THE UNIVERSITY VILLAGES
VILLAGE 3 NORTH & PORTION OF VILLAGE 4 SPA PLAN
PUBLIC FACILITIES FINANCE PLAN

Approved by:
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Prepared by:

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I. EXECUTIVE SUMMARY

OVERVIEW

This Public Facility Finance Plan (PFFP) addresses the public facility needs associated with the Otay Ranch Village 3 North & a Portion of Village 4 Sectional Planning Area (SPA) Plan. The proposed project as described in the SPA Plan is sometimes referred to as "The Project" in this PFFP. The PFFP has been prepared under the requirements of the City of Chula Vista's Growth Management Program and Chapter 9, Growth Management of the Otay Ranch General Development Plan (GDP). The preparation of the PFFP is required in conjunction with the preparation of the SPA Plan for the project to ensure that the phased development of the project is consistent with the overall goals and policies of the City's General Plan, Growth Management Program, and the Otay Ranch General Development Plan (GDP) which was adopted by the Chula Vista City Council on October 28, 1993 and recently updated to ensure that the development of the project will not adversely impact the City's Quality of Life Threshold Standards. This PFFP meets the policies and objectives of the Otay Ranch GDP.

This PFFP is based upon the phasing and project information that has been presented in the *University Villages Sectional Planning Area (SPA) Plan Otay Ranch Village* 3 *& a Portion of 4* and the *Environmental Impact Report for the Otay Ranch University Villages Project*. The PFFP begins by analyzing the existing demand for facilities based upon the demand from existing development and those projects with various entitlements through the year 2018 (using a starting date of 2014, per the EIR). Further, the PFFP uses the developer proposed phasing to determine the associated impacts.

The SPA Plan area represents a specific geographic area within the overall Otay Ranch planning area of Chula Vista. Planning entitlement documents and technical reports related to the SPA Plan area have been processed along with Otay Ranch Villages 8 East and 10. The Village 3 & a Portion of 4 SPA Plan area public facility review and analysis has been conducted in the context of the surrounding Otay Ranch Villages 8 East and 10. Technical reports utilized in the preparation of and referenced in this PFFP include analysis of Village 8 East and Village 10 as such; some public facility discussion in this PFFP may include discussion of those peripheral villages in proximity to Village 3 North & a Portion of Village 4.

When specific thresholds are projected to be reached or exceeded based upon the analysis of the phased development of the project, the PFFP provides recommended mitigation necessary for continued compliance with the Growth Management Program and Quality of Life Threshold Standards. The development phasing analyzed in this PFFP is consistent with the SPA Phasing Plan, but may indicate that the development phasing should be limited or reduced until certain actions are taken to guarantee public facilities will be available or provided to meet the Quality of Life Threshold Standards. Changes to the phasing shall require approval by the Director of Development Services.

Typically, as an applicant receives each succeeding development approval, the applicant must perform the required steps to ensure the timely provision of the required facility. Failure to perform the required step curtails additional development approvals. The typical steps are illustrated below:

Performance of Facility Thresholds

GDP:

- Goals, objectives & policies established.
- Facility thresholds established.
- Processing requirements established.

SPA:

- Facility financing refined and funding source identified consistent with GDP goals, objectives & policies.
- Facility demand and costs calculated consistent with adopted land uses and GDP defined methodologies.
- Specific facility financing and phasing analysis performed to assure compliance with Growth Management Threshold Standards.
- Facilities sited and zoning identified.

Tentative Map:

- Subdivision approval conditioned upon assurance of facility funding.
- Subdivision approval conditioned upon payment of fees, or the dedication, reservation or zoning of land for identified facilities.
- Subdivision approval conditioned upon construction of certain facility improvements.

Final Map:

- Tentative Map conditions performed.
- Lots created.

Building Permit:

- Impact fees paid as required.

The critical link between the Threshold Standards and development entitlements is the PFFP. Part II, Chapter 9, Section C of the GDP/SPA Processing Requirements, General Development Plan Implementation, requires the preparation of Public Facility Financing and Phasing Plans in conjunction with SPA approval. This PFFP satisfies the GDP requirement. The PFFP requires the preparation and approval of phasing schedules showing how and when facilities and improvements necessary to serve proposed development will be installed or financed to meet the Threshold Standards, including:

- An inventory of present and future requirements for each facility.
- A summary of facilities cost.
- A facility phasing schedule establishing the timing for installation or provisions of facilities.
- A financing plan identifying the method of funding for each facility required.
- A fiscal impact report analyzing SPA consistency with the Subregional Plan (SRP).

Subsection C of the City of Chula Vista Municipal Code (CVMC) Section 19.09.100 (Growth Management Ordinance) requires that if the City Manager determines that facilities or

improvements within a PFFP are inadequate to accommodate any further development within that area the City Manager shall immediately report the deficiency to the City Council. If the City Council determines that such events or changed circumstances adversely affect the health, safety or welfare of City, the City may require amendment, modification, suspension, or termination of an approved PFFP.

A. GENERAL CONDITIONS

1. All development within the boundaries of the PFFP for the project shall conform to the provisions of Section 19.09 of the Chula Vista Municipal Code (Growth Management Ordinance) as may be amended from time to time and to the provisions and conditions of this Public Facilities Financing Plan.
2. All development within the boundaries of the PFFP for the project shall be required to pay development impact fees, unless the developer has entered into a separate agreement with the City, for public facilities, transportation and other applicable fees pursuant to the most recently adopted program by the City Council, and as amended from time to time. Development within the boundaries of the Otay Ranch Village 3 North & a portion of 4 SPA shall also be responsible for fair share proportionate fees that are necessary to meet the adopted facility performance standards as they relate to the SPA Plan and subdivision application.
3. The Public Facilities Finance Plan shall be implemented in accordance with Chula Vista Municipal Code (CVMC) 19.09.090. Future amendments shall be in accordance with CVMC 19.09.100 and shall incorporate newly acquired data, to add conditions and update standards as determined necessary by the City through the required monitoring program. Amendment to this Plan may be initiated by action of the Planning Commission, City Council or property owners at any time. Any such amendments must be approved by the City Council.
4 Approval of this PFFP does not constitute prior environmental review for projects within the boundaries of this Plan. All future projects within the boundaries of this PFFP shall undergo environmental review as determined appropriate by the City of Chula Vista.
5. Approval of this PFFP does not constitute prior discretionary review or approval for projects within the boundaries of the Plan. All future projects within the boundaries of this PFFP shall undergo review in accordance with the Chula Vista Municipal Code. This PFFP analyzes the maximum allowable development potential for planning purposes only. The approval of this plan does not guarantee specific development densities.
6. The facilities and phasing requirements identified in this PFFP are based on the proposed Project Site Utilization Plan (Exhibit 3).
7. The Development Services Director will determine if any future proposed changes to the approved density and/or phasing plan requires reanalysis of public facilities and an amendment to the PFFP.
8. Density Transfer is permitted within the University Villages project pursuant to the Land Offer Agreement between the Applicant and the City of Chula Vista, dated July 8, 2014. The Development Services Director will determine, based upon the scope of the proposed density transfer, whether additional information (i.e. traffic, air quality, global climate change, utilities, etc.) is necessary for Administrative Approval of the density transfer.

B. PUBLIC FACILITY COST AND FEE SUMMARY

The following tables identify and summarize the various facility costs associated with development of the project. The facilities and their costs are identified in detail in subsequent sections of this document. The tables indicate a recommended financing alternative based upon current Chula Vista practices and policies. However, where another financing mechanism may be shown at a later date to be more effective, the City may implement such other mechanisms in accordance with City policies. This will allow the City maximum flexibility in determining the best use of public financing to fund public infrastructure improvements.

The *University Villages TIA, Otay Ranch Village 3 North, 8 East and 10, Revised July 31, 2014 by Chen + Ryan*, has identified onsite and offsite road improvements that will be required as the result of the development of the project. The Village 3 North SPA Project is anticipated to begin construction in 2015. The Village 8 East and Village 10 SPA Projects are anticipated to begin construction and generate traffic in the years 2020 and 2025, respectively. The improvement projects listed for Village 3 North include both offsite and onsite improvements. Most of the transportation improvement projects are eligible for funding through the City's Transportation Development Impact Fee (TDIF) program. In the event the developer constructs a TDIF improvement, the cost of the improvement may be eligible for credit against TDIF fees. Construction of non-TDIF eligible improvements shall be completed by the developer as a project exaction.

Table A.1 summarizes the public facility phasing and associated costs. Transportation Development Impact Fees for the project total approximately $21,709,662. These fees do not include Traffic Signal Fees, which will be determined at the time building permits are applied for. In addition, these estimated fees do not include any credits the developer may have or may receive through a Development Agreement or through previous construction of TDIF eligible facilities.

Backbone sewer and water improvements will be funded, in part, through the payment of DIF fees and capacity fees established for these purposes. The Developer will fund on-site facilities. The Developer shall also bond for any off-site sewer improvements with the first Final Map for the Project, unless otherwise approved by the City Engineer.

The estimated project sewer fees is approximately $2,631,666 (does not include the Administration Fee for sewer connection permit). The entire project site is within the Salt Creek Sewerage Basin DIF.

The total costs for the Village 3 North SPA Plan project Capital Improvement Plan (CIP) Potable and Recycled Water Facilities will be determined by the Otay Water District (OWD). According to the OWD policy No. 26, OWD will provide for the construction and design costs associated with the development of these improvements or pursuant to any agreement or provisions in effect at the time.

The project is anticipated to require one elementary school, which may be constructed with funding through a Mello-Roos CFD established by the Chula Vista Elementary School District and as may be memorialized in a School Mitigation Agreement with the district. The project will generate Middle and High School age students. The project

may also participate in a CFD to be established by the Sweetwater Union High School District.

The project will trigger development impact fees for parks of approximately $25,669,184 and for libraries of approximately $2,526,454. Police, fire and emergency medical services, recreation, civic center, corporation yard, and other city public facilities will be funded, in part, from revenues generated from the payment of Public Facilities Development Impact Fees (PFDIF) at building permit issuance. These fee revenues total approximately $13,184,552.

Altogether, the City's development impact fees by phase and facility for the Project are identified on Table A.1.

Table A.1
Village 3 North & a portion of Village 4 SPA
Summary of DIF Fees by Phase & Facility[1]

Facility	Red	Blue	Yellow	Green	Purple	Totals
Traffic [2]	$6,509,374	$6,009,614	$2,858,799	$6,331,875	$0	$21,709,662
Sewer	$653,526	$699,201	$438,967	$787,703	$52,269	$2,611,248
Drainage [3]	N/A	N/A	N/A	N/A	N/A	N/A
Water [3]	N/A	N/A	N/A	N/A	N/A	N/A
Police [6]	$803,751	$870,591	$48,536	$1,163,200	$0	$2,886,077
Fire/EMS [6]	$670,033	$725,753	$20,834	$637,190	$0	$2,053,810
Schools [4]	N/A	N/A	N/A	N/A	N/A	N/A
Library [5]	$760,942	$824,222	$0	$941,290	$0	$2,526,454
Parks [5]	$8,553,142	$9,264,422	$0	$7,851,620	$0	$25,669,184
Recreation [6]	$577,681	$625,721	$0	$714,595	$0	$1,917,997
Civic Center [6]	$1,325,636	$1,435,876	$79,479	$1,652,300	$0	$4,493,291
Corp. Yard [6]	$216,450	$234,450	$102,846	$300,476	$0	$854,221
Other Facilities [6]	$289,081	$313,121	$17,332	$359,622	$0	$979,156
Total	**$20,359,616**	**$21,002,971**	**$3,566,793**	**$20,739,871**	**$52,269**	**$65,721,520**

Footnotes:
[1] The fees provided in this table are estimates only and subject to change. Fees are based on Form 5509 dated November 7, 2013. Fees are subject to change as the ordinance is amended by the City Council from time to time.
[2] Includes TDIF & Traffic Signal Fees.
[3] No city imposed DIF program in place for this facility.
[4] No city imposed DIF program, however, all properties, including non-residential, are assessed a statutory school fee under state law to mitigate impacts on school facilities caused by residential development.
[5] Includes both Development and Acquisition fee in lieu. Not applicable to non-residential projects.
[6] Facilities funded by Public Facilities DIF component.
Actual fee obligation calculation to be based on implementing ordinance definition of dwelling unit type irrespective of underlying zoning district containing said dwelling unit.
Please reference Exhibit 4, Phasing Plan.

II. INTRODUCTION

II.1. Overview

The City of Chula Vista has thoroughly reviewed the issues dealing with development and the additional impacts it places on public facilities and services. City Council's approval of the Threshold Standards and Growth Management Oversight Committee (Commission) Policy (1997) and the Growth Management Element of the 1989 General Plan were the first steps in the overall process of addressing growth-related issues. The second step in this process was the development and adoption of the City's "Growth Management Program" document (1991) and the Growth Management Ordinance (1991).

The Chula Vista City Council adopted the Growth Management Program on April 23, 1991 (Resolution No. 16101) and the implementing Growth Management ordinance (No. 2448) on May 28, 1991. These documents implement the Growth Management Element of the General Plan, and establish a foundation for carrying out the development policies of the City by directing and coordinating future growth in order to guarantee the timely provision of public facilities and services.

The Growth Management Ordinance requires a Public Facilities Finance Plan (PFFP) to be prepared for future development projects requiring a Sectional Planning Area (SPA) Plan or Tentative Map. The contents of the PFFP are governed by Section 19.09.060 of the Municipal Code, which requires that the plan show how and when the public facilities and services identified in the Growth Management Program will be installed or financed.

II.2. Purpose

The purpose of the Public Facilities Finance Plan is to implement the City's Growth Management Program and to meet the General Plan goals and objectives as well as the Growth Management Element goals and objectives. The Chula Vista Growth Management Program implements the City's General Plan and Zoning Ordinance by ensuring that development occurs only when necessary public facilities and services exist or are provided concurrent with the demands of new development.

II.3. Growth Management Threshold Standards

City Council Resolution No. 13346 identified 11 public facilities and services with related Threshold Standards and implementation measures. These public facilities and services were listed in a policy statement dated November 17, 1987 and have subsequently been refined based on recommendations from the Growth Management Oversight Commission (GMOC).

The 11 public facilities and services include:

- Traffic
- Police
- Fire/EMS
- Schools
- Libraries
- Parks and Recreation
- Water
- Sewer
- Drainage
- Air Quality
- Fiscal

During development of the Growth Management Program Civic Facilities and Corporation Yard were added to the list of facilities to be analyzed in the PFFP:

Threshold Standards are used to identify when new or upgraded public facilities are needed to mitigate the impacts of new development. These Threshold Standards have been prepared to guarantee that public facilities or infrastructure improvements will keep pace with the demands of growth.

In order to be consistent with the Project Environmental Impact Report for the Otay Ranch University Villages Project, August 2014 by Dudek, this PFFP is based on the 2013 GMOC Annual Report. Generally, the findings of the 2014 Annual Report are similar to the 2013 report in that the same four Quality of Life Threshold Standards were found to be out of compliance. These standards include: Fire Response Times; Libraries; Police Priority 2 Response Times; and Traffic (One Arterial Segment: Heritage Road between Olympic Parkway and Telegraph Canyon continues to be non-compliant).

II.4. Project Background

The Otay Ranch General Development Plan / Sub Regional Area Plan (GDP/SRP) was originally adopted by the Chula Vista City Council and the San Diego County Board of Supervisors on October 28, 1993. The plan governs the 23,000+ acre Otay Ranch properties. The Otay Ranch GDP is based upon, and directly implements the City of Chula Vista General Plan. The Otay Ranch GDP includes plans for urban villages, a resort community, the Eastern Urban Center, industrial areas, rural estate planning areas, an 11,375+ acre open space preserve and a university. The Otay Ranch open space system, facilitates completion of the Chula Vista Greenbelt System and the Chula Vista Multi-Species Habitat Conservation Plan (MSCP) Subarea Plan. The Village 3 & a portion of Village 4 project area is located in the western portion of the Otay Ranch GDP (See Exhibits 1 & 2).

The Village 3 North portion of the SPA Plan Area was included within the planning boundaries of Village 3 and the Villages 2, 3, and a portion of Village 4 SPA Plan approved by the Chula Vista City Council in 2006. Proposed amendments to the 2006 SPA Plan will exclude the Village 3 North area from the boundary. This SPA Plan includes a portion of Village 3 North. The balance of Village 3 (Village 3 South) remains in the Villages 2, 3 and a portion of Village 4 SPA Plan, is not a part of the Village 3 North SPA Plan area and is under separate ownership.

In 2005, the Chula Vista City Council adopted an update to the Chula Vista General Plan. In addition, the Chula Vista Council entered into a Land Offer Agreement (LOA) with the Applicant in 2008. The LOA was subsequently amended in 2010 and again in 2014. The LOA established a framework for planning the southern portion of the Otay Valley Parcel, including the creation of a future University and Regional Technology Park. The Village 3 North & a portion of 4 SPA Plan implements the LOA by designating land uses consistent with the LOA; however, amendments to the Chula Vista General Plan and Otay Ranch GDP are proposed as part of this project.

The Village 3 North & a portion of Village 4 consists of approximately 436 acres. The land is comprised of large, flat mesas, with slopes adjacent to Wolf Canyon and the Otay River Valley. Village 3 North is situated between Wolf Canyon to the east, the Otay River Valley and Otay Valley Regional Park to the south, the Otay Landfill to the north, and existing industrial uses to the west. The Portion of Village 4 included in the proposed project is located on the northeastern edge of Wolf Canyon, north of the Otay River Valley and the Otay Valley rock quarry, south of Village 2, and west of La Media Road and the future

Village 8 West development area. The Village 3 North project proposed land uses are illustrated in Table A.2.

Table A.2
Village 3 North
Land Use Summary

Land Use	Gross Acres	Commercial Square Footage	Residential Dwelling Units	Population[a]
Single-Family Residential	115.2		1,002	3,247
Multi-Family Residential	10.8		515	1,667
Mixed-Use	8.2	20,000	80	259
Industrial	28.6			
Office	5.2			
Parks	25.7			
School	8.3			
Community-Purpose Facilities	4.2			
Private Open Space	2.4			
Open Space	35.4			
Preserve[b]	158.1[b]			
Circulation	33.9			
Subtotal	**436**	**20,000**	**1,597**	**5,174**

Notes:
[a] Population estimates based on 3.24 persons per residential dwelling unit.
[b] Does not include 2.9 acres of circulation that is within the Preserve. Those 2.9 acres are accounted for in the "Preserve" category.

Source: Project EIR

II.5. Public Facilities Finance Plan Boundaries

Section 19.12.070 of the Municipal Code requires that the City establish the boundaries of the PFFP at the time a SPA Plan or Tentative Map(s) is submitted by the applicant. The boundaries shall be based upon the impact created by the Project on the existing and future need for facilities. The project boundaries will correlate the proposed development project with existing and future development proposed for the area of impact to provide for the economically efficient and timely installation of both onsite and offsite facilities and improvements required by the development. In establishing the boundaries for the PFFP, the City shall be guided by the following considerations:

A. Service areas, drainage, sewer basins, and pressure zones that serve the Project;

B. Extent to which facilities or improvements are in place or available;

C. Ownership of property;

D. Project impact on public facilities relationships, especially the impact on the City's planned major circulation network;

E. Special district service territories;

F. Approved fire, drainage, sewer, or other facilities or improvement master plans.

The boundaries of the PFFP for the project are congruent with the SPA Plan boundaries. Also, the PFFP addresses certain facilities (streets, drainage, sewer, police, fire, etc.) that are impacted beyond the boundaries of the SPA Plan.

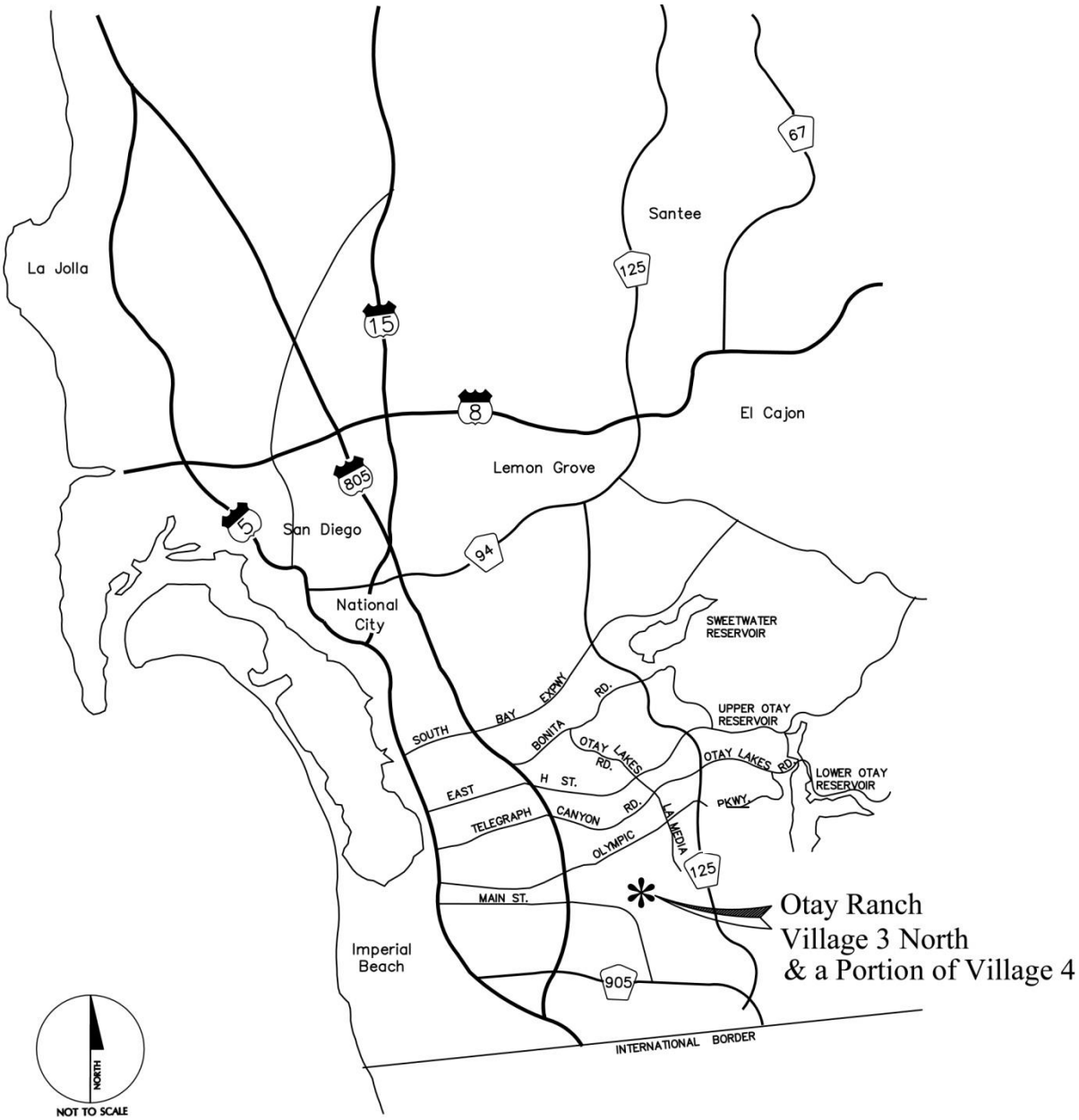


Exhibit 1
Regional Location Map

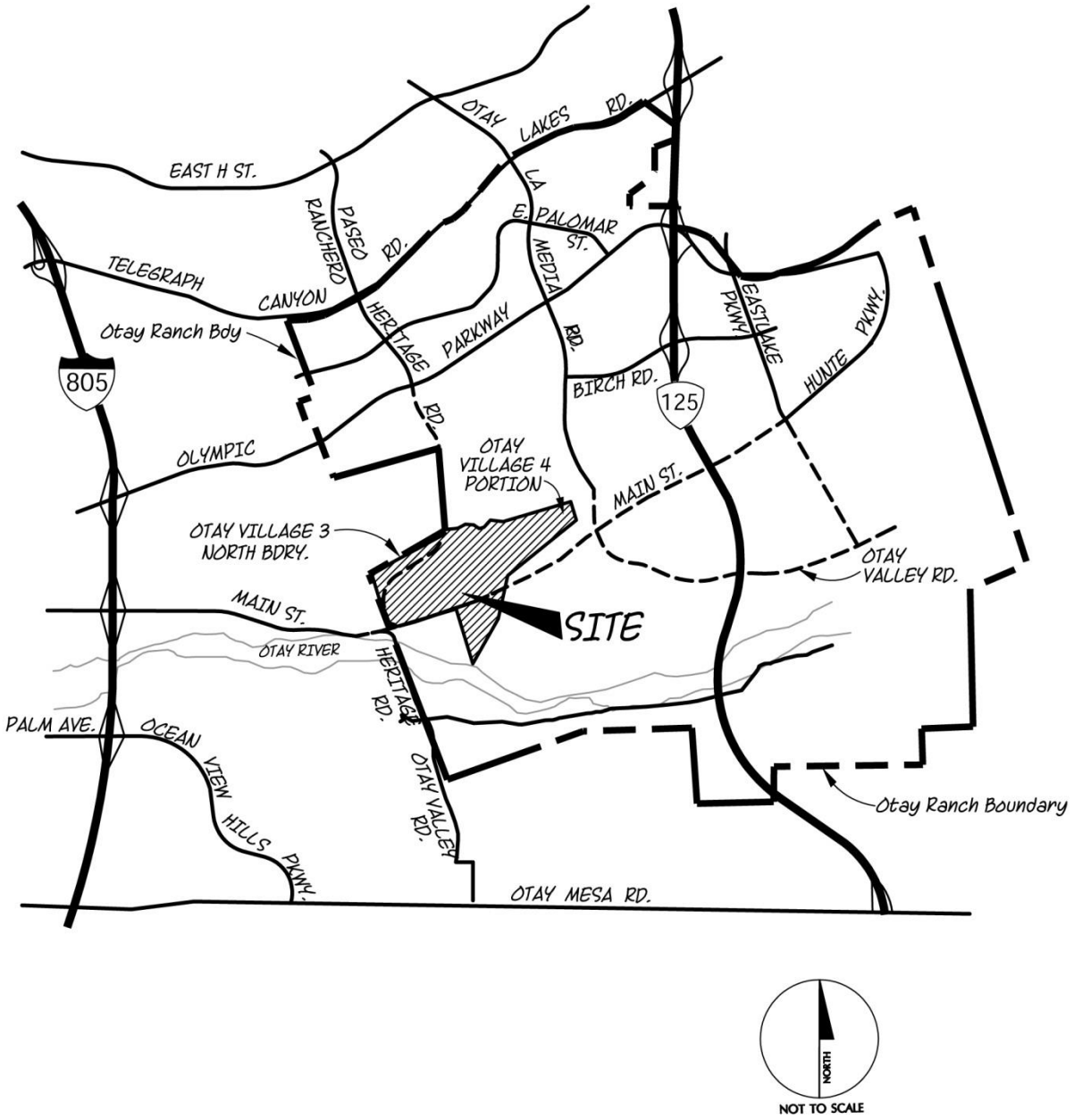


Exhibit 2
Vicinity Map

II.6. Land Use Assumptions

II.6.1. Purpose

The purpose of this section is to quantify how the Otay Ranch Villages 2, 3, and a portion of the Village 4 SPA project will be analyzed in relationship to all other projects which are at various stages in the City's development process. The Growth Management Program addressed the issue of development phasing in relationship to location, timing, and fiscal/economic considerations.

