Badland	2,354	0.2%	0	2,354	0.0%	100.0%
Glean-Mahogan-Metz	1,948	0.2%	16	1,932	0.8%	99.2%
Tollhouse-Rock Outcrop-Bakeoven	1,074	0.1%	0	1,074	0.0%	100.0%
Arbuckle-San Ysidro-Positas	883	0.1%	354	529	40.1%	59.9%
Oceano-Baywood-Dune Land	374	0.0%	117	256	31.3%	68.7%
Camarillo-Hueneme-Pacheco	74	0.0%	74	1	98.8%	1.2%
Total	1,036,534		303,046	733,490	29.2%	70.8%

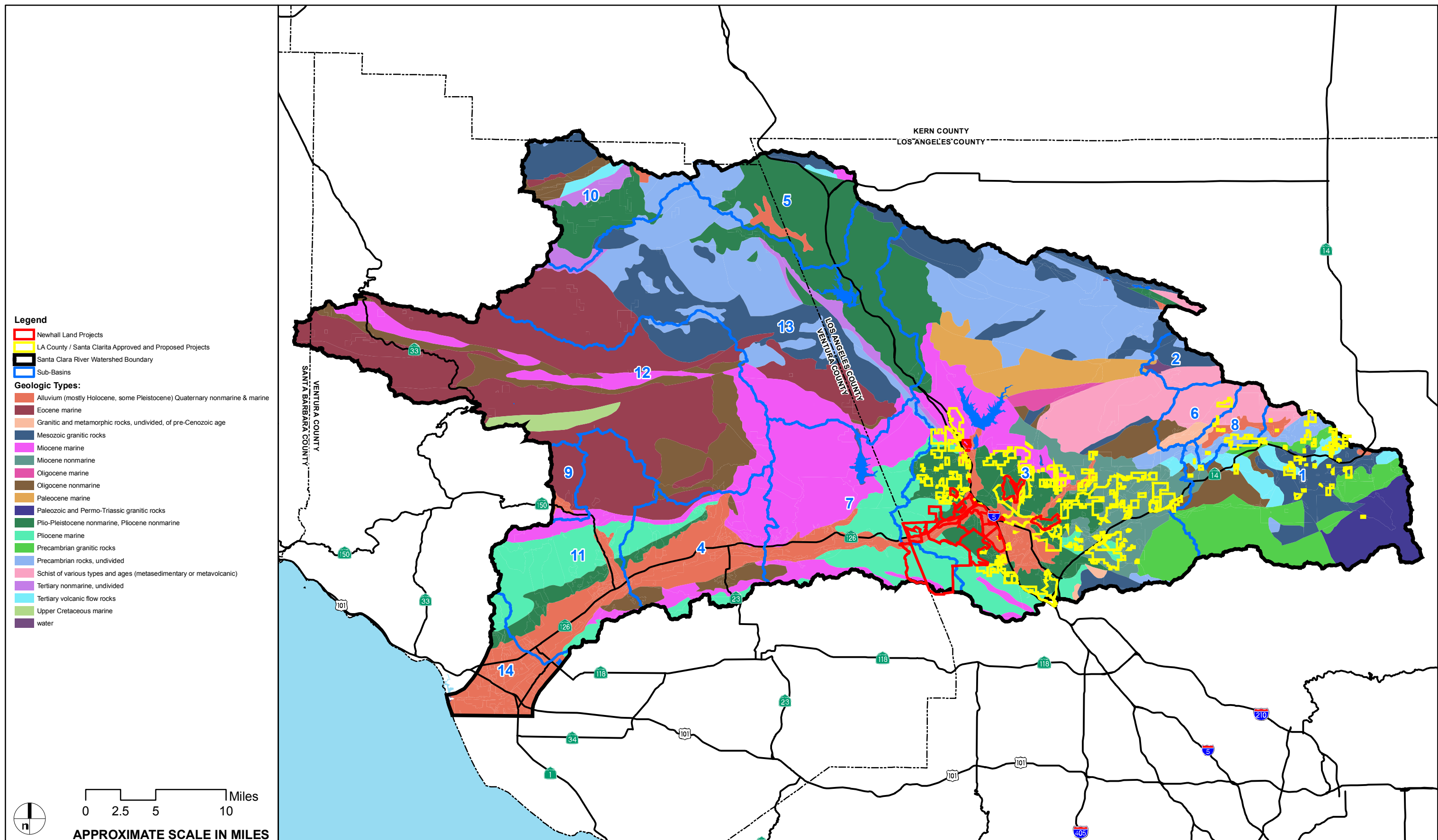
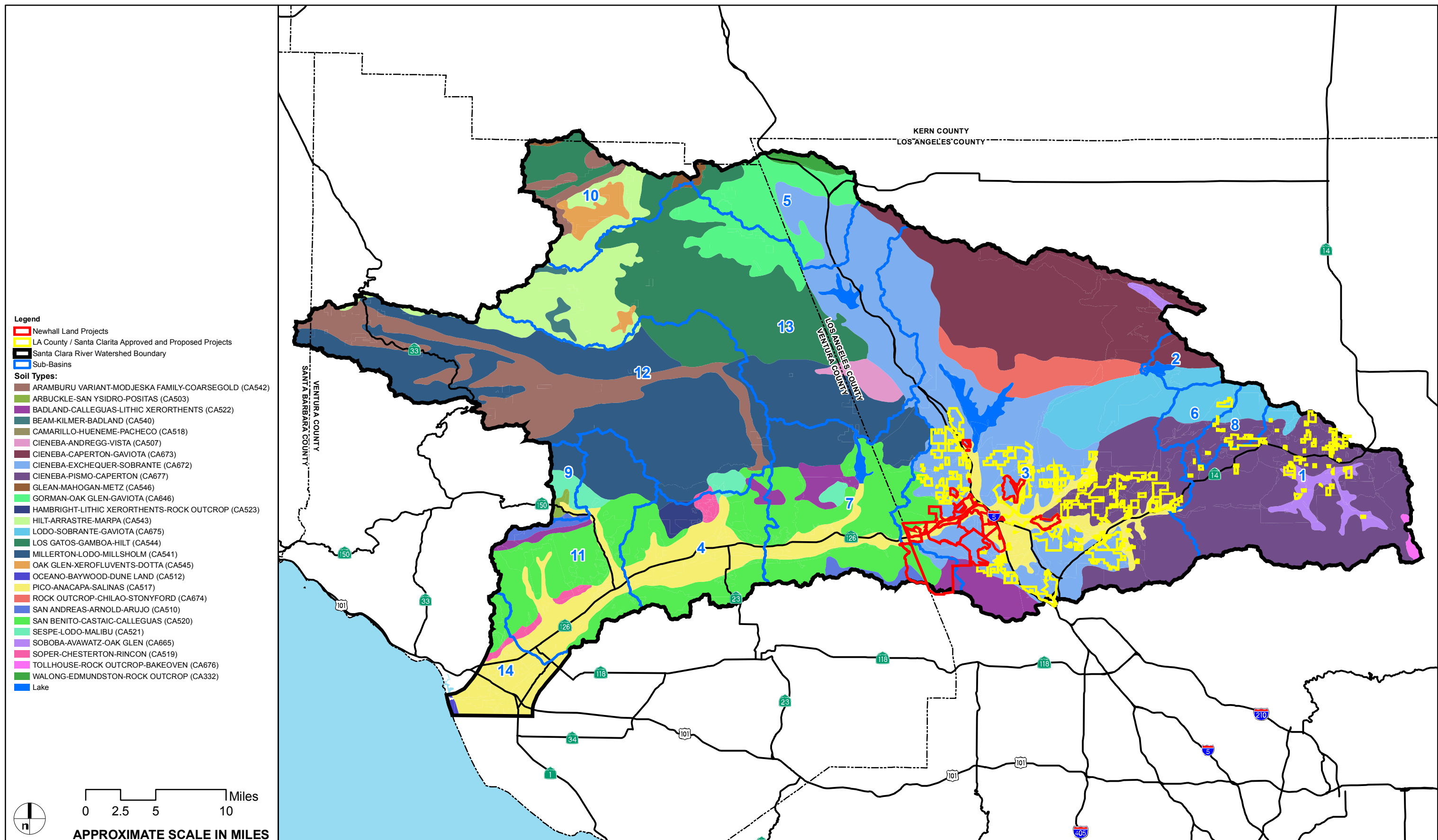


FIGURE 5

Newhall Land - Santa Clara River Watershed

Existing Geologic Types



SOURCE: NRCS 2007

FIGURE 6

Newhall Land - Santa Clara River Watershed
Existing Soil Types

Santa Clara River Watershed Study

Three soil types—Cieneba-Andregg-Vista, Tollhouse-Rock Outcrop-Bakeoven, and Beam-Kilmer-Badland—would not be impacted under the current land use classifications. However, these three soils types only account for about 9,000 acres (<1%) of the watershed. Of the four soil types that comprise 50% of the watershed, a total of 158,964 acres (15%) would be impacted under current land use classifications. Soils types that would have the largest impacts and comprise significant areas include Pico-Anacapa-Salinas (79% impacted), Badland-Calleguas-Lithic Xerorthents (72% impacted), Soboba-Avawatz-Oak Glen (63% impacted), Oak Glen-Xerofluvents-Dotta (76% impacted), and Soper-Chesterton-Rincon (72% impacted). Overall, impacts to these soils would total approximately 94,476 acres, or 31% of total developed and 9% of the total watershed.

3.1.5 Elevations

Table 6 shows the elevations in the SCRW at 500-foot intervals and *Figure 7* shows their distribution. Elevations in the SCRW range from sea level to over 8,000 feet above mean sea level (AMSL). Over 92% of the watershed is below 5,500 feet AMSL and about 62% is between 1,000 and 4,000 feet AMSL.

Some level of development could occur at all but the highest elevations (>8,000 feet AMSL) under current land use classifications, but the large majority of development would occur at elevations less than 4,000 feet AMSL. Of the 303,045 acres of potential development, 277,560 acres (92%) would occur at less than 4,000 feet AMSL, accounting for 37% of the 747,938 acres under 4,000 feet AMSL. A total 181,214 acres of development would occur at less than 2,000 feet AMSL, accounting for 59% of the 304,105 acres under 2,000 feet AMSL. Generally, at elevations between 1,500 and 4,500 feet AMSL, the relative proportion of very low-density residential to other development categories increases with elevation (see *Table A-5* of *Appendix A*). At elevations above 4,500 feet AMSL, approximately 14,390 acres are classified as low-density residential, compared to 2,000 acres of very low-density residential. The majority of the classified low-density residential is accounted for by an area located in the northwestern corner of the watershed (*Figure 3*).

3.1.6 Slope

Table 7 shows slopes in the SCRW at 20% intervals and *Figure 8* shows their distribution. More than 70% of the SCRW has slopes less than 20%, with most of these areas associated with the Santa Clara River valley, but also in the northern portions of the watershed. Slopes greater than 40% are primarily located in the central portions of the watershed.

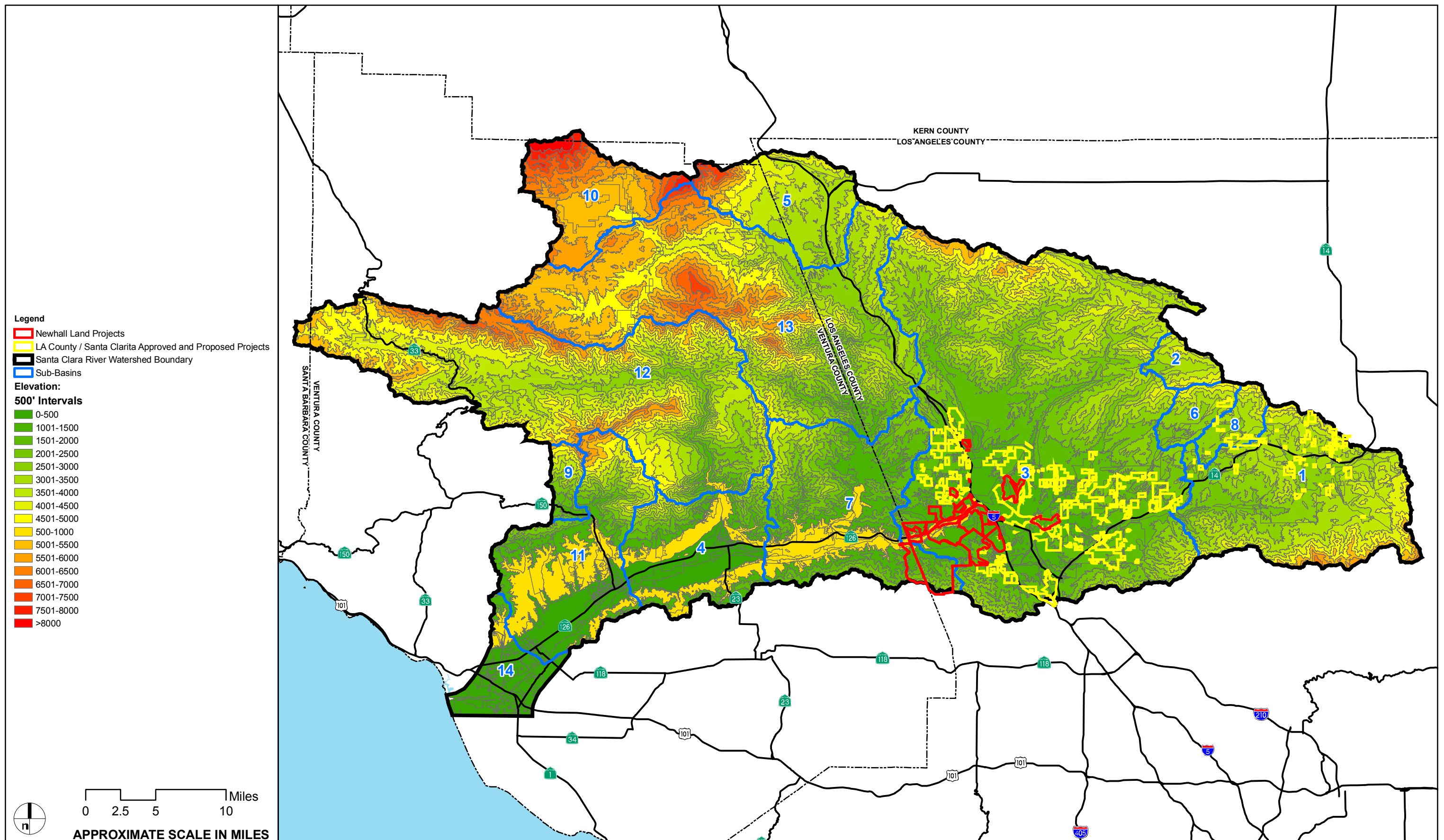
Santa Clara River Watershed Study

Table 6
Elevations in the Santa Clara River Watershed
in Relation to Current Land Use Classifications

Elevation (feet AMSL)	Elevation Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
0 to 500	48,058	4.6%	35,292	12,766	73.4%	26.6%
500 to 1000	52,187	5.0%	33,249	18,938	63.7%	36.3%
1001 to 1500	95,436	9.2%	58,613	36,823	61.4%	38.6%
1501 to 2000	108,424	10.5%	54,061	54,364	49.9%	50.1%
2001 to 2500	86,661	8.4%	24,674	61,987	28.5%	71.5%
2501 to 3000	116,903	11.3%	27,257	89,646	23.3%	76.7%
3001 to 3500	135,348	13.1%	27,354	107,993	20.2%	79.8%
3501 to 4000	104,922	10.1%	17,060	87,862	16.3%	83.7%
4001 to 4500	75,120	7.2%	7,286	67,833	9.7%	90.3%
4501 to 5000	66,875	6.5%	6,307	60,568	9.4%	90.6%
5001 to 5500	68,878	6.6%	7,737	61,141	11.2%	88.8%
5501 to 6000	38,010	3.7%	2,594	35,416	6.8%	93.2%
6001 to 6500	20,474	2.0%	1,469	19,005	7.2%	92.8%
6501 to 7000	9,554	0.9%	15	9,539	0.2%	99.8%
7001 to 7500	5,206	0.5%	29	5,177	0.6%	99.4%
7501 to 8000	2,688	0.3%	2	2,685	0.1%	99.9%
>8000	1,550	0.1%	0	1,550	0.0%	100.0%
Total	1,036,292		302,999	733,293	29.2%	70.8%

Table 7
Slopes in the Santa Clara River Watershed
in Relation to Current Land Use Classifications

Slope	Elevation Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
0% to 20%	723,464	70.0%	262,198	461,266	36.3%	63.7%
21% to 40%	302,688	29.2%	40,260	262,429	13.3%	86.7%
41% to 100%	9,225	0.9%	262	8,963	2.8%	97.2%
Total	1,035,377		302,719	732,658	29.2%	70.8%

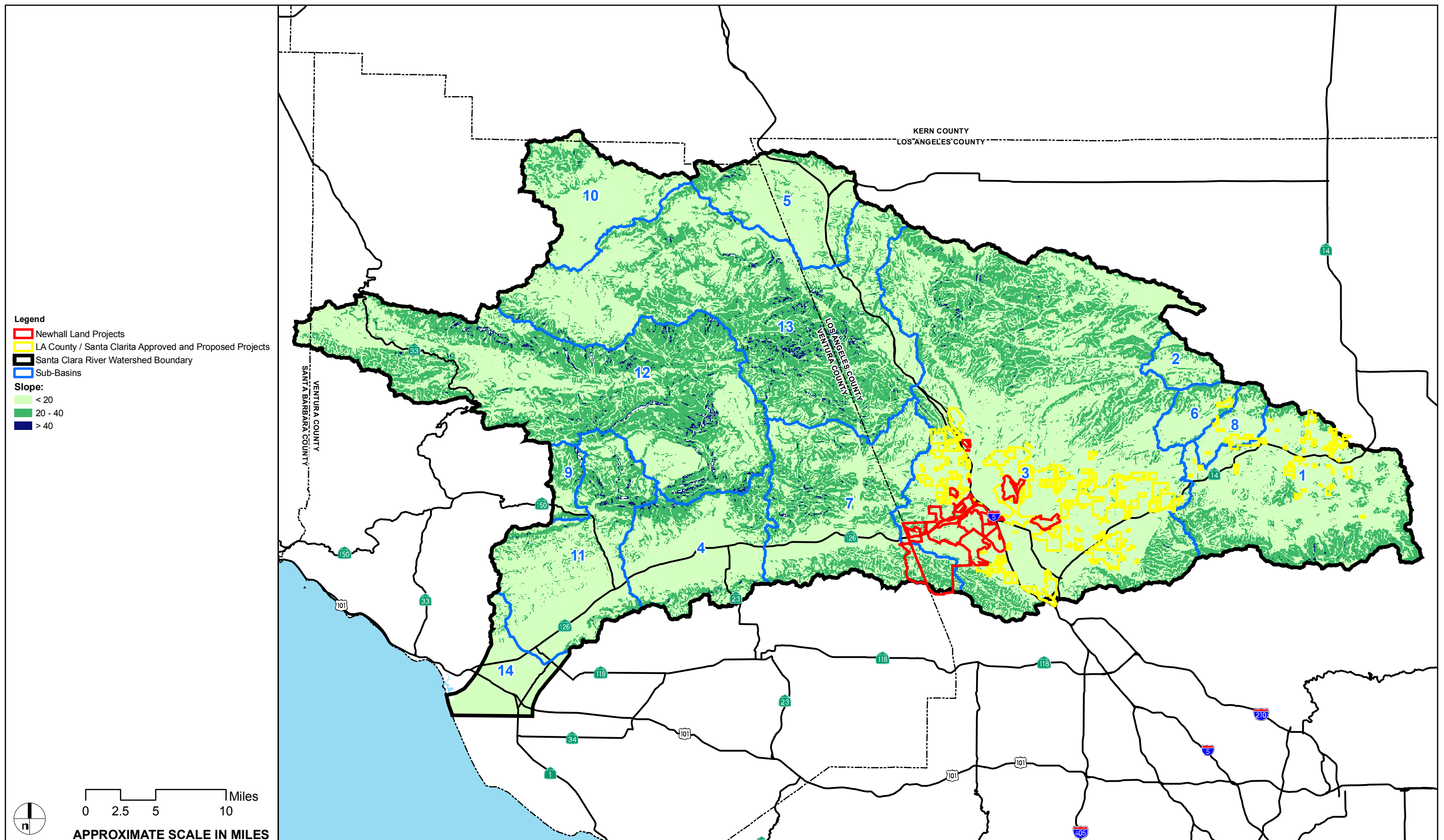


SOURCE: USGS 2007

FIGURE 7

Newhall Land - Santa Clara River Watershed

Elevations



SOURCE: USGS 2007

FIGURE 8

Newhall Land - Santa Clara River Watershed
Santa Clara Watershed Slopes

Santa Clara River Watershed Study

Under current classifications, development would primarily occur at slopes less than 20%, accounting for 262,198 acres (87%) of potential development. A moderate amount of development potentially would occur at slopes of 21% to 30%, but approximately 77% of this development would be very low-density residential and 15% would be low-density residential (see *Table A-6 of Appendix A*).