Based upon the overall elements to be considered when projecting the phasing of development and policies contained in the Growth Management Program, the City was able to forecast where and when development will take place and produced a 5-year Development Phasing Forecast. Subsequent to the approval of the Growth Management Program, the forecasted development phasing has been updated periodically as facility improvements are made and the capacity for new development becomes available. The current update is summarized on Table B.1.

The specific factors, which affect the development-phasing forecast, include the status of development approvals and binding development agreements, and the completion of the construction of State Route 125. These components were reviewed as part of this PFFP in conjunction with the requirement to provide facilities and services concurrent with the demand created by the project to maintain compliance with the Threshold Standards.

The management of future growth includes increased coordination of activities of the various City departments as well as with both the Sweetwater Union High School District and the Chula Vista Elementary School District and the Otay Water District that serve the City of Chula Vista. The forecast is a component of the City of Chula Vista's Growth Management Program. The Development Services Department provides annual growth forecasts for two time frames: 18 months and a 5-year period. This information enables City departments and the other aforementioned service agencies to assess the probable impacts that growth may have on maintaining compliance with the City's facilities and service Threshold Standards. In addition, with this data City departments and the other service agencies will be able to report potential impacts to the GMOC.

II.6.2. Existing Development

As a starting point, the PFFP considers all existing development up to January 2013 as the base condition. The starting point was chosen to be consistent with the *University Villages Project Environmental Impact Report, June 2014, Dudek*. The statistical information is based upon City of Chula Vista Development Services Department growth management monitoring data. According to this and other data, the population of the City as of January 2013 is estimated at 251,613 (2013 Annual Residential Growth Forecast). This estimate is based on city estimates of growth for 2013 and combined with data from the California Department of Finance (DOF).

For the purposes of projecting facility demands for the Otay Ranch Village 3 North & portion of 4 SPA the City of Chula Vista utilizes a population coefficient of 3.24 persons per dwelling unit. This factor is used throughout this PFFP to calculate facility demands from approved projects. The coefficient has been confirmed for use in the PFFP by the

Development Services Department. The same coefficient will be used for calculating the specific project facility demands.

II.6.3. Chula Vista Development Phasing Forecast

A summary of the 2013 growth forecast is shown in Table B.1. The table presents an estimate of the amount of development activity anticipated to the year 2018. The total number of dwelling units permitted by the year 2018 is approximately 8,757 dwelling units. It should be noted that these projections are estimates and should be used for analytical purposes only and unless a development agreement or other legal instrument guarantees facility capacity, some projects with varying levels of entitlement may not have committed capacity.

Table B.1
GMOC 2014 – Eastern Chula Vista Residential Development Forecast
September 2013 – December 2018

PROJECT	SEPTEMBER 2013 - DECEMBER 2014 ISSUE*		JAN. - DECEMBER 2015 ISSUE*		JAN. - DECEMBER 2016 ISSUE*		JAN. - DECEMBER 2017 ISSUE*		JAN. - DECEMBER 2018 ISSUE*		Five Years Forecast SEPTEMBER 2013 - 201 ISSUE*	
	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF
OTAY RANCH												
Village 2 North - Baldwin & Sons	159	114	61	107	72	69	13	9	0	0	305	299
Village 2 East - Baldwin & Sons	0	372	0	300	0	0	0	0	0	0	0	672
Village 2 South - Baldwin & Sons	28	0	97	0	178	177	112	120	0	120	415	417
Village 2 West - Baldwin & Sons	0	0	0	0	27	0	0	40	0	40	27	80
Village 2 - JPB (Anacapa II R-9)	22	0	9	0	0	0	0	0	0	0	31	0
Village 2 - JPB (Presidio II R-7)	32	0	35	0	0	0	0	0	0	0	67	0
Village 2 - JPB (R-28)	0	0	0	96	0	0	0	0	0	0	0	96
Village 3 North - JPB	0	0	130	125	300	250	300	250	272	250	1002	875
Village 6 - Oakwood (Contessa)	0	108	0	0	0	0	0	0	0	0	0	108
Village 7 - Baldwin & Sons	1	0	0	0	0	0	0	0	0	0	1	0
Village 7 - JPB (Monte Sereno)	16	0	8	0	0	0	0	0	0	0	24	0
Village 7 - McMillin (Mosaic)	0	34	0	11	0	0	0	0	0	0	0	45
Village 8 East - JPB	0	0	0	0	130	125	300	250	300	250	730	625
Village 8 West - Otay Land Co.	0	0	60	118	59	153	60	141	100	140	279	552
Village 9 - Otay Land Co.	0	0	0	0	0	0	73	174	102	263	175	437
Freeway Commercial - Baldwin & Sons	0	0	0	448	0	0	0	0	0	0	0	448
Eastern Urban Center - McMillin (Millenia)	0	310	0	87	0	354	0	18	0	0	0	769
Otay Ranch Sub-Total	258	938	400	1,292	766	1,128	858	1,002	774	1,063	3056	5423
Eastlake Vistas - Lennar Homes (Lake Pointe)	136	85	0	0	0	0	0	0	0	0	136	85
Bella Lago - Shea	18	0	0	0	0	0	0	0	0	0	18	0
Bella Lago - Bella Lago LLC	0	0	0	0	8	0	8	0	8	0	24	0
Rolling Hills Ranch - McMillin (Verona)	15	0	0	0	0	0	0	0	0	0	15	0
SUB-TOTAL	427	1,023	400	1,292	774	1,128	866	1,002	782	1,063	3249	5508
TOTAL UNITS	1,450		1,692		1,902		1,868		1,845		8,757	
										Annual Average:	1,751	

*ISSUE = Building Permit

Source: City of Chula Vista Annual Residential Growth Forecast Years 2013 through 2018, Sept. 2013.

In order to be consistent with the Otay Ranch University Villages Project Draft Environmental Impact Report, this PFFP is based on the 2013 GMOC Annual Report. Generally, the findings of the 2014 Annual Report are similar to the 2013 report in that the same four Quality of Life Threshold Standards were found to be out of compliance. These standards include: Fire Response Times; Libraries; Police Priority Two Response Times; and Traffic (One Arterial Segment: Heritage Road between Olympic Parkway and Telegraph Canyon continues to non-compliant).

II.6.4. Village 3 North & a portion of Village 4 Development Summary

The proposed land uses for the Village 3 North Site Utilization Plan are shown on Exhibit 3, creates a pedestrian-oriented urban village containing 1,597 homes. Village 3 North contains a mixed-use village core with approximately 20,000 square feet of commercial/retail uses surrounded by multi-family attached and detached neighborhoods. A total of 1,002 single-family, 515 multi-family and 80 mixed use dwelling units are provided in Village 3 North, for a total projected population of 5,174 persons. Village 3 North also includes an elementary school and neighborhood park site. Small recreation sites (Private Open Space (P-OS) and Community-Purpose Facility (CPF) sites are provided throughout the project. Approximately 28.6 acres immediately south of the Otay Landfill remain Light Industrial. Just east of Heritage Road are 5.2 acres of Office uses, and an 8.2-acre Mixed-Use Office/Commercial site is just south of Heritage Road, providing job-producing land uses near the Village 3 North neighborhoods.

The proposed mix of residential land use designations for Village 3 North includes Residential Low–Medium Village (LMV), Medium (M), Mixed-Use Commercial (MUC) and Mixed-Use (MU). Non-residential land use designations include Parks and Recreation (P), Open Space (OS), Private Open Space (P-OS), Open Space Preserve (OS/P), Office (O), and Light Industrial (LI).

The Portion of Village 4 included in the project includes 29.7 acres, of which 15.6 acres (net) are designated Community Park (P-2), 8.6 acres remain designated OS, and 3.3 acres previously identified as OS are designated OS/P. Overall, Village 3 North and a portion of Village 4 include approximately 158.1 acres designated OS/P.

Regional access to Village 3 North and a portion of Village 4 is provided by State Route 125 (SR-125), which is located approximately 2.5 miles to the east, and also via I-805, located approximately 1.75 miles to the west. Additional north–south access is available from Interstate 5 (I-5), approximately 6 miles west of Village 3 North and a Portion of Village 4. SR-54 and SR-905 (approximately 6.5 miles north and 3 miles south, respectively, of Village 3 North provide regional east–west.

The Otay Ranch GDP provides for the expansion of the regional transit-way system into Otay Ranch. A transit stop/station is planned within the mixed-use village core area of Village 3 North. A transit stop/station is also proposed to be located at the intersection of Main Street and Heritage Road. Circulation within the villages also includes an extensive network of planned bicycle routes and pedestrian trails.

Parks, Recreation, and Open Space

The Village 3 North and Portion of Village 4 Parks, Recreation, and Open Space Plan is shown on Exhibit 7. The amenities include a community park (P-2), neighborhood park (P-1), pedestrian and bicycle facilities, private recreation sites (CPF) and Private Open Space (P-OS).

Community Park (P-2)

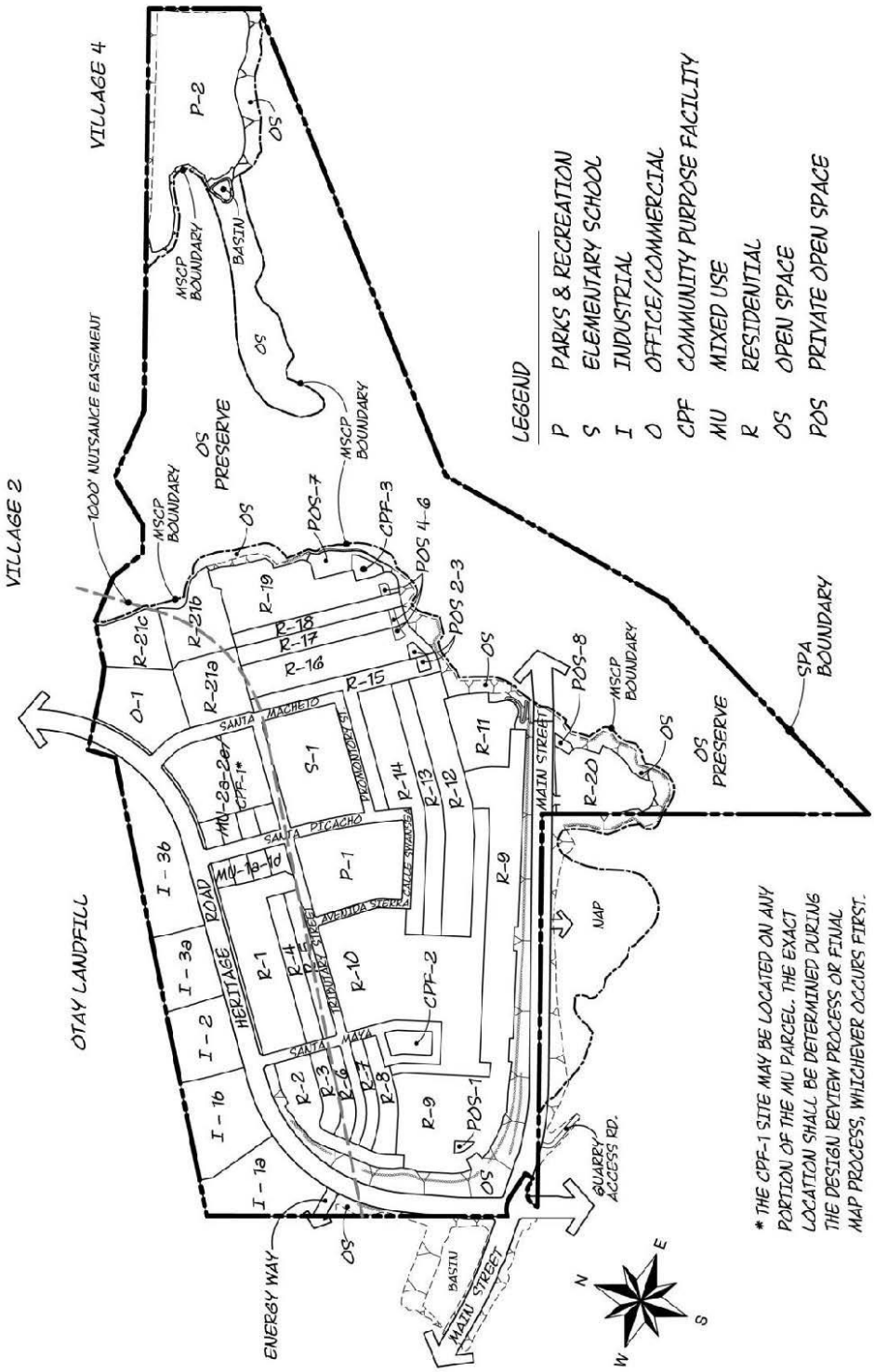
The Portion of Village 4 includes a 15.6-acre (net) community park in the planned 70-acre Village 4 Community Park site. Recreational facilities in community parks (P-2) include lighted ball fields and courts, recreation complexes (buildings and swimming pools), security lighting, parking, and areas for children's play, informal play, and picnicking. Park amenities will be in conformance with the City of Chula Vista Parks Master Plan.

Neighborhood Park (P-1)
This park is approximately 6.7-acres (net) in size and is located in the village core of Village 3 North. The park is within walking distance of the most densely populated portion of the village and adjacent to the elementary school to provide opportunities for shared facilities and programs. Amenities may include multipurpose open lawn areas, ball fields, lighted sports courts, picnic shelters, tot lots, parking, and restroom and maintenance buildings.

Pedestrian and Bicycle Facilities
Village 3 North is designed to accommodate the trails program described in the Otay Ranch Overall Design Plan, the City's Greenbelt Master Plan, and the Otay Valley Regional Park (OVRP) Concept Plan. Regional Trails located adjacent to roadways provide alternative circulation routes for pedestrians and bicycles separate from roadways. Village Pathways are multipurpose paths that link all of the Otay Valley Parcel villages and provide access to the regional transit-way stations.

Community-Purpose Facilities
Sites designated CPF are located throughout Village 3 North and total approximately 1.6 acres. Smaller private recreation facilities (CPFs) are distributed throughout the village to provide recreation opportunities within walking distances of homes. Amenities in these private recreation facilities may include open lawn areas, ball fields and sports courts, tot lots/play areas, picnic areas, swimming pools, and meeting rooms.

Private Open Space
P-OS areas totaling approximately 2.4 acres are located in Village 3 North. These areas are intended to serve residents within single-family neighborhoods. Facilities may include open lawn areas, ball fields and sports courts, tot lots/play areas, picnic areas, and swimming pools.



Source: Otay Ranch Village 3 North SPA Plan July 25, 2014

Exhibit 3
Village 3 North & portion of Village 4 Site Utilization Plan

Table B.2
Village 3 North & portion of Village 4 Site Utilization Table

Land Use Summary Neighborhood	*Unit Type*	*Acres*	*Units*	*Target Density*
Single Family				
R-1	SF	8.2	74	9.3
R-2	SF	3.8	34	9.2
R-3	SF	1.4	14	10.0
R-4	SF	2.6	25	9.6
R-5	SF	2.1	25	11.9
R-6	SF	1.4	16	11.4
R-7	SF	1.4	19	13.6
R-8	SF	2.2	21	9.5
R-9	SF	20.6	149	7.3
R-10	SF	19.4	170	8.8
R-11	SF	4.2	27	6.4
R-12	SF	7.7	70	9.1
R-13	SF	4.7	46	9.8
R-14	SF	6.0	67	11.2
R-15	SF	4.7	51	10.9
R-16	SF	5.9	54	9.2
R-17	SF	3.0	26	8.7
R-18	SF	2.5	19	7.6
R-19	SF	7.9	51	6.5
R-20	SF	5.5	44	8.0
Single Family Total		**115.2**	**1,002**	**8.7**
Multi Family Res.				
R-21a	MF	3.6	190	42.2
R-21b	MF	3.9	170	40.5
R-21c	MF	3.3	155	43.1
Multi Family Total		**10.8**	**515**	**41.9**
Mixed Use[1]				
MU-1a-d[2]	MU	2.1	80	38.1
MU-2a-f[3]	MU	6.1	0	0.0
Mixed Use Total		**8.2**	**80**	**9.9**
Residential Total		**134.2**	**1,597**	**11.8**

Land Use Summary		*Acres*	*Units*
Other			
Community Purpose Facilities			
CPF-1		2.6	
CPF-2[4]		1.1	
CPF-3		0.5	
CPF Total		**4.2**	
Private Open Space		**2.4**	
Parks			
P-1		7.9	
P-2 (V4)		17.8	
Parks Total		**25.7**	
School			
S-1		8.3	
School Total		**8.3**	
Office / Commercial			
O-1		5.2	
Office/Commercial Total		**5.2**	
Open Space Total		**35.4**	
Industrial			
I-1a		6.4	
I-1b		6.1	
I-2		4.4	
I-3a		4.2	
I-3b		7.5	
Industrial Total		**28.6**	
Preserve Total		**158.1**	
Circulation			
Internal Circulation		17.0	
External Circulation		16.9	
Circulation Total		**33.9**	
TOTAL		**436.0**	**1,597**

[1] MU-2a-f Lot acreage excludes 2.6 ac CPF-1 Lot.
[1] Minimum 20,000 sf commercial on MU 1 Site.
[2] The CPF site may be developed within the MU2 site or the O1 site
Note: MU-1 shall be comprised of a mix of multi-family residential above/behind retail/commercial uses.
[3] *MU-2 shall be comprised of 80% office uses and 20% commercial/retail uses.*
[4] 0.2 acres of the CPF-2 site may be used to satisfy all or a portion of the Common Useable Open Space requirement for neighborhoods within ¼ mile of the CPF-2 site.

Source: Otay Ranch Village 3 North SPA Plan, July 25, 2014

II.6.5. Phasing:

B. Density Transfer

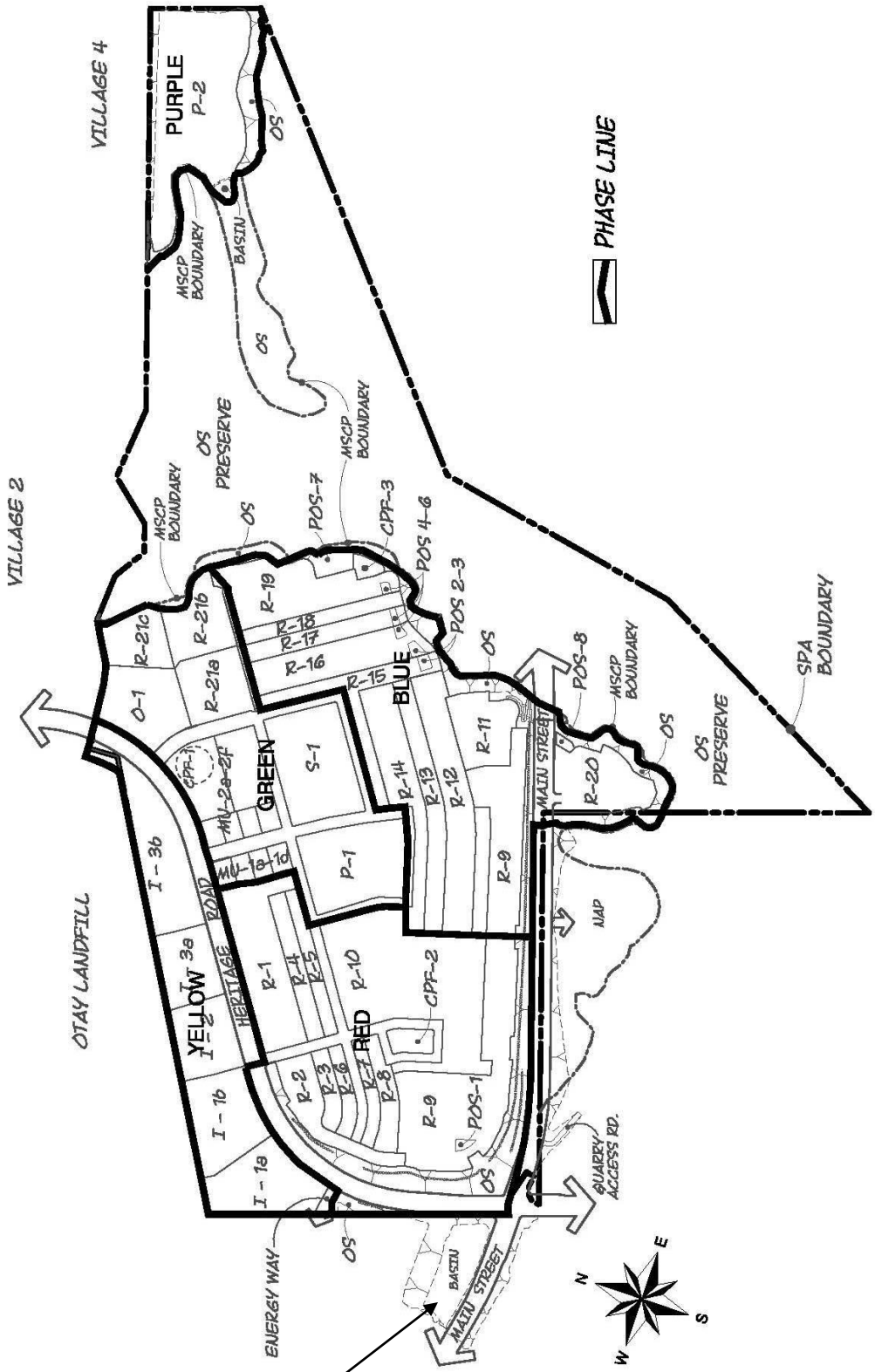
Development of the SPA Plan area will be completed in phases to ensure construction of necessary infrastructure and amenities for each phase as the project progresses. The Conceptual Phasing Table (Table B.4) and the Conceptual Phasing Plan (Exhibit 4) reflect anticipated market demand for a variety of housing types, commercial and business park development.

The Phasing Plan is non-sequential because sequential phasing is frequently inaccurate due to unforeseen market changes or regulatory constraints. Therefore, the SPA Plan and this PFFP permits non-sequential phasing by imposing specific facilities requirements for each phase to ensure the SPA Plan areas are adequately served and City Threshold Standards are met. Public parks and schools shall be phased as needed. The Phasing Plan is consistent with the SPA Plan Public Facilities Finance Plan (PFFP). The proposed phasing and actual construction timing of the SPA Plan area may be modified subject to compliance with provisions of this PFFP. Table B.3 provides a summary of the triggers that require public services and facilities.

Table B.3
Otay Ranch Village 3 North & a portion of Village 4 SPA
Phasing Plan Summary

Facility	Facility Description	Triggers	Financing Method
Streets	As presented in the *University Villages TIA, Otay Ranch Village 3 North, 8 East and 10, Revised July 31, 2014 by Chen + Ryan*	By Phasing & EDU's See Tables C.8 & C.9 in Traffic Section	TDIF[1] or Exaction
Potable Water	Zone 624 and 711 Improvements per OWD	Concurrent w/ Phasing	OWD CIP Fees
Recycled Water	Zone 680 Improvements per OWD	Concurrent w/ Phasing	OWD CIP Fees
Sewer	Connection to existing sewer system	Concurrent w/ Phasing	Fee Program
	Sewer Improvements per city	Concurrent w/ Phasing	Exaction
	Pay Fees	Concurrent w/ Building Permit	Fee Program
Storm Drain	Connect to Existing Drainage System	Concurrent w/ Grading Permit	Fee Program
Schools	No specific facility subject to fees	Pay School Fees	State Mandated Fees
Parks	Park Dedication & Construction	Concurrent with Phasing	Credit/PAD Fees
Recreation	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program
Library	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program
Fire & EMS	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program
Police	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program
Civic	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program
Corp Yard	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program
Other	Pay PFDIF Fee	Pay @ Bldg Permit	Fee Program

[1] TDIF Streets will be constructed by Developer (receiving TDIF credits). Non TDIF Streets are developer exaction.



The off-site water quality basin must be constructed with the first phase of Village 3 North

Source: Otay Ranch Village 3 North SPA Plan, July 25, 2014

Exhibit 4
Conceptual Phasing Plan

Table B.4
Village 3 North and a Portion of 4 Conceptual Phasing

		Red		Blue		Yellow		Green		Purple		ac*	du
	Land Use	ac	du	ac	du	ac	du	ac	du	ac	du	Total	Total
RESIDENTIAL													
R-1	SF	8.2	74									8.2	74
R-2	SF	3.8	34									3.8	34
R-3	SF	1.4	14									1.4	14
R-4	SF	2.6	25									2.6	25
R-5	SF	2.1	25									2.1	25
R-6	SF	1.4	16									1.4	16
R-7	SF	1.4	19									1.4	19
R-8	SF	2.2	21									2.2	21
R-9	SF	13.6	98									13.6	98
R-10	SF	17.6	155									17.6	155
Subtotal		**54.3**	**481**									**54.3**	**481**
R-9	SF			7.0	51							7.0	51
R-10	SF			1.8	15							1.8	15
R-11	SF			4.2	27							4.2	27
R-12	SF			7.7	70							7.7	70
R-13	SF			4.7	46							4.7	46
R-14	SF			6.0	67							6.0	67
R-15	SF			4.7	51							4.7	51
R-16	SF			5.9	54							5.9	54
R-17	SF			3.0	26							3.0	26
R-18	SF			2.5	19							2.5	19
R-19	SF			7.9	51							7.9	51
R-20	MF			5.5	44							5.5	44
Subtotal				**60.9**	**521**							**60.9**	**521**
R-21a thru R-21c	MF							10.8	515			10.8	515
MU-1a thru MU-1d	MF							2.1	80			2.1	80
Subtotal								**12.9**	**595**			**12.9**	**595**
NON-RESIDENTIAL													
MU-2a thru 2f	MU							6.1				6.1	
O-1	O							5.2				5.2	
CPF-1	CPF							2.6				2.6	
CPF-2	CPF	1.1										1.1	
CPF-3	CPF			0.5								0.5	
P-1	Park							7.9				7.9	
P-2	Park									17.8		17.8	
PVT OS-1	Park	0.2										0.2	
PVT OS-2 thru 8	Park			2.2								2.2	
S-1	School							8.3				8.3	
I-1a	Industrial					6.4						6.4	
I-1b	Industrial					6.1						6.1	
I-2	Industrial					4.4						4.4	
I-3a	Industrial					4.2						4.2	
I-3b	Industrial					7.5						7.5	
Subtotal		**1.3**		**2.7**		**28.6**		**30.1**		**17.8**		**80.5**	
TOTAL												**208.6**	**1,597**

* All acreages are net except those in the single family neighborhoods (R-1 through R-20)

B. Density Transfer

The Otay Ranch University Villages Project includes Villages 3 North and a Portion of Village 4 (Village 3 North), 8 East and 10. These villages are concurrently being planned and processed as separate SPA Plans. Pursuant to the Land Offer Agreement (LOA) between the City of Chula Vista and SSBT LCRE V, LLC (Applicant), 6,897 units are allocated amongst the three SPA Plan Areas. Because these villages will be built out over approximately 15 years and to accommodate future fluctuations in market demand, the LOA permits density transfers between villages of up to 15% of the total units authorized for each village. The criteria are provided in the SPA Plan. The criteria include specific requirements to be met in order for the density transfer to be approved without a SPA Plan Amendment. The Development Services Director will determine, based upon the scope of the proposed density transfer, whether additional information (i.e. traffic, air quality, global climate change, utilities, etc.) is necessary for Administrative Approval of the density transfer.

Pursuant to the LOA, the Applicant may transfer, at its discretion, up to fifteen percent (15%) of the units allocated to a village within the Project to another village within the same Project. The Development Services Director may approve, in his or her discretion, any transfer of units more than fifteen percent (15%) or any transfer of units to another village within Otay Ranch but not within the Project, if all of the following requirements are satisfied.

- The transfer of units between villages is consistent with the village design policies and the Entitlements for the village into which the units are being transferred;
- The total number of units for the Project (6,897) is not exceeded;
- Public facilities and infrastructure including schools and parks are provided based on the final number of units within each village or Planning area;
- The planned identity of the villages are preserved including the creation of pedestrian friendly and transit-oriented development; and
- Preserve conveyance obligations will continue to be based on the Final Map development area; and.
- The Applicant provides proof to the City of Chula Vista that all affected property owners (owners of any parcel subject to the proposed transfer) consent to the Density Transfer.

II.6.6. Development Impact Fee Programs

A. <u>Transportation</u>

The current Transportation Development Impact Fee (TDIF) Ordinance sets forth the calculation of development impact fees. This PFFP uses the CVMC Chapter 3.54 as the basis for the estimated TDIF fees. Table B.5 below illustrates the current fee schedule:

Table B.5 TDIF Schedule		
Land Use Classification		**TDIF Rate**
Residential (Low)	0-6 dwelling units per gross ac.	$12,494 per DU
Residential (Med.)	6.1-18 dwelling units per gross ac.	$9,995 per DU
Residential (High)	>18.1 dwelling units per gross ac.	$7,496 per DU
Senior housing		$4,998 per DU
Residential mixed use	>18 dwelling units per gross ac.	$4,998 per DU
Commercial mixed use	< 5 stories in height	$199,901 per 20,000 sq. ft.
General commercial (acre)		$199,901 per acre
Regional commercial (acre)	> 60 acres or 800,000 sq. ft.	$137,432 per acre
High rise commercial (acre)	> 5 stories in height	$349,826 per acre
Office (acre)	< 5 stories in height	$112,444 per acre
Industrial RTP (acre)		$99,958 per acre
18-hole golf course		$874,566 per acre
Medical center		$812,097 per acre

Source: Form 5509 11/7/2013

The total number of estimated DUs and commercial acres for the Village 3 & a Portion of 4, SPA Plan amendment is presented in Table B.3.

B. Public Facilities

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 7, 2006 by adoption of Ordinance 3050. The current fee for single-family residential development is $9,654/unit, multi-family residential is $9,127/unit, commercial (including office) development is $29,921/acre and industrial development is $9,415/acre. The PFDIF amount is subject to change as it is amended from time to time. Both residential and non-residential development impact fees apply to the project. The calculations of the PFDIF due for each facility are addressed in the following sections of this report. Table B.6 provides a breakdown of what facilities the fee funds.

Table B.6 Public Facilities Estimated DIF Fee Components				
Component	**Single Family /DU**	**Multi-Family /DU**	**Commercial /Acre[1]**	**Industrial /Acre**
Civic Center	$2,756	$2,610	$8,792	$2,779
Police	$1,671	$1,805	$7,896	$1,703
Corporation Yard	$450	$360	$7,635	$3,596
Libraries	$1,582	$1,582	$0	$0
Fire Suppression	$1,393	$1,001	$3,681	$731
GIS, Computers, Telecom & Records Management	$0	$0	$0	$0
Administration	$601	$568	$1,917	$606
Recreation	$1,201	$1,201	$0	$0
Total per Residential Unit	**$9,654**	**$9,127**		
Total per Com'l/Ind. Acre			**$29,921**	**$9,415**
[1]Office included in Commercial				

Source: Form 5509 *11/7/2013*

III. FACILITY ANALYSIS

This portion of the PFFP contains 13 separate subsections for each facility addressed by this report. Of the 13 facilities, 11 have adopted Threshold Standards; the Civic Center and Corporation Yard do not. Table B.7 highlights the level of analysis for each facility.

Table B.7
Level of Analysis

Facility	Citywide	East of I-805	Service Area Sub-basin	Special District
Traffic		✓		
Pedestrian Bridges			✓	
Police	✓			
Fire/EMS	✓		✓	
Schools				✓
Libraries	✓			
Parks, Recreation & Open Space		✓		
Water			✓	✓
Sewer			✓	
Drainage			✓	
Air Quality	✓			
Civic Center	✓			
Corp. Yard	✓			
Fiscal	✓		✓	

Each subsection analyzes the impact of the Otay Ranch Village 3 & a Portion of 4 SPA Project based upon the adopted Threshold Standards. The analysis is based upon the specific goal, objective, and Threshold Standard and implementation measures. The proposed SPA plan is used to determine facility adequacy and is referenced within the facility section.

Each analysis is based upon the specific project processing requirements for that facility, as adopted in the Growth Management Program. These indicate the requirements for evaluating the project consistency with the threshold ordinance at various stages (General Development Plan, SPA Plan/Public Facilities Finance Plan, Tentative Map, Final Map and Building Permit) in the development review process.

A service analysis section is included which identifies the service provided by each facility. The existing plus forecasted demands for the specific facility are identified in the subsection based upon the adopted Threshold Standard.

Each facility subsection contains an adequacy analysis followed by a detailed discussion indicating how the facility is to be financed. The adequacy analysis provides a determination of whether or not the Threshold Standard is being met and the finance section provides a determination if funds are available to guarantee the improvement. If the threshold standard is not being met, mitigation is recommended in the Threshold Compliance subsection, which proposes the appropriate conditions or mitigation to bring the facility into conformance with the Threshold Standard.

IV. TRAFFIC

IV.1. Threshold Standard

A. Citywide: Maintain Level of Service (LOS) "C" or better, as measured by observed average travel speed on all signalized arterial segments, except that during peak hours a LOS of "D" can occur for no more than two hours of the day.

B. West of Interstate 805: Those signalized intersections which do not meet the standard above, may continue to operate at their current (year 1991) LOS, but shall not worsen.

C. Per the Otay Ranch General Development Plan, the internal village streets and roads are not expected to meet the Citywide LOS standard of "C' or better.

IV.2. Service Analysis

The Public Works Department of the City of Chula Vista is responsible for ensuring that traffic improvements are provided to maintain a safe and efficient street system within the City. Through project review, City staff ensures the timely provision of adequate local circulation system capacity in response to planned development while maintaining acceptable LOS. To accomplish their review the Public Works Department has adopted guidelines for Traffic Impact Studies (January, 2001). These guidelines ensure uniformity in the preparation of traffic studies. Further, the guidelines assist in maintaining acceptable standards for planned new roadway segments and signalized intersections at the build out of the City's General Plan and Circulation Element. The Circulation Element of the General Plan serves as the overall facility master plan.

In conformance with requirements of the Congestion Management Program (CMP), an analysis of CMP freeways and arterials is required for any project that generates 2,400 daily or 150 peak hour trips. The *University Villages TIA, Otay Ranch Village 3 North, 8 East and 10, July 31, 2014, by Chen + Ryan* is the basis of the PFFP and the traffic section of the *Environmental Impact Report for the Otay Ranch University Villages Project, August 2014 by Dudek*. The TIA document is referred to as the "Chen+Ryan TIA" throughout this PFFP. The University Villages Project Environmental Impact Report (EIR) is referred to as the Project EIR throughout this PFFP.

The Chen+Ryan TIA addresses both existing and planned circulation system conditions, details necessary improvements and outlines the incremental circulation improvements based upon planned University Villages Project phasing. Further, the Chen+Ryan TIA also include an evaluation of impacts that are considered significant as a result of project development.

IV.3 Trip Generation and Phasing

A. Background:

The University Villages project includes Otay Ranch Villages 3 North, a portion of Village 4, Village 8 East, and Village 10. The Village 3 North project is expected to generate traffic in 2015, Village 8 East in 2020 and Village 10 in 2025. Necessary project offsite roadway and utility corridor improvements are anticipated to constructed by others in advance or concurrent with Village 3 North.

B. Project Trip Generation

According to the Chen+Ryan TIA, the trip generation associated with the University Villages project including Village 3 North & a portion of Village 4 utilized the SANDAG's *Guide to Vehicular Traffic Generation Rates for the San Diego Region* (SANDAG, April 2002). Tables C.6 through C.9 display daily, as well as AM and PM peak hour project trips for each of the four development phases (2015, 2020, 2025, and 2030), respectively.

As shown in Table C.1, the project would generate a total of 6,110 daily trips by Year 2015, including 488 AM peak hour trips and 610 PM peak hour trips, all of which would be generated by Village 3 North. No development is anticipated in the portion of Village 4 that is part of the project, by 2015.

Table C.1
Village 3 North & portion of 4
Project Trip Generation - Year 2015

Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	408	10 / DU	4,080	8	326 (98-in / 228-out)	10	408 (286-in / 122-out)
Multi-Family	250	8 / DU	2,000	8	160 (32-in / 128-out)	10	200 (286-in / 122-out)
CPF	1.0 AC	30 / AC	30	5	2 (1-in / 1-out)	8	2 (1-in / 1-out)
Village 3N by 2015			*6,110*		*488* *(131-in / 357-out)*		*610* *(427-in / 184-out)*
Total by 2015			**6,110**		**488** **(131-in / 357-out)**		**610** **(427-in / 184-out)**

Source: Chen+Ryan TIA

Table C.2 indicates that Village 3 North & a portion of Village 4 would generate a total of 21,459 daily trips by the Year 2020, including 2,007 AM peak hour trips and 2,214 PM peak hour trips. The portion of Village 4 would be fully built out. Together with a partially built-out Village 8 East, approximately 40,736 daily trips would be generated by the Year 2020; including 3,724 AM peak hour trips and 4,120 PM peak hour trips (Chen+Ryan TIA). No development is anticipated in Village 10 by 2020.

Table C.2 Village 3 North & portion of 4 Project Trip Generation - Year 2020							
Village 3 North							
Land Use	**Units**	**Trip Rate**	**Daily Trips**	**AM Peak Hour**		**PM Peak Hour**	
				%	**Trips**	**%**	**Trips**
Single Family	1,002 DU	10 / DU	10,020	8	802 (240-in / 561-out)	10	1,002 (701-in / 301-out)
Multi-Family	595 DU	8 / DU	4,760	8	381 (76-in / 305-out)	10	476 (333-in / 143-out)
Mixed-Use Commercial	10 KSF	110 / KSF	1,100	3	33 (20-in / 13-out)	9	99 (50-in / 50-out)
Office	9.8 AC	300 / AC	2,940	14	412 (370-in / 41-out)	13	382 (76-in / 306-out)
Light Industrial	10.2 AC	90 / AC	918	11	101 (91-in / 10-out)	12	110 (22-in / 88-out)
CPF	1.5 AC	30 / AC	45	5	2 (1-in / 1-out)	8	4 (2-in / 2-out)
Elementary School	8.3 AC	90 / AC	747	32	239 (143-in / 96-out)	9	67 (27-in / 40-out)
Neighborhood Park	7.8 AC	5 / AC	39	4	2 (1-in / 1-out)	8	3 (2-in / 2-out)
Village 3 North by 2020			**20,569**		**1,971 (943-in / 1,028-out)**		**2,143 (1,213-in / 930-out)**
Village 4							
Community Park	17.8 AC	50 / AC	890	4	36 (18-in / 18-out)	8	71 (36-in / 36-out)
Village 4 by 2020			**890**		**36 (18-in / 18-out)**		**71 (36-in / 36-out)**
Total by 2020			**21,459**		**2,007 (961-in / 1,048 – out)**		**2,214 (1,249-in / 966 – out)**

Source: Chen+Ryan TIA

As shown in Table C.3, Village 3 North & a portion of Village 4 would generate a total of 23,144 daily trips by Year 2025, including 2,104 AM peak hour trips and 2,384 PM peak hour trips. Together with a fully built out Village 8 East (with the exception of the community park) and a partially built out Village 10, approximately 64,308 daily trips would be generated by Year 2025, including 5,474 AM peak hour trips and 6,444 PM peak hour trips (Chen+Ryan TIA).

Table C.3 Villages 3 North & portion of 4 Project Trip Generation - Year 2025							
Land Use	**Units**	**Trip Rate**	**Daily Trips**	**AM Peak Hour**		**PM Peak Hour**	
				%	**Trips**	**%**	**Trips**
Village 3 North							
Single Family	1,002 DU	10 / DU	10,020	8	802 (240-in / 561-out)	10	1,002 (701-in / 301-out)
Multi-Family	595 DU	8 / DU	4,760	8	381 (76-in / 305-out)	10	476 (333-in / 143-out)
Mixed-Use Commercial	20 KSF	110 / KSF	2,200	3	66 (40-in / 26-out)	9	198 (99-in / 99-out)
Office	9.8 AC	300 / AC	2,940	14	412 (370-in / 41-out)	13	382 (76-in / 306-out)
Light Industrial	16.7 AC	90 / AC	1,503	11	165 (149-in / 17-out)	12	180 (36-in / 144-out)
CPF	1.5 AC	30 / AC	45	5	2 (1-in / 1-out)	8	4 (2-in / 2-out)
Elementary School	8.3 AC	90 / AC	747	32	239 (143-in / 96-out)	9	67 (27-in / 40-out)
Neighborhood Park	7.8 AC	5 / AC	39	4	2 (1-in / 1-out)	8	3 (2-in / 2-out)
Village 3N by 2025			**22,254**		**2,068 (1,021-in / 1,047-out)**		**2,313 (1,276-in / 1,036-out)**
Village 4							
Community Park	17.8 AC	50 / AC	890	4	36 (18-in / 18-out)	8	71 (36-in / 36-out)
Village 4 by 2025			**890**		**36 (18-in / 18-out)**		**71 (36-in / 36-out)**
Total by 2025			**23,144**		**2,104 (1,039-in / 1,065-out)**		**2,384 (1,312-in / 1,107-out)**

Source: Chen+Ryan TIA

Table C.4 Village 3 North & portion of 4 Project Trip Generation - Year 2030							
Land Use	**Units**	**Trip Rate**	**Daily Trips**	**AM Peak Hour**		**PM Peak Hour**	
				%	**Trips**	**%**	**Trips**
Village 3 North							
Single Family	1,002 DU	10 / DU	10,020	8	802 (240-in / 561-out)	10	1,002 (701-in / 301-out)
Multi-Family	595 DU	8 / DU	4,760	8	381 (76-in / 305-out)	10	476 (333-in / 143-out)
Mixed-Use Commercial	20 KSF	110 / KSF	2,200	3	66 (40-in / 26-out)	9	198 (99-in / 99-out)
Office	16.1 AC	300 / AC	4,830	14	676 (609-in / 68-out)	13	628 (126-in / 502-out)
Light Industrial	23.1 AC	90 / AC	2,079	11	229 (206-in / 23-out)	12	249 (50-in / 200-out)
CPF	1.5 AC	30 / AC	45	5	2 (1-in / 1-out)	8	4 (2-in / 2-out)
Elementary School	8.3 AC	90 / AC	747	32	239 (143-in / 96-out)	9	67 (27-in / 40-out)
Neighborhood Park	7.8 AC	5 / AC	39	4	2 (1-in / 1-out)	8	3 (2-in / 2-out)
Village 3North by 2030			**24,720**		**2,396 (1,316-in / 1,080-out)**		**2,627 (1,339-in / 1,288-out)**
Village 4							
Community Park	17.8 AC	50 / AC	890	4	36 (18-in / 18-out)	8	71 (36-in / 36-out)
Village 4 by 2030			**890**		**36 (18-in / 18-out)**		**71 (36-in / 36-out)**
Total by 2030			**25,610**		**2,432 (1,334-in / 1,098-out)**		**2,698 (1,375-in / 1,324-out)**

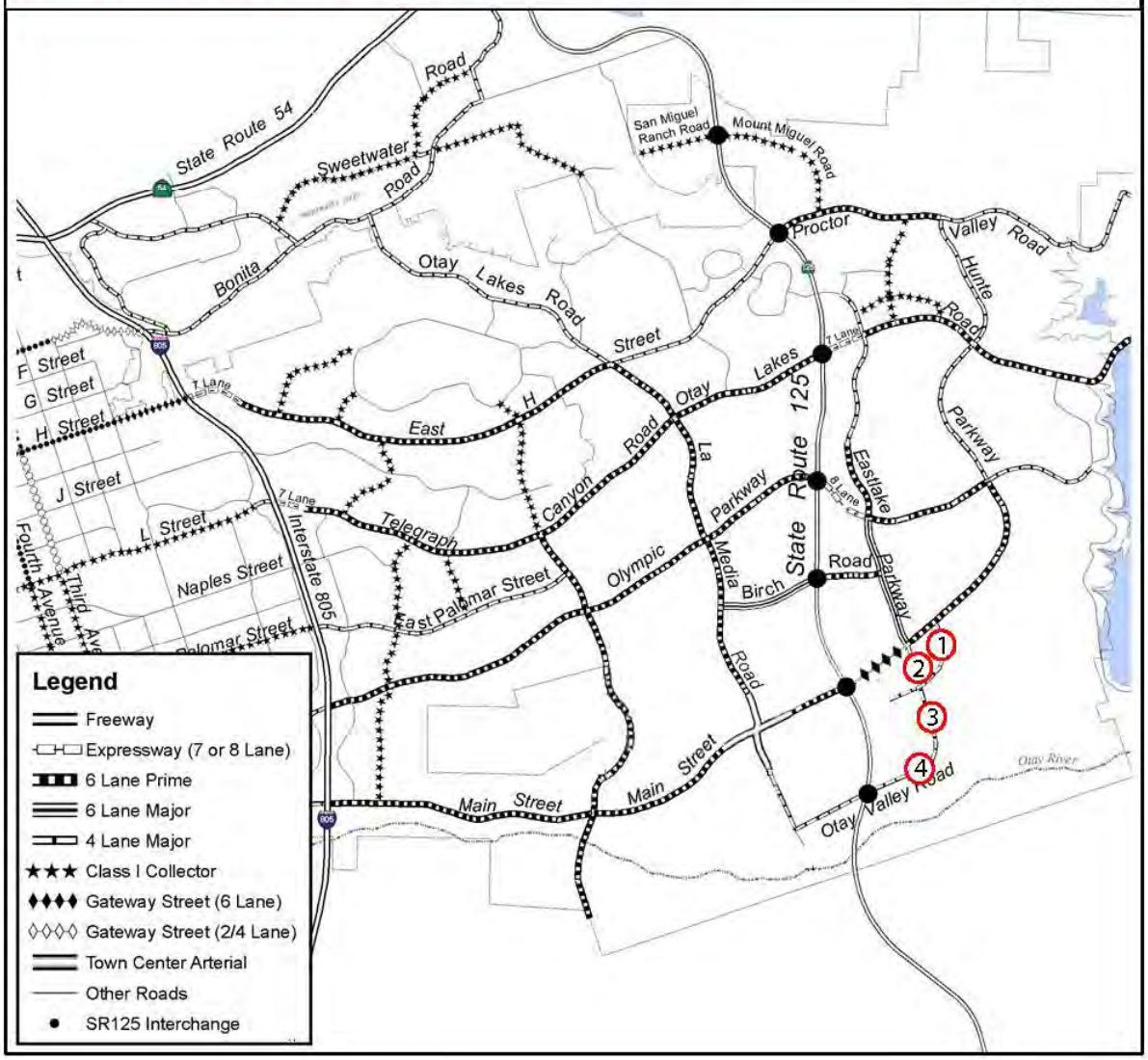
Source: Chen+Ryan TIA

As shown in Table C.4, Village 3 North & a portion of Village 4 would generate a total of 25,610 daily trips by Year 2030, including 2,432 AM peak hour trips and 2,698 PM peak hour trips. By 2030, the proposed project including Village 8 East and Village 10 would be built out and generate a total of 77,663 daily trips, including 6,819 AM peak hour trips and 7,816 PM peak hour trips (Chen+Ryan TIA).

The Chen+Ryan TIA disaggregated the project trips into those that would remain within the project site (internally captured), and those that would leave the project site (external trips). Only the external trips were distributed and assigned to the study area roadways and intersections.

PROPOSED CHANGES

1. Extend Discovery Falls Drive southerly and westerly to connect with Village 9 Street "B" , and designate Discovery Falls Drive between Hunte Parkway and the University/RTP driveway as a 4-lane Major Road, and designate Discovery Falls Drive between the University/RTP driveway and Village 9 Street "B" as a Class II Collector;
2. Rename Eastlake Parkway between Hunte Parkway and Discovery Falls Drive as "University Drive". University Drive between Hunte Parkway and University Driveway #1 (northern) will retain its classification as a 4-lane Major Road, and reclassify the segment between University Driveway #1 and Discovery Fall Drive from a 4-lane Major Road to a Class II Collector;
3. Rename Eastlake Parkway between Discovery Falls Drive and Otay Valley Road as Village 10 Street "B" (interim - an official street name will be assigned at a later time), and reclassify this segment from a 4-lane Major Road to a 2-lane non-Circulation Element road (Residential Promenade Street w/ Village Pathway); and
4. Reclassify Otay Valley Road, east of Village 9 Street "B" from a 4-lane Major Road to a 2-lane non-Circulation Element road (Secondary Village Entry w/ Median).



Source: Chen+Ryan TIA

Exhibit 5
Circulation Plan

Chula Vista Circulation Element

The City Council recently certified the Supplemental Environmental Impact Report (SEIR) and adopted the related Amendments to the City of Chula Vista General Plan (GPA-09-01) and Otay Ranch General Development Plan (PCM-09-11). The adopted Circulation Element and the proposed changes are shown in Exhibit 5. The Chen+Ryan TIA analyzed the City's Circulation Element and recommended changes based on average daily trips (ADT) and the trigger points for needed improvements. The detailed analysis can be found in Section 11 of the Chen+Ryan TIA.

IV.4. PFFP Assessment

The purpose of this Public Facilities Financing Plan (PFFP) assessment is to determine on-site and off-site improvement triggers required for the proposed project. Subsequent Section A discusses on-site and adjacent facilities needed based on access and frontage. Section B discusses Equivalent Dwelling Units (EDUs) associated with each of the mitigation measures identified in Chen+Ryan TIA Chapters 6.0 through 9.0 (analysis years 2015, 2020, 2025, and 2030).

A. Internal Intersection Traffic Signal Warrants

Traffic signal warrants were conducted by Chen+Ryan for Villages 3 North, 8 East, and 10. Due to the fact that all of the intersections are not yet built and actual traffic volumes cannot be counted, Figure 4C-103 (CA) of the California Manual on Uniform Traffic Control Devices (MUTCD) was utilized to determine whether a traffic signal would be warranted at identified locations utilizing projected traffic volumes. Table C.5 summarizes the findings. Signal warrants worksheets are included in the Chen+Ryan TIA Appendix A. As shown below, no internal intersection within Village 3 North & portion of 4 SPA Plan requires a traffic signal.

Table C.5
Village 3 North & portion of 4
Summary of Internal Intersection Signal Warrants

Intersection	Warrant #1 – Minimum Vehicular	Warrant #2 – Interruption of Continuous Traffic	Warrant #3 – Combination (fulfilled 80% of Warrants #1 & #2)	Traffic Signal
Santa Maya / Tributary Street	No	No	No	No
Avenida Sierra / Tributary Street	No	No	No	No
Santa Picacho / Tributary Street	No	No	No	No
Santa machete / Tributary Street	No	No	No	No

Source: Chen+Ryan TIA

B. Access / Frontage Thresholds

Based on the Chen+Ryan TIA, the facilities presented in this section are required. This requirement is not based on traffic generation, but on frontage development. These roadways must be built when the land uses fronting the roads are developed to provide sufficient number of access points according to the City's Subdivision Manual.

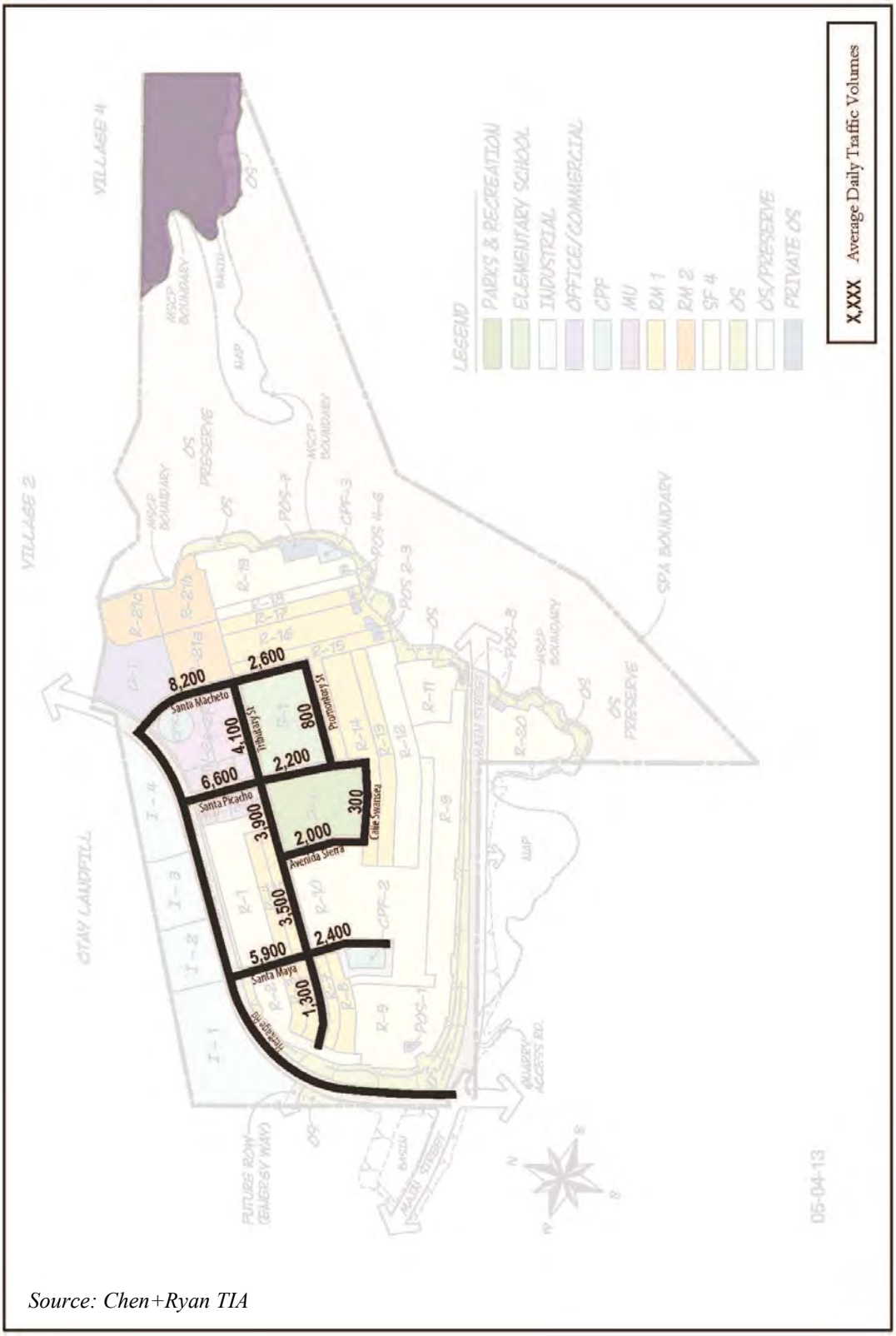
The Subdivision Manual requires that "single-family residential development shall not exceed 120 residential lots unless two points of access are provided and shall not exceed 200 residential lots unless three points of access are provided". The project applicant may also conduct a traffic study (prior to the 201st EDU) which shows traffic operations with one or two access points are sufficient from an LOS perspective and a Fire/Emergency Response standpoint, to serve individual neighborhoods to the satisfaction of the Development Services Director. Table C.8 & C.9 summarizes the PFFP thresholds for Village 3 North based on frontage and access requirements.

Table C.6 displays recommended roadway classifications and resulting LOS for the Village 3 North internal roadway segments. LOS D is considered acceptable for internal roadways within Otay Ranch. As shown in the table, all of the analyzed internal roadway segments within Village 3 North would operate at acceptable LOS A under buildout conditions with the Chen+Ryan recommended roadway classifications (see Exhibit 6).