Consistent with the pattern of classified development concentrated in more-level terrain, the percentage of open space increases as slopes increase, ranging from 52% on slopes less than 10% to 97% on slopes greater than 40%.

3.1.7 Existing Public Lands

Approximately 635,172 acres (61%) of the SCRW is already in public ownership, as summarized in *Table 8* and shown in *Figure 9*. National Forest accounts for 95.2% of the public land. National Forest is also directly connected to the north and west and southeast and east of the watershed. The 635,172 acres of existing public lands account for 87% of the 733,523 total acres of classified open space depicted in *Figure 9*.

Table 8
Existing Public Lands

Owner/Manager	Acres	Percent of Total Public Lands	Percent of Total Watershed
Bureau of Land Management	8,291	1.3%	0.8%
California Department of Fish and Game	1,021	0.2%	0.1%
California Department of Parks and Recreation	18,496	2.9%	1.8%
State Lands Commission	191	0.03%	0.02%
The Nature Conservancy	312	0.04%	0.03%
U.S. Fish and Wildlife Service	2,363	3.7%	2.3%
U.S. Forest Service	604,499	95.2%	58.3%
Total	635,172		61.3%

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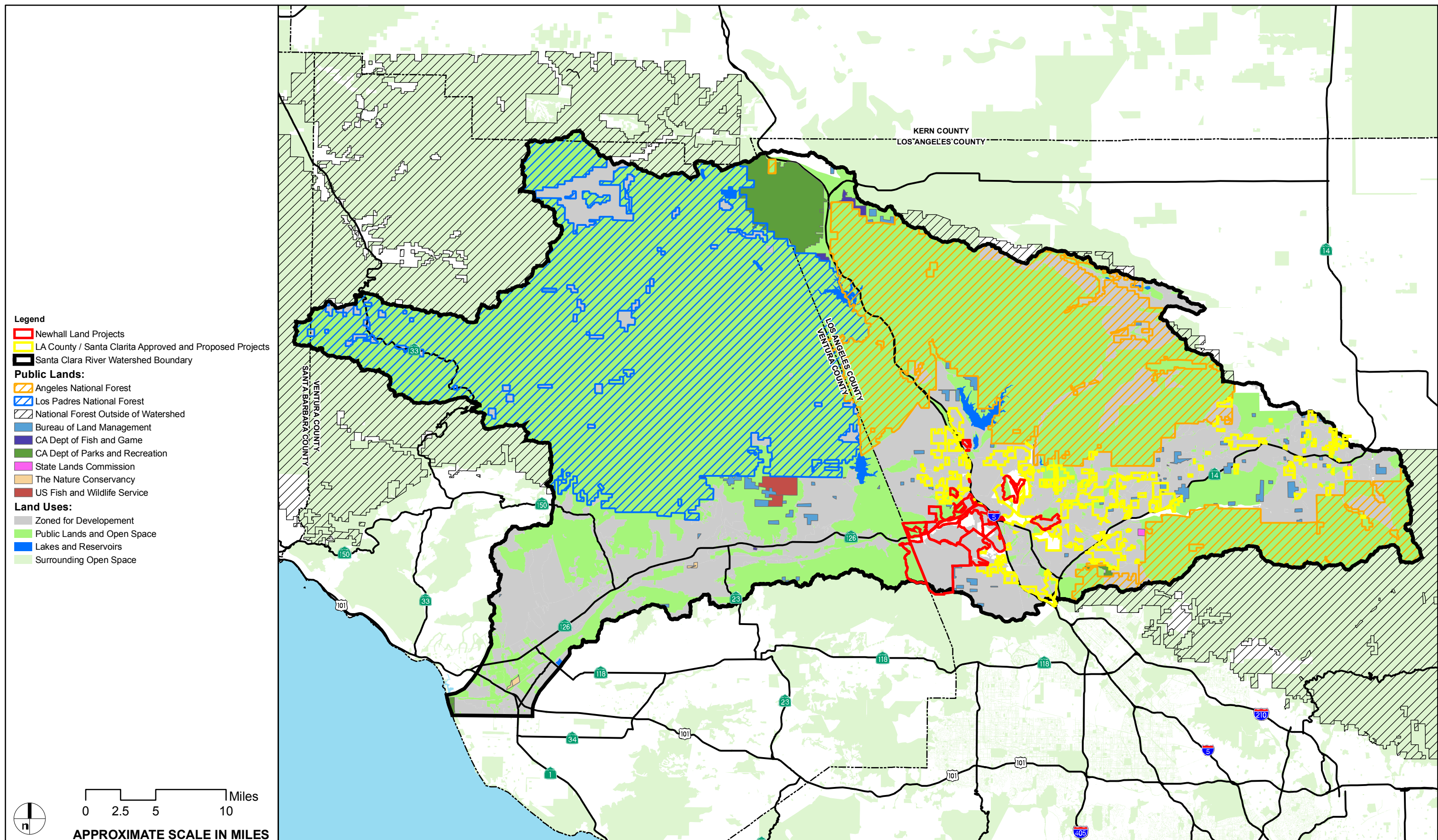


FIGURE 9

Newhall Land - Santa Clara River Watershed

Existing Public Lands and Open Space Areas

3.2 Cumulative Impacts to Jurisdictional Waters and Wetlands within the Watershed

As described in *Subsection 2.2*, cumulative impacts to wetland and aquatic resources in the SCRW were analyzed in terms of the number of past projects that impact state and federal waters and wetlands processed and approved by CDFG and Corps between 1988 and 2006.

The compiled data for Corps and CDFG permits are presented in *Figures 10* and *11*. The bar graphs in both figures show the absolute annual amount of impact (red bars) and mitigation (green bars), with absolute acres indicated on the left vertical axis. For example, in 1998, there were about 200 acres of Corps impact and about 240 acres of mitigation. The cumulative acres (plotted as a black line against the right vertical axis) represent the cumulative difference between impacts (red bars) and mitigation (green bars). For example, by 2001, there were approximately 150 acres of net gain resulting from mitigation compared to impacts from Corps permits. By 2006, there was a net gain of about 275 acres. As described in the methods, these data assume that all temporary impacts are fully mitigated. It should be noted that, even though this line represents a cumulative difference, it does not increase every year. In years where there was more impact than mitigation, the cumulative line shows a decrease, such as 1991 in *Figure 10* and 1999 in *Figure 11*, because the “net” amount of the mitigation habitat relative to impacts declined.

Both sets of permits show a similar trend. Prior to 1997, there was relatively little permit activity. Starting in 1998 for the Corps and 2000 for CDFG, there was a consistent net gain in the cumulative acres of mitigation over impacts. The spikes in permit activity in 1998 for the Corps and 1999 for CDFG are linked to the 1997–1998 El Niño event, and the spike in permit activity in 2005 for the Corps is linked to the powerful winter storms in 2004–2005. The permit descriptions for 1998 included several relating to emergency repairs from flooding, and not to development-related permits. For the CDFG permits, these emergency repairs resulted in a sharp drop in the cumulative acres in 1998 and 1999. As a result of the 2 successive years of negative net gains, 1999 had a negative cumulative gain for the CDFG permits. This was the only year for either set of permits that this occurred.

Santa Clara River Watershed Study

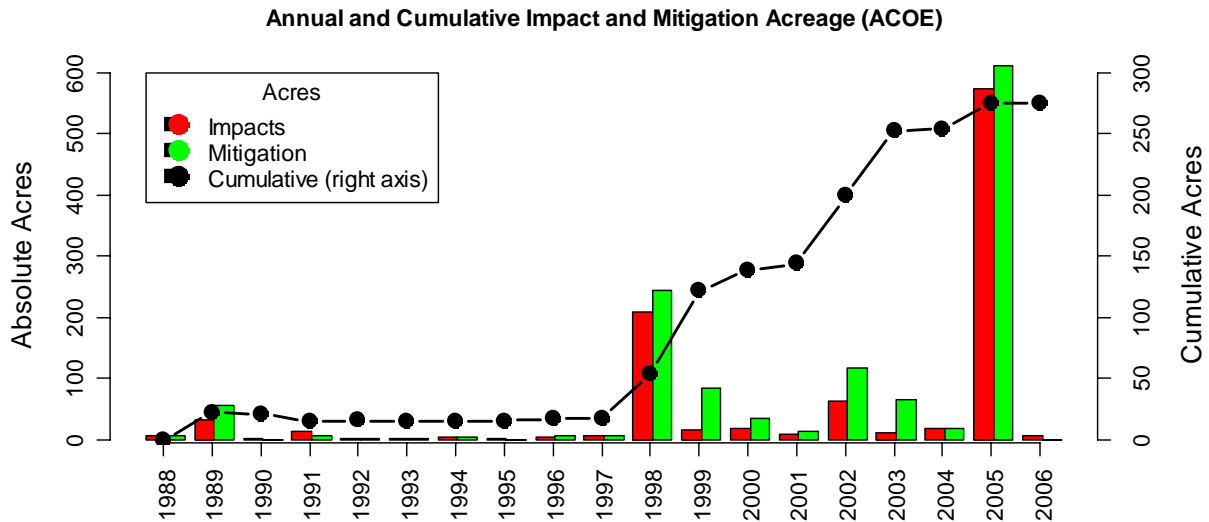


Figure 10. Cumulative Impacts and Mitigation from Corps Permits

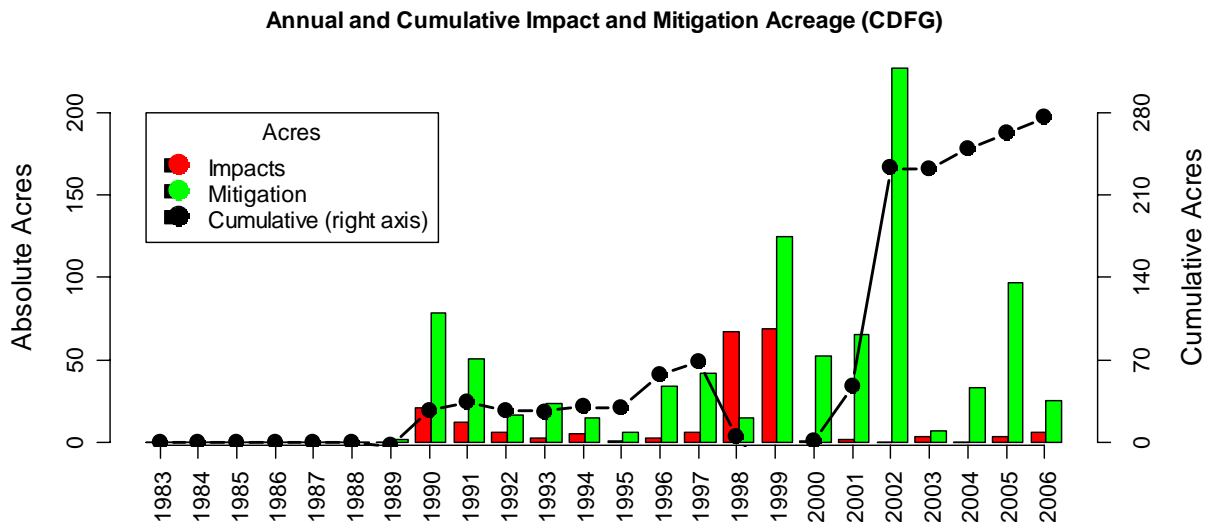


Figure 11. Cumulative Impacts and Mitigation from CDFG Permits

Both the Corps and CDFG data show that, from about 1988 to 2006, there has been a substantial cumulative net gain in mitigated acreage over impacts. In other words, based on these data, there should be more jurisdictional wetlands and waters today than there were in 1988 (see Footnote 1); on the order of 275 acres of Corps jurisdiction and 280 acres of CDFG jurisdiction. The Corps data show that, in all years since 1998, except 2006 where data possibly were incomplete,

mitigation exceeded impacts. Data from 1988 to 1997 were dominated by temporary impacts that were assumed, by definition, to not result in a net loss of wetlands; hence the equivalent values of impacts and mitigation from 1992 to 1997. Data from CDFG permits show that, since 1990, mitigation exceeded impacts in every year except 1998 (16 out of 17 years). The trend in the CDFG data is dominated by the extremely high ratio of mitigation to impacts in 2002; however, the trend is still positive excluding 2002.

3.3 Impacts of Planned and Approved Projects in the SCRW

3.3.1 Current Land Use Classifications

Subsection 3.1 summarized existing conditions in the SCRW and the potential for development under the current land use classifications, which showed that 29% of the watershed is classified for some type of development that could influence watershed function, such as by increasing impervious surfaces, increasing perennial flows, disrupting normal fluvial processes, and degrading water quality. This subsection examines the relationship between current land use classifications and actual planned and approved projects.⁴ As noted above, however, as specific plans and projects are refined and result in amendments to general plan and classifications, a reduction in project footprints often occurs. Thus, the impact analysis based on current land use classifications is considered a worst-case assessment and is not likely to occur. It is also important to understand that a development land use classification does not mean that the entire areas will become impervious surface with build-out. The development classification only indicates the designation of the area for development and is not equivalent to the amount of impervious surface that would be created if development occurred there.

Table 9 shows the breakout of current land use classifications of Los Angeles and Ventura counties. Based on current land use classifications, Ventura County, which comprises about 52% of the SCRW, is classified for about 107,337 acres of development (20%), substantially less than the 39.3% of the Los Angeles County portion of the watershed classified for development. As shown in *Figure 3*, the vast majority of the classified development in Ventura County is along the Santa Clara River valley, but with about 10% of the total located in the Stauffer sub-basin in the northwest portion of the watershed. Even though 20% of the SCRW in Ventura County is classified for development, it is unlikely, due to initiatives such as SOAR, that this percentage of the watershed in Ventura County would be built out.

Table 10 shows the relationship between the current land use classifications in the SCRW and the planned and approved projects for the City of Santa Clarita and Los Angeles County, as

⁴ Technically, once a project is approved, its “current” classifications are the same as its “approved” classifications. However, the purpose of this analysis is to compare what the watershed build-out would be under the pre-existing classifications to the projected development based on approved projects. For example, on Newhall Land property, much less will be developed than what would be allowed under current classifications.

Santa Clara River Watershed Study

depicted as an overlay on the land use classifications in *Figure 3*. Compared to the current land use classifications (*Figure 3*), planned and approved projects in the City of Santa Clarita and Los Angeles County comprise 39,030 acres (13%) of the 303,045 acres classified for development in the watershed and 3.8% of the 1,036,571 acres in the watershed.

Table 9
Current Land Use Classifications by County

County	County Totals		Land Use Totals		Land Use Percentages	
	Acres	Percent	Classified Developed	Open Space	Classified Developed	Open Space
Los Angeles	497,815	48.0%	195,708	302,107	39.3%	60.7%
Ventura	536,903	51.8%	107,337	429,566	20.0%	80.0%
Kern	876	0.1%	0	876	0.0%	100.0%
Santa Barbara	973	0.1%	0	973	0.0%	100.0%
Total Watershed	1,036,567		303,045	733,522	29.2%	70.8%

Table 10
Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Current Land Use Classifications

Baseline Land Use Classifications	Total Acres	Planned/Approved ^a			Total Acres Planned/ Approved	Percent Planned/ Approved
		City of Santa Clarita	Los Angeles County	Both ^b		
Low-density commercial	4,335	236	750	0	986	22.8%
High-density commercial	3,911	928	0	0	928	23.7%
Industrial	8,917	363	2,462	0	2,825	31.7%
Very low-density residential	157,488	1,239	15,582	230	17,051	10.8%
Low-density residential	83,826	371	8,723	209	9,303	11.1%
Medium-density residential	29,930	1,067	1,392	2	2,462	8.2%
High-density residential	2,177	65	27	0	93	4.3%
Residential planned development ^c	12,056	2,053	3,324	5	5,382	44.6%
Mixed use	405	0	0	0	0	0.0%
Subtotal – Development	303,045	6,323	32,260	447	39,030	12.9%
Open space	729,430	364	5,697	2	6,062	0.8%
Urban reserve	4,096	0	0	0	0	0.0%
Total	1,036,571	6,686	37,957	449	45,092	4.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

^cResidential planned development is a minimum 5-acre planned unit development with approved Conditional Use Permit (CUP).

Santa Clara River Watershed Study

These data for planned and approved projects cover only five of the 14 sub-basins in the SCRW because they are limited to Los Angeles County and the City of Santa Clarita. *Table 11* summarizes the acreages and percentages of planned and approved projects in these five sub-basins. Overall, planned and approved projects comprise approximately 9% of the SCRW sub-basins in Los Angeles County, ranging from 2% in the Mint Canyon sub-basin to 13% of the Eastern sub-basin, which includes the City of Santa Clarita. The Eastern sub-basin, which is the largest sub-basin in the watershed, contains the largest coverage of planned and approved projects, totaling 37,747 acres. As shown in *Figure 4*, the planned and approved projects are concentrated in the lower-elevation portions of the watershed in proximity to existing urban development.

Table 11
Planned and Approved Projects in the City of Santa Clarita
and Los Angeles County in Relation to Sub-Basins

Sub-Basin	Total Sub-Basin Area	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Acres Planned/ Approved	Percent Planned/ Approved
Acton	88,787	0	2,544	0	2,544	2.9%
Eastern	291,730	6,686	30,612	449	37,747	12.9%
Mint Canyon	10,836	0	230	0	230	2.1%
Santa Felicia	78,066	0	3,836	0	3,836	4.9%
Sierra Pelona	9,677	0	748	0	748	7.7%
Total	479,096	6,686	37,971	449	45,106	9.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

3.3.2 Vegetation

Table 12 summarizes the impacts of planned and approved projects in the City of Santa Clarita and Los Angeles County on vegetation communities and land cover types. Sixteen of the 40 distinct vegetation and land cover types would be impacted. For the 16 types impacted, development acreages range from 19 acres (<1%) of big sagebrush scrub to 21,011 acres (15%) of Venturan coastal sage scrub. Among the major vegetation communities (coastal scrubs, chaparrals, non-native grassland, riparian/wetland, and woodland & forest), coastal scrubs would have the most impacts at 23,443 acres (13%), and riparian/wetland would have the fewest impacts at 869 acres (6%).