Table C.6
Village 3 North – Internal Roadway Segment Performance

Internal Roadway	Segment	Estimated ADT	Recommended Classification	LOS D Threshold	LOS
Tributary Street	from Santa Macheto to Santa Picacho	4,100	Residential Promenade Street (2-lane)	8,400	A
Tributary Street	from Santa Picacho to Avenida Sierra	3,900	Residential Promenade Street (2-lane)	8,400	A
Tributary Street	from Avenida Sierra to Santa Maya	3,500	Residential Promenade Street (2-lane)	8,400	A
Tributary Street	from West of Santa Maya	1,300	Residential Promenade Street (2-lane)	8,400	A
Santa Maya	from Heritage Road to Tributary Street	5,900	Secondary Village Entry with Median (3-lane)	13,500	A
Santa Maya	from Tributary Street to Sunland Street	2,400	Residential Promenade Street (2-lane)	8,400	A
Avenida Sierra	from Tributary Street to Calle Swansea	2,000	Parkway Residential (2-lane)	8,400	A
Calle Swansea	from Santa Picacho to Avenida Sierra	300	Residential Promenade Street (2-lane)	8,400	A
Santa Picacho	from Heritage Road to Tributary Street	6,600	Secondary Village Entry with Median (3-lane)	13,500	A
Santa Picacho	from Tributary Street to Calle Swansea	2,200	Secondary Village Entry with Median (3-lane)	13,500	A
Promontory Street	from Santa Macheto to Santa Picacho	800	Residential Promenade Street (2-lane)	8,400	A
Santa Macheto	from Heritage Road to Tributary Street	8,200	Secondary Village Entry with Median (3-lane)	13,500	A
Santa Macheto	from Tributary Street to Promontory Street	2,600	Secondary Village Entry with Median (3-lane)	13,500	A

Source: Chen Ryan TIA



Source: Chen+Ryan TIA

Exhibit 6
PFFP Roadways for Village 3 North

Internal Streets:
Table C.7 summarizes the PFFP thresholds for Village 3 North based on frontage and access requirements.

Table C.7
Village 3 North Internal Neighborhood Streets

Neigh-borhood	Frontage/Internal Streets (FROM/TO)	Primary Access[1]	Secondary Access[2,3]
R-1	• Santa Maya (Heritage/Zander Street) • Calle Thania (Santa Maya/Zander St.) • Zander Street (Santa Maya/Calle Thania)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary St) • Tributary Street (Santa Picacho/Calle Thania) • Calle Thania (Tributary Street/Zander Street)
R-2	• Santa Maya (Heritage/Zander Street) • Langdon Street (Zander Street/Teagle Street) • Zander Street (Santa Maya/Langdon Street) • Covina Place (Cul-de-sac)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Langdon Street)
R-3	• Santa Maya (Heritage/Tributary Street) • Zander Street (Santa Maya/ Langdon Street)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Santa Maya)
R-4	• Santa Maya (Heritage/Triburaty Street) • Zander Street (Santa Maya/Calle Thania)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Calle Thania) • Calle Thania (Tributary Street/Zander Street)
R-5	• Santa Maya (Heritage/Tributary Street) • Tributary Street (Santa Maya/Calle Thania)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Calle Thania)
R-6	• Santa Maya (Heritage/Tributary Street) • Tributary Street (Santa Maya/Langdon Street)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Santa Maya)
R-7	• Santa Maya (Heritage/Tributary Street) • Tributary Street (Santa Maya/Langdon Street)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Santa Maya)
R-8	• Santa Maya (Heritage/Teagle Street) Teagle Street (Santa Maya/Langdon Street)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Langdon Street) • Langdon Street (Tributary Street/Teagle Street)

Table C.7 Village 3 North Internal Neighborhood Streets			
Neigh-borhood	**Frontage/Internal Streets (FROM/TO)**	**Primary Access[1]**	**Secondary Access[2,3]**
R-9	• Santa Maya (Heritage/Teagle Street) • Teagle Street (Santa Maya/Langdon Street) • Langdon Street (Teagle Street/Patchen Avenue) • Avenida Tejon (Teagle Street/Langdon Street) • Kocher Avenue (Teagle Street/Langdon Street)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Langdon Street)
R-10	• Santa Maya (Heritage/Sunland Street) • Teagle Street (Santa Maya/Lexington Avenue) • Lexington Avenue (Teagle Street/Langdon Street) • Calle Merced (Lexington Avenue/Santa Picacho) • Sunland Street (Lexington Avenue/Avenida Prado) • Tributary Street (Santa Maya/Avenida Sierra) • Nancarrow Avenue (Tributary Street/Sunland Street) • Mammoth Avenue (Tributary Street/Sunland Street) • Avenida Prado (Tributary Street/Sunland Street) • Avenida Sierra (Tributary Street/Calle Swansea) • Calle Swansea (Avenida Prado/Avenida Sierra)	• Santa Maya from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Santa Maya)
R-11	• Santa Picacho (Heritage/Calle Merced) • Calle Merced (Santa Picacho/Santa Macheto) • Avenida Sohn (Calle Merced/Langdon Street) • Paseo Vaccaro (Calle Merced/Langdon Street) • Patchen Avenue (Calle Merced/Langdon Street) • Langdon Street (Avenida Sohn/Patchen Avenue)	• Santa Picacho from Heritage	• Santa Macheto (Heritage/Calle Merced) • Calle Merced (Santa Macheto/Santa Picacho)

Table C.7 Village 3 North Internal Neighborhood Streets			
Neigh-borhood	**Frontage/Internal Streets (FROM/TO)**	**Primary Access[1]**	**Secondary Access[2,3]**
R-12	• Santa Picacho (or Santa Macheto) (Heritage/Calle Merced) • Calle Merced (Avenida Prado/Santa Macheto) • Sunland Street (Avenida Prado/Santa Macheto) • Avenida Prado (Calle Merced/Sunland Street) • Santa Macheto (Calle Merced/Sunland Street)	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Maya (Heritage/Sunland Street) • Sunland Street (Santa Maya/Avenida Prado)
R-13	• Santa Picacho (or Santa Macheto) (Heritage/Sundland Street) • Sunland Street (Avenida Prado/Santa Macheto) •	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Maya (Heritage/Sunland Street) • Sunland Street (Santa Maya/Avenida Prado)
R-14	• Santa Picacho (or Santa Macheto) (Heritage/Calle Swansea) • Calle Swansea (Avenida Prado/Santa Picacho) •	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Maya (Heritage/Tributary Street) • Tributary Street (Santa Maya/Avenida Sierra) • Avenida Sierra (Tributary Street/Calle Swansea)
R-15	• Santa Picacho (or Santa Macheto) (Heritage/Promontory Street) • Promontory Street (Santa Picacho/Avenida Ainara) • Santa Macheto (Tributary Street/Calle Merced)	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Maya (Heritage/Tributary Street) • Tributary Street (Santa Maya/Santa Macheto)
R-16	• Santa Picacho (or Santa Macheto) (Heritage/Promontory Street) • Promontory Street (Santa Picacho or Santa Macheto /Avenida Ainara) • Avenida Ainara (Tributary Street/Calle Merced) • Calle Merced (Santa Macheto/Arcadia Avenue)	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Macheto (Heritage/Tributary Street) • Tributary Street (Santa Macheto/Avenida Ainara)
R-17	• Santa Picacho (or Santa Macheto) (Heritage/Promontory Street) • Tributary Street (Santa Picacho or Santa Macheto /Arcadia Avenue) • Arcadia Avenue (Tributary Street/Calle Merced)	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Macheto (Heritage/Tributary Street) • Tributary Street (Santa Macheto/Arcadia Avenue)
R-18	• Santa Picacho (or Santa Macheto) (Heritage/Promontory Street) • Promontory Street (Santa Picacho or Santa Macheto /Arcadia Ave.) • Arcadia Avenue (Tributary Street/Calle Merced)	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Macheto (Heritage/Tributary Street) • Tributary Street (Santa Macheto/Arcadia Avenue)

Table C.7 Village 3 North Internal Neighborhood Streets			
Neigh-borhood	**Frontage/Internal Streets (FROM/TO)**	**Primary Access[1]**	**Secondary Access[2,3]**
R-19	• Santa Picacho (or Santa Macheto) (Heritage/Promontory Street) • Promontory Street (Santa Picacho/Avenida Avalon) • Avenida Hermosa (Tributary Street/Calle Merced) • Avenida Avalon (Tributary Street/Promontory Street)	• Santa Picacho (or Santa Macheto) from Heritage	• Santa Macheto (Heritage/Tributary Street) • Tributary Street (Santa Macheto/Avenida Avalon
R-20	• Main Street (Heritage/Avenida Seneca) • Avenida Seneca	• Main Street	• N/A – fewer than 120 units
R-21	• Santa Macheto (Heritage/Tributary Street) • Kire Court	• Santa Macheto from Heritage	• Santa Picacho (Heritage/Tributary Street) • Tributary Street (Santa Picacho/Avenida Avalon)
MU1	• Santa Picacho (Heritage to Tributary Street)	• Santa Picacho from Heritage	• Santa Maya (Heritage/Tributary Street) • Tributary Street (Santa Maya/Santa Picacho)

Notes:
1 Primary access identified is one possible route. Alternative access may be provided subject to the approval of the Director of Development Services.
2 Secondary access is required when more than 120 units are served by the primary access. The identified secondary access is one possible route; alternative secondary access may be provided subject to the approval of the Director of Development Services.
3 If total units utilizing either the primary or secondary routes of access exceeds 200, a third access may be required, subject to the approval of the Director of Development Services.

Source: Chen+Ryan TIA

Off-Site Project Frontage/Access

Table C.8 summarized the roadway segments and intersection to be constructed by the project for Frontage and Access, their cross-section/geometric configuration, as well as their associated EDU threshold.

Table C.8 Village 3 North & portion of 4 Frontage And Access Threshold				
Street	**Segment**	**Classifi-cation[1]**	**EDU threshold**	**Year assumed build in TIA**
Heritage Road	Village 3 Northern Boundary to Santa Macheto	6-Ln w/RM	612th EDU of Village 3	2020
Heritage Road	Santa Macheto to Santa Picacho	6-Ln w/RM	201st EDU of Village 3	2015
Heritage Road	Santa Picacho to Santa Maya	6-Ln w/RM	121st EDU of Village 3	2015

Table C.8 Village 3 North & portion of 4 Frontage And Access Threshold				
Street	**Segment**	**Classifi-cation**[1]	**EDU threshold**	**Year assumed build in TIA**
Heritage Road	Santa Maya to Main Street	6-Ln w/RM	prior to the first Final Map of Village 3	2015
Main Street	Heritage Road to Village 3 R-20 Driveway (Int #66)	2-Ln w/ RM 6-Ln w/RM	prior to the first Final Map of Village 3 R-20 widen to 6-Ln w/ RM in conjunction with the construction of Main Street Bridge	2020 2025
Village / Intersection #	**Intersection**	**Control**[2]	**EDU threshold**	
Village 3 - #61	Santa Macheto / Heritage Road	AWSC Signal	201st EDU of Village 3 612th EDU of Village 3	2020
Village 3 – #62	Santa Piacho / Heritage Road	AWSC Signal	121st EDU of Village 3 612th EDU of Village 3	2015
Village 3 – #63	Santa Maya / Heritage Road	AWSC Signal	prior to the first Final Map of Village 3 612th EDU of Village 3	2015
Village 3 – #65	Quarry Driveway / Main Street	AWSC Signal	prior to the first Final Map of Village 3 R-20 Signalized in conjunction with the construction of Main St Bridge	2020 2025
Village 3 - #66	Village 3 North R-20 Driveway / Main Street	AWSC Signal	prior to the first Final Map of Village 3 R-20 Signalized in conjunction with the construction of Main St Bridge	2020 2025
Village 4 - #67	La Media Road / Village 4 Driveway/Santa Luna St.	Signal	prior to the first Final Map of Village 4	2020
[1] RM = Raised Median [2] AWSC = All Way Stop Control				

Source: Chen+Ryan TIA

C. <u>SR-125 / Main Street Interchange</u>

The Chen+Ryan TIA discusses the different configurations and associated traffic and safety operations at the SR-125 / Main Street interchange and evaluated the future ramp intersection operations at the SR-125/Main Street interchange with three (3) types of interchange configurations, including:

- Option A: full interchange with partial cloverleaf;
- Option B: diamond interchange; and
- Option C: half interchange with partial cloverleaf.

Option A was the configuration utilized in the TIA analysis is based on the fact that the other SR-125 interchanges in the vicinity, such as Birch Road, Olympic Parkway, and Otay Lakes Road, all have the identical layout.

The TIA determined that ramp intersections at the SR-125 SB Ramps / Main Street and SR-125 NB Ramps / Main Street would operate at acceptable LOS D or better under Year 2030 conditions under all three options, with the "full Interchange with partial cloverleaf" (Option A) providing the best traffic operations in terms of queue length, average delay and levels of service.

D. Equivalent Dwelling Units Thresholds

The off-site roadway and intersection improvements as discussed in CHEN+RYAN TIA are needed primarily based on traffic generation and are associated with each of the mitigation measures identified from the Year 2015, 2020, 2025, and 2030 analyses.

The C+R TIA provides details on how the EDU triggers were derived.

Appendix B of the Chen+Ryan TIA documents how EDU triggers are determined for each of the recommended mitigation measures.

Table C.9 summarizes the required mitigation measures and their associated EDU triggers.

Table C.9
Village 3 North
EDU Triggers To Recommended Mitigation Measures

Location	Mitigation Measure	Analysis Year	EDU Trigger
Intersection			
11. I-805 SB Ramps / Olympic Pkway	Construction of Heritage Road	2020	956th EDU of V3N
12. I-805 NB Ramps / Olympic Pkway	Construction of Heritage Road	2020	956th EDU of V3N
14. Brandywine Ave. / Olympic Pkwy	Construction of Heritage Road	2020	956th EDU of V3N
15. Heritage Road / Olympic Parkway	Payment towards TDIF (for the construction of Main St from Heritage Rd to La Media Rd, including construction of Main St Bridge) [1]	2025	4,737th EDU of V3N + V8W + V10
17. La Media Road / Olympic Parkway	Payment towards TDIF (for the construction of Main St from Heritage Rd to La Media Rd, including construction of Main St Bridge) [1]	2025	4,737th EDU of V3N + V8W + V10
39. Heritage Road / Main Street	Signalization	2020	751st EDU of V3N
Roadway Segment			
Orange Avenue between Melrose Avenue and I-805 SB Ramps	Construction of Heritage Road	2020	956th EDU of V3N
Olympic Parkway between I-805 SB Ramps and I-805 NB Ramps	Construction of Heritage Road	2020	956th EDU of V3N

Table C.9 Village 3 North EDU Triggers To Recommended Mitigation Measures			
Location	**Mitigation Measure**	**Analysis Year**	**EDU Trigger**
Olympic Parkway between I-805 NB Ramps and Oleander Avenue	Construction of Heritage Road	2020	956th EDU of V3N
Olympic Parkway between Oleander Avenue and Brandywine Avenue	Construction of Heritage Road	2020	956th EDU of V3N
Olympic Parkway between Brandywine Avenue and Heritage Road	Construction of Heritage Road	2020	956th EDU of V3N
Olympic Parkway between Heritage Road and Santa Venetia Street	Payment towards TDIF (for the construction of Main St from Heritage Rd to La Media Rd, including construction of Main St Bridge) [1]	2025	4,737th EDU of V3N + V8W + V10
Heritage Road between East Palomar Street and Olympic Parkway	Payment towards TDIF (for the construction of Main St from Heritage Rd to La Media Rd, including construction of Main St. Bridge) [1]	2025	4,737th EDU of V3N + V8W + V10
Footnote: [1] The City CIP with drive the timing of this facility, which may occur sooner.			

Source: C+R TIA

E. <u>Quarry Access</u>

The Village 3 North & portion of Village 4 SPA Plan area is located at the southwestern limit of the Otay Valley Parcel of Otay Ranch. Immediately surrounding the SPA Plan area are existing and planned development areas. The future Otay Ranch Village 2 is located north, the Wolf Canyon Preserve and an active quarry are located east. Existing industrial land uses are located to the west and the Otay Landfill is located to the north. This section briefly discusses traffic operations and safety at the quarry access off of Main Street under conditions with (ultimate) and without (interim) the Main Street connection over Wolf Canyon.

The Chen+Ryan TIA made operational assumptions based on input from the quarry manager. The Chen+Ryan TIA recommends an interim design for access since the Main Street over Wolf Canyon is not likely to be constructed until Year 2025. In the interim design, Main Street would terminate at the quarry access road approximately 210' east of Heritage Road. Since no traffic movements would be in conflict with the ingress/egress at the quarry access, no traffic operations or safety issues would be anticipated in the interim years. The traffic signal at the Heritage Road and Main Street intersection should be designed as a standard eight-phase actuated signal. The westbound green indication would only be triggered by the arrival of westbound traffic. Proper signage should be displayed indicating that the east leg (Main Street, east of Heritage Road) is for "Quarry Access Only".

After 2025 when Main Street between Heritage Road and La Media is constructed, the ultimate design for the quarry access would be located approximately 350' east of Heritage Road.

The quarry access is proposed to be signalized at Main Street. This proposed traffic signal must be coordinated with the traffic signal at the Heritage Road and Main Street intersection. Intersection LOS and average vehicle delay results for both Heritage Road / Main Street and Quarry Access Road / Main Street intersections under the Year 2030

conditions are detailed in the Chen+Ryan TIA. Further, LOS calculation worksheets are provided in the Chen+Ryan TIA Appendix AB.

Pursuant to the Chen+Ryan TIA, the quarry access at Main Street would operate at LOS A with minimum delay in Year 2030. The analysis indicates that the westbound left-turn pocket should be designed at 200' to accommodate the maximum queue. Recommended mitigation is included in the Threshold Compliance and Requirements.

Quarry Access and associated Traffic Signal construction shall be phased as follows:

- Prior to approval of the final map containing the 751st EDU within Village 3 North, the Applicant shall install a traffic signal at the intersection of Main Street and Heritage Road. Two-lane access to the Quarry shall be provided and shall include all-way stop control.
- Prior to approval of the final map containing neighborhood R-20, Main Street shall be constructed as a 2-lane roadway from Heritage Road to the eastern project boundary. Improvements will include all-way stop control at both the intersection of Main Street and the Quarry Driveway and Main Street and the R-20 driveway.
- At full build-out of Main Street between Heritage Road and the eastern Village 3 North boundary, improvements shall include the traffic signal at the intersection the Quarry Access and Main Street. The Quarry Access/Main Street traffic signal shall be funded by the City's Main Street TDIF/CIP program. The Applicant shall be responsible for funding and constructing improvements at the intersection of Main Street and the R-20 driveway, including installation of the traffic signal.

IV.5 Cost & Financing Traffic Improvements

The Chen+Ryan TIA was prepared for the proposed University Villages Project (including Village 8 East), which is the basis of this PFFP and the Project EIR. The project traffic mitigation measures are identified in Section 5.3.5 of the Project EIR. These measures comply with CEQA requirements and are consistent with existing city standards and growth management thresholds. The timing of the frontage and access streets are the responsibility of the developer. The PFFP and Project EIR identifies triggers to ensure the street system is constructed prior to or concurrent with the identified need.

A. Street Improvements

The Otay Ranch Village 3 North & a Portion of 4 SPA internal streets and associated signalization, if required, are the financial responsibility of the Developer/Builder (see Table C.11). Off-site streets and signal improvements are subdivision exactions. The required development phasing is based on the Chen+Ryan TIA.

B. Transportation Development Impact Fee (TDIF)

The project is within the boundaries of the TDIF program and, as such, the project is subject to the payment of the fees at the rates in effect at the time building permits are issued. However, the improvements identified on Table C.9 will be required to be constructed according to the approved EDU Triggers. The TDIF ordinance allows for the issuance of credit in lieu of fees when an eligible facility is constructed by the project. If the total eligible construction cost amounts to more than the total required TDIF fees as indicated below, the owner/developer may be given credits toward future building permits outside of the SPA area.

The current TDIF Ordinance sets forth the calculation of development impact fees. This PFFP uses the CVMC Chapter 3.54 as the basis for the estimated TDIF fees. Table B.5 illustrates the fee schedule at the time of this PFFP preparation:

Table C.10 presents the total number of estimated DUs, office, industrial and commercial acres for the Village 3 North & a Portion of 4 SPA Plan PFFP. Also, Table C.10 summarizes the estimated TDIF based on the Developer's proposed phasing and trip generation rates used by the Chen+Ryan TIA. The table is provided as an estimate only. Fees may change depending upon the actual number dwelling units, the actual acreage for commercial and industrial land and the current city fee, which is subject to change from time to time. Final calculations will be known at time building permits are applied for.

Table C.10
Village 3 North & a Portion of 4 SPA
Estimated TDIF Fees

Phase	SF DU	Fee/SF DU	MF DU	Fee/ MF DU	MU DU	MU Fee	MU Com'l	Com'l Fee/ 20K sf	Office	Office Fee/ Acre	Ind. Acre	Ind. Fee/ Ac	Fees
Red	481	$12,494	0	$0	0	$0	0.0	$0	0.0		0	$0	$6,509,374
Blue	521	$12,494	0	$0	0	$0	0.0	$0	0.0		0	$0	$6,009,614
Yellow	0	$0	0	$0	0	$0	0.0	$0	0.0		28.6	$99,958	$2,858,799
Green	0	$0	515	$9,995	80	$4,998	20K	$199,901	5.2	$112,444	0	$0	$6,331,875
Purple	0	$0	0	$0	0	$0	0.0	$0	0.0		0	$0	$0
Total	**1002**		**515**		**80**		**20K**				**28.6**		**$21,709,662**

Estimated TDIF is based on the Revised November 7, 2013, City of Chula Vista Development Checklist for Municipal Code Requirements (Form 5509) and is subject to annual adjustments. Actual TDIF may be different.

C. Traffic Signal Fee

Future development within the project will be required to pay Traffic Signal Fees in accordance with Chula Vista Council Policy No. 475-01. The estimated fee is calculated based on the current fee of $34.27 (the date of this PFFP) per vehicle trip generated per day for various land use categories. Table C.11 is provided as an estimate only. Fees may change depending upon the actual number dwelling units, the actual acreage for commercial and industrial land and the current city fee, which is subject to change from time to time. Final calculations will be known at time building permits are applied for.

Table C.11
Village 3 North & a portion of Village 4 SPA
Estimated Traffic Signal Fees

Year	Project Trips	Traffic Signal Fee @ $34.27/Trip
2015	6,110	$209,390
2020	15,349	$526,010
2025	1,685	$57,745
2030	2,466	$84,510
Total	25,610	$877,655

Estimated Traffic Signal Fee is based on the Revised November 7, 2013, City of Chula Vista Development Checklist for Municipal Code Requirements (Form 5509) and is subject to annual adjustments. Trips are estimated, based on the Chen+Ryan TIA, actual trips and Traffic Signal Fees may be different. Fees paid at the time building permit.

D. Non-DIF Streets and Signals

Internal public streets and signals are not eligible for DIF credit pursuant to city policy. These streets and signals will be funded by the development.

IV.6. Threshold Compliance

A. The facilities presented in this section are needed, not based on traffic generation, but on access and frontage development. These roadways need to be built when the land uses fronting the roads are developed in order to provide sufficient number of access points according to the City's Subdivision Manual.

B. The Subdivision Manual requires that "single-family residential development shall not exceed 120 residential lots unless two points of access are provided and shall not exceed 200 residential lots unless three points of access are provided". The project applicant will conduct a traffic study (prior to the 201st EDU) which shows traffic operations with one or two access points are sufficient from an LOS perspective to serve the village and to the satisfaction of the City Engineer.

C. Table C.7 summarizes the PFFP thresholds for Village 3 North & a portion of Village 4 based on access and frontage requirements. Non-sequential phasing is planned.

D. The project shall be conditioned to pay TDIF Fees and Traffic Signal Fees at the rate in effect at the time building permits are issued.

E. Table C.6 summarizes the required mitigation measures and their associated Equivalent Dwelling Units (EDU) triggers.

F. Based on the results of the Chen+Ryan TIA for the quarry access at Main Street, the westbound left-turn pocket should be designed at 200' to accommodate the maximum queue. In addition to the 200' westbound left-turn pocket length, the following is also recommended to ensure safety and smooth operations at the intersection of Quarry Access Road and Main Street:
   - "No-Turn On Red" sign and/or signal indication to be placed at the northbound quarry access approach to prohibit trucks from making right turns onto Main Street on red;
   - Proper signage and pavement marking to be installed indicating "Quarry Access Only";
   - Adequate turning radii to be provided for trucks; and
   - No pedestrian crossing at Main Street.

G. In addition to the identified thresholds, the City of Chula Vista shall require the following prior to issuance of each Final Map:
   - Owner/Developer shall be responsible for assuring right-of-way improvements (curb, gutter, street, sidewalk, landscape, and traffic controls) necessary for vehicular and pedestrian connection from the subject map area to existing public roadways. Connection shall be provided to the satisfaction of the City Engineer.
   - Owner/Developer shall be responsible for assuring enhancements within the right-of-way (landscaping, pedestrian lighting, and street furniture) which abut the subject map area.
   - Owner/Developer shall be responsible for assuring all in-tract improvements within the subject map area.
   - Owner/Developer shall be responsible for assuring enhancements outside the right-of-way and internal to the subject map area (open space lots, landscape and irrigation of slopes).
   - Prior to issuance of Final Map, Owner/Developer shall assure applicable off-site infrastructure improvements (storm drains, water quality facilities) which are sized to serve subject map area.
   - The owner/developer for any individual neighborhood shall be required to post or

provide use of surety bonds which secure the Owner/Developer's construction cost of the infrastructure requirements identified above. The bond shall be for the value of improvements necessary to complete approved public improvements. Permission to use existing, approved improvement plans and bonds shall be an acceptable means of satisfying the above listed requirements, to the satisfaction of the city engineer.

Additional notes:

- Modification to any of the above listed requirements requires approval by the City Engineer.
- Final map phases of subject tentative maps shall include all remaining in-tract improvements and shall not be less than 10 units.

H. The project applicant shall comply with the Project EIR Transportation, Circulation and Access mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The following is a summary of these mitigation measures:

TCA-1 Prior to the issuance of the building permit for the 2,463rd DU for development east of 1-805 commencing from April 4, 2011, the Applicant may:

a. Prepare a traffic study that demonstrates, to the satisfaction of the City Engineer, that the circulation system has additional capacity without exceeding the GMO traffic threshold standards. The City's determination regarding the adequacy of the circulation system shall be based on whether the quality of life threshold standards for traffic set for in the City of Chula Vista GMO (Chapter 19,09 of the Chula Vista Municipal Code) are met; The current traffic threshold is to maintain LOS "C" or better as measured by observed average travel speed on all signalized arterial segments, except, that during peak hours a LOS "D" can occur for no more than two hours; or

b. Demonstrate that other improvements are constructed which provide the additional necessary capacity to comply with the GMO traffic threshold to the satisfaction of the City Engineer.

c. Agree to the City Engineer's selection of an alternative method of maintaining GMO traffic threshold compliance. The City's determination regarding the scope and timing of the alternative method shall be based on demonstrated compliance with the GMO traffic thresholds; or

d. Enter into agreement, approved by the City, with other Otay Ranch developers that alleviates congestion and achieves GMO traffic threshold compliance for Olympic Parkway. The agreement will identify the deficiencies in transportation infrastructure that will need to be constructed, the parties that will construct said needed infrastructure, and a timeline for such construction, as well as providing assurances for construction, in accordance with the City's customary requirements, for said infrastructure.