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Santa Clara River Watershed Study

Table 12
Planned and Approved Projects in the City of Santa Clarita and Los Angeles County
in Relation to Vegetation Communities and Land Cover Types

Vegetation and Land Cover Type	Total Acres	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Planned/ Approved Acres	Percent Planned/ Approved
Big sagebrush scrub	4,996	0	19	0	19	0.4%
Coastal scrubs						
Coastal sage/chaparral scrub	2,452	0	0	0	0	0.0%
Riversidean sage scrub	29,418	164	1,690	213	2,067	7.0%
Southern alluvial fan scrub	5,062	—	365	—	365	7.2%
Venturan coastal sage scrub	144,932	2,256	18,752	3	21,011	14.5%
Subtotal	181,864	2,420	20,807	216	23,443	12.9%
Chaparrals						
Buck brush chaparral	88,367	0	765	0	765	0.9%
<i>Ceanothus crassifolius</i> chaparral	76,116	1,906	756	0	2,662	3.5%
Chamise chaparral	131,091	915	6,211	1	7,127	5.4%
Interior live oak chaparral	73,273	125	2,600	224	2,948	4.0%
Mesic north slope chaparral	1,778	0	0	0	0	0.0%
Mixed montane chaparral	2,676	0	0	0	0	0.0%
Montane ceanothus chaparral	3,582	0	0	0	0	0.0%
Northern mixed chaparral	70,033	0	165	0	165	0.2%
Scrub oak chaparral	67,134	0	203	0	203	0.3%
Semi-desert chaparral	6,695	0	0	0	0	0.0%
Upper Sonoran manzanita chaparral	30,291	0	0	0	0	0.0%
Subtotal	551,036	2,945	10,700	225	13,870	2.5%
Non-native grassland	22,240	—	3,261	—	3,261	14.7%
Riparian/Wetland						
Mulefat scrub	2,587	0	0	0	0	0.0%
Permanently flooded lacustrine habitat	5,014	0	0	0	0	0.0%
Southern coast live oak riparian forest	1,392	0	0	0	0	0.0%
Southern cottonwood/willow riparian forest	4,641	138	731	0	869	18.7%
Southern sycamore/alder riparian woodland	111	0	0	0	0	0.0%
Southern willow scrub	539	0	0	0	0	0.0%
Subtotal	14,284	138	731	0	869	6.1%

Santa Clara River Watershed Study

Table 12
Planned and Approved Projects in the City of Santa Clarita and Los Angeles County
in Relation to Vegetation Communities and Land Cover Types

Vegetation and Land Cover Type	Total Acres	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Planned/ Approved Acres	Percent Planned/ Approved
Woodland & forest						
Bigcone spruce/canyon oak forest	15,974	0	0	0	0	0.0%
Black oak forest	925	0	0	0	0	0.0%
California walnut woodland	3,624	0	0	0	0	0.0%
Canyon live oak forest	1,951	0	0	0	0	0.0%
Interior live oak forest	1,783	0	0	0	0	0.0%
Jeffrey pine forest	10,169	0	0	0	0	0.0%
Jeffrey pine forest/fir forest	5,258	0	0	0	0	0.0%
Mojavean pinyon and juniper woodlands	98,151	0	1,789	0	1,789	1.8%
Sierra mixed conifer forest	5,251	0	0	0	0	0.0%
Westside ponderosa pine forest	10,124	0	0	0	0	0.0%
Subtotal	153,210	0	1,789	0	1,789	1.2%
Other natural land covers						
Bare exposed rock	702	0	0	0	0	0.0%
Sandy area other than beaches	8,191	409	21	0	430	5.3%
Subtotal	8,893	409	21	0	430	4.8%
Agricultural land						
Agricultural land	28,791	0	0	0	0	0.0%
Evergreen orchard	6,236	0	0	0	0	0.0%
Orchard or vineyard	16,676	0	0	0	0	0.0%
Subtotal	51,703	0	0	0	0	0.0%
Developed/disturbed lands						
Open pit mines, quarries, and gravel pits	1,056	—	0	—	0	0.0%
Urban or built-up land	47,286	774	641	8	1,422	3.0%
Subtotal	48,342	774	641	8	1,423	2.9%
Grand Total	1,036,567	6,686	37,969	449	45,104	4.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

3.3.3 Geologic Types

Table 13 summarizes the impacts of planned and approved projects in the City of Santa Clarita and Los Angeles County on geologic types. Of the 18 geologic types (excluding water) occurring in the SCRW, 14 would be impacted, with a range from 1 acre of granitic and metamorphic rocks to 14,832 acres (11%) of Plio-Pleistocene nonmarine/Pliocene nonmarine. Other geologic types with substantial impacts include alluvium (6,544 acres), Miocene marine (3,379 acres), Miocene nonmarine (6,783 acres), Pliocene marine (9,905 acres), and Precambrian rocks (1,068 acres). In terms of percentages, Miocene nonmarine would have the largest impact, with 21% of its total in the watershed developed. All other impacted geologic types would have less than 14% of their totals in the watershed developed.

3.3.4 Soil Types

Table 14 summarizes the impacts of planned and approved projects in the City of Santa Clarita and Los Angeles County on soil types. Seven of the 27 soil types in the SCRW have planned and permitted project impacts. The soil type impacts are related to the soils distribution (*Figure 6*). The greatest impacts in acreage and percentage would occur to Cieneba-Exchequer-Sobrante soils, at 23,416 acres and 18% of the total of this type in the watershed. At 132,462 acres, this soil type is the second most common (13%) in the watershed. Impacts to other soil types range from 262 acres (<1%) of Lodo-Sobrante-Gaviota to 8,838 acres (7%) of Cieneba-Pismo-Caperton.

3.3.5 Elevations

Table 15 summarizes the impacts of planned and approved projects in the City of Santa Clarita and Los Angeles County at different elevations, and *Figure 7* shows their distribution. Planned and approved projects tend to be located at elevations between 1,000 and 2,000 feet AMSL, with this range accounting for 35,158 acres, or 78% of the total development. While 62% of the watershed is below 3,500 feet AMSL, 99% of the planned and approved projects are below this elevation. Based on the City of Santa Clarita and Los Angeles County information, 101 acres would be developed above 4,000 feet AMSL, and no development is planned or approved for elevations above 4,500 feet AMSL.

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Santa Clara River Watershed Study

Table 13
Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Geologic Types

Geologic Type	Total Acres	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Planned/ Approved Acres	Percent Planned/ Approved
Alluvium (Quaternary nonmarine & marine)	84,305	1,544	4,992	8	6,544	7.8%
Eocene marine	155,991	0	0	0	0	0.0%
Granitic and metamorphic rocks (pre-Cenozoic age)	3,666	0	1	0	1	0.0%
Mesozoic granitic rocks	98,814	0	1,093	0	1,093	1.1%
Miocene marine	123,761	0	3,379	0	3,379	2.7%
Miocene nonmarine	32,575	1,534	4,991	213	6,738	20.7%
Oligocene marine	3,508	0	0	0	0	0.0%
Oligocene nonmarine	57,235	0	213	0	213	0.4%
Paleocene marine	22,989	0	0	0	0	0.0%
Paleozoic and Permo-Triassic granitic rocks	16,422	0	21	0	21	0.1%
Pliocene marine	73,392	505	9,370	30	9,905	13.5%
Plio-Pleistocene nonmarine, Pliocene nonmarine	135,755	3,101	11,533	198	14,832	10.9%
Precambrian granitic rocks	38,984	3	452	0	455	1.2%
Precambrian rocks, undivided	117,724	0	1,068	0	1,068	0.9%
Schist (metasedimentary or metavolcanic)	38,909	0	301	0	301	0.8%
Tertiary nonmarine, undivided	12,487	0	108	0	108	0.9%
Tertiary volcanic flow rocks	12,286	0	449	0	449	3.7%
Upper Cretaceous marine	5,705	0	0	0	0	0.0%
Water	2,057	0	0	0	0	0.0%
Total	1,036,566	6,687	37,970	449	45,107	4.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

Santa Clara River Watershed Study

Table 14

Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Soil Types

Soil Type	Total Soil Acres	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Planned/ Approved Acres	Percent Planned/ Approved
Millerton-Lodo-Millsholm	153,429	0	0	0	0	0.0%
Cieneba-Exchequer-Sobrante	132,462	3,781	19,429	206	23,416	17.7%
Cieneba-Pismo-Caperton	129,534	764	7,889	185	8,838	6.8%
San Benito-Castaic-Calleguas	99,503	0	2,582	0	2,582	2.6%
Los Gatos-Gamboa-Hilt	90,317	0	0	0	0	0.0%
Pico-Anacapa-Salinas	84,613	2,142	5,676	31	7,849	9.3%
Cieneba-Caperton-Gaviota	81,270	0	0	0	0	0.0%
Aramburu Variant-Modjeska Family-Coarsegold	51,392	0	0	0	0	0.0%
Hilt-Arrastre-Marpa	42,864	0	0	0	0	0.0%
Gorman-Oak Glen-Gaviota	36,698	0	0	0	0	0.0%
Lodo-Sobrante-Gaviota	36,345	0	262	0	262	0.7%
Badland-Calleguas-Lithic Xerorthents	18,993	0	1,757	27	1,784	9.4%
Rock Outcrop-Chilao-Stonyford	17,800	0	0	0	0	0.0%
Soboba-Avawatz-Oak Glen	9,296	0	375	0	375	4.0%
(No Data)	8,757	0	0	0	0	0.0%
Sespe-Lodo-Malibu	8,086	0	0	0	0	0.0%
Oak Glen-Xerofluvents-Dotta	6,564	0	0	0	0	0.0%
Cieneba-Andregg-Vista	5,582	0	0	0	0	0.0%
San Andreas-Arnold-Arujo	5,518	0	0	0	0	0.0%
Soper-Chesterton-Rincon	4,443	0	0	0	0	0.0%
Hambright-Lithic Xerorthents-Rock Outcrop	3,510	0	0	0	0	0.0%
Walong-Edmundston-Rock Outcrop	2,853	0	0	0	0	0.0%
Beam-Kilmer-Badland	2,354	0	0	0	0	0.0%
Glean-Mahogan-Metz	1,948	0	0	0	0	0.0%
Tollhouse-Rock Outcrop-Bakeoven	1,074	0	0	0	0	0.0%
Arbuckle-San Ysidro-Positas	883	0	0	0	0	0.0%
Oceano-Baywood-Dune Land	374	0	0	0	0	0.0%
Camarillo-Hueneme-Pacheco	74	0	0	0	0	0.0%
Total	1,036,534	6,686.7	37,970	449	45,106	4.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

Santa Clara River Watershed Study

Table 15
Planned and Approved Projects in the City of Santa Clarita
and Los Angeles County in Relation to Elevations

Elevation (feet AMSL)	Total Acres	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Planned/ Approved Acres	Percent Planned/ Approved
0 to 500	48,058	0	0	0	0	0%
500 to 1000	52,187	0	2,483	0	2,483	4.8%
1001 to 1500	95,436	3,684	15,576	167	19,427	20.4%
1501 to 2000	108,424	2,530	13,041	160	15,731	14.5%
2001 to 2500	86,661	473	2,901	123	3,496	4.0%
2501 to 3000	116,903	0	1,584	0	1,584	1.4%
3001 to 3500	135,348	0	1,761	0	1,761	1.3%
3501 to 4000	104,922	0	520	0	520	0.5%
4001 to 4500	75,120	0	101	0	101	0.1%
4501 to 5000	66,875	0	0	0	0	0%
5001 to 5500	68,878	0	0	0	0	0%
5501 to 6000	38,010	0	0	0	0	0%
6001 to 6500	20,474	0	0	0	0	0%
6501 to 7000	9,554	0	0	0	0	0%
7001 to 7500	5,206	0	0	0	0	0%
7501 to 8000	2,688	0	0	0	0	0%
>8000	1,550	0	0	0	0	0%
Total	1,036,292	6,687	37,967	449	45,103	4.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

3.3.6 Slopes

Table 16 summarizes the impacts of planned and approved projects in the City of Santa Clarita and Los Angeles County at slopes in 20% increment intervals, and *Figure 8* shows their distribution. While lands with slopes less than 20% account for about 70% of the land in the watershed, 93% of all planned and permitted projects would be built on these lands.

Santa Clara River Watershed Study

Table 16
Planned and Approved Projects in the City of Santa Clarita and Los Angeles County in Relation to Slopes

Slope	Total Acres	Planned/Approved ^a				
		City of Santa Clarita	Los Angeles County	Both ^b	Total Planned/ Approved Acres	Percent Planned/ Approved
0% to 20%	723,464	6,645	34,779	446	41,870	11.6%
21% to 40%	302,688	41	3,192	3	3,236	1.7%
>40%	9,225	0	0	0	0	0.0%
Total	1,035,377	6,686	37,971	449	45,106	4.4%

^aNewhall Land property is included in the Los Angeles County totals.

^bLand designated as both City of Santa Clarita and Los Angeles County.

3.4 Analysis of Newhall Land Project Area

The previous section summarized the impacts of planned and approved projects in the City of Santa Clarita and Los Angeles County on the SCRW watershed in relation to current land use classifications, vegetation community and land cover types, geology, soils, elevations, and slopes. This section analyzes the proposed impacts of Newhall Land projects within this same context.

As shown in *Figure 2*, Newhall Land's holdings comprise a relatively small and localized portion of the SCRW, totaling about 18,665 acres (1.8%) of the total watershed located in the Eastern and Santa Felicia sub-basins. *Figure 2* also shows that Newhall Land's property is in the lower portions of the watershed in areas that drain directly into the Santa Clara River. Overall, of the 18,665 acres of Newhall Land property, 11,087 acres (59%) would be developed and 7,577 acres (41%) would be in open space (*Table 17*). The 11,087 acres of development comprise 1% of the SCRW. The 7,577 acres of open space includes the High Country SMA (3,942 acres), Salt Creek area (1,516 acres), the River Corridor SMA (977 acres), other Open Area (1,002 acres), and a Conservation Easement area (139 acres).

3.4.1 Current Land Use Classifications

Table 17 summarizes the relationship between land development by Newhall Land and current land use classifications, and *Figure 12* shows the distribution of Newhall Land development and open space in relation to land use classifications. For example, under current land use classifications, there are 725 acres of low-density commercial classified for Newhall Land property, of which Newhall Land would develop 678 acres (94%) and maintain 46 acres in open space.

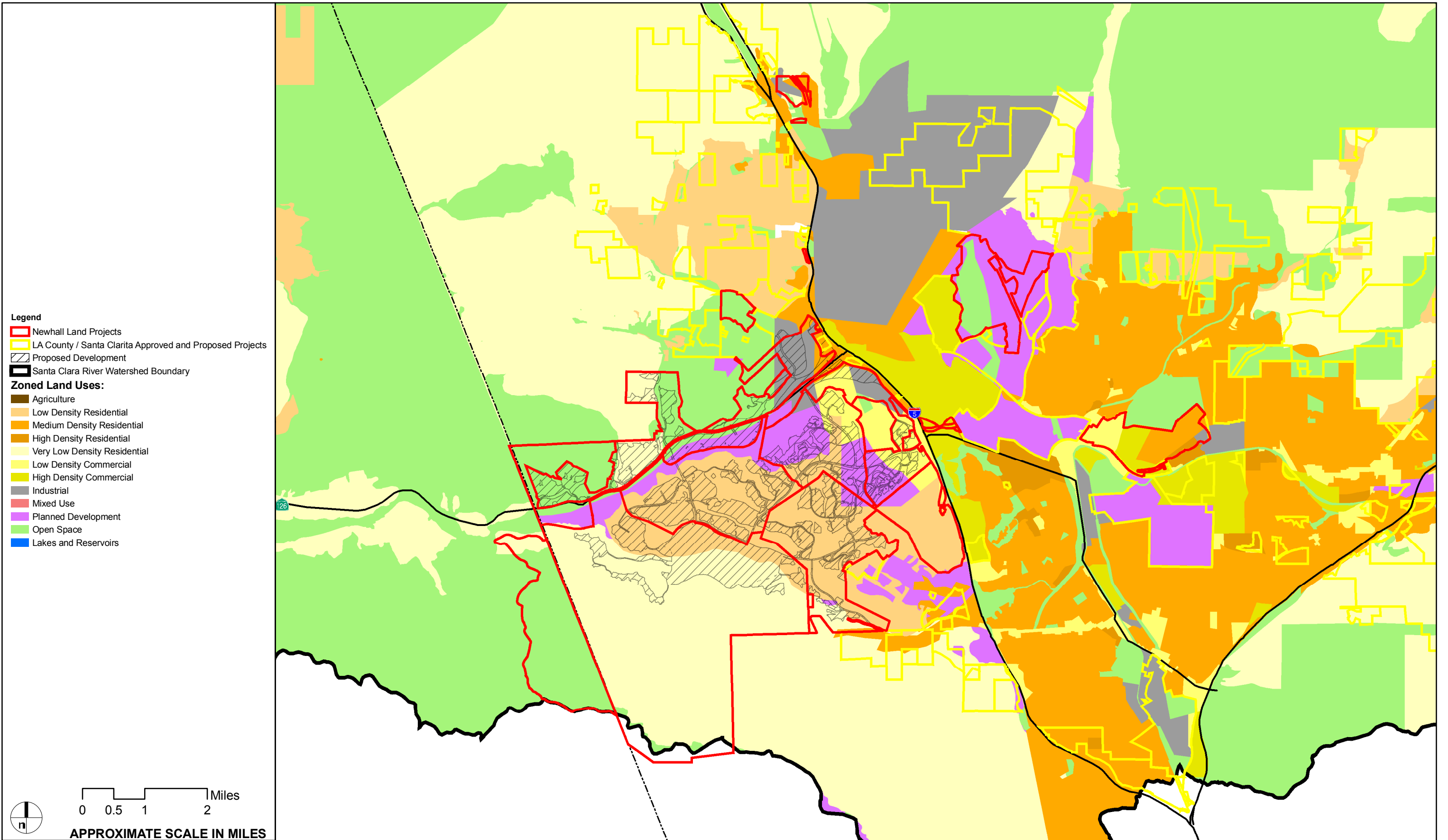


FIGURE 12

Newhall Land - Santa Clara River Watershed

Current Land Use Classifications in Relation to Newhall Land Projects

Santa Clara River Watershed Study

Table 17
Planned Development on Newhall Land Property in Relation to
Current Land Use Classifications

Current Land Use Classifications	Total Watershed Acres	Newhall Land Property					
		Total Acres	Acres Preserved	Acres Developed	Percent of Total Developed	Percent Total Watershed Area Preserved	Percent Total Watershed Area Developed
Low-density commercial	4,335	725	46	678	94%	1.1%	15.6%
High-density commercial	3,911	0	0	0	NA	0.0%	0.0%
Industrial	8,917	627	46	581	93%	0.5%	2.8%
Very low-density residential	157,488	6,159	4,283	1,875	30%	2.7%	1.2%
Low-density residential	83,826	4,967	655	4,312	87%	0.8%	5.1%
Medium-density residential	29,930	211	0	211	100%	0.0%	0.7%
High-density residential	2,177	0	0	0	NA	0.0%	0.0%
Mixed use	405	0	0	0	NA	0.0%	0.0%
Residential planned development	12,057	2,342	690	1,651	71%	5.7%	13.7%
Total developed	303,046	15,029	5,721	9,309	62%	1.9%	3.1%
Open space	729,430	3,635	1,857	1,779	49%	0.3%	0.2%
Urban reserve	4,096	0	0	0	NA	0.0%	0.0%
Total open space	733,526	3,635	1,857	1,779	49%	0.3%	0.2%
Grand Total	1,036,572	18,665	7,577	11,087	59%	0.7%	1.0%

Several key differences between Newhall Land development and current land use classifications are apparent in *Table 17*:

- The footprint of Newhall Land development is consistent with current land use classifications for commercial, industrial, low-density residential, and medium-density residential. As shown in *Figure 12*, these classifications in relation to Newhall Land development are concentrated in the area just west of Interstate 5 (I-5) and south of State Route 126 (SR-126) and are contiguous with existing development.
- Development in areas classified as very low-density residential would be reduced on Newhall Land property by 70%. Substantial area in the southern part of the watershed classified as very low-density residential would be in the High Country SMA.
- About 62% of lands classified for some type of development would be developed on Newhall Land property.