If GMO compliance cannot be achieved through 1a, 1 b, 1 c, or 1 d, then the City shall stop issuing new building permits within the project area, after building permits for 2,463 DU have been issued for any development east of 1-805 after April 4, 2011, until such time that GMO traffic threshold standard compliance can be assured to the satisfaction of the City Manager.

These measures shall constitute full compliance with growth management objectives and policies in accordance with the requirements of the General Plan, Chapter 10, and with regard to traffic thresholds set forth in the GMO.

TCA-2: Project applicant shall construct the access and frontage improvements consistent with the triggers identified in Table 5.3-56 of the Project EIR to the satisfaction of the Director of Development Services and the City Traffic Engineer.

TCA-3 The year 2015 scenario assumes the following intersection and roadway improvements are in place:

- Phase 1 of the I-805 South Project, including improvements to I-805 between Home Avenue and East Palomar Street
- Heritage Road, south of Main Street to the Chula Vista city limit as a 4-lane Major Road.

"If the project equivalent dwelling unit limit of 611th EDU is exceeded prior to these improvements being constructed and open to traffic, then one of the following steps shall be taken, each to the satisfaction of the City Engineer:

i. Development in Village 3 and the Portion of Village 4 and Village 8 East shall stop until those assumed future roadways are constructed by others as presently planned; or

ii. City and the Applicant shall meet to determine the need for the incomplete roadway segments. Because a number of factors, including changes to the tolling structure at SR-125, may affect future traffic patterns in Otay Ranch, the applicant shall submit to the city additional traffic analysis of the roadway network and levels of service at that time to determine: (i) if such improvements in fact are necessary; and (ii) the scope and timing of additional circulation improvements, if any; The City's determination of whether such improvements are necessary, or the scope and timing of additional improvements, shall be based on whether the City's traffic quality of life threshold standards are met, consistent with the performance standards set forth in the City of Chula Vista Growth Management Ordinance (GMO) (Chapter 19.09 of the Chula Vista Municipal Code). The current traffic threshold is to maintain LOS "C" or better as measured by observed average travel speed on all signalized arterial segments; except, that during peak hours a LOS "D" can occur for no more than two hours; or

iii. Applicant shall construct the missing roadway links and receive a transportation development impart fee credit for those improvements as applicable; or

iv. An alternative measure is selected by the City that is demonstrated to ensure that the applicable GMO quality of life thresholds are met for traffic.

TCA-4 **Intersections**: I-805 SB Ramps / Olympic Parkway (CV), I-805 NB Ramps / Olympic Parkway (CV), and Brandywine Avenue / Olympic Parkway (CV); **Roadways**: Olympic Parkway, between I-805 SB Ramps and I-805 NB Ramps (CV); Olympic Parkway, between I-805 NB Ramps and Oleander Avenue (CV); Olympic Parkway, between Oleander Avenue and Brandywine Avenue (CV); and Olympic Parkway, between Brandywine Avenue and Heritage Road (CV) – Prior to issuance of the Final Map that contains the 956th equivalent dwelling unit (EDU) in Village 3 North, the project applicant shall construct

Heritage Road, between Olympic Parkway and Main Street, as a Six-Lane Prime Arterial.

TCA-5 Heritage Road / Main Street (all-way stop controlled) (CV) – Prior to issuance of the Final Map that contains the 751st EDU in Village 3 North, the project applicant shall signalize Heritage Road / Main Street intersection.

TCA-6 La Media Road (SB) / Main Street (WB) (all-way stop controlled) (CV) – Prior to issuance of the Final Map that contains the 880th EDU in Village Eight East, the project applicant shall signalize the La Media Road (SB) /Main Street (WB) intersection.

TCA-7 La Media Road (NB) / Main Street (WB) (all-way stop controlled) (CV) – Prior to issuance of the Final Map that contains the 880th EDU in Village Eight East, the project applicant shall signalize the La Media Road (NB) /Main Street (WB) intersection.

TCA-8 La Media Road (SB) / Main Street (EB) (all-way stop controlled) (CV) – Prior to issuance of the Final Map that contains the 880th EDU in Village Eight East, the project applicant shall signalize the La Media Road (SB) /Main Street (EB) intersection.

TCA-9 La Media Road (NB) / Main Street (EB) (all-way stop controlled) (CV) – Prior to issuance of the Final Map that contains the 880th EDU in Village Eight East, the project applicant shall signalize the La Media Road (NB) / Main Street (EB) intersection.

TCA-10 Magdalena Avenue / Main Street (one-way stop controlled) (CV) – Prior to issuance of the Final Map that contains the 1,693rd EDU in Village Eight East, the project applicant shall signalize the Magdalena Avenue / Main Street intersection.

TCA-11 The year 2020 scenario assumes the following intersection and roadway *improvements* are in place:

- Heritage Road, south of Main Street to the Chula Vista city limit as a 6-lane Prime Arterial.
- Otay Lakes Road between H Street and Telegraph Canyon Road as a 6-lane Prime Arterial.
- Quarry Driveway (Int #65) @ Main Street as an all-way stop controlled intersection.

If the project equivalent dwelling unit of 4,070th EDU is exceeded prior to these improvements being constructed and open to traffic, then one of the following steps shall be taken each to the satisfaction of the City Engineer:

i. Development in Village 3 and the Portion of Village 4 and Village Eight 8 shall stop until those assumed future roadways are constructed by others as presently planned; or

ii. City and the applicant shall meet to determine the need for the incomplete roadway segments. Because a number of factors, including changes to the tolling structure at SR-125, may affect future traffic patterns in Otay Ranch, the applicant shall submit to the City additional traffic analysis of the roadway network and levels of service at that time to determine: (i) if such improvements in fact are necessary; and (ii) the scope and timing of additional circulation improvements, if any; The City's determination of

whether such improvements are necessary, or the scope and timing of additional improvements, shall be based on whether the City's traffic quality of life threshold standards are met, consistent with the performance standards set forth in the City of Chula Vista Growth Management Ordinance (GMO) (Chapter 19.09 of the Chula Vista Municipal Code). The current traffic threshold is to maintain LOS "C" or better as measured by observed average travel speed on all signalized arterial segments; except, that during peak hours a LOS "D" can occur for no more than two hours; or

iii. Applicant shall construct the missing roadway links and receive a transportation development impact fee credit for those improvements as applicable; or

iv. An alternative measure is selected by the City that is demonstrated to ensure that the applicable GMO quality of life thresholds are met for traffic.

TCA-12 Intersections: Heritage Road / Olympic Parkway (CV) and La Media Road / Olympic Parkway (CV); Roadways: Olympic Parkway, between Heritage Road and Santa Venetia Street (CV); and Heritage Road, between East Palomar Street and Olympic Parkway (CV) — Prior to the issuance of each building permit, the Project Applicant shall pay the appropriate Transportation Development Impact Fees (TDIF) for the construction of Main Street, between Heritage Road and La Media Road, as a Six-Lane Prime Arterial, including the construction of Main Street bridge, the signalization of Quarry Driveway I Main Street (Int #65), and the signalization of Village Three North R-20 Driveway / Main Street (Int #66). The project will signalize the intersection of Village 3 North R-20 Driveway I Main Street (Int #66) in conjunction with the construction of Main Street, while the TDIF program will signalize the intersection of Quarry Driveway I Main Street (Int #65). The analysis shows the need for Main Street from the Heritage Road to La Media Road is triggered by the 4,737th EDU. If the project equivalent dwelling unit limit of 4,736 EDU is reached prior to this roadway segment being constructed and open to traffic, then one of the following steps shall be taken as determined by the City Engineer:

i. Development in Villages 3 North, 8 East, and 10 shall stop until the future roadway is constructed by the City; or

ii. City and the Applicant shall meet to determine the need for the incomplete roadway segments. Because a number of factors, including changes to the tolling structure at SR-125, may affect future traffic patterns in Otay Ranch, the Applicant shall submit to the City additional traffic analysis of the roadway network and levels of service at that time to determine: (i) if such improvements in fact are necessary; and (ii) the scope and timing of additional circulation improvements, if any. The City's determination of whether such improvements are necessary, or the scope and timing of additional improvements, shall be based on whether the City's traffic quality of life threshold standards are met, consistent with the performance standards set forth in the City of Chula Vista Growth Management Ordinance (GMO) (Chapter 19.09 of the Chula Vista Municipal Code). The current traffic threshold is to maintain LOS "C" or better as measured b observed average travel seed on all signalized arterial segments; except, that during peak hours, a LOS "D" can occur for no more than two hours; or

iii. Applicant shall construct the missing roadway link and receive a

transportation development impact fee credit for the improvements as applicable; or

iv. An alternative measure is selected by the City that is demonstrated to ensure that the applicable GMO quality of life thresholds are met for traffic.

TCA-13 **Intersection**: Discovery Falls Drive / Hunte Parkway (CV) – Prior to approval of the Final Map containing the 1,295th EDU of Village 10, the project applicant shall construct a dedicated right-turn lane at the northbound Discovery Falls Drive approach to the Discovery Falls Drive/Hunte Parkway intersection.

TCA-14 I-805 Northbound On-Ramp at Main Street - Prior to project buildout, the Project Applicant shall work with Caltrans to, and Caltrans can and should, adjust the ramp meter rate at the I-805 northbound on ramp at Main Street such that the ramp meter reflects the additional vehicle traffic attributable to the project.

TCA-15 The project applicant shall incorporate the following measures as part of the project design and development, consistent with the identified triggers, to the satisfaction of the Director of Development Services:

- Implement pedestrian circulation improvements to improve the internal pedestrian circulation and encourage the usage of public transportation (concurrent with the approval of improvement plans for each village).
- Implement bicycle circulation improvements to improve internal bicycle circulation and encourage the usage of bicycles (concurrent with the approval of improvement plans for each village).
- Participate in car sharing and bike sharing programs through HOA noticing, should such programs become available.
- Promote Carpool/Vanpool programs by providing preferential parking for carpools and vanpools (concurrent with the approval of site plans for each village core).
- Promote available websites providing transportation options for residents and businesses (concurrent with issuance of certificate of occupancy).
- Create and distribute a "new resident" information packet addressing alternative modes of transportation (concurrent with issuance of certificate of occupancy).
- Promote programs to encourage workplace peak hour trip reduction, including staggered work hours, regional ride-matching services, and telecommuting (concurrent with issuance of certificate of occupancy).
- Orient buildings to the main street or activity area, such that they are not separated from the street by vast parking areas or fences, thereby encouraging pedestrian traffic (concurrent with the approval of site plans for each village core).
- Where transit is available on-site, participate in providing the necessary transit facilities, such as bus pads, shelters, signs, lighting, and trash receptacles (concurrent with the approval of improvement plans for each village).
- Coordinate with the MPO as to the future siting of transit stops/stations within the project site (concurrent with the approval of improvement plans, and/or site plans, for each village).

TCA-16 The year 2030 scenario assumes the following intersection and roadway improvements are in place:

- Main Street between SR-125 right-of-way (western boundary) and Eastlake Parkway/University Drive; is constructed as a 6-lanes Gateway Street (6,432nd EDU)
- SR-125 / Main Street interchange constructed (6,432nd EDU)
- Otay Valley Road constructed between SR-125 right-of-way (western boundary) and Village Nine Street "B" (Int #74), including an overpass at SR-125 (7,767th EDU).

If the project equivalent dwelling unit limit of the EDUs identified above are exceeded prior to the respective improvements being constructed and open to traffic, then one of the following steps shall be taken each to the satisfaction of the City Engineer:

i. Development in Village 3 and Portion of Village 4, Village 8 East, and Village 10 shall stop until those assumed future roadways are constructed by others as presently planned; or

ii. City and the Applicant shall meet to determine the need for the incomplete roadway segments. Because a number of factors, including changes to the tolling structure at SR-125, may affect future traffic patterns in Otay Ranch, the Applicant shall submit to the City additional traffic analysis of the roadway network and levels of service at that time to determine: (i) if such improvements are-in fact are necessary; and (ii) the scope and timing of additional circulation improvements, if any. The City's determination of whether such improvements are necessary, or the scope and timing of additional improvements, shall be based on whether the City's traffic quality of life threshold standards are met, consistent with the performance standards set forth in the City of Chula Vista Growth Management Ordinance (GMO) (Chapter 19.09 of the Chula Vista Municipal Code). The current traffic threshold is to maintain LOS "C" or better as measured by observed average travel speed on all signalized arterial segments; except, that during peak hours, a LOS "D" can occur for no more than two hours; or

iii. Applicant shall construct the missing roadway links an receive a transportation development impact fee credit for those improvements as applicable; or

iv. An alternative measure is selected by the City that is demonstrated to ensure that the applicable GMO quality of life thresholds are met for traffic.

TCA-17 The proposed project shall be implemented, or phased, consistent with the development timeframe set forth in Project Description Table 4-3. In the event that project development substantially deviates from the phasing set forth in Table 4-3 (e.g., Village 3 being built first, followed by Village 8 East and then Village 10), the Applicant, or its designee, shall conduct additional environmental analysis consistent with the requirements of CEQA and as approved by the Development Services Director, or designee. Additional analysis may include a supplemental traffic study that analyzes the potential traffic circulation impacts associated with the phasing deviation, and identifies new circulation improvements or other mitigation measure(s), if needed.

V. POLICE

V.1. Threshold Standard

A. Emergency Response: Properly equipped and staffed police units shall respond to 81% of "Priority One" emergency calls within 7 minutes and maintain an average response time to all "Priority One" emergency calls of 5.5 minutes or less.

B. Urgent Response: Respond to 57% of "Priority Two" urgent calls within 7 minutes and maintain an average response time to all "Priority Two" calls of 7.5 minutes or less.

V.2. Service Analysis

The City of Chula Vista Police Department provides police services. The purpose of the Threshold Standard is to maintain or improve the current level of police services throughout the City by ensuring that adequate levels of staff, equipment and training are provided. Police threshold performance was analyzed in the "Report on Police Threshold Performance 1990-1999", completed April 13, 2000. In response to Police Department and GMOC concerns the City Council amended the Threshold Standards for Police Emergency Response on May 28, 2002, with adoption of Ordinance 2860. Police Facilities are also addressed in *A Master Plan for the Chula Vista Civic Center Solving City Space Needs Through Year 2010,* dated May 8, 1989.

V.3. Project Processing Requirements

The PFFP is required by the Growth Management Program to address the following issues for Police Services.

A. Services reviewed must be consistent with the proposed phasing of the project.

B. Able to demonstrate conformance with *A Master Plan for the Chula Vista Civic Center* dated May 8, 1989, as amended.

V.4. Existing Conditions

The Chula Vista Police Department (CVPD) provides law enforcement services to the area encompassing the project. The CVPD is located at 315 Fourth Avenue in Chula Vista. This facility is expected to be adequate through the build-out of eastern Chula Vista. The department also maintains a Community Storefront at 2015 Birch Road, which provides limited police services. Currently, CVPD maintains a staff of approximately 207 sworn officers and approximately 78 civilian support personnel. The Project is within Police Patrol Beat 24 that is served by at least one Beat Officer per shift.

V.5. Adequacy Analysis

According to the GMOC 2013 Annual Report the response times for "Priority One" Calls for Service (CFS) were not met during the 2011-2012 time period (see Table D.1). The CVPD responded to 78.4 percent of Priority 1 "Emergency Response" calls within 7 minutes, which was 2.6 percent below the Threshold Standard of 81 percent, and 7.3 percent below the percentage reported for the previous year. The average response time, however, was within the Threshold Standard. With an average response time of 5 minutes and 1 second, the response time was 29 seconds better than the Threshold Standard requires, but 21 seconds longer than the previous year.

The department implemented a hybrid patrol schedule in 2013 that is expected to have a positive effect on response times. The 4/10-3/12 schedule adds more staffing on Friday through Sunday, when call-for-service volumes are highest. Officers work a 10-hour schedule from Monday through Thursday and a 12-hour schedule Friday through Sunday.

Table D.1
Historic Response Times
Priority I -- Emergency Response, Calls For Service

	Call Volume	% of Call Response w/in 7 Minutes	Average Response Time
Threshold		**81.0%**	**5:30**
FY 2011-12	726 of 64,386	78.4%	5:01
FY 2010-11	657 of 64,695	85.7%	4:40
FY 2009-10	673 of 68,145	85.1%	4:28
FY 2008-09	788 of 70,051	84.6%	4:26
FY 2007-08	1,006 of 74,192	87.9%	4:19
FY 2006-07	976 of 74,277	84.5%	4:59
FY2005-06	1,068 of 73,075	82.3%	4:51
FY2004-05	1,289 of 74,106	80.0%	5:11
FY2003-04	1,322 of 71,000	82.1%	4:52
FY 2002-03	1,424 of 71,268	80.8%	4:55
FY 2001-02	1,539 of 71,859	80.0%	5:07
FY 2000-01	1,734 of 73,977	79.7%	5:13
FY 1999-00	1,750 of 76,738	75.9%	5:21
CY 1999[2]	11,890 of 74,405	70.9%	5:50

Source: GMOC 2013 Annual Report

The "Priority Two" CFS threshold during the same period was not met and has not been met for several years. For Priority Two CFS, the department responded to 49.8%, which was identical to the previous year's percentage. The GMOC concluded that the Priority Two Urgent Response time Threshold Standard had not been met.

The original 1991 Urgent Response or Priority Two Threshold Standard was: Respond to 62% of calls within 7 minutes, maintaining an average of 7 minutes or less. In 1999, the City's Special Projects Division and the Police Department presented the GMOC with a report titled "Report on Police Threshold Performance 1990-1999." The report indicated that, prior to implementation of the CAD system, human error occurred when measuring dispatch time. The report suggested that the Priority Two Threshold Standards should have been set at 57% of calls within 7 minutes, with an average response time of 7.5 minutes. Subsequently, the City Council approved the proposed change to the Threshold Standard in 2002, which is the standard currently in effect.

For the past 15 years, the Priority Two -Urgent Response Threshold Standard has not been met. The percentage of calls responded to within 7 minutes has dropped to 41.9 percent, which is 7.9 points lower than last year, putting it 15.1 points below the Threshold Standard of

[2] The FY98-99 GMOC Report used calendar 1999 data due to the implementation of the new CAD system in mid-1998.

57 percent (see Table D.2). This is the largest noncompliant gap since FY 2005-06, when 40 percent of the calls were responded to within 7 minutes. The 11 minutes and 54 seconds average response time for FY 2011-12 was 4 minutes and 24 seconds above the Threshold Standard, which was 1 minute and 48 seconds worse than last year and the worst time ever reported to the GMOC.

Part of the non-compliance problem may be the Threshold Standard itself. Previous GMOC annual reports have explained that the City's growth management staff and Police Department staff have determined the Priority Two Threshold Standard needs to be modified to more accurately report response times. According to the 2012 GMOC Annual Report, the Police Department had exhausted all resources with the goal of improving Priority Two response times; and without funding for additional staff, the Priority Two Threshold Standard will remain unmet in the foreseeable future.

Overall, the 2013 GMOC Annual Report indicates that the GMOC is concerned that the trend for both Priority One and Two is headed in the wrong direction, and will continue to monitor these closely in future reports.

The recommendation for a modified Threshold Standard will be the result of staff analyzing data and working with the Police Department during a comprehensive review of the Growth Management Program. The GMOC proposed changes to the Priority Two Threshold Standard when it presented the results of the comprehensive review to the City Council. The changes will clear up some confusing aspects of how response times are currently reported and establish a response goal that is reasonable and appropriate.

Table D.2
Historic Response Times
Priority II -Urgent Response, Calls for Service

	Call Volume	% of Call Response within 7 Min.	Average Response Time*
Threshold		**57.0%**	**7:30**
FY 2011-12	22,121 of 64,386	41.9%	11:54
FY 2010-11	21,500 of 64,95	49.8%	10:06
FY 2009-10	22,240 of 68,145	49.8%	9:55
FY 2008-09	22,686 of 70,051	53.5%	9:16
FY 2007-08	23,955 of 74,192	53.1%	9:18
FY 2006-07	24,407 of 74,277	43.3%	11:18
FY 2005-06	24,876 of 73,075	40.0%	12:33
FY 2004-05	24,923 of 74,106	40.5%	11:40
FY 2003-04	24,741 of 71,000	48.4%	9:50
FY 2002-03	22,871 of 71,268	50.2%	9:24
FY 2001-02	22,199 of 71,859	45.6%	10:04
FY 2000-01	25,234 of 73,977	47.9%	9:38
FY 1999-00	23,898 of 76,738	46.4%	9:37
CY 1999	20,405 of 74,405	45.8%	9:35
FY 1997-98	22,342 of 69,196	52.9%	8:13
FY 1996-97	22,140 of 69,904	62.2%	6:50
FY 1995-96	21,743 of 71,197	64.5%	6:38

Source: GMOC 2013 Annual Report

The Priority Two Threshold Standard has been out of compliance for 15 consecutive years. The GMOC's 2013 Annual Report recommended that the City Council support the Police Chief's efforts to 1) increase staff to budget levels, and 2) effectively manage work schedules to improve response times.

Currently, the CVPD's staffing levels are not sufficient to meet the Threshold Standards. The CVPD does have adequate facilities to meet demands through buildout of the Chula Vista General Plan, including the project. In terms of the current staffing, any additional developments could potentially have a negative impact on police response times to the service area. The comprehensive use of advanced crime prevention through environmental design (CPTED) principles could help mitigate, to some extent, the impact on police services. In particular, completely controlling access to surface parking lots and structures would reduce vehicle crime in the proposed development area. Additionally, the use of construction materials and design approaches that reduce noise levels in residential units may also help mitigate the impact on police services.

IV.6. Financing Police Facilities

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 19, 2002 by adoption of Ordinance 2847. The PFDIF is adjusted every October 1st pursuant to Ordinance 3050, which was adopted by the City Council on November 7, 2006. The Police PDIF Fee for Single-Family Development is $1,671 per unit and $1,789/unit for Multi-Family Development (see Table B.5)[3]. The Police PFDIF for Commercial development is $7,896 per acre and $1,703 per acre for Industrial Development. This amount is subject to change as it is amended from time to time. The project will be subject to the payment of the fee at the rate in effect at the time building permits are issued. At the current fee rate, the project Police Fee obligation at build-out is $2,886,077.

Table D.3
Village 3 North & a Portion of 4 SPA
Public Facilities Fees For Police

Development Phase	Dwelling Units		Com'l Acres	Industrial Acres	Police Fee				
	SF	MF			Single Family $1,671/DU	Multi-Family $1,805/DU	Com'l [1] $7,896/Ac.	Ind. $1,703/Ac.	Total Fee
Red	481	0	0.0	0.0	$803,751	$0	$0	$0	$803,751
Blue	521	0	0.0	0.0	$870,591	$0	$0	$0	$870,591
Yellow	0	0	0.0	28.5	$0	$0	$0	$48,536	$48,536
Green	0	595	11.3	0.0	$0	$1,073,975	$89,225	$0	$1,163,200
Purple	0	0	0.0	0.0	$0	$0	$0	$0	$0
Totals	**1002**	**595**	**11.3**	**28.5**	**$1,674,342**	**$1,073,975**	**$89,225**	**$48,536**	**$2,886,077**
	1597								

The PDIF Fee is subject to change as it is amended from time to time. Changes in the number of dwelling units, Industrial Acreage or Commercial Acreage may affect the estimated fee.

Footnote:

[1] Office uses are treated as Commercial Uses for PDIF.

[3] Fee based on Form 5509 dated 11/07/2013. Actual fee may be different, please verify with the City of Chula Vista at the time of building permit.

The projected fee illustrated in Table D.3 is an estimate only. Actual fees may be different. PFDIF Fees are subject to change depending upon City Council actions and or Developer actions that change residential densities, industrial acreage or commercial acreages.

V.7. Threshold Compliance:

A. Project compliance will be satisfied with the payment of Public Facilities Fees. The proposed project will be required to pay public facilities fees for police services, based on the number of dwelling units and commercial and industrial acreage, prior to the issuance of building permits; the fees shall be paid at the rate in effect at the time payment is made.

The project applicant shall comply with the Project EIR Public Services mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The following PUB mitigation measures are from the EIR:

B. (PUB-3) Prior to the issuance of each building permit for any residential dwelling units, the applicant(s) shall pay the City's PFDIF in accordance with the fees in effect at the time of building permit issuance and phasing approved in this PFFP, unless stated otherwise in a separate development agreement.

C. (PUB-4) The City of Chula Vista will continue to monitor the Chula Vista Police Department responses to emergency calls and report the results to the GMOC on an annual basis.

D. (PUB -5) Prior to issuance of each building permit, site plans shall be reviewed by the Chula Vista Police Department or its designee to ensure the incorporation of Crime Prevention through Environmental Design Features (CPTED) features and other recommendations of the Chula Vista Police Department, including but not limited to, controlled access points to parking lots and buildings, maximizing visibility along building fronts, sidewalks and public parks, and providing adequate street, parking lot and parking structure visibility and lighting.

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VI. FIRE AND EMERGENCY MEDICAL SERVICES

VI.1. Threshold Standard

Emergency response: Properly equipped and staffed fire and medical units shall respond to calls throughout the City within seven (7) minutes in 80 percent of the cases.

VI.2. Service Analysis

The City of Chula Vista Fire Department (CVFD) provides Fire and Emergency Medical Services (EMS). EMS is provided on a contract basis with American Medical Response (AMR). The City also has countywide mutual and automatic aid agreements with surrounding agencies, should the need arise for their assistance. The purpose of the Threshold Standard and the monitoring of response times are to maintain and improve the current level of fire protection EMS in the City. Fire/EMS facilities are provided for in the recently City Council Adopted (1/28/2014) Fire Facility, Equipment and Deployment Master Plan (FFMP). The FFMP indicates that the number and location of fire stations primarily determine response time. The FFMP evaluates the planning area's fire coverage needs, and recommends a twelve (12) station network at build out to maintain compliance with the Threshold Standard (see Table E.1).

VI.3. Existing Conditions

There are currently nine (9) fire stations serving the City of Chula Vista. The existing station network is listed below:

Table E.1
Current Fire Station Facilities

Station	Location	Equipment	Staffing
Current Fire Station Facilities			
Station 1	447 F St.	Engine 51/Truck 51/Battalion 51	Assigned: 24 - On Duty: 8
Station 2	80 East J St.	Engine 52	Assigned: 9 - On Duty: 3
Station 3	1410 Brandywine Ave.	US&R[4] 53 + Tender & Trailer	Assigned: 12 - On Duty: 4
Station 4	850 Paseo Ranchero	Engine 54	Assigned: 9 On Duty: 3
Station 5	391 Oxford St.	Engine 55	Assigned: 9 On Duty: 3
Station 6	605 Mt. Miguel Rd.	Engine 56/Brush 56	Assigned: 9 On Duty: 3
Station 7	1640 Santa Venetia Rd.	Engine 57/Truck 57/Battalion 52	Assigned: 24 On Duty: 8
Station 8	1180 Woods Dr.	Engine 58	Assigned: 9 On Duty: 3
Station 9	291 E. Oneida Street	Engine 59	Assigned: 9 On Duty: 3
Planned Fire Station Facilities			
	EUC	New Engine/ New Truck	Unknown
	Bayfront	New Engine/ New Truck	Unknown
	Village 8 West	New Engine/ New Truck	Unknown

Source: CVFD

[4] National Urban Search and Rescue (US&R) Response System Team

The FFMP was adopted by the Chula Vista City Council on January 28, 2014. The FFMP sets forth a plan for a Fire/Emergency Medical Services delivery system within the City of Chula Vista that can, upon build-out, meet the expected growth of the City. The FFMP recommends the expansion of one existing fire station and the addition of three new fire stations for a total of 12 fire stations. The preparation of the FFMP anticipated the University Villages development including Village 3 North. Two of the new stations are within Otay Ranch, one in Village 8 West, the other in the EUC, which is consistent with the Otay Ranch GDP and EUC SPA Plan. Additionally, the third fire station would serve the Bayfront. All future growth projected in the City will be served by the station locations and configuration as outlined within the FFMP.

During the City's next comprehensive update of the PFDIF program, the level of capital program financial support required from both the General Fund and the PFDIF will be determined. The City's Public Facilities Development Impact Fee (PFDIF) program is the primary funding source for the one-time fire related facility capital expenditures; the General Fund is the funding source for the operating costs. Cost sharing between the City and the PFDIF will also be determined during the PFDIF update and the new aforementioned development related facilities will be added to the PFDIF program fee calculation.

American Medical Response (AMR) is contracted by the City of Chula Vista to provide Emergency Medical Services. There are four AMR units that provide paramedics to the City of Chula Vista exclusively. Currently two full-time units are stationed within the city limits and are dedicated to Chula Vista, while two other full-time units are shared with other cities. The Chula Vista Fire Department is also providing an Advance Life Support (ALS) program to provide residents with the most appropriate emergency medical care in a timely manner.

VI.4. Adequacy Analysis

The Village 3 North SPA Project is located within the City of Chula Vista. The nearest existing stations are Fire Stations 3 and 7, located approximately 2.9 and 3.6 miles from the furthest point in the project, respectively. Also Station 4 (3.7 miles away) could possibly respond. Planned fire stations include the EUC Fire Station, located 4.9 miles from the project area, and the Village 8 West station located approximately 3.5 miles from the project area.

The *Fire Protection Plan, University Villages – Village 3 North and portion of Village 4, July, 2014, by Dudek,* is referenced in this document as the Project FPP. The Project FPP determined the following call volumes for Station 7 from the Chula Vista Fire Department's 2010 Fire Facility/Deployment Master Plan: engine 57 (1,100 calls) and truck 57 (350 calls). These call volumes were used to calculate average daily call volume. Based on the total number of calls handled in 2009 by Station 7, the average daily call volume was calculated as 1) Station 7: engine 57 — 3.0 calls per day, and 2) truck 57 — 1.0 call per day.

Based on the CVFD estimate of 67 annual calls per 1,000 population (2009 data), the Project's estimated 5,174 residents and visitors would generate approximately 773 calls per year (about 2.1 calls per day), roughly 80% to 85% of which (1.8 calls per day) are expected to be medical emergencies, based on past call statistics (see Table E.2).

Table E.2 Village 3 North & portion of Village 4 Projected Call Volume			
Emergency Calls per 1,000	**Estimated Population**	**Avg. No. Calls per Year (5174\1,000)x67**	**Avg. No. Calls per Day (347/365)**
67	5174	347	.95

Type of call	Per capita call generation factor	Number of estimated annual calls
Total Calls	100%	347
Total Fires	1.2%	4.2
Total EMS/Rescue Calls	85.9%	298.0
Total Other Calls	12.9%	44.8

Source: Project FPP

The Project FPP determined that based on the relatively low call volumes from the existing, nearby fire station, there is capacity to respond to a higher call volume. If based only on call volume, the existing stations would be able to respond to Village 3 North & portion of Village 4 call volume increases. However, response times and cumulative call volume increases in Chula Vista's developing areas must also be considered when determining whether existing resources are adequate, or whether additional resources are necessary. Longer response times to structural fire emergencies may be partially mitigated based on the mandate of interior sprinklers in all structures. Sprinklers extend the fire flashover time or extinguish most room fires, thus compensating for a longer response.

Table E.3 Village 3 North & portion of Village 4 Fire/EMS - Emergency Response Times Since 2000		
Years	**Call Volume**	**% of All Call Response Within 7:00 Minutes**
Threshold		**80.0%**
FY 2012	11,132	76.4%
FY 2011	9,916	78.1%
FY 2010	10,296	85.0%
FY 2009	9,363	84.0%
FY 2008	9,883	86.9%
FY 2007	10,020	88.1%
CY 2006	10,390	85.2%
CY 2005	9,907	81.6%
FY 2003-04	8,420	72.9%
FY 2002-03	8,088	75.5%
FY 2001-02	7,626	69.7%
FY 2000-01	7,128	80.8%

Source: GMOC 2013 Annual Report

Based on the GMOC 2013 Annual Report, the Fire/EMS response time Threshold Standard was not met for Fiscal Year 2012 (see Table E.3). The percentage of calls responded to within 7 minutes dropped approximately 2% between Fiscal Year 2011 (78.1%) and Fiscal Year 2012 (76.4%). This is down a total of 8.6% in the past two years, and 3.6% below the Threshold Standard of 80%. The CVFD explained that, during the reporting period, the call

volume increased by 1,493 calls (10% medical and 24% fire) while available resources, staffing and facilities remained the same, resulting in a higher demand on available resources, which made the standard more difficult to achieve. They also indicated that the aging fleet of fire apparatus, combined with a reduction in public works support staff (radio technicians and mechanics) also hampered their ability to meet the standards.

Regardless of the downturn in response times, the CVFD reported that the average response time for 80% of the calls actually improved by 47 seconds, due to the fact that the majority of the calls were on the west side of the City, where navigation through the roadways is easier. Response times in the west averaged 5.39 minutes; response times in the east averaged 6.48 minutes. The city street network pattern contributes to emergency response times. The City of Chula Vista west of I-805 has a grid street pattern that promotes accessibility and generally has good response times[5]. East of I-805 the street pattern is less of a grid, consisting of a hierarchy of streets, curvilinear street patterns and cul-de-sacs that can restrict accessibility and lower response times. To address the situation, the Fire Department is developing techniques and solutions that will improve response times.

VI.5. Fire & EMS Facility Analysis:

The CVFD has four fire stations west of Interstate 805 and 6 fire stations east of I-805. An additional station is planned as a part of the future Bayfront project, which is within western Chula Vista. New developments in the eastern portion of the city will provide improved street connectivity and an increased awareness for emergency vehicle access to improve response times. New fire apparatus is also necessary to accommodate new growth over the next five years.

Table E.4
Village 3 North & portion of Village 4
Fire/EMS - Emergency Response Times Comparison

Years	Average Response Time for 80% of Calls	Average Travel Time
FY 2012	5:59	3.41
FY 2011	6:46	3.41
FY 2010	5:09	3:40
FY 2009	4:46	3:33
FY 2008	6:31	3:17
FY 2007	6:24	3:30
CY 2006	6:43	3:36
CY 2005	7:05	3:31
FY 2003-04	7:38	3:32
FY 2002-03	7:35	3:43
FY 2001-02	7:53	3:39
FY 2000-01	7:02	3:18

Source: GMOC 2013 Annual Report

[5] Fire Marshall, City of Chula Vista, December 14, 2012.

Since March 2008, the City of Chula Vista has contracted with San Diego Dispatch to respond to fire and medical dispatch calls. The percentage of calls responded to within seven minutes is approximately consistent with response times prior to outsourcing, and at 76.4% is below the 80% Threshold Standard (see Table E.4).

The CVFD has requested that the City of Chula Vista use the National Fire Prevention Association (NFPA) standards for future GMOC reporting. The NFPA standards are used by fire departments to assess and report response and Effective Fire Force (EFF) statistics. Using this standard would measure the CVFD against the NFPA standard of 1 minute dispatch, 1 minute turnout and 4 minute travel time, and would provide a clearer picture of how CVFD and the dispatch center are doing each year.

VI.6. Financing Fire & EMS Facilities:

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 19, 2002 by adoption of Ordinance 2847. The PFDIF is adjusted every October 1st pursuant to Ordinance 3050, which was adopted by the City Council on November 7, 2006. The Fire PFDIF Fee for Single Family Development is $1,393/unit and $984/unit for Multi-Family Development (see Table A.7)[6]. The Fire PFDIF for Commercial development is $3,681 per acre and $731 per acre for Industrial development. This amount is subject to change as it is amended from time to time. The project will be subject to the payment of the fee at the rate in effect at the time building permits are issued. At the current fee rate, the project Fire Fee obligation at build-out is $2,053,810.

Table E.5
Village 3 & a Portion of Village 4 SPA
Public Facilities Fees For Fire

Development Phase	Dwelling Units		Com'l Acres	Industrial Acres	Police Fee				
	SF	MF			Single Family $1,393/DU	Multi-Family $1,001/DU	Com'l [1] $7,896/Ac.	Ind. $1,703/Ac.	Total Fee
Red	481	0	0.0	0.0	$670,033	$0	$0	$0	$670,033
Blue	521	0	0.0	0.0	$725,753	$0	$0	$0	$725,753
Yellow	0	0	0.0	28.5	$0	$0	$0	$20,834	$20,834
Green	0	595	11.3	0.0	$0	$595,595	$41,595	$0	$637,190
Purple	0	0	0.0	0.0	$0	$0	$0	$0	$0
Totals	**1002**	**595**	**11.3**	**28.5**	**$1,395,786**	**$595,595**	**$41,595**	**$20,834**	**$2,053,810**
	1597								

The PDIF Fee is subject to change as it is amended from time to time. Changes in the number of dwelling units, Industrial Acreage or Commercial Acreage may affect the estimated fee.

Footnote:

1 Office uses are treated as Commercial Uses for PDIF.

The projected fee illustrated in Table E.5 is an estimate only. PFDIF Fees are subject to change depending upon City Council actions and or Developer actions that change residential densities, industrial acreage or commercial acreages.

6 Fee based on Form 5509 dated 11/07/2013. Actual fee may be different, Verify with the City of Chula Vista at the time of building permit.

VI.7. Threshold Compliance:

A. Project compliance will be satisfied with the payment of Public Facilities Fees. The proposed project will be required to pay public facilities fees for fire services based on the number of dwelling units and commercial and industrial acreage, prior to the issuance of building permits; the fees shall be paid at the rate in effect at the time payment is made.

The project applicant shall comply with the Project EIR Public Services mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The following Fire PUB mitigation measure is from the EIR:

B. (PUB-1) Prior to the issuance of each building permit for any residential dwelling units, the applicant(s) shall pay PFDIF in accordance with the fees in effect at the time of building permit issuance and phasing approved in this document, unless stated otherwise in a separate development agreement.

VII. SCHOOLS

VII.1. Threshold Standard

The City shall annually provide the two local school districts with a 12- to 18-month development forecast and request an evaluation of their ability to accommodate the forecast and continuing growth. The districts' replies should address the following:

A. Amount of current capacity now used or committed.

B. Ability to absorb forecasted growth in affected facilities.

C. Evaluation of funding and site availability for projected new facilities.

D. Other relevant information the district(s) desire(s) to communicate to the City and the GMOC.

VII.2. Service Analysis

School facilities and services in Chula Vista are provided by two school districts. The Chula Vista Elementary School District (CVESD) administers education for kindergarten through sixth grades. The Sweetwater Union High School District (SUHSD) administers education for the Junior/Middle and Senior High Schools of a large district, which includes the City of Chula Vista. The purpose of the Threshold Standard is to ensure that the districts have the necessary school sites and funds to meet the needs of students in newly developing areas in a timely manner, and to prevent the negative impacts of overcrowding on the existing schools. Through the provision of development forecasts, school district personnel can plan and implement school facility construction and program allocation in line with development.

On November 3, 1998, California voters approved Proposition 1A, the Class Size Reduction Kindergarten-University Public Education Facilities Bond Act of 1998. Prior to the passage of Proposition 1A, school districts relied on statutory school fees established by Assembly Bill 2926 ("School Fee Legislation") which was adopted in 1986, as well as judicial authority (i.e., Mira-Hart-Murrieta court decisions) to mitigate the impacts of new residential development. In a post Proposition 1A environment, the statutory fees provided for in the School Fee Legislation remains in effect and any mitigation requirements or conditions of approval not memorialized in a mitigation agreement, after January 1, 2000, will be replaced by Alternative Fees (sometimes referred to as Level II and Level III Fees). The statutory fee for residential development is referred to in these circumstances as the Level I Fee (i.e., currently at $2.24 per square foot for new residential construction and $0.36 per square foot for new commercial and industrial construction).

CVESD utilizes their current *Fee Justification Report, June 2012, by SDFA*, to quantify the impacts of new residential development on the district's school facilities, and to calculate the permissible Alternative Fees to be collected from such new residential development. To ensure the timely construction of school facilities to house students from residential development, alternative fees or implementation of a Mello Roos Community Facilities District (CFD) will be necessary.

Both CVESD and SUHSD are justified per Gov't Code to collect the maximum fee of $3.20 per square foot for new residential construction. CVESD has an agreement with SUHSD specifying the amount of the development fee that each district collects from new residential

development. Based on the agreement, CVESD collects $1.41 per square foot and SUHSD collects $1.79 per square foot for residential construction.

Sweetwater Union High School District utilizes their current "Sweetwater Union High School District Long Range Comprehensive Master Plan." Implementation of the SUHSD Plan is ongoing and has resulted in the upgrading of older schools and accommodating continuing growth. In November 2000, Proposition BB was approved by the voters. The district leveraged $187 million from Proposition BB into a $327 million effort utilizing state funding to modernize and upgrade 22 campuses. Additional work efforts associated with Proposition O have commenced and construction has begun.

In November 2006, the community supported Proposition O, a $644 million bond measure. This bond measure addresses the critical and urgent safety needs of the 32 campuses within the SUHSD. The types of repairs and improvements that Prop O addresses includes: improving handicap accessibility, removing asbestos and lead paint, and upgrading fire and life safety systems.

VII.3. Project Processing Requirements

The PFFP is required by the Growth Management Program to address the following issues for School Services:

A. Identify student generation by phase of development.

B. Specific siting of proposed school facilities will take place in conformance with the *Sweetwater Union High School District Long Range Comprehensive Plan,* November 1989 and Chula Vista Elementary School District's Standards and Criteria.

C. Reserve school sites, if necessary, or coordinate with the district for additional school classrooms.

D. Identify facilities consistent with proposed phasing.

E. Demonstrate the ability to provide adequate facilities to access public schools in conjunction with the construction of water and sewer facilities.

F. Enter into School Mitigation Agreements.

VII.4, Existing Conditions

School Facilities Inventory, Chula Vista Elementary School District

The CVESD, established in 1892, is the largest kindergarten through sixth grade (grades K–6) school district in California, and serves nearly 29,000 students in 45 elementary schools (including Charter Schools) with approximately 2,500 employees (both certified and classified) districtwide. Table F.1 lists existing schools together with the capacity and enrollment of each. Capacity using existing facilities is approximately 31,000. Enrollment is currently approximately 28,890. Ten of the 45 schools are over capacity and three schools are near capacity (see Table F.1). A new K-6 school opened in Otay Ranch Village 11 in July 2013. With the addition of this school, the CVESD expects to have adequate capacity to house all projected students for the next 18 months. However, additional facilities may be necessary with the next five years.

Currently, several schools in eastern Chula Vista are over capacity, including Arroyo Vista, Hedenkamp, Veterans, McMillin, Wolf Canyon, and Salt Creek. The Learning Community and Mueller Elementary in western Chula Vista is also over capacity and is projected to be nearly 150 over capacity within five years.

Table F.1 Chula Vista Elementary School District - Enrollments vs. Capacity			
Schools	**Estimated Enrollment 12/2013**	**Approximate Capacity**	**Remaining Capacity**
Allen/Ann Daly	431	565	134
Arroyo Vista Charter	1,034	850	-184
Camarena	944	900	-44
Casillas	595	739	144
Castle Park	421	539	118
Chula Vista Hills	559	588	29
Chula Vista LCC	800	725	-75
Clear View Charter	519	593	74
Cook	449	538	89
Discovery Charter	855	950	95
EastLake	633	763	130
Feaster/Ed Charter	1,111	1,164	53
Finney	406	622	216
Halecrest	503	601	98
Harborside	625	914	289
Hedenkamp	1,070	1,045	-25
Heritage	912	863	-49
Hilltop Drive	574	588	14
Juarez-Lincoln	592	776	184
Kellogg	318	539	221
Lauderbach	827	965	138
Liberty	728	748	20
Loma Verde	552	650	98
Los Altos	395	526	131
Marshall	724	734	10
McMillin	856	850	-6
Montgomery	358	526	168
Mueller Charter	1,051	900	-151
Olympic View	851	825	-26
Otay	607	775	168
Palomar	393	468	75
Parkview	364	583	219
Rice	691	741	50
Rogers	472	660	188
Rohr	349	489	140
Rosebank	605	764	159
Salt Creek	1,025	950	-75
Silver Wing	405	638	233
Sunnyside	447	564	117
Tiffany	586	689	103
Valle Lindo	528	714	186
Valley Vista	561	688	127
Veterans	888	850	-38
Vista Square	631	751	120
Wolf Canyon	645	849	204
Totals	**28,890**	**32,759**	**3,869**
District Adjustments		**30,984**	**2,094**

Source: CVESD

Table F.2 Sweetwater Union High School District Enrollments vs. Capacity 2013-2014			
School Site	**Program Capacity 100%**	**Estimated Enrollment**	**Capacity vs. Projected**
Middle Schools			
Bonita Vista	1,724	1,044	680
Castle Park	1,906	732	1,174
Chula Vista	1,795	1,056	739
EastLake	1,861	1,720	141
Granger	1,491	1,043	448
Hilltop	1,622	1,037	585
Mar Vista Mid.	1,684	828	856
Montgomery Mid.	1,408	805	603
National City Mid.	1,410	787	623
Rancho del Rey	1,700	1,700	0
Southwest	1,712	719	993
Subtotal	**18,313**	**11,471**	**6,842**
High Schools			
Bonita Vista	2,795	2,478	317
Castle Park	2,514	1,396	1,118
Chula Vista	3,430	2,714	716
EastLake	2,996	2,892	104
East Hills Academy*	132	48	84
Hilltop	2,889	2,042	847
Mar Vista	2,431	1,637	794
Montgomery	2,798	1,621	1,177
Olympian	2,468	1,896	572
Otay Ranch	2,985	2,618	367
San Ysidro	2,905	2,165	740
Southwest	2,954	1,572	1,382
Sweetwater	3,266	2,533	733
Palomar	648	373	275
Subtotal	**35,211**	**25,985**	**9,226**
Total	**53,524**	**37,456**	**16,068**

* Combined Jr. High & High School

Source: SUHSD

School Facilities Inventory, Sweetwater Union High School District

The District serves nearly 40,000 students in 11 middle (7-8) and 14[7] high schools (grades 9–12). Several middle and high schools are planned or have been recently opened in the area. Otay Ranch High School is the nearest high school to Village 3 North; however, the project area is outside the designated attendance area. Unless the attendance boundary is changed high school students from Village 3 North will attend Olympian High School, which was opened in 2006 within Otay Ranch Village 7, and has a planned capacity of 2,600 students. A new 7–12 school is planned within Otay Ranch Village 11. However, there is no construction schedule available.

The SUHSD has indicated that the unstable economy, high foreclosure rate, and expansion of charter schools into the 7-12 arena make the 5-year projections for eastern Chula Vista very tentative. If charter schools continue to siphon students, it is likely that the District will have capacity for five years of residential growth. However, if there is a significant increase in development and reoccupation of foreclosed homes, construction of Middle School No. 12 and High School No. 14 in Village 11 may be necessary within the next 5 years. Construction is anticipated to occur within 2-3 years.

VII.5. School Sizing and Location

The project is proposed to consist of 1,597 dwelling units at build out. At completion, the proposed project could generate approximately 1,064 students using the following Student Generation Factors:

		Single Family Detached	Multi-Family Attached[8]
Elementary (K-6)	=	.4114[9] students/dwelling unit	.3481 students/d.u.
Middle School (7-8)	=	.1216 students/dwelling unit	.0516 students/d.u.
High School (9-12)	=	.2291 students/dwelling unit	.1057 students/d.u.

By phase and school category, the project is expected to generate the following students:

Table F.3
Village 3 North & portion of 4 SPA
Student Generation By Development Phase

Phase	Dwelling Units		Student Generation							
			Elementary (K-6)		Middle (7-8)		High School (9-12)		Total Students	
	SF	MF	SF	MF	SF	MF	SF	MF	SF	MF
Red	481	0	198	0	58	0	110	0	367	0
Blue	521	0	214	0	63	2	119	0	397	0
Yellow	0	0	0	0	0	0	0	0	0	0
Green	0	595	0	207	0	31	0	63	0	301
Purple	0	0	0	0	0	0	0	0	0	0
Subtotal	**1002**	**595**	**412**	**207**	**122**	**31**	**229**	**63**	**764**	**301**
Total	**1597**		**619**		**153**		**292**		**1064**	

7 East Hills Academy is a grades 7-12 school.
8 Includes Single Family Attached and Apartment units.
9 Rate from CVESD.

Typical School Size Standards:	Elementary	750-1000 students
	Middle	1,500 students
	Senior High	2,400 students

Chula Vista Elementary School District

There are seven CVESD elementary schools serving Otay Ranch students. These include Heritage Elementary, McMillin Elementary, Hedencamp Elementary, Veterans Elementary, Wolf Canyon Elementary and Camerena Elementary. The newest K–6 school in Otay Ranch Village 11 (Enrique S. Camarena Elementary School) opened in July 2013. These schools are currently operating at or over capacity. An additional elementary school was planned to commence construction in 2011 within Village 2. However, the Village 2 elementary school is on hold and no construction update is available.

The Village 3 North & Portion of 4 SPA Plan Site Utilization Plan identifies an 8.3-acre elementary school site within the Village core. As noted in Table F.3, the build-out of the SPA Plan area would generate the need to house approximately 619 elementary school age students. Generally, CVESD prefers to construct elementary schools that serve approximately 750 students. The Village 3 North site would be reserved for acquisition by the school district or dedication by the developer to the school district, pursuant to an agreement between the developer and CVESD. Construction timing of the school would be determined by the school district. Until new schools are constructed, students residing within the project area would attend existing schools in neighboring villages as determined by the school district.

The State Department of Education must approve a proposed elementary school site prior to district acceptance. Due to the tremendous growth and enrollment in the CVESD, the districts may retain the 8.3-acre site as identified in the SPA Plan. However, should the site be determined at a later date to be excess property for the purposes of a new school, the district will notify appropriate parties at that time.

In the event that schools are overcapacity, the school district uses relocateable classrooms to temporarily house additional students until a new facility opens. In recognition of the impact on school facilities created by new development, the District and developers may enter into various mitigation agreements in order to ensure the timely construction of school facilities to house students from new residential development ("Mitigated Agreement"). Historically, developers and school districts have entered into School Mitigation Agreements and community facilities district ("CFD"), pursuant to the Mello-Roos Community Facilities District Act of 1982 (CVESD), to finance school facilities. However, per AB 2926, in the absence of a mitigation agreement, the developer shall pay the statutory school fees under state law in effect at the time of building permit issuance.

Sweetwater Union High School District

Secondary schools serving Otay Ranch include Otay Ranch High School, Olympian High School, Rancho del Rey Middle School, and EastLake Middle School. Enrollment and capacity in these schools are shown in Table F.2. It is anticipated that the 153 middle school students generated by the project will be served at EastLake Middle School or Rancho Del Rey Middle School until the first Otay Ranch middle school is constructed. EastLake Middle School is located approximately four miles to the northeast and Rancho Del Rey Middle School is located approximately two miles to the north. The Otay Ranch GDP School Facility Implementation Plan is based on the premise that schools will be constructed when half of the school's projected students reside in the community. The maximum middle school

capacity is 1,500 students, which would indicate a school construction trigger of approximately 750 students. However, throughout the district middle school capacity is available. Additional middle schools will be constructed when overall demand begins to approach existing capacity. Currently, the Otay Ranch Village 11 SPA has a designated Middle-High School site and the recently approved Village 8 West has a designated site for a Middle School.

The maximum capacity of a high school is approximately 2,400 students. It is anticipated that the 292 students generated from Village 3 North SPA Plan will be served at Olympian High School, which is located approximately two miles to the east. Depending on actual build-out and the capacity of existing area schools, it may be necessary to construct the planned high school within Village 11 prior to build-out of the project.

Demand for adult school facilities will be satisfied within existing facilities in the Sweetwater Union High School District, until a new facility can be constructed in the Eastern Urban Center (EUC) or a site reserved pursuant to the Otay Ranch GDP.

VII.6. Financing School Facilities

California Government Code section 65995 et. seq. and Education Code Section 17620 et. seq. authorizes school districts to impose facility mitigation exactions on new development as a way to address increasing enrollment caused by that development.

Although the collection of school fees is one method available to defray the cost of new development, it is not an acceptable solution since the maximum amount that could be collected by law represents less than one-fourth the cost to construct schools. In recognition of this funding deficiency, it is the desire of each district to fully mitigate the facility impacts caused by a master planned community via the creation of a Mello Roos Community Facilities District. The following Mello-Roos Districts have been established by each district:

SUHSD

CFD No.	1	EastLake
CFD No.	2	Bonita Long Canyon
CFD No.	3	Rancho del Rey
CFD No.	4	Sunbow
CFD No.	5	Annexable
CFD No.	6	Otay Ranch
CFD No.	7	Rolling Hills Estate
CFD No.	8	Coral Gate (Otay Mesa)
CFD No.	9	Ocean View Hills
CFD No.	10	Remington Hills/Annexable
CFD No.	11	Lomas Verdes
CFD No.	12	Otay Ranch (Village 1 West)
CFD No.	13	San Miguel Ranch
CFD No.	14	Otay Ranch Village 11
CFD No.	15	Otay Ranch Village 6 (ORC)

CVESD

CFD No.	1	EastLake
CFD No.	2	Bonita Long Canyon
CFD No.	3	Rancho del Rey
CFD No.	4	Sunbow
CFD No.	5	Annexable
CFD No.	6	Otay Ranch
CFD No.	10	Annexable for future annexations
CFD No.	11	Otay Ranch (Lomas Verde)
CFD No.	12	Otay Ranch (Village 1, West)
CFD No.	13	San Miguel Ranch
CFD No.	14	Otay Ranch Village 11 (Brookfield/Shea)
CFD No.	15	Otay Ranch Village 6 (ORC)

Based on historical data available from each district an estimate of costs for the construction of school facilities on a per student basis is provided. Both districts follow state standards for determining the costs and size for school construction. The cost for a high school, including land acquisition, is approximately $38,500 per student (2010 dollars). Excluding land, the cost for a high school is approximately $32,000 per student. The cost for a middle school, including land acquisition, is approximately $36,000 per student (2010 dollars). Excluding land, the cost for a middle school is $32,000 per student. The cost for an elementary school, including land acquisition, is approximately $33,500 per student (2010 dollars). Excluding

the land, the cost for an elementary school is approximately $30,000 per student. Land acquisition cost is calculated at approximately $350,000/net usable acre (10 acre elementary school site). Using the aforementioned costs per student together with the school size, the following costs per facility can be anticipated.

Elementary School Cost	
(1000 students) ($30,000/student w/o land cost)	$30,000,000
(1000 students) ($33,500/student w/land cost)	$33,500,000
Middle School Cost	
(1,500 students) ($32,000/student w/o land cost)	$48,000,000
(1,500 students) ($36,000/student w/ land cost)	$54,000,000
High School Cost	
(2,400 students) ($32,000/student w/o land cost)	$80,000,000
(2,400 students) ($38,500/student w/ land cost)	$92,500,000

VII.7. Threshold Compliance

The project applicant shall comply with the Project EIR Public Services mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The following School PUB mitigation measures are from the EIR:

A. (PUB-6) Prior to the issuance of each building permit for any residential dwelling units, the applicant(s) shall provide evidence or certification by the CVESD that any fee charge, dedication or other requirement levied by the school district has been complied with or that the district has determined the fee, charge, dedication or other requirements do not apply to the construction or that the applicant has entered into a school mitigation agreement. School Facility Mitigation Fees shall be in accordance with the fees in effect at the time of building permit issuance.