Santa Clara River Watershed Study

- About 49% of lands classified for open space would be developed on Newhall Land property, primarily north of SR-126.
- Under current classifications, 15,029 acres could be developed. A total of 11,087 acres (74%) would be developed on Newhall Land property.

Table 17 also shows the percentages of the different land use classifications in the SCRW that would be developed on Newhall Land property. For example, about 16% of all lands in the watershed classified for low-density commercial would be on Newhall Land property. These percentages demonstrate that Newhall Land development accounts for a very small percentage of development in relation to the classified development in the watershed. Other than lower-density commercial and residential planned development (14%), Newhall Land development is a very small fraction of the classified development in the watershed, ranging from <1% of medium-density residential to 5% of low-density residential. Overall, development on Newhall Land property accounts for 3% of the total classified development in the watershed. With regard to the entire SCRW, development of Newhall Land property would impact 1% of the total watershed.

3.4.2 Sub-Basins

The previous subsection discussed the relationship between development on Newhall Land property and the entire SCRW and land use classifications within the watershed and on Newhall Land property. *Table 18* shows development on Newhall Land property in the two sub-basins within the SCRW, in order to examine the impacts of development at the sub-basin level. As shown in *Table 1* and *Figure 2* and discussed in *Subsection 3.1.1*, the Eastern sub-basin, at 291,730 acres and 28% of the total watershed, is the largest sub-basin in the watershed and has experienced the largest amount of land conversion from development in Valencia and Santa Clarita along the I-5 corridor. Under current land use classifications, 131,630 acres (45%) of the Eastern sub-basin could be developed (see *Figure 3*). The Santa Felicia sub-basin, at 78,066 acres, is a moderately sized sub-basin that accounts for about 7% of the watershed (*Table 1* and *Figure 2*). Most of the current land conversion is from agriculture in the valley adjacent to the Santa Clara River. Under current land use classifications, about 29,994 acres (38%) could be developed (see *Figure 3*).

Newhall Land property accounts for about 5% of the Eastern sub-basin and 7% of the Santa Felicia sub-basin (*Table 18*). Overall, 98% of the Newhall Land planned development is in the Eastern sub-basin, accounting for 81% of the Newhall Land property in the sub-basin. In contrast, development of Newhall Land property in the Santa Felicia sub-basin would be 4% of the total.

In the context of the entire sub-basins, Newhall Land development would impact about 4% of the Eastern sub-basin and 0.3% of the Santa Felicia sub-basin. Combined, development on Newhall

Santa Clara River Watershed Study

Land property in the two sub-basins accounts for 3%. As discussed above, development on Newhall Land property would occur in the lower portions of these two sub-basins.

Table 18
Planned Development on Newhall Land Property in Relation to Sub-Basins

Sub-Basin	Sub-Basin Acres	Newhall Land Property				
		Newhall Land Acres	Acres Preserved	Acres Developed	Percent of Newhall Land Property in Sub-Basin Developed	Percent of Overall Sub-Basin Developed
Eastern	291,730	13,334	2,485	10,850	81%	3.7%
Santa Felicia	78,066	5,329	5,093	236	4%	0.3%
Total	369,796	18,663	7,577	11,086	59%	3.0%

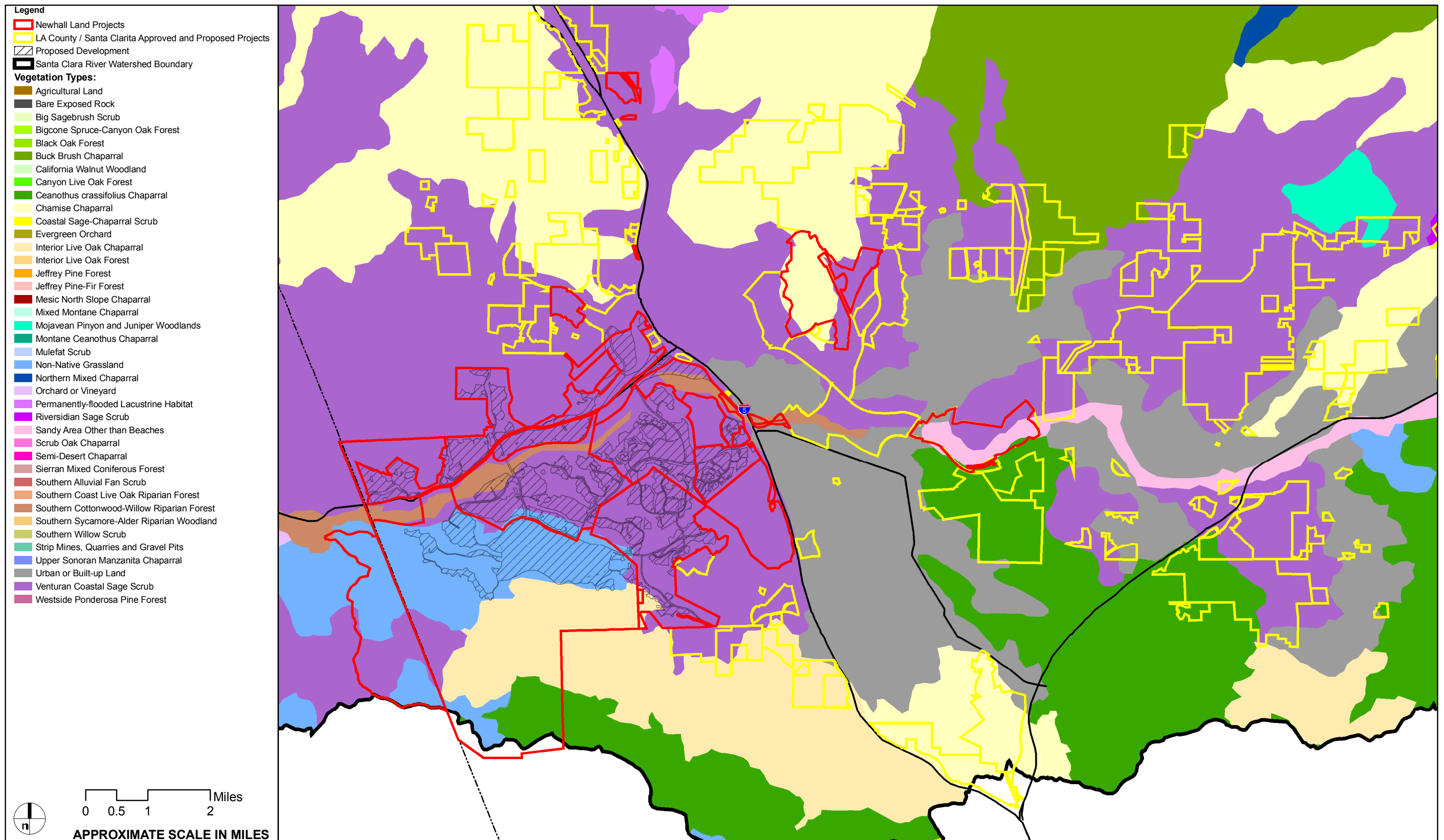
3.4.3 Vegetation Communities

Table 19 summarizes planned development of vegetation communities, and *Figure 13* shows their distribution in relation to their occurrence on Newhall Land property and within the entire SCRW. According to the California GAP data (U.C.S.B. Biogeography Lab 1999), Newhall Land property is composed of four general vegetation types—coastal sage scrub, chaparral, non-native grassland, and southern cottonwood–willow riparian forest—with the chaparral composed of *Ceanothus crassifolius* chaparral and interior live oak chaparral.⁵

Overall, 59% of the vegetation communities on Newhall Land property are planned for development. Planned development on Newhall Land property would impact Venturan coastal sage scrub to the greatest extent, both in terms of acreage (7,964 acres) and percent of the total (78%). Interior live oak chaparral would have the smallest percentage impacted, at 16%, and southern cottonwood–willow riparian forest would have the smallest acreage impacted, at 250 acres.

⁵ It is important to note that the California GAP data are based on a generalized vegetation database from 1999 and are different from the project-level mapping conducted on Newhall Land property over the past few years that includes substantial areas of agriculture, disturbed lands, and developed lands. However, for comparative purposes, the watershed-scale analysis must rely on the California GAP data.

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SOURCE: UCSB Biogeography Lab 1999

FIGURE 13

Newhall Land - Santa Clara River Watershed

Santa Clara River Watershed Study

Table 19
Planned Development on Newhall Land Property
in Relation to Vegetation Communities

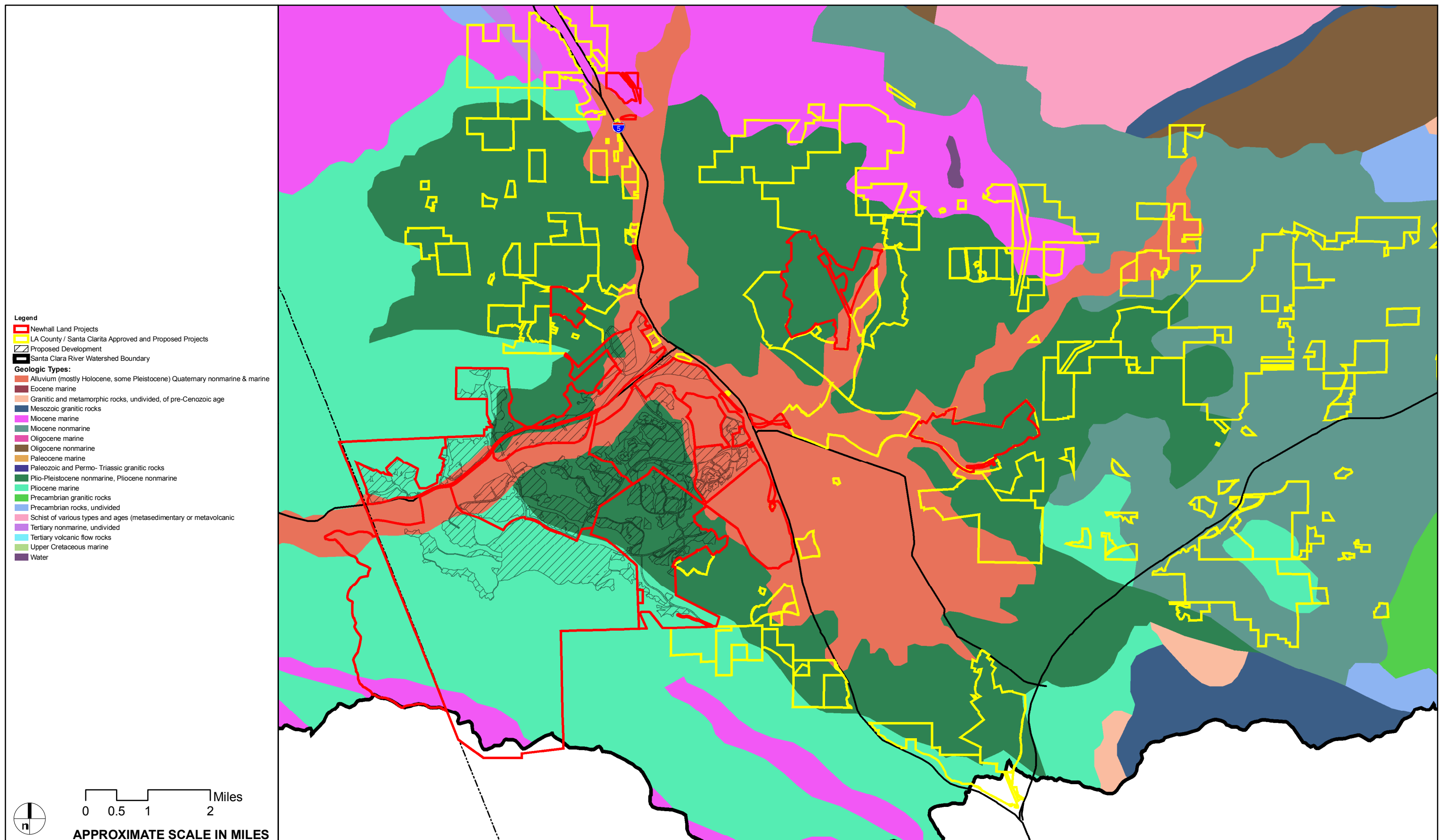
Vegetation Type	Total Watershed Acres	Newhall Land Property				
		Newhall Land Acres	Acres Preserved	Acres Developed	Percent on Newhall Land Property Developed	Percent of Overall Watershed Developed
Venturan coastal sage scrub	144,932	10,189	2,225	7,964	78.2%	5.5%
<i>Ceanothus crassifolius</i> chaparral	76,116	1,213	602	611	50.4%	0.8%
Interior live oak chaparral	73,273	2,322	1,952	370	15.9%	0.5%
Non-native grassland	22,240	4,200	2,312	1,888	45.0%	8.5%
Southern cottonwood/ willow riparian forest	4,641	737	487	250	34.0%	5.4%
Total	321,202	18,661	7,577	11,084	59.4%	3.5%

Planned development on Newhall Land property would impact relatively small amounts of these vegetation communities in the SCRW, ranging from <1% of each of the chaparrals to 9% of the non-native grassland. It is important to understand the context of these impacts. There are 40 distinct vegetation communities and land cover types in the watershed, and Newhall Land projects would impact five of the 40 types. In addition, with regard to Venturan coastal sage scrub, if the other coastal scrubs (see *Table 2*) are included in the baseline for impacts to coastal scrubs, Newhall Land projects would impact 4% of the scrubs in the watershed.

3.4.4 Geologic Types

Table 20 summarizes planned development of geologic types, and *Figure 14* shows their distribution in relation to their occurrence on Newhall Land property and within the entire SCRW. Newhall Land property occurs on four geologic types of the 19 types that occur in the watershed, of which three types comprise 96% of the total: alluvium, Pliocene marine, and Plio-Pleistocene nonmarine/Pliocene nonmarine. Two of the four types will be heavily impacted: 92% of Plio-Pleistocene nonmarine/Pliocene nonmarine and 71% of alluvium. Relative to their occurrence in the SCRW, however, small percentages would be impacted, ranging from 0.1% of Miocene marine to 5% of Pliocene marine

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SOURCE: CDC, Division of Mines and Geology, Geologic Map of California

FIGURE 14

Newhall Land - Santa Clara River Watershed

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Existing Geologic Types in Relation to Newhall Land Projects

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Santa Clara River Watershed Study

Table 20
Planned Development on Newhall Land Property in Relation to Geologic Types

Geologic type	Total Watershed Acres	Newhall Land Property				
		Newhall Land Acres	Acres Preserved	Acres Developed	Percent on Newhall Land Property Developed	Percent of Overall Watershed Developed
Alluvium (mostly Quaternary)	84,305	4,293	1,259	3,034	70.7%	3.6%
Miocene marine	123,761	766	653	113	14.8%	0.1%
Pliocene marine	73,392	8,931	5,299	3,632	40.7%	4.9%
Plio-Pleistocene nonmarine, Pliocene nonmarine	135,755	4,670	367	4,303	92.1%	3.2%
Total	417,213	18,660	7,577	11,083	59.4%	2.7%

3.4.5 Soil Types

Table 21 summarizes planned development of soil types, and *Figure 15* shows their distribution in relation to their occurrence on Newhall Land property and within the entire SCRW. Newhall Land property occurs on five soil types within the SCRW, and development would occur on four of the five types. Almost all development (95%) would occur on two soil types: Cieneba-Exchequer-Sobrante and Pico-Anacapa-Salinas. These two soil types account for 13% and 8% of the total in watershed, respectively. The majority of these soil types on Newhall Land property would be developed: 82% of Cieneba-Exchequer-Sobrante and 78% of Pico-Anacapa-Salinas. Relatively small percentages of the other two impacted soils would be developed: 5% of Badlands-Calleguas-Lithic Xerorthents and 15% of San Benito-Castaic-Calleguas. Overall development of these soil types in the watershed would be relatively small, ranging from <1% for Badland-Calleguas-Lithic Xerorthents and San Benito-Castaic-Calleguas to 5% for Cieneba-Exchequer-Sobrante.

3.4.6 Elevations

Table 22 summarizes planned development of different elevations, and *Figure 16* shows their distribution in relation to their occurrence on Newhall Land property and within the entire SCRW. Newhall Land property occurs on elevations ranging from 500 to 3,500 feet AMSL. No development would occur at elevations greater than 2,000 feet AMSL. Preserved lands occurring at elevations greater than 1,500 feet AMSL include the Salt Creek area and High Country SMA. About 48% of lands at less than 1,000 feet AMSL would be developed. A large portion of preserved lands occurring below 1,000 feet AMSL is dominated by the River Corridor SMA. Most of the development (78%) on Newhall Land property would be at elevations between 1,000 and 1,500 feet AMSL, with 11% of development occurring at less than 1,000 feet AMSL and

Santa Clara River Watershed Study

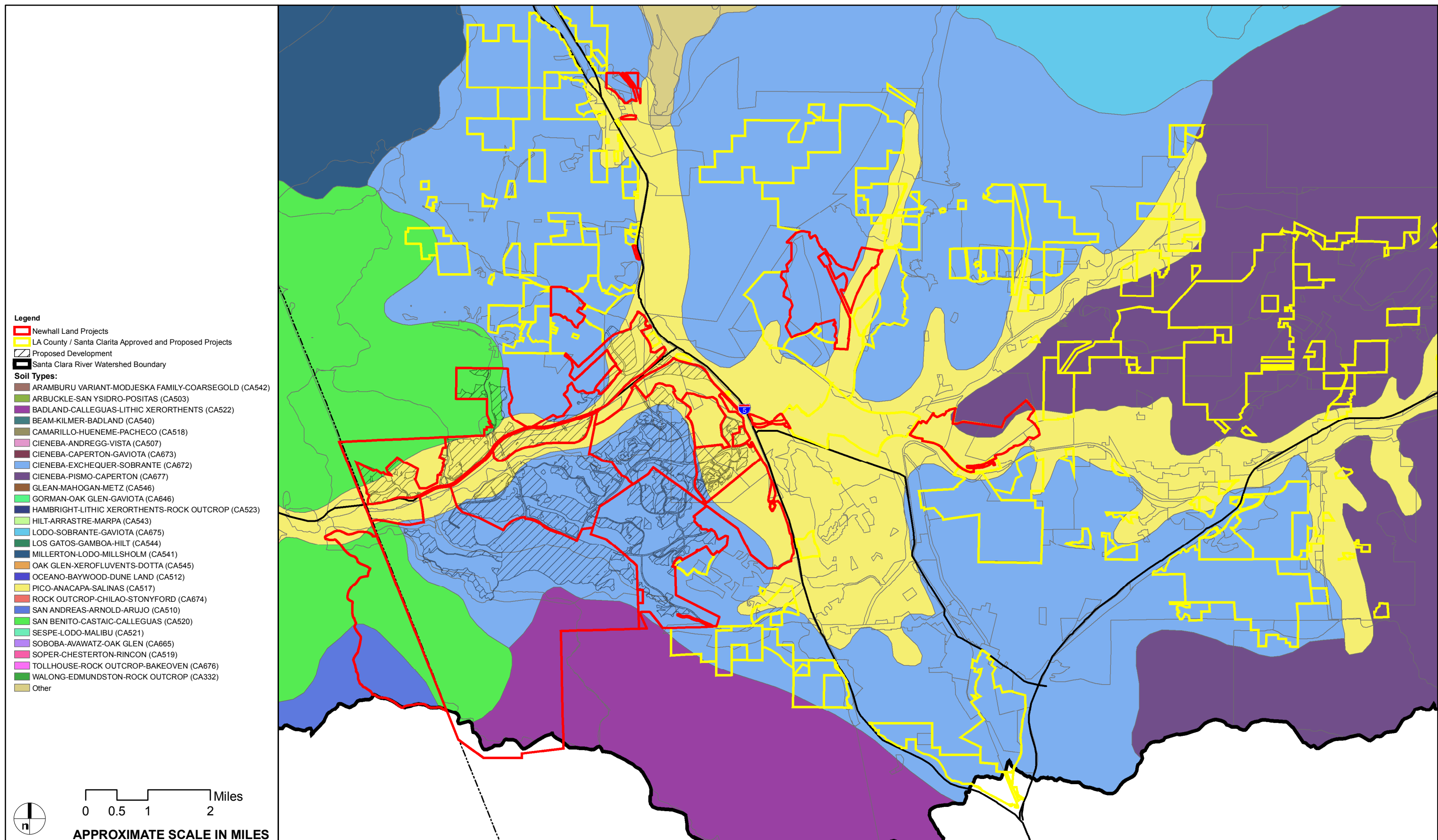
10% at elevations between 1,500 and 2,000 feet AMSL. In relation to elevations in the overall watershed, development would range from 1% of elevations between 1,500 and 2,000 feet AMSL to 9% of elevations between 1,000 and 1,500 feet AMSL.