B. (PUB-7) The Applicant shall provide the City with evidence from the CVESD that the Village 3 North school site has been determined by the district to be acceptable for school use, to the satisfaction of the Director of Developer Services.

VIII. LIBRARIES

VIII.1. Threshold Standard

Population Ratio: 500 square feet (gross) of adequately equipped and staffed library facility per 1,000 population. The city shall construct, 60,000 Gross Square Feet (GSF) of additional library space over the citywide June 30, 2000 GSF total, in the area east of Interstate 805 by build out. The construction of said facilities shall be phased such that the city will not fall below the citywide ratio of 500 GSF per 1,000 population. Library facilities are to be adequately equipped and staffed.

VIII.2. Service Analysis

The City of Chula Vista Library Department provides library facilities.

VIII.3. Project Processing Requirements

The PFFP is required by the Growth Management Program to address the following issues for Library services:

A. Identify phased demands in conjunction with the construction of streets, water and sewer facilities.

B. Specifically identify facility sites in conformance with the Chula Vista Library Master Plan.

VIII.4. Existing Conditions

The City provides library services through the Civic Center Branch Library, the South Chula Vista Branch Library and, Otay Ranch Town Center Branch Library. The Civic Center Branch Library is located at 365 F Street, approximately 7 miles from the project and is the largest library facility within the city, consisting of a two-story, 55,000-square-foot building. The South Chula Vista Branch Library is located at 389 Orange Avenue, approximately five miles from the project and consists of approximately 37,000 square feet. The Otay Ranch Branch Library is located at 2015 Birch Road in the Otay Ranch Town Center, approximately one mile from the project and consists of approximately 3,400 square feet. The existing and future libraries are listed on the Table G.1 and Table G.2, respectively.

Table G.1
Existing Library Facilities

Existing Libraries	Square Footage
Civic Center	55,000
South Chula Vista	37,000
Otay Ranch Town Center	3,400
Total Existing Square Feet	**95,400**

The draft Chula Vista Public Library Strategic Facilities Plan identified ways to improve library service delivery to the community, particularly to residents of eastern Chula Vista. The plan indicates that the additional needed library square footage can be developed as multiple smaller branches, or as one large library. However, the library's operating budget has been significantly reduced and capital funding is not currently available. Therefore, the

facilities plan does not determine which option would be implemented. The options will be evaluated when capital and operating funds become available. Additional measures such as mall outlets, book vending machines, a bookmobile, and service partnerships are identified as possible interim measures. One recent interim measure was the mall branch at Otay Ranch Town Center, which opened in April 2012.

VIII.5. Adequacy Analysis

Using the Threshold Standard of 500 square feet of library space per 1,000 population, the demand for library space based on Chula Vista's estimated population of 251,560 [10] as of January 2013 is approximately 125,780 square feet. Chula Vista currently provides 95,400 square feet of library space. This represents aan approximate 30,380 square-foot deficit. The demand generated by the 10,115 forecasted dwelling units (GMOC 2013 Annual Report) is 16,235 square feet (10,115 x 3.21[11]/1,000) x 500). By 2018 the demand for library space generated by the existing and forecasted dwelling units totals approximately 142,000 (125,780 + 16,235) square feet. Comparing this demand to the existing library square footage of 95,400 square feet results in a deficit of approximately 46,600 square-feet unless the city completes the Rancho Del Rey or EUC Regional Library or a combination of a Regional Library and numerous branch libraries before 2018. Table G.2 illustrates the need to increase Library Facilities over the next five years to keep pace with the city's projected growth. The SANDAG 2030 build-out population for Chula Vista is approximately 289,044. This population will require approximately 144,500 square feet of Library Facilities.

The GMOC Threshold Standard for libraries is 500 square feet of library space per 1,000 residents. According to the 2013 GMOC Annual Report, the current service ratio for FY 2011 was 383 square feet for every 1,000 residents, after the opening of the Town Center Branch Library in April 2012. Therefore, the City does not currently meet the GMOC Threshold for libraries.

The proposed Village 3 & a portion of 4 SPA Plan project would result in demand for libraries and may have the potential to require the construction of new or expanded library facilities. The project would generate demand for approximately 2,587 square-feet of additional library facilities within the City. While the SPA Plan permits public/quasi-public uses such as libraries, within the SPA Plan, the proposed project does not specifically include the development of a library. Future library facilities would be funded in part by payment of the PFDIF.

[10] GMOC 2013 Annual Report
[11] Population coefficient of 3.21 persons per household.

Table G.2 Otay Ranch Village 3 North & Portion of 4 SPA Plan Library Space Demand vs. Supply[12]				
	Population	**Demand Square Footage**	**Estimated Supply Square Footage**	**Above/(Below) Standard**
Estimated Existing Citywide 01/2013	251,560	125,780	95,400	(30,380)
1st regional library (Rancho del Rey) 2018			26,400	(3,980)
2nd regional library (EUC) 2018			23,600	19,620
Forecasted Projects to 2018 (10,115 x 3.21)	32,470	16,235		3,385
Subtotal	**284,030**	**142,015**	**145,400**	**3,385**

VIII.6. Financing Library Facilities

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 19, 2002 by adoption of Ordinance 2847. The PFDIF is adjusted every October 1st pursuant to Ordinance 3050, which was adopted by the City Council on November 7, 2006. The current PFDIF for single-family residential and multi-family development is $1,582/unit. This amount is subject to change with the adoption of Ordinance 3010. The PFDIF amount is subject to change as it is amended from time to time. Both residential and non-residential development impact fees apply to the project. The calculations of the PFDIF due for each facility are addressed in the following sections of this report. At the current library fee rate, the Otay Ranch Village 3 & Portion of 4 SPA Library Fee obligation at build-out is $2,526,454 (see Table G.3).

Table G.3 Village 3 North & portion of 4 SPA Plan Public Facilities Fees For Libraries[13]					
Development Phase	**Dwelling Units**		**Library Fee**		
	SF	**MF**	**SF $1,582/DU**	**MF $1,582/DU**	**Total Fee**
Red	477	0	$760,942	$0	$760,942
Blue	521	0	$824,222	$0	$824,222
Yellow	0	0	$0	$0	$0
Green	0	595	$0	$941,290	$941,290
Purple	0	0	$0	$0	$0
Total	**1002**	**595**	**$1,585,164**	**$941,290**	**$2,526,454**
	1597				

12 Based on City of Chula Vista Estimates, 2013 GMOC Annual Report.

13 The PDIF Fee is subject to change as it is amended from time to time. Changes in the number of dwelling units may affect the estimated fee.

The projected fee illustrated in Table G.3 is an estimate only. Actual fees may be different. PDIF Fees are subject to change depending upon City Council actions and or Developer actions that change residential densities.

VIII.7. Threshold Compliance

A. Project compliance will be satisfied with the payment of Public Facilities Fees. The proposed project will be required to pay public facilities fees for Library services, based on the number of dwelling units, prior to the issuance of building permits; the fees shall be paid at the rate in effect at the time payment is made.

The project applicant shall comply with the Project EIR Public Services mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The following is a summary of these mitigation measures:

B. (PUB-11) Prior to the issuance of each building permit for any residential dwelling units, the applicant shall pay the required PFDIF in accordance with the fees in effect at the time of building permit issuance and phasing approved. Payment of the PFDIF would represent the project's fair share contribution to meet the City's Threshold Standard for library space.

C. (PUB-12) The City of Chula Vista shall continue to monitor library facilities and services and report the results to the GMOC on an annual basis.

IX. PARKS, TRAILS AND OPEN SPACE

IX.1. Park Threshold Standard

Population Ratio: Three (3) acres of neighborhood and community park land with appropriate facilities per 1,000 residents east of I-805.

IX.2. Service Analysis

The City of Chula Vista provides public park and recreational facilities and programs through the Public Works and Recreation Departments, which are responsible for the acquisition and development of parkland. All park development plans are reviewed by City staff and presented to the Parks and Recreation Commission for review. A recommendation is made by this Commission to the City Council.

The Otay Ranch Parks and Recreation Facility Implementation Plan was adopted by the City Council on October 28, 1993. This plan identifies the parks facility improvement standards for the Otay Ranch.

The Village 3 North and portion of Village 4 SPA Plan must conform to the 2012 Chula Vista Parks and Recreation Master Plan, which provides the guidance for planning, siting and implementation of neighborhood and community parks. Further, the SPA Plan must conform to the City of Chula Vista Greenbelt Master Plan and the Otay Valley Regional Park Concept Plan.

IX.3. Project Processing Requirements

A. Identify phased demands in conformance with the number of dwelling unit's constructed, street improvements, and in coordination with the construction of water and sewer facilities.

B. Specific siting of the facility will take place in conformance with the Chula Vista Parks and Recreation Master Plan.

C. Site/s reserved for park purposes within the project.

IX.4. Existing Conditions

The existing and future parks as depicted in the Public Facilities & Services Element of the General Plan and as updated by the inclusion of more recent information are contained in the City's Parks and Recreation Master Plan.

IX.5. Project Park Requirements

The project generates an estimated population of 5,174 (1,597 dwelling units x 3.24[14] population factor). To meet the City Growth Management Program's Threshold Standard requirements, the amount of parkland dedicated is based on a standard of 3 acres per 1,000 populations (see Table H.1). The standard is based on State of California Government Code 66477, also known as the Quimby Act, which allows a city to require by ordinance, the dedication of land or payment of fees for park or recreational purposes.

Table H.1
Quimby Act Parkland Requirements

Village 3 North & portion of 4 SPA Population	Standard	Parkland Acres Required
5,174	3 acres per 1,000 population	15.5

All new development in the City of Chula Vista is subject to the requirements contained in the City's Parkland Dedication Ordinance CVMC Chapter 17.10. The ordinance establishes fees for park land acquisition and development, sets standards for dedication and establishes criteria for acceptance of parks and open space by the City of Chula Vista. Fees vary depending upon the type of dwelling unit that is proposed. There are four types of housing; Single-Family dwelling units (defined as all types of single-family detached housing and condominiums), Multi-Family dwelling units (defined as all types of attached housing including townhouses, attached condominiums, duplexes, and Mobile Homes). Single-Family Housing is defined as a free-standing structure with one residential unit. Multi-Family Housing is defined as any free-standing structure that contains two or more residential units. Parkland dedication requirements are shown below on Table H.2.

Table H.2
City of Chula Vista Parkland Dedication Ordinance Standards

Dwelling Unit Type	Land Dedication per Unit	Dwelling Units per Park Acre
Single-Family	460 sf/du	95 du/ac.
Multi-Family	341 sf/du	128 du/ac.

[14] Provided by the Chula Vista Planning Department.

Table H.3 Village 3 & portion of Village 4 SPA Plan Preliminary Parkland Dedication Requirements City Ordinance Applied to Planning Prediction of Unit Numbers and Types			
Dwelling Unit Type*	**Number of D.U.**	**Parkland Required/DU**	**Required Acres**
Single Family Detached	1,002	460 sf/du	10.58
Multiple Family	595	341 sf/du	4.66
TOTALS	**1,597**		**15.24**

* Dwelling unit type - Note that number and type of units listed reflect 'Land Use Designations' listed in the Otay Ranch General Development Plan, since this level of information is all that is available at the time of this document's preparation irrespective of underlying zoning district. Actual fee obligation calculation to be based on implementing ordinance definition of dwelling unit type irrespective of underlying zoning district containing said dwelling unit. Definitions of dwelling unit types used for calculating park obligations are based upon from the City's Parkland Dedication Ordinance CVMC chapter 17.10. These definitions differ from the way unit types are defined from a planning, land-use and zoning perspective that uses unit density per acre to categorize the type of unit. CVMC chapter 17.10 uses product type to categorize the type of unit distinguishing between attached and detached units. Consequently, the figures in this chart are preliminary estimates, and shall be recalculated at the time when the obligations are due as determined by chapter 17.10 of the CVMC.

The City's Parklands and Public Facilities Ordinance (CVMC 17.10) is based on the Quimby Act. Based on the City's Parklands and Public Facilities Ordinance, the parkland requirement is approximately 15.26 acres (see Table H.3).

Table H.4 Otay Ranch Village 3 North & Portion of Village 4 SPA Plan Park Acres And Eligible Credits[15]				
Park Identification	**Net Acreage**	**Phase**	**Proposed Credit %**	**Eligible Credit Ac.**
P-1 – Neighborhood Park	6.7	Green	100%	6.7
P-2 – Community Park	15.6	Purple[16]	100%	15.6
Private Open Space - 1	0.2	Red	100%	0.0
Private Open Space – 2-8	2.2	Blue	100%	0.0
Total Acres Eligible for Credit Against PAD				**22.3[17]**
Villages 3 North, Portion of Village 4 SPA PAD Requirements				**15.24**
Subtotal Villages 3 North, Portion of Village 4 SPA Credits				**7.06**
Total Excess Credits				**7.06**

The project phasing (Table B.3) and Site Utilization Plan identifies the park designations and acreage that are also shown in Table H.4. Table H.4 also identifies the phase of development in

[15] Parkland fee and acreage obligations are subject to change pending changes in the dwelling unit types and numbers, or clarification of unit type at the time when obligations are due.

[16] Community Park site IOD to be delivered to the city to recordation of the first Final Map.

[17] Either the Village 4 - 15.6 acre (net) P-2 Community Park or the 40 acre (net) Village 8 East P-2 Community Park may be utilized to satisfy the Village 3 North park obligations not met within the Village 3 North P-1 Neighborhood Park.

which the park will be constructed and the park acres that the city has determined will be given credit for purposes of satisfying the project's parkland dedication as measured against the City's Parkland Dedication Ordinance. The Neighborhood Park will be graded and offered for dedication in whatever development phase is initiated by the project developers. The City's Parkland Dedication Ordinance requirements for the project are outlined in Table H.4.

IX.6. Park Adequacy Analysis

Table H.5 is a comparison of park acreage demands and supply east of Interstate 805 for existing, approved projects, as well as the phased addition of the project. A review of the existing and approved park demands for Chula Vista east of I-805 including the project indicates a projected 2017 demand of approximately 486.16 acres of Neighborhood and Community Park (GMOC 2013 Annual Report). The 2017 projected supply of park acreage east of I-805, 426.88 acres, is approximately 59.28 acres less than the projected demand. The projected shortfall does not include the park obligations of the University Villages Project, which includes Village 3 North, Village 8 East and Village 10. These villages include approximately 76 acres of new parkland.

Table H.5
Estimated Park Acreage Demand Compared to Supply East of Interstate 805

	Population East of I-805[18]	Demand Park Acres[19]	Existing Park Acres	Eligible Credit Acres	Net Acres +/-Standard
Existing	135,205	405.62	418.01[20]	418.01	+12.39
Forecasted Projects 2013 to 2017	26,845[21]	80.54	8.87[22]	8.87	-71.67
Total	**162,050**	**486.16**	**426.88**	**426.88**	**+59.28**

The proposed development of the project requires per the Quimby Act approximately 15.5 acres (see Table H.1) for public parkland. The project SPA plan identifies 22.3 acres net for public Neighborhood Park and Community Park land. The Village 3 North Neighborhood Park (P-1) is 6.7 net acres. The Village 4 Community Park (P-2) is 15.6 net acres. The SPA Plan provides each of the proposed park facility details. Park phasing will be determined by the Director of Development Services. Once the SPA parkland obligation is met approximately 7.06 acres of community parkland would be available for credit to the project developer.

The Village 3 North & portion of Village 4 SPA Plan provides a 6.7-acre (net) Neighborhood Park (P-1) and 15.6 acres (net) of Community Park (P-2) within Village 4. The total parkland in the SPA Plan area is 22.3 (net) acres. Further, the University Villages Project includes the 40.0 acre (net) Village 8 East P-2 Community Park. Either the Village 4 - 15.6 acre (net) P-2 Community Park or the 40 acre (net) Village 8 East P-2 Community Park may be utilized to satisfy the Village 3 North park obligations not met within the Village 3 North P-1 Neighborhood Park. The actual park acreage requirements will be based on the number and type of residential units approved on the subsequent Final Map(s) for Village 3 North and a portion of Village 4.

18 Population figures are from the 2013 GMOC Annual Report.
19 Based on City Threshold requirement of 3 acres of neighborhood and community parkland per 1,000 residents east of I-805.
20 Existing Park Acreage from 2013 GMOC Annual Report.
21 Population figure derived from the Table B.1.
22 Park acreage from Park Acreage Table from the 2013 GMOC Annual Report, Appendix B, Workshop Reports.

Table H.6 Otay Ranch Village 3 & a Portion of Village 4 SPA Park Supply by Phase							
Phase	**Dwelling Unit Type***		**Demand Park Acres**	**Supply Park Acres Net**	**Eligible Credit Acres**	**Net Acres +/- Standard**	**Project Cumulative**
	SF	**MF**					
Red	481	0	5.08	0.00	0.00	-5.08	-5.08
Blue	521	0	5.50	0.00	0.00	-5.50	-10.58
Yellow	0	0	0.00	0.00	0.00	0.00	-10.58
Green	0	595	4.66	6.70	6.70	-2.04	-8.54
Purple	0	0	0	15.60	15.60	15.60	7.06
Subtotal	**1002**	**595**	**15.24**	**22.30**	**22.30**	**7.06**	**7.06**
Total	**1597**		**15.24**	**22.30**	**22.30**	**7.06**	**7.06**

* Dwelling unit type - Note that number and type of units listed reflect 'Land Use Designations' listed in the Otay Ranch General Development Plan, since this level of information is all that is available at the time of this document's preparation irrespective of underlying zoning district. Actual fee obligation calculation to be based on implementing ordinance definition of dwelling unit type irrespective of underlying zoning district containing said dwelling unit. Definitions of dwelling unit type used for calculating park obligations are based upon from the City's Parkland Dedication Ordinance CVMC chapter 17.10. These definitions differ from the way unit types are defined from a planning, land-use and zoning perspective that uses unit density per acre to categorize the type of unit. CVMC chapter 17.10 uses product type to categorize the type of unit distinguishing between attached and detached units. Consequently, the figures in this chart are preliminary estimates, and shall be recalculated at the time when the obligations are due as determined by chapter 17.10 of the CVMC.

IX.7. Open Space, Trails and Recreation

A. Open Space

The Otay Ranch GDP requires the provision of open space in addition to local parks at a ratio of 12 acres for every 1,000 residents. Based on an estimated population of 5,174 residents, approximately 62.1 acres of open space is required. This requirement is met through the provision of approximately 193.2 acres of open space in the form of preserve open space, non-preserve open space, manufactured slopes and other interior open spaces within the SPA Plan area.

Natural open space within the SPA Plan area is comprised of Otay River Valley and Wolf Canyon open space (part of the Otay Ranch Preserve) to the south, graded slopes within and surrounding the village, a Neighborhood Park, a Community Park and the landscape buffer adjacent to surrounding major streets. These open spaces provide pedestrian connections within the SPA Plan area, passive recreational opportunities and view opportunities.

Open space lands indicated on the Site Utilization Plan (Exhibit 3) will be preserved through the dedication of open space easements and/or lots to the City or other appropriate agency, or Homeowners' Association, which will be determined at the Tentative Map level of approval. Uses will be strictly controlled through zoning regulations (see Chapter 3, PC District Regulations, of the SPA Plan). Landscaping within open space areas shall comply with all requirements of the Chula Vista Landscape Manual, Fire Protection Plan and Preserve Edge Plan.

The largest component of open space in the Otay Ranch is the Otay Ranch Preserve, described in the Resource Management Plan (RMP). As prescribed by the RMP, the development of each Otay Ranch Village requires conveyance of Preserve Land to the Preserve Owner/Manager. The Otay Ranch Preserve Conveyance requirement as described in the Otay RMP will be met through dedication of land within the Preserve to the Preserve Owner / Manager (POM) comprised of the City of Chula Vista and the County of San Diego.

The required contribution is 1.188 acres of open space conveyance per one acre of development less the acreage of "common use lands," (local parks, schools, arterial roads and other land designated as public use areas). The actual conveyance obligation is based on the actual development area determined at the Final Map(s) level. The estimated Preserve conveyance requirement for Village 3 North & portion of 4 SPA Plan based on the SPA Plan calculation is approximately 259.6 acres.

B. Trails

The SPA Plan area has been designed to accommodate the trails program described by the Otay Ranch Overall Design Plan, the City's Greenbelt Master Plan and the Otay Regional Park Concept Plan. The plan has been designed as a pedestrian-oriented village and provides bicycle and pedestrian circulation. All trails within the SPA Plan area have been located and designed to be as accessible as possible; however, off-street trails contain steep topography that may limit pedestrian and bicycle travel.

The Trails Plan is illustrated in Exhibit 12. The landscape treatment and design elements of village trails are also illustrated and described in the Village Design Plan. A summary of the components of the trail plan is provided below.

1. **Regional Trails**
   Chula Vista Regional Trails are located throughout the Otay Ranch project area. Specific to Village 3 North & portion of 4, Regional Trails are located on the north side of Main Street and the east side of Heritage Road. These trails are located adjacent to the roadways and may meander within the street right-of-ways. The trail widths and surfaces vary to accommodate pedestrians and bicycles.

2. **Chula Vista Greenbelt & Otay Valley Regional Park Trails**
   The Chula Vista Greenbelt Master Plan provides for a Greenbelt network through Otay Ranch. The Greenbelt Trail is located south of Village 3 North through the Otay River Valley within the existing Salt Creek Sewer Easement. The Village 3 North village core will be connected to the Greenbelt via the Regional Trails along Heritage Road and Main Street, ultimately connecting to the east and west Greenbelt segments within the Otay Valley Regional Park.

   The Otay Valley Regional Park (OVRP) Concept Plan identifies a multi-use trail system through the Otay River Valley. The portion of the Greenbelt Trail described above coincides with the OVRP trail.

3. **Village Pathway**
   Village Pathways are inter-village multi-purpose paths that link all of the Otay Valley Parcel villages. In Village 3 North, a Village Pathway is proposed to extend south from Heritage Road, through the mixed use commercial area and to the neighborhood

park and school (See Exhibit 8, Trails Plan). The Village Pathway is a 10' concrete pathway, separated from the streets by a landscaped, tree-lined parkway.

4. **Village Trails**
   Village Trails provide alternative circulation routes to village streets for pedestrians and bicycles separate from roadways. Trails are located within open space in the SPA Plan area. The landscape treatment and design elements of trails are addressed more fully in the SPA Plan. The Village 3 North Village Trail provides a pedestrian connection from Village 3 North to the Chula Vista Greenbelt/OVRP trail located in the Otay River Valley at the Main Street Regional Trail.

5. **Village Streets**
   The village streets are designed to promote pedestrian, bicycle circulation and low speed electric vehicle travel. Sidewalks are provided on all public village streets. The preferred design for all village streets is the Parkway Residential Street, which provides a minimum five-foot wide sidewalk separated from the roadway by landscaped parkways. The SPA Plan provides additional design details.

6. **Promenade Trails**
   Promenade Trails are tree shaded walkways located along the featured side of the Modified Two Lane Secondary Village Entry Street and Modified Promenade Residential Street. In Village 3 North, the Promenade Trail provides a pedestrian friendly connection between the Village Core Mixed Use area and the school, neighborhood park and residential neighborhoods. Promenade Trails are six foot wide concrete trails separated from the street by a landscaped parkway.

C. Village Park and Recreation Program

The Otay Ranch Parks and Recreation Facility Implementation Plan (adopted by the City Council on October 28, 1993) identifies the parks facility improvement standards for Otay Ranch. The City of Chula Vista Recreation Department and Public Works Department conducted subsequent facilities needs assessments and proposed some modifications to the adopted Otay Ranch Plan.

This SPA Park Master Plan strives for consistency with the Otay Ranch Plan and the current proposed plans and policies of the Parks and Recreation Department. This SPA Park Master Plan identifies the proposed types, quantities and location of the facilities provided at each park site in the SPA Plan area. In addition to identifying specific facility needs and requirements, the goal of the SPA Park Master Plan is to describe the elements necessary to ensure a rich variety of recreational opportunities, while satisfying identified recreation needs. The variety of recreational elements proposed and the recreational opportunities envisioned are discussed below.

IX.8. Financing Park Facilities

Chapter 17.10 of the Chula Vista Municipal Code, as amended, governs the financing of parkland and improvements. Included as part of the regulations are Park Acquisition and Development (PAD) fees established for the purpose of providing neighborhood and community parks. The Ordinance provides that fees are paid to the City prior to approval of a final subdivision map, or in the case of a residential development that is not required to submit a Final Map, at the time of the final building permit application.

The project is responsible for both the park development component and the acquisition component PAD Fees. The project parkland demand is 15.24 acres based on CVMC 17.10 (Table H.3). The SPA Plan provides 22.3 net acres of parkland.

PAD Fees are subject to periodic annual increases. Table H.7 identifies the fees calculated for the development component of the PAD fees while Table H.8 identifies the fees calculated for the parkland acquisition component of the PAD fees. These fees are estimates only and are dependent upon the actual numbers of units filed on the final map. Fees are also subject to change by the City Council. Single Family dwelling units are defined as all types of single-family detached housing and condominiums. Multi-Family dwelling units are defined as all types of attached housing including townhouses, attached condominiums, duplexes, triplexes and apartments.

TABLE H.7
Acquisition and Development (PAD) Fees (Preliminary Calculation)
Development In-Lieu Component Only

Development Phase	Dwelling Unit Type*		Development Component of PAD Fee's/DU Total		Total Fees Due
	SF	MF	$12,676	$9,408	
Red	481	0	$6,046,452	$166,672	$6,097,156
Blue	521	0	$6,604,196	$0	$6,604,196
Yellow	0	0	$0	$0	$0
Green	0	595	$0	$5,597,760	$5,597,760
Purple	0	0	$0	$0	$0
Subtotal	**1002**	**595**			
Total		**1597**	**$12,701,352**	**$5,597,760**	**$18,299,112**

* Dwelling unit type - Note that number and type of units listed reflect 'Land Use Designations' listed in the Otay Ranch General Development Plan, since this level of information is all that is available at the time of this document's preparation irrespective of underlying zoning district. Actual fee obligation calculation to be based on implementing ordinance definition of dwelling unit type irrespective of underlying zoning district containing said dwelling unit. Definitions of dwelling unit type used for calculating park obligations are based upon from the City's Parkland Dedication Ordinance CVMC chapter 17.10. These definitions differ from the way unit types are defined from a planning, land-use and zoning perspective that uses unit density per acre to categorize the type of unit. CVMC chapter 17.10 uses product type to categorize the type of unit distinguishing between attached and detached units. Consequently, the figures in this chart are preliminary estimates, and shall be recalculated at the time when the obligations are due as determined by chapter 17.10 of the CVMC.