Table 21
Planned Development on Newhall Land Property in Relation to Soils

Soil Type	Total Watershed Acres	Newhall Land Property				
		Newhall Land Acres	Acres Preserved	Acres Developed	Percent on Newhall Land Property Developed	Percent of Overall Watershed Developed
Badland-Calleguas-Lithic Xerorthents	18,993	1,707	1,625	81	4.8%	0.4%
Cieneba-Exchequer-Sobrante	132,462	8,578	1,540	7,037	82.0%	5.3%
Pico-Anacapa-Salinas	84,613	4,436	982	3,454	77.9%	4.1%
San Andreas-Arnold-Arujo	5,518	607	607	0	0.0%	0.0%
San Benito-Castaic-Calleguas	99,503	3,335	2,823	512	15.4%	0.5%
Total	341,089	18,662	7,577	11,085	59.4%	3.2%

Table 22
Planned Development on Newhall Land Property in Relation to Elevations

Elevation (feet AMSL)	Total Watershed Acres	Newhall Land Property				
		Newhall Land Acres	Acres Preserved	Acres Developed	Percent on Newhall Land Property Developed	Percent of Overall Watershed Developed
500 to 1000	52,187	2,630	1,371	1,259	47.9%	2.4%
1001 to 1500	95,436	11,244	2,580	8,663	77.1%	9.1%
1501 to 2000	108,424	3,152	1,991	1,161	36.8%	1.1%
2001 to 2500	86,661	986	986	0	0.0%	0.0%
2501 to 3000	116,903	618	618	0	0.0%	0.0%
3001 to 3500	135,348	32	32	0	0.0%	0.0%
Total	594,959	18,661	7,577	11,084	59.4%	1.9%

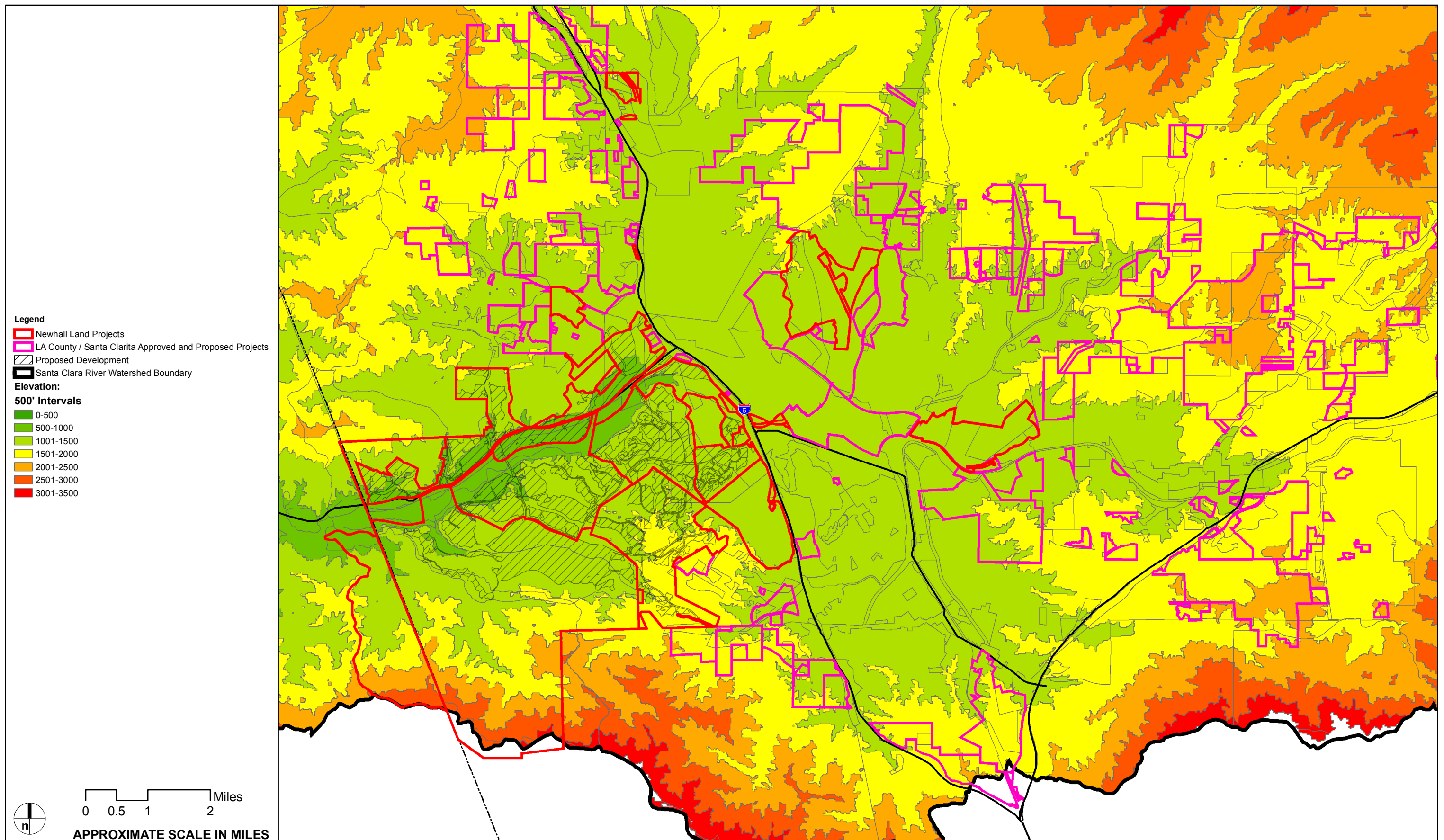


SOURCE: NRCS 2007

FIGURE 15

Newhall Land - Santa Clara River Watershed

Existing Soil Types in Relation to Newhall Land Projects



SOURCE: USGS 2007

FIGURE 16

Newhall Land - Santa Clara River Watershed

Elevations in Relation to Newhall Land Projects

Santa Clara River Watershed Study

3.4.7 Slopes

Table 23 summarizes planned development in relation to slopes, and Figure 17 shows their distribution in relation to their occurrence on Newhall Land property and within the entire SCRW. Almost all (97%) of Newhall Land project development is on slopes less than 20%. Very little development would occur on slopes between 20% and 40%, and no Newhall Land property occurs on mapped slopes greater than 40%. Watershed-wide, about 2% of slopes up to 20% would be developed by Newhall Land projects, and 0.1% of slopes greater than 20% in the watershed would be developed by Newhall Land projects.

Table 23
Planned Development on Newhall Land Property in Relation to Slopes

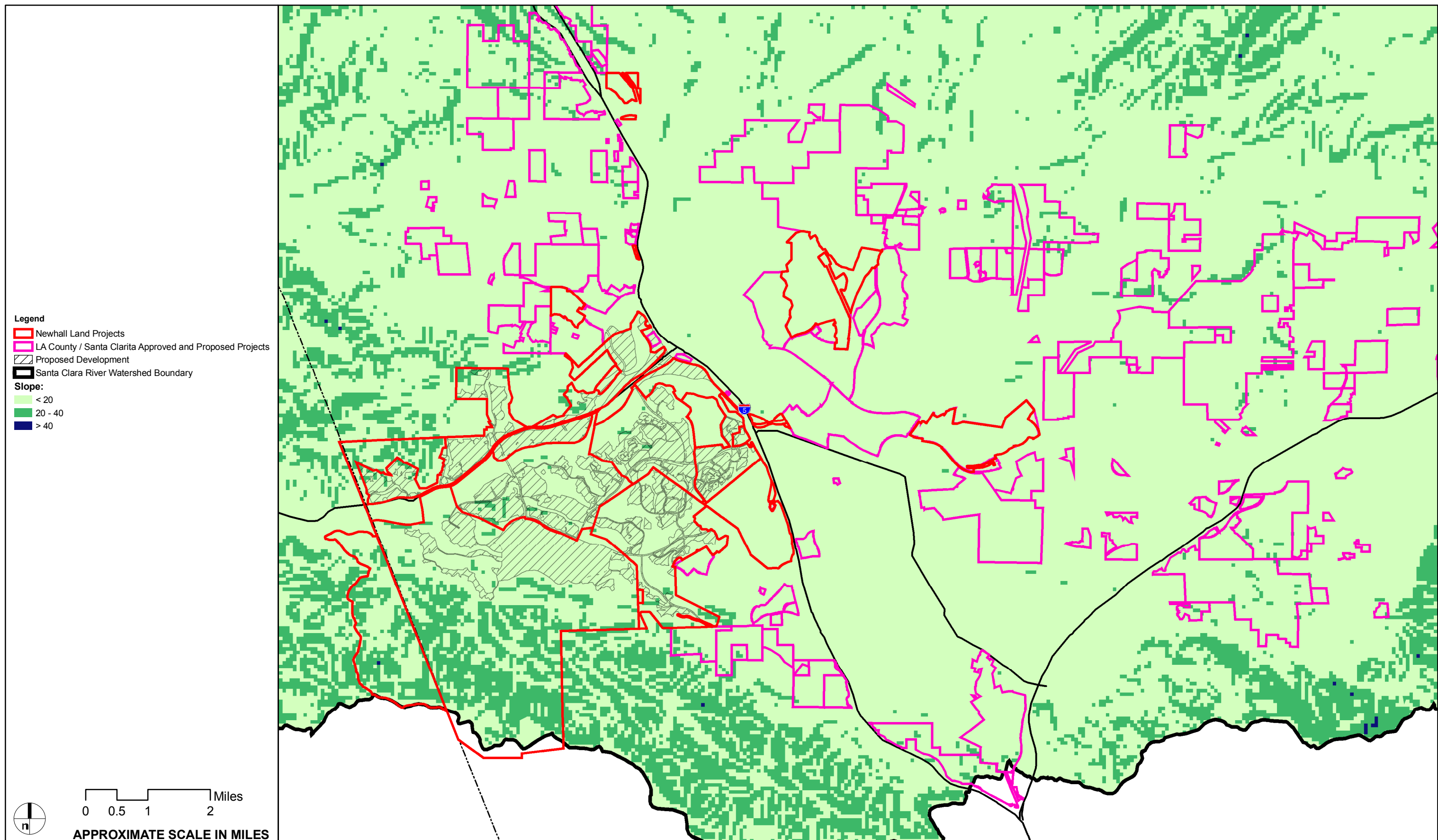
Slope	Total Watershed Acres	Newhall Land Property				
		Newhall Land Acres	Acres Preserved	Acres Developed	Percent of Newhall Land Property Developed	Percent of Overall Watershed Developed
0% to 20%	723,464	15,833	5,097	10,736	67.8%	1.5%
21% to 40%	302,688	2,822	2,475	347	12.3%	0.1%
Total	1,026,152	18,655	7,572	11,083	59.4%	1.1%

3.4.8 CNDDDB Elements

One of the vegetation types that occurs on Newhall Land property, southern cottonwood–willow riparian forest, is sensitive according to CNDDDB (2006). Current Newhall Land plans protect 487 acres of this habitat within the River Corridor SMA, or 10.5% of the total area of this habitat in the SCRW. This area also includes the one element occurrence (EO)⁶ for the endangered unarmored threespine stickleback within the River Corridor SMA (Table 24). There are seven additional EOs on Newhall Land property. Five of these are for the San Fernando Valley spineflower (SFVS), of which four are within the five spineflower preserves proposed and designed on Newhall Land property (Dudek 2007). The fifth EO for SFVS is in the Valencia Commerce Center (VCC) development area. The final CNDDDB EO on Newhall Land property is for Nevin’s barberry and occurs in the West Creek development area. This occurrence is classified by CNDDDB as potentially extirpated (2006).

⁶ An EO is an observed record for a plant, animal, or habitat type included in the CNDDDB Rarefind database.

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SOURCE: USGS 2007

FIGURE 17

Newhall Land - Santa Clara River Watershed

Slopes in Relation to Newhall Land Projects

Santa Clara River Watershed Study

Table 24
CNDDDB Element Occurrences on Newhall Land Property

Species	Baseline Designated Land Use	Newhall Land Use Area
Unarmored threespine stickleback	Planned development	River Corridor SMA
San Fernando Valley spineflower	Low-density residential	Spineflower preserve
San Fernando Valley spineflower	Open space	Spineflower preserve
San Fernando Valley spineflower	Low-density commercial	Spineflower preserve
San Fernando Valley spineflower	Low-density commercial	Spineflower preserve
San Fernando Valley spineflower	Industrial	VCC
Least Bell's vireo	Industrial	VCC
Nevin's barberry	Planned development	West Creek

3.4.9 Wildlife Corridors and Habitat Linkages

The Santa Clara River corridor is identified as an important regional habitat linkage and wildlife corridor in *Missing Linkages: Restoring Connectivity to the California Landscape* (Penrod 2000) and the SCMLP (Penrod et al. 2006).⁷

The Newhall Ranch Resources Management and Development Plan (RMDP) (Dudek 2008) addresses preservation along the Santa Clara River corridor. Within and beyond the Newhall Land boundary, the River corridor is a regionally significant riparian and wetland resource, including its function as wildlife corridor and habitat linkage, as well as “live-in” and breeding habitat for a number of federally and/or state-listed species, such as least Bell’s vireo, southwestern willow flycatcher, arroyo toad, and unarmored threespine stickleback. From its origin in the San Gabriel Mountains, the River corridor extends approximately 80 miles to the west, where it empties into the Pacific Ocean. It is an important migration corridor and, possibly, a genetic dispersion corridor for wildlife and plant species, including obligate aquatic and riparian species and larger, more mobile terrestrial species. The River corridor also comprises a portion of the County of Los Angeles Significant Ecological Area (SEA) 23. As part of the development of the Newhall Ranch Specific Plan area, a River Corridor SMA has been delineated that is sufficiently wide to accommodate flood events while retaining nearly all of the existing riparian vegetation along the River corridor. To control human activities that could adversely affect the river as a wildlife corridor and habitat linkage, the RMDP also provides for “transition” areas between the River Corridor SMA and development, restricts recreational uses of the river, and provides for long-term management of the River Corridor SMA.

⁷ The South Coast Missing Linkages Project is produced by South Coast Wildlands, a non-profit organization that brings together various agencies, scientists, and consultants to address conservation issues in the South Coast Ecoregion.

Santa Clara River Watershed Study

The SCMLP (Penrod et al. 2006) identifies 15 priority linkages in the South Coast Ecoregion (shown in Figure 2 of Penrod et al. 2006). Two of these linkages comprise the Santa Monica–Sierra Madre connection, of which the northerly connection crosses a portion of Newhall Ranch at its western boundary on the Ventura/Los Angeles County line.

For the purpose of identifying suitable linkages, the SCMLP went through four steps:

1. A “Landscape Permeability Analysis” was conducted. This is a model of relative cost for species to move between large core habitat areas based on how the species is affected by habitat characteristics such as slope, elevation, vegetation, and road density. For example, the cost of mountain lions moving through areas with a dense road network is relatively high because of the risk of vehicle collisions. Similarly, moving across steep slopes may be metabolically costly because of the extra physical effort. Because this model requires detailed species-specific natural history and behavior data, only three species met the criteria for modeling: mountain lion, mule deer, and American badger. However, because these species require very large landscape areas, and because together they use a broad range of habitats (i.e., riparian, woodlands and forest, shrublands, and grasslands), linkages that function well for these species presumably would function well for many other species; in other words, planning for these species provides an “umbrella” for other species. Exceptions would be species that have unique or narrow habitat requirements that may not be covered by linkages and corridors that work for these three species, such as fish that require purely aquatic habitats or species that are highly vulnerable to, or inhibited by, roads.

Based on the model results, the least-cost corridor (LCC) was identified as the area modeled to include the top 1% of the LCC function for each of the three species.⁸ The LCC output was combined to generate the least-cost union (LCU), which is defined by the SCMLP as “the zone within which all three modeled species would encounter the least energy expenditure (i.e., preferred travel route) and most favorable habitat as they move between targeted protected areas” (p. 12). It should be noted, however, that this output did not include other factors that could affect movement that were not in the input variables; for example, barriers, mortality risks, or dispersal limitations.

2. A patch size and configuration analysis was conducted to determine whether suitable habitat within the LCU zone is large enough to support viable populations and whether patches are close enough to allow for inter-patch dispersal. It was assumed that

⁸ The LCC function is a GIS-based analytic technique that “evaluates the ‘cost’ of moving between two designated source areas by calculating for each cell [in a grid], the cumulative weighted distance between the cell and the two sources. The LCC analysis results in a map that shows the relative linkage value across the landscape (i.e., which routes through the landscape encounter more or fewer landscape barriers) between the two source areas.” (Singleton et al. 2002, p. 6)

Santa Clara River Watershed Study

individuals could disperse twice as far as the longest documented distance (assuming that observed dispersal underestimates maximum dispersal due to sampling error).

3. A minimum linkage width of 2 kilometers (1.2 miles) was assumed—a very conservative assumption that accommodates virtually all potential edge effects and climate change.
4. Field investigations were conducted to ground-truth existing habitat conditions, existing barriers, potential passageways, and identify restoration opportunities.

Figures 18 through 21 overlay the results of the SCMLP on Newhall Land property. *Figure 18* shows that the easternmost branch of the LCU area for mule deer, mountain lion, and American badger is located along the Ventura/Los Angeles County boundary and overlaps with the Newhall Ranch High Country SMA and Salt Creek area south of SR-126. North of SR-126, the LCU is located almost entirely in Ventura County in proximity to Newhall Land property and extends into Piru Creek, Hoiser Canyon, and upper San Martinez Grande Canyon. Based on the SCMLP results, Newhall Land development will not directly impact the LCU area. South of the Santa Clara River, the closest planned development in relation to the LCU area is about 3,500 feet to the east. This distance will provide the LCU with adequate buffer from indirect development effects. North of the Santa Clara River, the distance between the development edge and the eastern boundary of the LCU is about 800 feet. However, the width of the LCU in this area is about 10,000 feet (1.9 miles), so indirect impacts in this portion of the LCU would be minor and would not significantly affect the function of the corridor in this area. The LCU is wide enough to absorb some indirect effects north of the Santa Clara River without compromising the function of the corridor.

Figure 19 shows that the LCC for the mountain lion is confined to the eastern branch of the LCU, and the highest permeability (lowest cost) area is in Ventura County west of the Newhall Ranch Specific Plan area. The portion of the LCC on the Specific Plan site is rated as less permeable.

Figure 20 illustrates that the LCC for the mule deer comprises the western and eastern branches of the LCU. The western branch has the highest permeability, and the eastern branch, which includes the High Country SMA and Salt Creek area, has lower permeability.

Figure 21 shows that the American badger's main linkage branch is located generally to the west and does not overlap with Newhall Land property.

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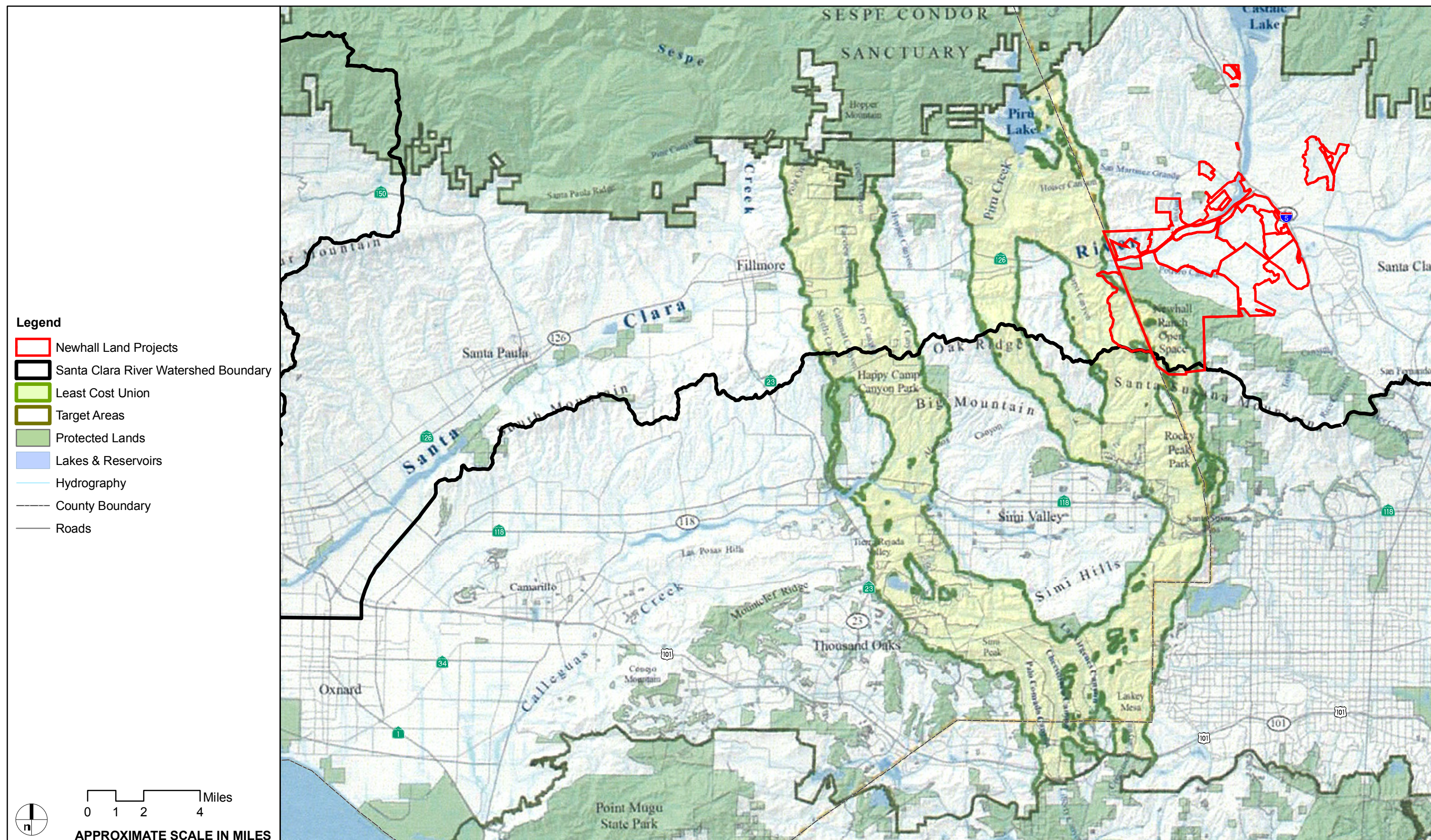
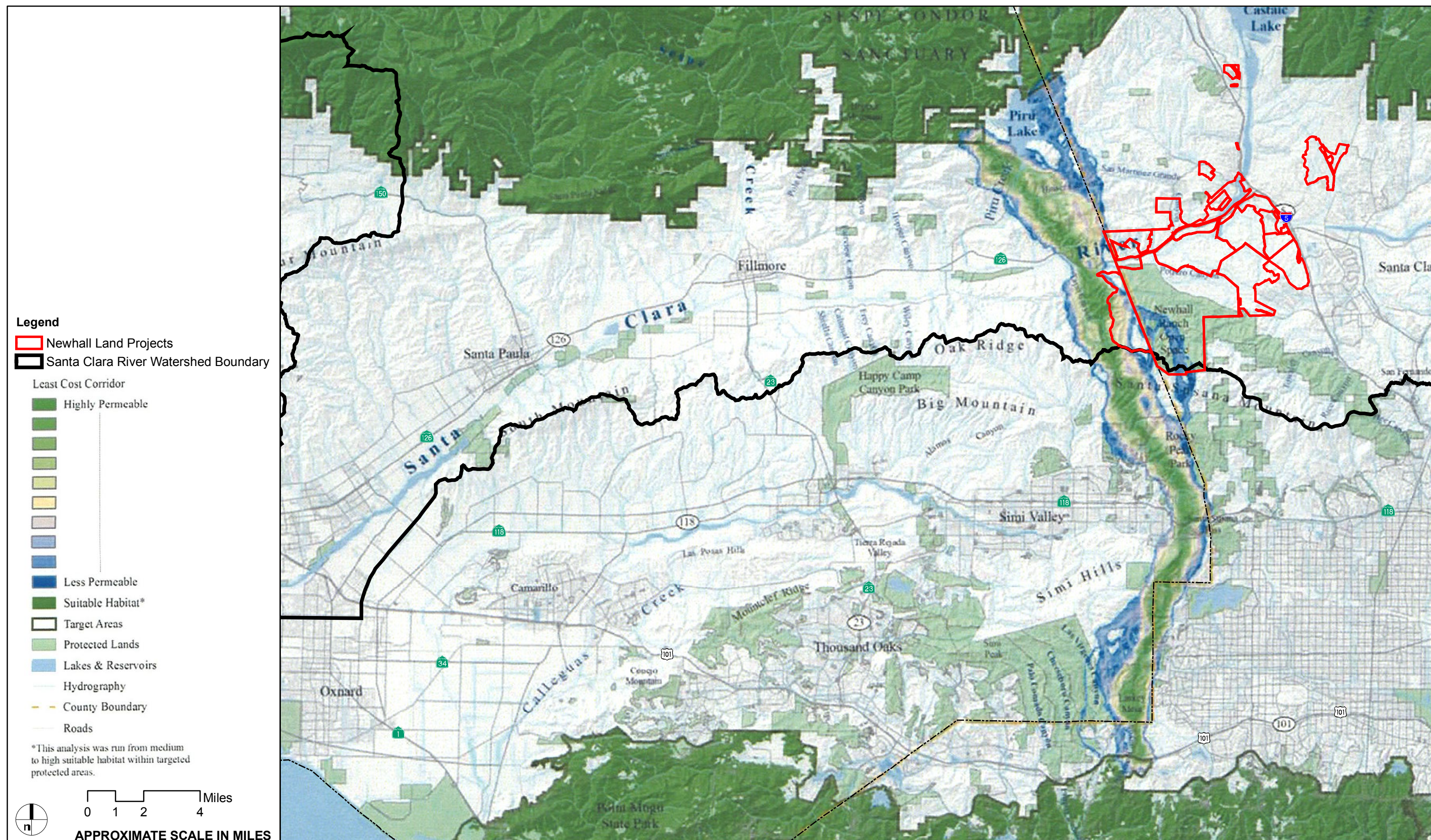


FIGURE 18

Newhall Land - Santa Clara River Watershed

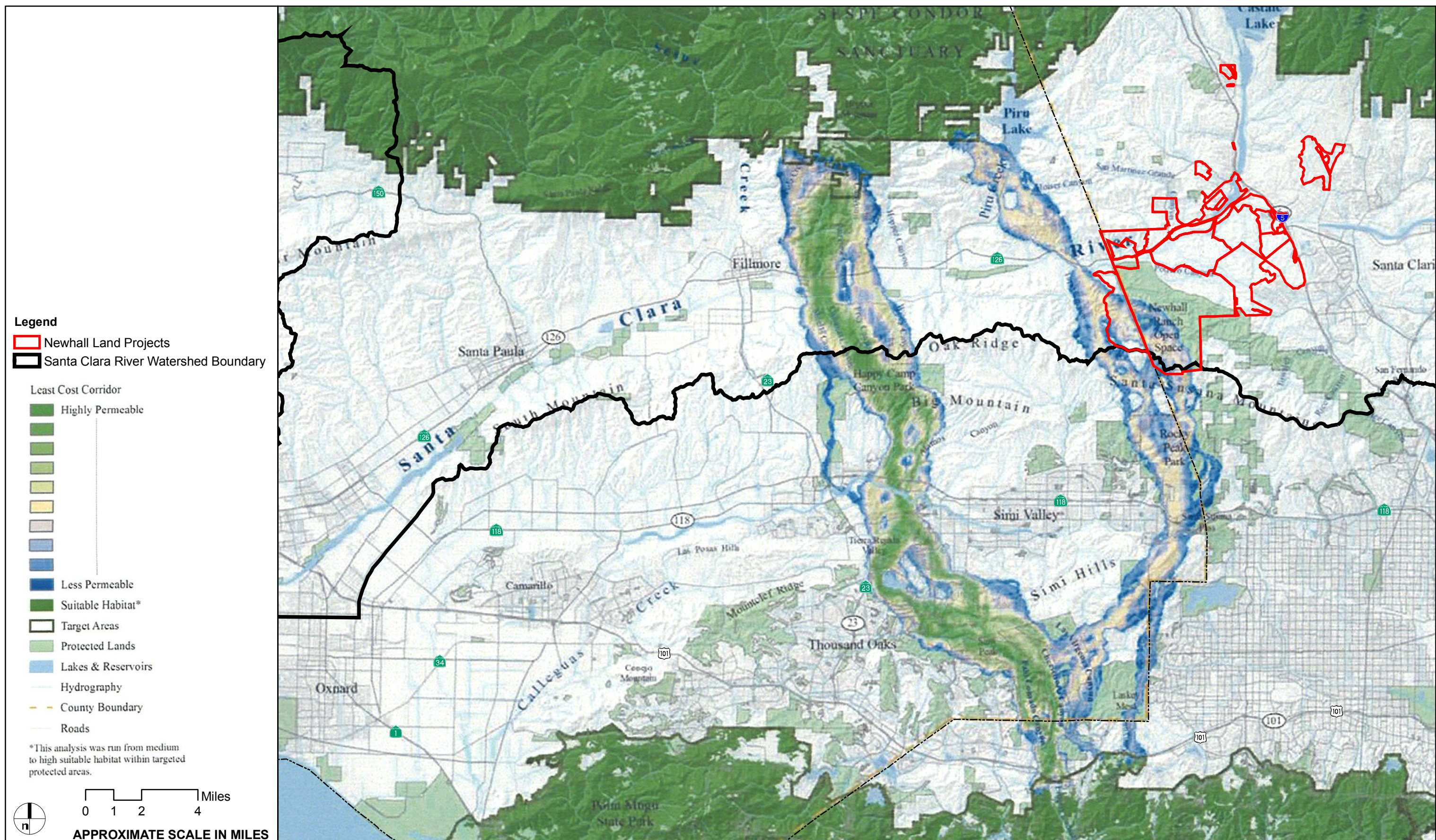
Least-Cost Union for Mountain Lion, Mule Deer, and American Badger



SOURCE: Penrod et al. 2006.

FIGURE 19

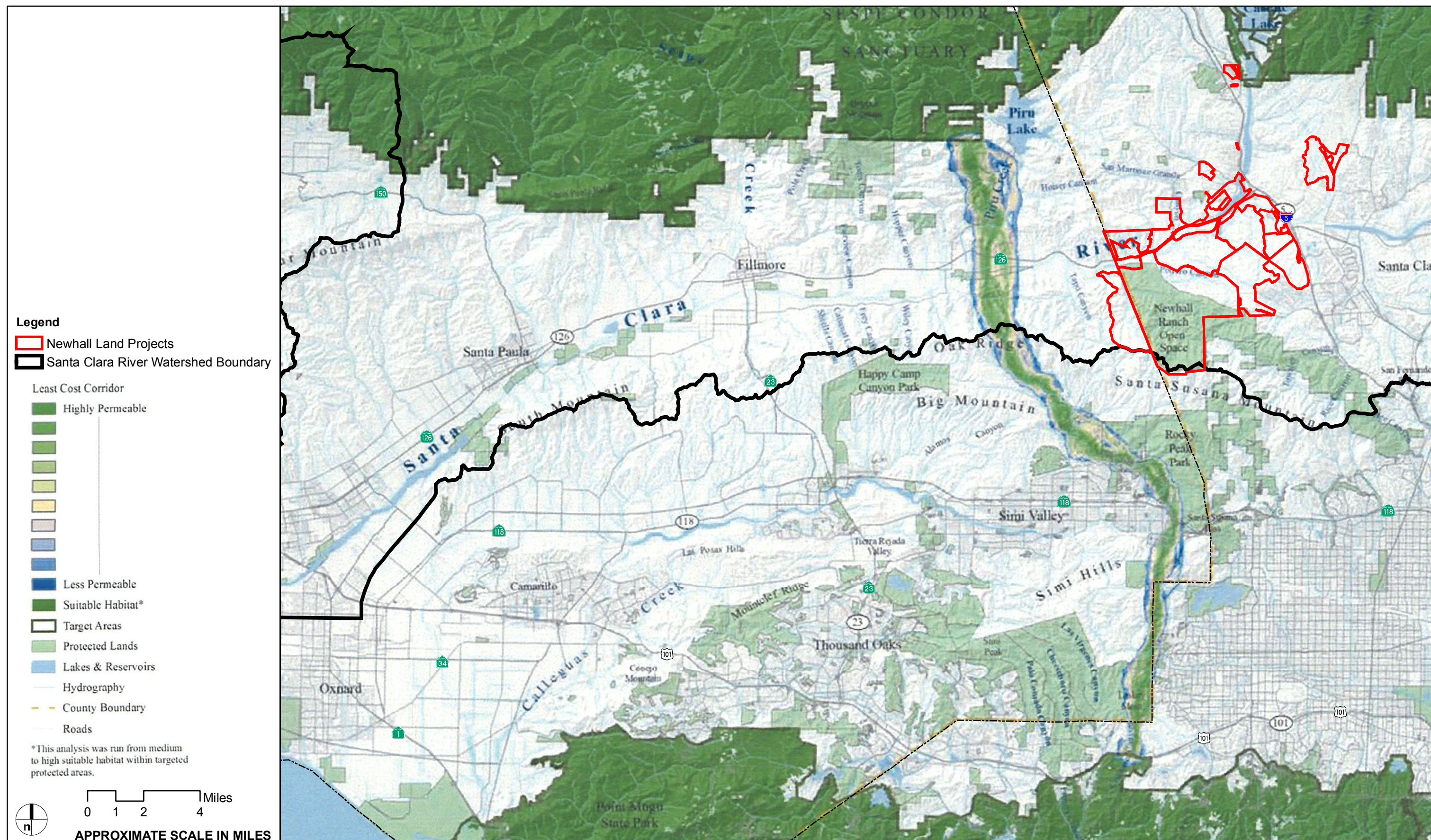
Newhall Land - Santa Clara River Watershed
Least-Cost Corridor for Mountain Lion



SOURCE: Penrod et al. 2006.

FIGURE 20

Newhall Land - Santa Clara River Watershed
Least-Cost Corridor for Mule Deer



SOURCE: Penrod et al. 2006.

FIGURE 21

Newhall Land - Santa Clara River Watershed

Least-Cost Corridor for American Badger

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4.0 DISCUSSION

This section discusses the proposed development on Newhall Land property in the context of data presented in *Section 3.0* for existing baseline conditions in the SCRW, current land use classifications, approved and planned projects in the City of Santa Clarita and Los Angeles County, and CDFG and Corps permits that were issued between 1988 and 2006. Several general observations can be drawn from the baseline data and other data analyzed in *Section 3.0*:

- The SCRW is, for the most part, undeveloped.
- The SCRW has substantial existing public lands and open spaces that will be protected in perpetuity.
- Under current land use classifications, the large majority of the SCRW would remain undeveloped, but land use classifications in Los Angeles County could allow for more development than provided for by approved and planned projects. Although land use classifications do not equate to the amount of impervious surface created, current land use classifications represent a “worst-case” development scenario.
- Under current land use classifications, important biological and physical features of the overall watershed would be retained. The major vegetation communities (coastal scrubs, chaparral, non-native grassland, woodlands and forest, and riparian/wetlands) are still relatively common in the watershed and would remain relatively common due to the substantial set-aside of existing public lands and open space in and adjacent to the SCRW.
- There has been a cumulative net increase in jurisdictional waters/wetlands resulting from mitigation under CDFG and Corps permits issued between 1988 and 2006.
- Planned and approved projects in the City of Santa Clarita and Los Angeles County would increase the amount of development in the watershed by about 4%.
- Newhall Land property constitutes a very small proportion of the overall watershed and is limited to a small area in the southern portion of the watershed.
- Planned development on Newhall Land property would contribute a very small percentage of future development in the watershed and would be substantially less than the amount of development allowed under the current land use classifications.
- Planned development on Newhall Land property is downstream from and adjacent to existing, planned, and approved urban land uses in the City of Santa Clarita and the Valencia community.

Santa Clara River Watershed Study

- Regional wildlife corridors and habitat linkages will be preserved in the SCRW.

These issues are discussed further below.

The Santa Clara River Watershed is Relatively Undeveloped and Has Substantial Existing and Designated Open Space.

Based on the California GAP data, as of 1999 (U.C.S.B. Biogeography Lab), approximately 51,700 acres of the SCRW has been converted to agricultural uses and 47,300 acres to industrial, commercial and urban uses, together comprising about 10% of the total watershed (*Table 2*).

Based on current public lands and currently classified open space, approximately 733,526 acres (71%) of the SCRW are existing or classified open space (*Table 1* and *Figure 3*), including 635,172 acres of existing public lands (see *Table 8*). Relatively large sub-basins with very substantial existing and/or classified open space include Eastern, Hungry Valley, Topa Topa, and Upper Piru (*Figure 3*). With the exception of Eastern, the vast majority of these sub-basins are open space: 93% of Hungry Valley, 97% of Topa Topa, and 98% of Upper Piru. Although only 55% of Eastern is open space, because of its large size, 160,099 acres are in open space, second only to Upper Piru which has 165,152 acres in open space. Smaller sub-basins with high percentages of open space include Bouquet, Mint Canyon, Sisar, and Stauffer.

Figure 4 shows that the vast majority of land conversion (mostly agriculture) has occurred in the southern portion of the watershed along the Santa Clara River, with urban development in the cities of Ventura, Santa Paula, and Santa Clarita and the communities of Valencia and Acton. An additional 39,000 acres are planned or approved in the City of Santa Clarita and Los Angeles County (*Table 10*), of which about 1,420 acres are mapped urban or built-up land (*Table 12*), which would increase the converted land in the watershed to approximately 136,600 net acres, or about 13% of the SCRW, or otherwise increasing the amount of converted lands in the watershed by about 3%. In Ventura County, the SOAR initiatives are expected to limit the amount of urban development of existing agriculture in areas classified for development.

Biological and Physical Features of the Santa Clara River Watershed Related to Watershed Function Would be Retained Under Current Land Use Classifications.

Tables 2 through *6* and *Subsection 3.1* summarize the relationship between current land use classifications and vegetation communities and land types, geologic types, soil types, elevations, and slopes, respectively. A general assumption is that ecological functions and values are complexly related to these biological and physical features (e.g., geology, hydrology, chemistry) and that preserving a substantial representation of the diversity of each is important for a healthy watershed even if there is a relatively poor understanding of the dynamics of these complex relationships. For example, it is important to have representation of resources at all elevation

Santa Clara River Watershed Study

ranges in the watershed. Analyzing impacts under the current land use classifications provides a “worst-case” assessment, and, in terms of overall impacts, development acreages likely will be substantially reduced at the project level. Additionally, current land use classification acreages are not equivalent to the amount of impervious surface that would result from development.

Although some vegetation communities proportionally would be more heavily impacted than others, the majority of most of the vegetation types in the watershed would be preserved (*Table 2*). An important exception is southern alluvial fan scrub, for which more than 90% of the mapped community is in classified development. However, under the CDFG (2003) vegetation mapping system, this community (which likely translates to Riversidean alluvial fan sage scrub in the CDFG mapping system used in *Table 2* and cited in *Subsection 3.1.2*) is a special-status vegetation community and will require minimization and mitigation for impacts. It is highly unlikely that 90% of this community would be permanently lost. Venturan coastal sage scrub is another community that would be substantially impacted out of proportion with other vegetation communities in the watershed; 49% of this community would be impacted under current classifications. Part of the difficulty with this community is that it tends to occur on the lower elevation and more gentle slopes where more development is planned. However, coastal sage scrub provides habitat for a number of special-status wildlife and plant species, and minimization and mitigation likely will be required. About 42% of non-native grassland, which also tends to occur on level, developable lands, would be impacted under current classifications. Chaparrals, which tend to occur in more rugged, higher-elevation terrain, would have relatively few impacts overall at 15% of the general community (*Table 2*). Impacts to the different types of chaparral range from no impacts to mesic north-slope chaparral to impacts to 22% of interior live oak chaparral. Riparian and wetland impacts would occur to about 27% of the mapped area but, as resources regulated by CDFG and Corps and under the “no net loss” policy, this level of impact is anticipated to be mitigated (also see discussion below regarding cumulative impacts to jurisdictional waters and wetland resources). Similar to chaparrals, woodlands and forests would have relatively few impacts, at 16% overall and ranging from no impacts to several types to 38% impacts to California walnut woodland. However, California walnut woodland is also a special-status vegetation community under the CDFG (2003) mapping system and will require avoidance, minimization, and mitigation.

With regard to physical features—geologic types, soils, elevations, and slopes—development under current classifications would disproportionately impact resources that tend to occur in more developable areas in the watershed—that is, relatively level terrains at lower elevations. As such, four geologic types—alluvium associated with the lower river valley, Miocene nonmarine, Pliocene marine, and tertiary volcanic flow rocks—would be impacted at levels ranging from 53% to 81% of their distribution in the watershed under current classifications (*Table 4*).

Santa Clara River Watershed Study

Similarly, several soils would be disproportionately impacted under current classifications: Pico-Anacapa-Salinas, which is associated with the lower river valley; Badland-Calleguas-Lithic Xerothents, which is associated with areas classified for very low-density residential; Soboba-Avawatz-Oak Glen, which is the dominant soil type in the southeastern portion of the watershed and is associated with areas classified for low- and very low-density residential; Oak Glen-Xerofluents-Dotta, which is located in the northwestern portion of the watershed in an area classified for medium-density residential; Soper-Chesterton-Rincon; and Walong-Edmundston-Rock Outcrop (*Table 5*).

Classified development at different elevations follows a very simple pattern: the heaviest development is classified for areas at the lowest elevations, and the least development is classified for areas at higher elevations (*Table 6*). The breakpoint occurs at around 2,000 feet AMSL, where 50% of lands between 1,500 and 2,000 feet AMSL would be developed and 29% of lands between 2,000 and 2,500 feet AMSL would be developed. About 59% of all lands under 2,000 feet AMSL would be developed, while 17% of lands over 2,000 feet AMSL would be developed. Strictly from a hydrologic and geomorphic perspective, siting development at lower elevations in the watershed and protecting headwaters is preferred because natural drainage and sediment transport patterns are more likely to be retained when the headwaters and upper portions of the watershed are protected. Issues in the lower portions of the watershed are more related to maintaining riparian ecosystem integrity, including riparian corridors and their buffers, floodplain connections, and habitats of riparian/wetland species.

Development of slopes follows a similar pattern as elevation, and again is related to location and developability. The gentlest slopes occur in association with the river valley, and this is where most past and planned development occurs. The large majority of development occurs on slopes less than 20%, accounting for 87% of the potential development (*Table 7*). About 36% of lands with slopes less than 20% would be developed, while 16% of lands with slopes greater than 20% would be developed.

Cumulative Net Increase in Jurisdictional Waters/Wetlands.

As discussed in detail in *Subsection 3.2* and shown in *Figures 10* and *11*, there has been a cumulative net increase in jurisdictional water/wetlands as a result of mitigation for activities permitted by the CDFG and Corps between 1988 and 2006 in Los Angeles and Ventura counties: on the order of 275 acres for Corps and 280 acres for CDFG. Although these acreages assume 100% success of the mitigation and it is likely that some of the mitigated acreage has not been successful for various reasons (e.g., poor design, inappropriate soils or hydrology, poor maintenance), it can reasonably be assumed that there has not been a net cumulative loss of the waters and wetlands from agency-permitted activities in the watershed since 1988. As new projects are approved and constructed, with a better understanding and improvement of

Santa Clara River Watershed Study

technologies of waters and wetlands protection and restoration, it is further likely that wetland and riparian functions and values in the watershed will be enhanced in the future. For example, Section 7.1.2 of the Newhall Ranch RMDP (Dudek 2008) describes mitigation requirements that will include creation, restoration, and enhancement of vegetation communities in the River Corridor SMA. These mitigation requirements include reclamation and restoration of habitats removed in the past for agricultural, oil, and natural gas operations; enhancement of existing native habitats that have been moderately disturbed by such past activities; and monitoring and management of these resources.

Planned and Approved Projects.

The analysis of planned and approved projects presented in *Subsection 3.3* was limited to the City of Santa Clarita and Los Angeles County because this information was not available for Ventura County. The analysis of planned and approved projects showed that to date about 39,030 acres (13%) of 303,045 acres of classified development have a planned or approved project (*Table 10*). With regard to different land use classifications, the highest percentages (23% to 32%) of planned and approved projects are for areas classified as commercial and industrial, while classified residential areas have lower percentages of planned and approved projects (4% to 11%). Residential planned development has the highest overall percentage of planned and approved projects at about 45%. Overall, planned and approved projects comprise a relatively small percentage (9%) of the Los Angeles County portion of the watershed (4% of the entire watershed) and tend to be located at the lower elevations (1,000 to 2,000 feet AMSL) and on the more gentle slopes in the watershed. A total of 101 acres above 4,000 feet AMSL would be developed, and no development would occur above 4,500 feet AMSL. The vast majority (93%) of planned and approved projects occur on slopes less than 20%, and 99% are on slopes less than 30%.

Newhall Land Property Comprises a Very Small Proportion of the Santa Clara River Watershed.

Newhall Land property comprises a very small proportion (<2%) of the SCRW (*Table 17*). Planned development on Newhall Land property would impact 1% of the total watershed. Further, Newhall Land developments are confined to an already substantially urbanized area of one sub-basin—the Eastern sub-basin—which has the most existing land conversion in the watershed (*Table 3* and *Figure 4*). Newhall Land developments are downstream of, and contiguous with, urban development in the City of Santa Clarita and in the Valencia community. If additional development is to occur in the SCRW, the location of Newhall Land property is where development should be planned in order to avoid and minimize future impacts on watershed function. The Newhall Land projects would not impact the headwaters of the Eastern and Santa Felicia sub-basins.

Santa Clara River Watershed Study

Proposed Development on Newhall Land Property is Substantially Less than Would Occur under Current Land Use Classifications.

Current land use classifications would allow up to 15,029 acres (85%) of development on Newhall Land property (*Table 17*). Planned development would affect 11,087 acres (59%), a reduction of 3,942 acres, or 26% less development than what would be allowed under current classifications. This reduction is mostly accounted for by the preservation of lands in the High County SMA (SEA 20) that are classified for very low-density residential (see *Figure 12*). About 6,159 acres are classified for very low-density residential development, but only 1,875 acres are actually planned for development in these areas—a net reduction of 4,284 acres in this classification.

Potential Impacts of Development on Newhall Land Property Primarily Relate to Mainstem Downstream Effects in the Santa Clara River and Not the Overall Watershed.

Planned development on Newhall Land property would not affect the large majority of the watershed. Sub-basins completely unaffected by Newhall Land development include Acton, Bouquet, Mint Canyon, Sierra Pelona, Hungry Valley, Upper Piru, Stauffer, Topa Topa, and Sisar. These sub-basins combined total 531,783 acres (51%) in the watershed, of which 460,600 acres (87%) are in existing and classified open space. Open space percentages in these sub-basins range from 32% for the Sierra Pelona sub-basin (3,053 acres of 9,677 acres total) to 97% for the Topa Topa sub-basin (156,212 acres of 160,416 acres total). Adding the remaining sub-basins that may be directly or indirectly affected by Newhall Land development, a total of 733,526 acres are in existing or planned open space, or 71% of the total (*Table 1*). However, this is conservative because it is based on current land use classifications. For example, in the Eastern sub-basin, classifications would allow for 131,631 acres (54%) of development. As shown in *Table 11*, however, the total acreage for planned and approved projects in the Eastern sub-basin is 37,747 acres, which comprises 13% of the sub-basin. Ultimately, build-out in the Eastern sub-basin, including Newhall Land projects, will be substantially less than would occur under current land use classifications, and the overall percentage of the watershed in open space will be higher than 71%.

Newhall Land property occurs at lower elevations along the southern edge of the watershed area adjacent to the Santa Clara River (*Figure 16*), and development is planned for areas contiguous with existing urban development at these lower elevations (*Figure 13*). Potential watershed impacts thus primarily concern various downstream biological and abiotic effects to the river and sub-basins. Sub-basins downstream of Newhall Land property include Santa Felicia, Fillmore, Sulfur Springs, and the undefined sub-basin (which includes the City of Ventura), all of which drain directly into the Santa Clara River (see *Figure 2*). These downstream sub-basins total about 213,058 acres and comprise about 21% of the total area of the SCRW. However, because these

Santa Clara River Watershed Study

sub-basins include the Santa Clara River valley and occur on gentler slopes in the watershed, they also support the most converted lands (agriculture and urban development) in the watershed. According to the California GAP data (U.C.S.B. Biogeography Lab 1999), approximately 53,034 acres (25%) of these sub-basins have been converted to agricultural (34,917 acres; 19%) and urban uses (13,617 acres; 6%).

The main concern for development of Newhall Land projects regarding watershed function is maintaining riparian ecosystem integrity along the Santa Clara River, as discussed above, and maintaining habitat for the numerous special-status aquatic and riparian species that occur in the mainstem Santa Clara River. In the case of Newhall Land projects, the geographic area addressed in evaluating impacts comprises the watershed areas tributary to the reaches of the Santa Clara River. The cumulative impact analyses herein take into account potential impacts both to drainages tributary to the river and to the river itself. It also is based upon a review of the incremental contribution of the Newhall Land projects to hydrologic impacts to the Santa Clara River, when taken together with the impacts of other projects. Such impacts are not considered significant.

Regional Wildlife Corridors and Habitat Linkages Will Be Preserved.

Subsection 3.4.9 discusses the relationship between Newhall Land property and regional wildlife corridors and habitat linkages. The two main corridors and linkages—the east–west Santa Clara River corridor and the north–south Santa Monica–Sierra Madre connection—would both be preserved in the context of their relationship to Newhall Land property. The Santa Clara River corridor will be preserved, including upland transition zones between the river and development, and will be managed to preserve its function as a regionally significant wildlife corridor and habitat linkage. The north–south linkages that were identified by the SCMLP (Penrod et al. 2006) for mountain lion, mule deer, and American badger are generally west of Newhall Land property and will not be affected by Newhall Land development.

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APPENDIX A

Detailed Watershed Breakdown Tables

APPENDIX A

Table A-1
Santa Clara River Watershed, Sub-Basins and Current Land Use Zoning

Sub-Basin	Acres in Sub-Basin	Percent of Sub-Basin	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Zoned Open Space	Urban Reserve	Total Open Space/ Reserve
Acton	88,787	8.6%	3	0	0	23,450	12,030	548	0	1,220	0	37,251	51,536	0	51,536
Bouquet	8,699	0.8%	0	0	0	1,290	0	0	0	0	0	1,290	7,409	0	7,409
Eastern	291,730	28.1%	2,868	3,580	7,366	68,286	16,712	24,531	903	7,385	0	131,631	160,099	0	160,099
Fillmore	49,154	4.7%	171	0	550	15,776	8,635	1,301	207	0	0	26,641	22,470	43	22,513
Hungry Valley	39,300	3.8%	0	0	0	0	420	0	0	2,205	0	2,625	36,675	0	36,675
Mint Canyon	10,836	1.0%	0	0	0	1,805	1,539	0	0	193	0	3,537	7,299	0	7,299
Santa Felicia	78,066	7.5%	26	0	44	23,829	5,917	169	8	1	0	29,995	48,072	0	48,072
Sierra Pelona	9,677	0.9%	92	0	0	2,205	3,273	0	0	1,053	0	6,624	3,053	0	3,053
Sisar	7,433	0.7%	0	0	0	0	1,183	129	0	0	0	1,313	6,120	0	6,120
Stauffer	37,470	3.6%	0	0	0	0	10,327	0	0	0	0	10,327	27,143	0	27,143
Sulfer Springs	66,033	6.4%	418	0	576	15,729	13,477	829	546	0	61	31,635	33,861	537	34,398
Topa Topa	160,416	15.5%	0	0	0	0	4,204	0	0	0	0	4,204	156,212	0	156,212
Undefined	19,805	1.9%	758	331	381	4,583	2,628	2,423	513	0	344	11,960	4,329	3,516	7,845
Upper Piru	169,166	16.3%	0	0	0	534	3,480	0	0	0	0	4,014	165,152	0	165,152
Grand Total	1,036,571	100.0%	4,335	3,911	8,917	157,488	83,826	29,930	2,177	12,057	405	303,045	729,430	4,096	733,526

APPENDIX A

Table A-2
Vegetation Communities and Land Cover Types in the Santa Clara River Watershed

Vegetation Type	Total Acres	Percent Total	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Zoned Open Space	Urban Reserve	Total Open Space/Reserve
Agricultural Land	28,791	2.8%	106	0	151	6,136	15,533	495	354	0	169	22,944	4,965	882	5,847
Bare Exposed Rock	702	0.1%	0	0	0	0	0	0	0	0	0	0	702	0	702
Big Sagebrush Scrub	4,996	0.5%	0	0	0	90	2,029	0	0	0	0	2,120	2,877	0	2,877
Bigcone Spruce-Canyon Oak Forest	15,974	1.5%	0	0	0	0	310	0	0	0	0	310	15,664	0	15,664
Black Oak Forest	925	0.1%	0	0	0	0	0	0	0	0	0	0	925	0	925
Buck Brush Chaparral	88,367	8.5%	0	0	0	6,081	1,558	87	0	3	0	7,729	80,638	0	80,638
California Walnut Woodland	3,624	0.3%	0	0	0	471	878	24	0	0	0	1,373	2,251	0	2,251
Canyon Live Oak Forest	1,951	0.2%	0	0	0	0	0	0	0	0	0	0	1,951	0	1,951
<i>Ceanothus crassifolius</i> Chaparral	76,116	7.3%	203	747	62	8,270	664	2,383	99	1,234	0	13,663	62,453	0	62,453
Chamise Chaparral	131,091	12.6%	43	158	4,136	14,823	4,528	2,116	27	707	0	26,536	104,555	0	104,555
Coastal Sage-Chaparral Scrub	2,452	0.2%	0	0	0	158	0	32	0	17	0	207	2,245	0	2,245
Evergreen Orchard	6,236	0.6%	0	0	0	5,046	676	0	0	0	0	5,722	515	0	515
Interior Live Oak Chaparral	73,273	7.1%	12	0	0	14,540	535	1,014	0	59	0	16,161	57,113	0	57,113
Interior Live Oak Forest	1,783	0.2%	0	0	0	0	0	0	0	0	0	0	1,783	0	1,783
Jeffrey Pine Forest	10,169	1.0%	0	0	0	0	0	0	0	0	0	0	10,169	0	10,169
Jeffrey Pine-Fir Forest	5,258	0.5%	0	0	0	0	22	0	0	0	0	22	5,236	0	5,236
Mesic North Slope Chaparral	1,778	0.2%	0	0	0	0	0	0	0	0	0	0	1,778	0	1,778
Mixed Montane Chaparral	2,676	0.3%	0	0	0	0	20	0	0	0	0	20	2,656	0	2,656
Mojavean Pinyon and Juniper Woodlands	98,151	9.5%	0	0	0	8,878	10,831	234	0	1,904	0	21,848	76,303	0	76,303
Montane Ceanothus Chaparral	3,582	0.3%	0	0	0	203	96	0	0	0	0	299	3,283	0	3,283
Mule Fat Scrub	2,587	0.2%	1	0	141	658	343	2	0	0	0	1,145	1,404	39	1,443
Non-Native Grassland	22,240	2.1%	0	0	0	5,813	2,872	387	0	382	0	9,454	12,786	0	12,786
Northern Mixed Chaparral	70,033	6.8%	0	0	0	11,757	2,372	8	0	31	0	14,167	55,865	0	55,865
Orchard or Vineyard	16,676	1.6%	27	0	204	7,706	7,099	486	16	0	0	15,537	1,128	11	1,139

APPENDIX A

Table A-2
Vegetation Communities and Land Cover Types in the Santa Clara River Watershed

Vegetation Type	Total Acres	Percent Total	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Zoned Open Space	Urban Reserve	Total Open Space/ Reserve
Permanently-Flooded Lacustrine Habitat	5,014	0.5%	0	0	0	359	37	0	0	0	0	396	4,618	0	4,618
Riversidian Sage Scrub	29,418	2.8%	91	0	0	7,172	4,634	144	0	1,493	0	13,534	15,884	0	15,884
Sandy Area other than Beaches	8,191	0.8%	248	176	99	848	1,759	863	40	383	6	4,421	3,745	25	3,769
Scrub Oak Chaparral	67,134	6.5%	3	0	0	2,219	401	18	0	410	0	3,050	64,083	0	64,083
Semi-Desert Chaparral	6,695	0.6%	0	0	0	1	142	33	0	0	0	176	6,519	0	6,519
Sierran Mixed Coniferous Forest	5,251	0.5%	0	0	0	0	0	0	0	0	0	0	5,251	0	5,251
Southern Alluvial Fan Scrub	5,062	0.5%	0	0	14	2,038	2,513	0	0	0	0	4,564	498	0	498
Southern Coast Live Oak Riparian Forest	1,392	0.1%	0	0	0	0	0	0	0	0	0	0	1,392	0	1,392
Southern Cottonwood-Willow Riparian Forest	4,641	0.4%	81	45	112	608	429	1	0	827	0	2,103	2,539	0	2,539
Southern Sycamore-Alder Riparian Woodland	111	0.0%	0	0	0	0	0	0	0	0	0	0	111	0	111
Southern Willow Scrub	539	0.1%	0	0	0	78	81	0	0	0	0	159	380	0	380
Strip Mines, Quarries and Gravel Pits	1,056	0.1%	0	0	0	0	0	0	0	169	0	169	887	0	887
Upper Sonoran Manzanita Chaparral	30,291	2.9%	0	0	0	3,235	57	0	0	0	0	3,291	26,999	0	26,999
Urban or Built-Up Land	47,286	4.6%	2,431	1,744	1,315	7,343	7,634	15,441	1,497	410	229	38,045	6,146	3,095	9,241
Venturan Coastal Sage Scrub	144,932	14.0%	1,088	1,041	2,684	42,957	15,365	6,163	143	4,028	0	73,469	71,420	44	71,463
Westside Ponderosa Pine Forest	10,124	1.0%	0	0	0	0	409	0	0	0	0	409	9,715	0	9,715
Grand Total	1,036,567		4,335	3,911	8,917	157,487	83,826	29,930	2,177	12,057	405	303,044	729,427	4,096	733,523

APPENDIX A

Table A-3
Geologic Types in the Santa Clara River Watershed in Relation to Current Land Use Zoning

Geologic Type	Total Acres	Percent Total	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Open Space	Urban Reserve	Total Open Space/Reserve
Alluvium (Quaternary nonmarine & marine)	84,305	8.1%	3,013	1,807	3,115	18,768	22,683	9,041	1,804	2,900	405	63,535	17,023	3,747	20,771
Eocene marine	155,991	15.0%	0	0	0	116	3,898	0	0	0	0	4,014	151,978	0	151,978
Granitic and metamorphic rocks, pre-Cenozoic	3,666	0.4%	0	0	0	574	2,007	0	0	0	0	2,581	1,085	0	1,085
Mesozoic granitic rocks	98,814	9.5%	0	0	0	13,800	6,750	177	0	1,854	0	22,581	76,233	0	76,233
Miocene marine	123,761	11.9%	7	0	1,355	26,555	6,665	945	2	465	0	35,993	87,768	0	87,768
Miocene nonmarine	32,575	3.1%	479	290	59	11,522	4,124	6,821	96	542	0	23,934	8,641	0	8,641
Oligocene marine	3,508	0.3%	0	0	0	524	0	0	0	0	0	524	2,984	0	2,984
Oligocene nonmarine	57,235	5.5%	0	0	0	4,204	3,036	0	0	71	0	7,311	49,924	0	49,924
Paleocene marine	22,989	2.2%	0	0	0	676	0	0	0	0	0	676	22,313	0	22,313
Paleozoic and Permo-Triassic granitic rocks	16,422	1.6%	0	0	0	2,236	66	0	0	0	0	2,302	14,120	0	14,120
Pliocene marine	73,392	7.1%	62	152	0	30,417	5,721	2,657	106	60	0	39,175	34,199	18	34,217
Plio-Pleistocene nonmarine, Pliocene nonmarine	135,755	13.1%	679	1,662	4,388	11,522	15,131	9,945	169	3,448	0	46,944	88,480	331	88,811
Precambrian granitic rocks	38,984	3.8%	0	0	0	6,724	1,743	121	0	653	0	9,241	29,743	0	29,743
Precambrian rocks, undivided	117,724	11.4%	0	0	0	16,004	4,063	14	0	0	0	20,080	97,644	0	97,644
Schist (metasedimentary or metavolcanic)	38,909	3.8%	95	0	0	8,599	720	90	0	1,768	0	11,272	27,637	0	27,637
Tertiary nonmarine, undivided	12,487	1.2%	0	0	0	513	2,203	0	0	0	0	2,716	9,771	0	9,771
Tertiary volcanic flow rocks	12,286	1.2%	0	0	0	4,702	4,802	120	0	297	0	9,921	2,365	0	2,365
Upper Cretaceous marine	5,705	0.6%	0	0	0	0	43	0	0	0	0	43	5,662	0	5,662
Water	2,057	0.2%	0	0	0	30	170	0	0	0	0	200	1,857	0	1,857
Grand Total	1,036,567		4,335	3,911	8,917	157,487	83,826	29,930	2,177	12,057	405	303,044	729,427	4,096	733,523

APPENDIX A

Table A-4
Soil Types in the Santa Clara River Watershed in Relation to Current Land Use Zoning

Soil Type	Total Acres	Percent Total	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Open Space	Urban Reserve	Total Open Space/Reserve
Aramburu Variant-Modjeska Family-Coarsegold	51,392	0	0	0	0	0	4,631	0	0	0	0	4,631	46,761	0	46,761
Arbuckle-San Ysidro-Positas	883	0	0	0	0	0	257	97	0	0	0	354	529	0	529
Badland-Calleguas-Lithic Xerorthents	18,993	0	0	0	0	12,243	375	916	0	212	0	13,747	5,246	0	5,246
Beam-Kilmer-Badland	2,354	0	0	0	0	0	0	0	0	0	0	0	2,354	0	2,354
Camarillo-Hueneme-Pacheco	74	0	0	0	0	74	0	0	0	0	0	74	1	0	1
Cieneba-Andregg-Vista	5,582	0	0	0	0	0	0	0	0	0	0	0	5,582	0	5,582
Cieneba-Caperton-Gaviota	81,270	0	0	0	0	18,103	1,324	0	0	0	0	19,428	61,842	0	61,842
Cieneba-Exchequer-Sobrante	132,462	0	777	1,363	5,497	21,014	9,056	10,395	193	3,722	0	52,017	80,444	0	80,444
Cieneba-Pismo-Caperton	129,534	0	60	36	59	34,127	18,956	5,213	0	780	0	59,231	70,303	0	70,303
Glean-Mahogan-Metz	1,948	0	0	0	0	0	16	0	0	0	0	16	1,932	0	1,932
Gorman-Oak Glen-Gaviota	36,698	0	0	0	0	0	1,345	0	0	130	0	1,475	35,223	0	35,223
Hambright-Lithic Xerorthents-Rock Outcrop	3,510	0	0	0	0	870	82	0	0	0	0	952	2,558	0	2,558
Hilt-Arrastre-Marpa	42,864	0	0	0	0	0	3,294	0	0	0	0	3,294	39,571	0	39,571
Lodo-Sobrante-Gaviota	36,345	0	95	0	0	7,448	746	90	0	1,768	0	10,146	26,199	0	26,199
Los Gatos-Gamboa-Hilt	90,317	0	0	0	0	0	2,328	0	0	0	0	2,328	87,989	0	87,989
Millerton-Lodo-Millsholm	153,429	0	0	0	0	5,451	2,107	0	0	0	0	7,558	145,871	0	145,871
Oak Glen-Xerofluvents-Dotta	6,564	0	0	0	0	0	4,976	0	0	0	0	4,976	1,588	0	1,588

APPENDIX A

Table A-4
Soil Types in the Santa Clara River Watershed in Relation to Current Land Use Zoning

Soil Type	Total Acres	Percent Total	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Open Space	Urban Reserve	Total Open Space/ Reserve
Oceano-Baywood-Dune Land	374	0	0	0	0	117	0	0	0	0	0	117	256	0	256
Pico-Anacapa-Salinas	84,613	0	3,397	2,512	3,309	18,583	20,960	12,182	1,984	3,362	405	66,694	14,443	3,475	17,919
Rock Outcrop-Chilao-Stonyford	17,800	0	0	0	0	617	0	0	0	0	0	617	17,183	0	17,183
San Andreas-Arnold-Arujo	5,518	0	0	0	0	471	365	13	0	0	0	850	4,669	0	4,669
San Benito-Castaic-Calleguas	99,503	0	5	0	45	29,985	9,114	1,009	0	1	0	40,158	58,905	441	59,346
Sespe-Lodo-Malibu	8,086	0	0	0	0	1,537	589	0	0	0	0	2,126	5,960	0	5,960
Soboba-Avawatz-Oak Glen	9,296	0	0	0	0	3,903	1,971	0	0	7	0	5,881	3,415	0	3,415
Soper-Chesterton-Rincon	4,443	0	0	0	0	1,997	1,166	16	0	0	0	3,179	1,084	180	1,264
Tollhouse-Rock Outcrop-Bakeoven	1,074	0	0	0	0	0	0	0	0	0	0	0	1,074	0	1,074
Walong-Edmundston-Rock Outcrop	2,853	0	0	0	0	0	0	0	0	2,075	0	2,075	778	0	778
(No Data)	8,757	0	0	0	7	947	169	0	0	0	0	1,122	7,635	0	7,635
Grand Total	1,036,534		4,335	3,911	8,917	157,487	83,826	29,930	2,177	12,057	405	303,044	729,394	4,096	733,490

APPENDIX A

Table A-5
Elevations in the Santa Clara River Watershed in Relation to Current Land Use Zoning

Elevation (feet AMSL)	Total Acres	Percent Total	Current Land Use Zoning												
			Commercial			Residential				Other Development		Total Develop- ment	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Develop- ment	Mixed Use		Zoned Open Space	Urban Reserve	Total Open Space/ Reserve
0 to 500	48,058	4.6%	1,336	331	1,440	12,681	14,527	3,312	1,259	0	405	35,292	9,048	3,718	12,766
500 to 1000	52,187	5.0%	83	0	365	19,037	11,545	1,347	14	856	0	33,249	18,560	378	18,938
1001 to 1500	95,436	9.2%	2,536	3,284	4,605	17,957	10,850	13,533	773	5,075	0	58,613	36,823	0	36,823
1501 to 2000	108,424	10.5%	284	296	2,507	30,808	8,003	10,609	130	1,425	0	54,061	54,364	0	54,364
2001 to 2500	86,661	8.4%	0	0	0	20,754	2,924	537	0	459	0	24,674	61,987	0	61,987
2501 to 3000	116,903	11.3%	0	0	0	18,454	8,662	45	0	97	0	27,257	89,646	0	89,646
3001 to 3500	135,348	13.1%	0	0	0	18,190	8,853	175	0	136	0	27,354	107,993	0	107,993
3501 to 4000	104,922	10.1%	0	0	0	13,103	2,921	219	0	817	0	17,060	87,862	0	87,862
4001 to 4500	75,120	7.2%	22	0	0	4,458	1,140	96	0	1,571	0	7,286	67,833	0	67,833
4501 to 5000	66,875	6.5%	63	0	0	1,406	3,420	57	0	1,361	0	6,307	60,568	0	60,568
5001 to 5500	68,878	6.6%	10	0	0	606	6,862	0	0	259	0	7,737	61,141	0	61,141
5501 to 6000	38,010	3.7%	0	0	0	0	2,594	0	0	0	0	2,594	35,416	0	35,416
6001 to 6500	20,474	2.0%	0	0	0	0	1,469	0	0	0	0	1,469	19,005	0	19,005
6501 to 7000	9,554	0.9%	0	0	0	0	15	0	0	0	0	15	9,539	0	9,539
7001 to 7500	5,206	0.5%	0	0	0	0	29	0	0	0	0	29	5,177	0	5,177
7501 to 8000	2,688	0.3%	0	0	0	0	2	0	0	0	0	2	2,685	0	2,685
>8000	1,550	0.1%	0	0	0	0	0	0	0	0	0	0	1,550	0	1,550
Grand Total	1,036,292		4,335	3,911	8,917	157,454	83,815	29,930	2,177	12,056	405	302,999	729,197	4,096	733,293

APPENDIX A

Table A-6
Slopes in the Santa Clara River Watershed in Relation to Current Land Use Zoning

Slope	Total Acres	Percent Total	Current Land Use Zoning ^a												
			Commercial			Residential				Other Development		Total Development	Open Space/Reserve		
			Low Density	High Density	Industrial	Very Low Density	Low Density	Medium Density	High Density	Planned Development	Mixed Use		Open Space	Urban Reserve	Total Open Space/ Reserve
0% to 10%	361,084	34.9%	4,060	3,694	7,213	66,767	57,452	23,850	2,094	7,122	401	172,652	184,513	3,919	188,432
11% to 20%	362,380	35.0%	224	216	1,634	58,972	20,170	5,236	82	3,007	4	89,546	272,673	162	272,834
21% to 30%	226,184	21.8%	48	0	66	26,610	5,134	761	0	1,728	0	34,347	191,831	7	191,838
31% to 40%	76,504	7.4%	0	0	4	4,776	954	44	0	134	0	5,913	70,591	0	70,591
41% to 100%	9,225	0.9%	0	0	0	225	37	0	0	0	0	262	8,963	0	8,963
Grand Total	1,035,377		4,333	3,910	8,917	157,350	83,746	29,891	2,176	11,991	405	302,719	728,570	4,087	732,658

APPENDIX A

Table A-7
Planned Development on Newhall Land Property in Relation to Current Land Use Zoning

Land Use Zoning	Total Acres	Open Space						Development							
		Conser- vation Easement	High Country SMA	Salt Creek Area	River Corridor SMA	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
Low Density Commercial	725	36	0	0	0	10	46	164	430	0	0	0	74	10	678
High Density Commercial	0	0	0	0	0	—	0	0	0	0	0	<1	0	0	0
Industrial	627	0	0	0	44	1	46	<1	167	0	372	0	0	42	581
Very Low Density Residential	6,159	15	3,838	105	75	251	4,283	1,685	0	172	0	0	0	18	1,875
Low Density Residential	4,967	54	0	0	159	442	655	2,046	0	1,621	0	0	632	13	4,312
Medium Density Residential	211	0	0	0	0	0	0	0	29	21	112	4	0	45	211
Open Space	3,635	34	104	1,412	61	246	1,857	1,110	6	0	166	339	0	158	1,779
Planned Development	2,342	0	1	0	637	53	690	670	225	67	0	601	88	0	1,651
Grand Total	18,665	139	3,942	1,516	977	1,002	7,577	5,675	857	1,881	650	944	794	286	11,087

APPENDIX A

Table A-8
Planned Development on Newhall Land Property in Relation to Sub-basins

Sub-Basin	Total Acres	Open Space						Development							
		Conser- vation Easement	High Country SMA	Salt Creek Area	River Corridor SMA	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
Eastern	13,334	139	367	0	977	1,001	2,485	5,440	856	1,880	650	944	794	286	10,850
Santa Felicia	5,329	0	3,575	1,516	0	1	5,093	236	0	0	0	0	0	0	236
Grand Total	18,663	139	3,942	1,516	977	1,002	7,577	5,676	856	1,880	650	944	794	286	11,086

APPENDIX A

Table A-9
Planned Development on Newhall Land Property in Relation to Vegetation Communities

		Open Space						Development							
Vegetation Type	Total Acres	Conser- vation Easement	High Country SMA	Salt Creek Area	River Corridor SMA	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
<i>Ceanothus crassifolius</i> Chaparral	1,213	0	602	0	0	0	602	0	0	0	0	611	0	<1	611
Interior Live Oak Chaparral	2,322	0	1,940	0	0	13	1952	293	0	77	0	0	0	0	370
Non-Native Grassland	4,200	14	1,071	938	36	253	2312	1,858	0	30	0	0	0	0	1888
Southern Cottonwood-Willow Riparian Forest	737	0	0	7	477	3	487	85	165	0	0	0	0	0	250
Venturan Coastal Sage Scrub	10,189	125	330	571	465	734	2225	3,439	690	1,773	650	332	794	286	7964
Grand Total	18,661	139	3,942	1,516	977	1,002	7,577	5,676	855	1,880	650	943	794	286	11,084

APPENDIX A

Table A-10
Planned Development on Newhall Land Property in Relation to Geologic Types

Geologic Type	Total Acres	Open Space						Development							
		Conser- vation Easement	High Country SMA	Salt Creek Area	River Corridor SMA	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
Alluvium (mostly Quaternary)	4,293	37	37	112	936	137	1,259	753	852	38	445	127	791	28	3,034
Miocene marine	766	0	390	263	0	0	653	0	0	0	0	0	0	113	113
Pliocene marine	8,931	39	3,515	1,142	0	603	5,299	3,214	0	418	0	0	0	0	3,632
Plio-Pleistocene nonmarine, Pliocene nonmarine	4,670	62	0	0	41	263	367	1,708	4	1,423	204	816	3	145	4,303
Grand Total	18,660	139	3,942	1,516	977	1,002	7,577	5,676	856	1,879	649	943	794	286	11,083

APPENDIX A

Table A-11
Planned Development on Newhall Land Property in Relation to Soils

Soil Type	Total Acres	Open Space						Development							
		Conser- vation Easement	High Country SMA	Salt Creek Area	River Corridor SMA	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
Badland-Calleguas-Lithic Xerorthents	1,707	0	1,625	0	0	0	1,625	69	0	12	0	0	0	0	81
Cieneba-Exchequer-Sobrante	8,578	97	606	0	161	675	1,540	3,807	49	1,867	155	738	167	254	7,037
Pico-Anacapa-Salinas	4,436	42	0	49	793	98	982	1,287	807	0	495	205	628	32	3,454
San Andreas-Arnold-Arujo	607	0	0	607	0	0	607	0	0	0	0	0	0	0	0
San Benito-Castaic-Calleguas	3,335	0	1,710	860	23	229	2,823	512	0	0	0	0	0	0	512
Grand Total	18,663	139	3,942	1,516	977	1,002	7,577	5,676	856	1,879	650	943	795	286	11,085

APPENDIX A

Table A-12
Planned Development on Newhall Land Property in Relation to Elevations

Elevation (feet AMSL)	Total Acres	Open Space						Development							
		Conser- vation Easement	High Country SMA	Salt Creek Area	River Corridor SMA	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
500 to 1000	2,630	16	86	144	934	191	1,371	944	65	0	250	0	0	0	1,259
1001 to 1500	11,244	124	1,072	593	43	749	2,580	4,568	791	948	399	900	778	279	8,663
1501 to 2000	3,152	0	1,563	365	0	63	1,991	163	0	931	0	44	16	7	1,161
2001 to 2500	986	0	722	264	0	0	986	0	0	0	0	0	0	0	0
2501 to 3000	618	0	468	150	0	0	618	0	0	0	0	0	0	0	0
3001 to 3500	32	0	32	0	0	0	32	0	0	0	0	0	0	0	0
Grand Total	18,662	139	3,942	1,516	977	1,002	7,577	5,676	856	1,879	649	944	794	286	11,084

APPENDIX A

Table A-13
Planned Development on Newhall Land Property in Relation to Slopes

Slope	Total Acres	Open Space						Development							
		Conser- vation Easement	High Country Reserve	Salt Creek Area	River Corridor	Other Open Space	Total Open Space	RMDP	Entrada	Legacy	VCC	West Creek	Westridge	Others	Total Develop- ment
0% to 10%	10,506	99	587	299	819	472	2,277	3,675	831	1,279	556	904	765	220	8,230
11% to 20%	5,326	36	1,547	678	138	422	2,820	1,706	24	557	85	39	29	66	2,506
21% to 30%	2,457	4	1,518	476	20	102	2,120	288	0	41	8	0	0	0	337
31% to 40%	365	0	290	59	0	6	355	7	0	2	1	0	0	0	10
Grand Total	18,654	139	3,942	1,512	977	1,002	7,572	5,676	855	1,879	650	943	794	286	11,083

APPENDIX A

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