TABLE H.8 Park Acquisition and Development (PAD) Fees (Preliminary Calculation) Acquisition In-Lieu Component Only					
Development Phase	**Dwelling Unit Types***		**Acquisition Component of PAD Fees/D.U. Total**		**Total**
	SF	**MF**	**$5,106/SF Unit**	**$3,788/MF Unit**	
Red	481	0	$2,455,986	$0	$2,455,986
Blue	521	0	$2,660,226	$0	$2,660,226
Yellow	0	0	$0	$0	$0
Green	0	595	$0	$2,253,860	$2,253,860
Purple	0	0	$0	$0	$0
Subtotal	1002	595			
Total	**1597**		**$5,116,212**	**$2,253,860**	**$7,370,072**

* Dwelling unit type - Note that number and type of units listed reflect 'Land Use Designations' listed in the Otay Ranch General Development Plan, since this level of information is all that is available at the time of this document's preparation irrespective of underlying zoning district. Actual fee obligation calculation to be based on implementing ordinance definition of dwelling unit type irrespective of underlying zoning district containing said dwelling unit. Definitions of dwelling unit type used for calculating park obligations are based upon from the City's Parkland Dedication Ordinance CVMC chapter 17.10. These definitions differ from the way unit types are defined from a planning, land-use and zoning perspective that uses unit density per acre to categorize the type of unit. CVMC chapter 17.10 uses product type to categorize the type of unit distinguishing between attached and detached units. Consequently, the figures in this chart are preliminary estimates, and shall be recalculated at the time when the obligations are due as determined by chapter 17.10 of the CVMC.

IX.9. Financing Recreation Facilities

Chapter 17.10 of the CVMC, which requires the collection of fees from residential developments to pay for parkland acquisition and various park facilities within the City of Chula Vista, is subject to changes by the City Council from time to time. On October 25, 2005, the City Council approved Ordinance 3026 relating to the periodic annual review and adjustment of park acquisition and development fees. Approval of Ordinance 3026 resulted in an increase fee for parkland acquisition. In January of 2004 the Chula Vista City Council approved Ordinance 2945. This Ordinance amended Chapter 17.10 of the CVMC, which requires the collection of In-Lieu Park Acquisition and Development Fees from residential developments that are not required to submit a subdivision map or parcel map.

Some of the previous council actions that contributed to an increase in the in-lieu fees for park development and land acquisition are Ordinances No. 2886 and 2887 (both approved on November 19, 2002). Ordinance 2886 amended Chapter 17.10 of the CVMC to update the Parks Acquisition and Development Fees. Ordinance 2887 amended Chapter 3.50 of the Municipal Code, as detailed in the *"Public Facilities DIF, November 2002 Amendment',* adding a new recreation component to the Public Facilities DIF, updating the impact fee structure and increasing the overall fee.

Chapter 17.10 of the Chula Vista Municipal Code, first adopted in 1971, details requirements for parkland dedication, park improvements and the collection of in-lieu fees (i.e., PAD fees) from developers of residential housing in subdivisions or in divisions created by parcel maps,

both east and west of I-805. PAD fees cover parkland acquisition and the cost of related capital items associated with parkland development, including:

- Drainage Systems
- Street Improvements
- Lighted Parking Lots
- Concrete Circulation Systems
- Security Lighting
- Park Fixtures *(drinking fountains, trash receptacles, bicycle racks, etc.)*
- Landscaping *(including disabled accessible surfacing)*
- Irrigation Systems
- Restrooms and Maintenance Storage
- Play Areas *(tot lots, etc.)*
- Picnic Shelters, Tables, Benches
- Utilities
- Outdoor Sports Venues *(tennis courts, baseball/softball fields. basketball courts, multi-purpose sports fields, skateboard and roller blade venues)*

In addition to parks-related items, a 1987 revision called for the dedication, within community parks, of major recreation facilities to serve newly developing communities, including:

- Community centers
- Gymnasiums
- Swimming pools

Historically, PAD fees have not been sufficient to construct these additional large capital items. However, major recreation facilities are now funded through a newly created component of the Public Facilities DIF. The major capital items to be included in the new component are: community centers, gymnasiums, swimming pools, and senior/teen centers. Based on the Parks and Recreation Master Plan, 140,595 square feet of major recreation facilities will be required to meet new development growth through build-out at a gross construction cost of over $32 million. Since the demand for major public recreation facilities is created by residential development, facilities costs are not spread to commercial/industrial development. Table H.9 provides an estimate of the Recreational PDIF Fees for the project.

TABLE H.9 Village 3 North & a portion of 4 SPA Public Facilities Fees for Recreation[23] (Preliminary Calculation)					
Development Phase	**Dwelling Units**		**Recreation Fee**		**Total**
	SF	**MF**	**$1,201**	**$1,201**	
Red	481	44	$577,681	$0	$577,681
Blue	521	0	$625,721	$0	$625,721
Yellow	0	0	$0	$0	$0
Green	0	595	$0	$714,595	$714,595
Purple	0	0	$0	$0	$0
Subtotal	1002	595			
Total	**1597**		**$1,203,402**	**$714,595**	**$1,917,997**

IX.10. Threshold Compliance

A. On a project-level, the Neighborhood Park and the Community Park acreage provided within Otay Ranch Village 3 North & a portion of 4 SPA meets and exceeds the demand on a cumulative basis. In order to comply with the City's local park standard, it is the responsibility of the developer to comply with the City's Landscape Manual related to park planning, to grade the sites according to the approved plan, pay fees at a rate in effect at the time of Final Map approval and dedicate land, or a combination thereof, as required by the PLDO unless otherwise approved by the Director of Development Services.

B. Based upon the analysis contained in this section of the PFFP, the Parks Threshold Standard for both neighborhood and community parks is projected to be met at the completion of the project subject to the Applicant's compliance with the park conditions as described herein. The PUB designations correspond to the Project EIR numbered Public Services mitigation measures.

C. (PUB-8) Prior to the approval of the Final Map, or, for any residential development within the project that does not require a Final Map, prior to building permit approval, the applicant shall either dedicate parkland and/or pay applicable Park Acquisition and Development in-lieu fees in accordance with the phasing indicated in this PFFP and the project's approved SPA Plan and a park agreement, if any, subject to approval of the Director of Development Services. In-lieu fees shall be based on the Park Acquisition and Development fees in effect at the time of issuance of building permits, unless stated otherwise in a parks or development agreement.

D. (PUB-9) Prior to issuance of each building permit for any residential dwelling units, the Applicant(s) shall pay Recreation Facility Development Impact Fees (part of the Public Facilities Development Impact Fee) in accordance with the fees in effect at the time of building permit issuance.

E. (PUB-10) Prior to the approval of the first Final Map for the Project the developer shall enter into an agreement with the City that provides for the following: dedication of public

[23] The PFDIF Fee is subject to change as it is amended from time to time. The total number of dwelling units and type of dwelling unit filed on the Final Map or for which building permits are required shall determine the actual fee amount.

park sites (which may include off-site dedication in Village 8 East); the payment of PAD fees; and a schedule for completion of improvements, including utilities, and streets adjacent to the park sites, all to the satisfaction of the Development Services Director. Under the current method for delivery of new parks the City will award a design-build contract for the Project's neighborhood park. The Agreement will include provisions that in the event the City chooses not go forward with a design-build contract, the developer will be obligated to fully comply with the Parkland Ordinance and park Threshold Standards by constructing the parks in accordance with all City standards and under a time schedule as specified in the agreement.

F. (PUB-11) Prior to approval of the first Final Map for the Project, the Applicant(s) shall offer for dedication all public parkland identified in the Project's approved SPA Plan, or as approved by the Development Services Director or their designee. Park facilities required to meet the overall park obligation shall be identified on the first Final Map and shall be publically accessible.

G. (PUB-12) The applicant shall comply with the Threshold Compliance contained within this PFFP.

H. Prior to approval of the first final map, the Applicant shall provide the City with an Irrevocable Offer of Dedication (IOD) for the 6.7 acre (net) neighborhood park site (Lot P-1) and approximately 8.56 net acres of Community Park land within either the Village 4 Community Park or the Village 8 East Active Recreation site (Lot P-2) acceptable to the Development Services Director. The Existing 1.9 acre IOD within the Village 4 Community Park in satisfaction of the Village 2 Project area park acre obligation shall be accounted for when calculating available eligible park credit within the Village 4 Community Park.

I. Prior to approval of the Final Map that includes the Parks & Recreation lot ("P-2"), Applicant shall:
   a. Demonstrate to the satisfaction of the Development Services Director that an access road to the Village 4 Community Park has been provided.
   b. Provide adequate sewer and water connections to serve the future park and recreation facilities.

J. Prior to approval of each Final Map for the Project, the Applicant shall offer for dedication all public trails, easements or rights-of-way for the trails, free and clear of all encumbrances Final Map unless otherwise approved by the City, contained in said map.

K. Prior to the approval of the first Final Map for the Project a Maintenance Landscape Master Plan and Responsibility Map will submitted to for approval by the Director of Development Services. The Maintenance Landscape Master Plan will contain a matrix of which landscaping improvements will be maintained with general funds and which will require a separate, identified funding mechanism.

L. Prior to the approval of the first Final Map for the Project a Community Facilities District, or other funding mechanism to the satisfaction of the Director of Public Works, shall be established for landscaping and streetscape maintenance within the public right of way and maintenance of public open space.

M. Prior to the approval of the first map for the Project the Project shall annex into the Otay Ranch Preserve Maintenance CFD 97-2 Improvement Area "C."

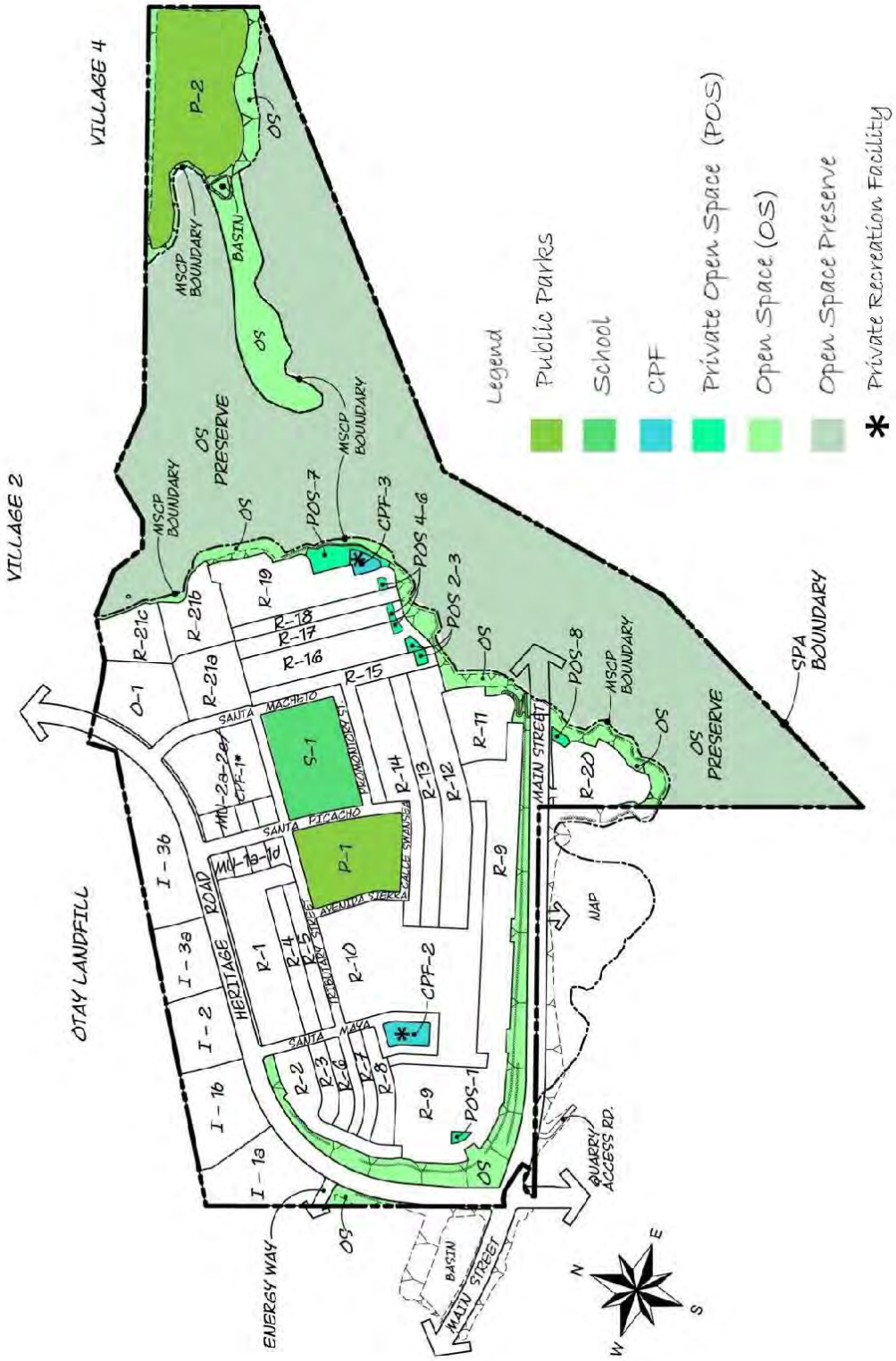
N. Prior to recordation of each final map, the Applicant shall convey fee title to land within the Otay Ranch Preserve to the Otay Ranch Preserve Owner Manager or its designee at a

ratio of 1.188 acres for each acre of development area, as defined in the Otay Ranch Resource Management Plan. Access to the conveyed property for maintenance purposes shall also be provided to the satisfaction of the Preserve Owner Manager.

O. Prior to approval of the first final map, the Applicant shall obtain approval of and record an easement for public trail purposes for the segments of the Chula Vista Greenbelt Trail within the boundaries of Village 3 North on any portion of Wiley Road and/or the existing Salt Creek Sewer Easement, owned by the Applicant, to the satisfaction of the Development Services Director.

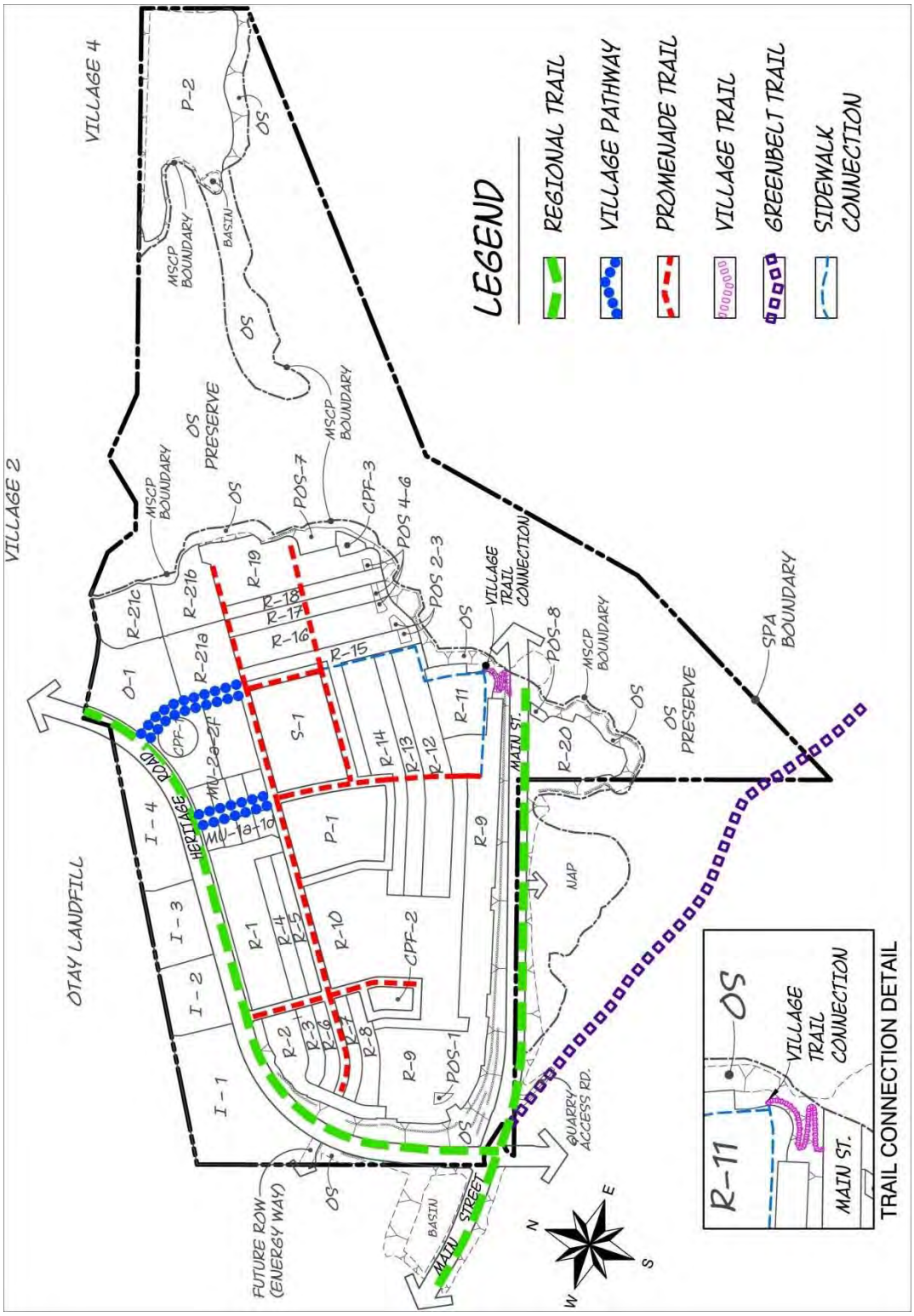
P. The Applicant shall submit and obtain approval of trail improvement plans and shall construct all required trails fencing and signage, consistent with City trail standards when required by the Development Services Director. Said improvement plans containing Chula Vista Greenbelt Trail segments as depicted on the Village 3 North and a Portion of Village 4 Tentative Map (CVT 13-02), to be located within existing Salt Creek Sewer Easement, will include minor improvements such as fencing and signage.

Q. Prior to the approval of the first residential building permit within the Village 3 North Red Phase, as depicted on the Conceptual Phasing Plan of the Otay Ranch Village 3 North and a Portion of 4 SPA Plan Exhibit 33, the Applicant shall construct all Chula Vista Greenbelt Trail improvements, including fencing and signage consistent with City trail standards, as required by the Development Services Director.



Source: Otay Ranch Village 3 North and a portion of Village 4 SPA Plan, July 25, 2014

Parks and Open Space
Exhibit 7



Source: Otay Ranch Village 3 North and a portion of Village 4 SPA Plan, July 25, 2014

Trails Plan
Exhibit 8

X. WATER

X.1. Threshold Standard

A. Developer will request and deliver to the City a service availability letter from the Water District for each project.

B. The City shall annually provide the San Diego County Water Authority, the Sweetwater Authority, and the Otay Water District with a 12- to 18-month development forecast and request an evaluation of their ability to accommodate the forecast and continuing growth. The Districts' replies should address the following:

1. Water availability to the City and Planning Area, considering both short- and long-term perspectives.
2. Amount of current capacity, including storage capacity, now used or committed.
3. Ability of affected facilities to absorb forecasted growth.
4. Evaluation of funding and site availability for projected new facilities.
5. Other relevant information the district(s) desire to communicate to the City and the GMOC.

X.2. Service Analysis:

The Otay Water District (OWD) will provide water service for Otay Ranch Village 3 North & portion of Village 4 SPA Plan area. Annexation into Improvement Districts 22 and 27 will be required prior to water service being provided. The district has existing and planned facilities in the vicinity of the project site. Expanding the existing system can provide future water service.

Water supply information provided in this PFFP is based on the *Water Supply Assessment and Verification Report* (WSAV), *September, 2013, Otay Water District*, and the *Overview of Water Service for Otay Ranch University Villages 3 North, A Portion of Village Four, 8 East, and 10*, *May 2014, Dexter Wilson Engineering, Inc.*, referred to the Dexter Wilson Water Study in this PFFP. Additionally, the SPA Plan document includes the *Otay Ranch Villages 3 North, A Portion of Village Four, 8 East, and 10 Water Conservation Plans*, *2014, Dexter Wilson Engineering, Inc.*

The developer of the project will be required to prepare, for review and approval by the Otay Water District, a Subarea Water Master Plan (SAMP) prior to approval of final engineering plans for the project. The SAMP will provide more detailed information on the project such as project phasing; pump station and reservoir capacity requirements, and extensive computer modeling to justify recommended pipe sizes. The OWD will not approve final engineering improvement plans until a SAMP has been approved for the project.

The design criteria implemented to evaluate the potable and recycled water systems for the project are established in accordance with the *Otay Water District Water Resources Master Plan, April 2013, Otay Municipal Water District*. The design criteria are utilized for analysis of the existing water system as well as for design and sizing of proposed improvements and expansions to the existing system to accommodate demands in the study area.

X.3. Project Processing Requirements

The SPA Plan and the PFFP are required by the Growth Management Program to address the following issues for water services.

A. Identify phased demands in conformance with street improvements and in coordination with the construction of sewer facilities.

B. Identify location of facilities for onsite and offsite improvements in conformance with the master plan of the water district serving the proposed project.

C. Provide cost estimates and proposed financing responsibilities.

D. Identify financing methods.

E. A Water Conservation Plan shall be required for all major development projects (50 dwelling units or greater), or commercial and industrial projects with 50 EDUs of water demand or greater.

X.4. Existing Conditions

The California Urban Water Management Planning Act (UWMP) requires that each urban water supplier providing water for municipal purposes, either to more than 3,000 customers, or more than 3,000 acre feet of water annually, must prepare, adopt, and update a UWMP at least once every five years. This applies to Metropolitan Water District (MWD), San Diego County Water Authority SDCWA, and its member agencies, including the OWD. The intent of an UWMP is to present information on water supply, water usage/demand, recycled water, and water use efficiency programs within a water district's service area over a 25 year time frame.

The UWMP process ensures that water supplies are being planned to meet future growth. The most current supply and demand projections are contained in the 2010 UWMPs of MWD, SDCWA, and OWD. San Diego County Water Authority member districts rely on the UWMPs and Integrated Resources Plans (IRPs) of MWD and the Regional Water Facilities Master Plan of SDCWA to document supplies available to meet projected demands.

In the 2010 UWMPs, MWD, SDCWA, and all SDCWA member agencies, including OWD, have determined that adequate water supplies would be available to serve existing service areas under normal year, single dry year, and multiple dry year conditions through the year 2035.

The GMOC annually distributes a questionnaire to relevant city departments and public facility and service agencies to monitor the status of Threshold Standards compliance. The response from OWD in support of the 2013 GMOC Annual Report included the topic of existing water system adequacy to serve projected growth for Chula Vista. The response identified OWD's capital improvement programs required to serve the forecasted water demands and identified a list of capital improvement projects (CIPs) that would need to be implemented in order to meet projected demand. The OWD concluded that the existing potable and recycled water systems including their CIP's should be adequate to meet the forecasted growth within the City of Chula Vista over the next five-year time frame. However, the State's water supply continues to face the climatological, environmental, legal and other challenges that impact water supply sources.

A. Metropolitan Water District:

In November 2010, MWD adopted their 2010 Regional UWMP, which evaluates water supply reliability, over a 20-year period, for average, single-dry, and multiple-dry years within its service area. MWD developed estimates of total retail demands for the region, factoring in the impacts of conservation. The water reliability analysis identifies both the current supplies and supplies under development to meet projected demands. MWD's reliability assessment showed that MWD can maintain reliable water supplies to meet projected demands through the year 2035. MWD also identified a planning buffer supply intended to protect against the risk that future demands could be higher than projected. As part of its implementation of the planning buffer, MWD periodically evaluates water supply development, supply conditions, and projected demands to ensure that the region is not under or over developing supplies. The planning buffer will ensure that Southern California, including San Diego County, will have adequate water supplies to meet long-term future demands.

B. San Diego County Water Authority:

The SDCWA service area covers approximately 951,000 acres and encompasses the western third of San Diego County. SDCWA has 24 member agencies, including OWD. SDCWA is responsible for ensuring a safe and reliable water supply to support the region's economy and quality of life for over three million residents. SDCWA imports between 70% and 95% of the water used in the San Diego region from MWD. In 2008, MWD provided 71% of the San Diego region's water supply. Most of this water is obtained from the Colorado River and the State Water Project (SWP) through a system of pipes, aqueducts, and associated facilities. Historically, SDCWA has relied on imported water supplies purchased from MWD to meet the needs of its member agencies. SDCWA is the largest MWD member agency in terms of deliveries, accounting for nearly 25% of MWD's delivered water.

According to the SDCWA 2010 UWMP, the San Diego region has reduced water usage over 50,000 acre feet average during the past three years. Conserved agricultural transfer water from the Imperial Valley has begun flowing to the San Diego region. This source provided approximately 70,000 acre feet in 2010 and will provide approximately 200,000 acre feet by 2021. This relatively new source of water is the result of SDCWA entering into the Quantification Settlement Agreement (QSA) with other water agencies in October 2003. The QSA resolved long-standing disputes regarding Colorado River water use among several agencies, and established a water budget for the agricultural agencies. This resolution permitted the implementation of several water conservation and transfer agreements, including the SDCWA/Imperial Irrigation District (IID) transfer agreement.

The SDCWA UWMP contains documentation of existing and planned water supplies. These supplies include MWD (imported Colorado River water and SWP water), and local member agency supplies that include (1) IID water transfer supplies; (2) supplies from conservation projects to line the Imperial Valley's All-American Canal and the Coachella Valley's Coachella Canal; and (3) development of a seawater desalination facility at the Encina Power Plant in Carlsbad, which is anticipated to produce 56,000 acre feet per year of water supplies. Additionally, since 1980, approximately 5 to 30% of member agency water has come from local sources, primarily from surface water reservoirs. Recycled water and groundwater recovery projects are growing in importance in the region. These projects coupled with water

conservation efforts have made SDCWA member agencies less dependent on imported water.

Table I.1
Average/Normal Water Year Supply and Demand Assessment (acre feet/yr)

Local Supplies	2015	2020	2025	2030	2035
Surface Water	48,206	47,940	47,878	47,542	47,289
Water Recycling	38,660	43,728	46,603	48,278	49,998
Groundwater	11,710	11,100	12,100	12,840	12,840
Groundwater Recovery	10,320	15,520	15,520	15,520	15,520
Seawater Desalinization	0	56,000	56,000	56,000	56,000
Imported Supplies					
IID Water Transfer	100,000	190,000	200,000	200,000	200,000
Supply from MWD	358,189	230,601	259,694	293,239	323,838
Coachella Canal and All American Canal Lining Projects	80,200	80,200	80,200	80,200	80,200
Total Projected Supplies	**647,285**	**675,089**	**717,995**	**753,619**	**785,685**
Total Estimated Demands[1]	**647,285**	**675,089**	**717,995**	**753,619**	**785,685**
Difference	**0**	**0**	**0**	**0**	**0**

[1] With Conservation

Source: University Villages Project Environmental Impact Report

Table I.2
Single Dry Water Year Supply and Demand Assessment (acre feet/yr)

Local Supplies	2015	2020	2025	2030	2035
Surface Water	17,932	17,932	17,932	17,932	17,932
Water Recycling	38,660	43,728	46,603	48,278	49,998
Groundwater	9,977	9,977	9,977	9,977	9,977
Groundwater Recovery	10,320	15,520	15,520	15,520	15,520
Seawater Desalinization	0	56,000	56,000	56,000	56,000
Imported Supplies					
IID Water Transfer	100,000	190,000	200,000	200,000	200,000
Supply from MWD	430,431	305,101	338,501	376,023	409,389
Coachella Canal and All American Canal Lining Projects	80,200	80,200	80,200	80,200	80,200
Total Projected Supplies	**687,520**	**718,458**	**764,733**	**803,930**	**839,016**
Total Estimated Demands[1]	**687,520**	**718,458**	**764,733**	**803,930**	**839,016**
Difference	**0**	**0**	**0**	**0**	**0**

[1] With Conservation

Source: University Villages Project Environmental Impact Report

Based on the imported and member agency local water sources, SDCWA estimates that it, along with member agency local sources, will be able to supply 647,284 acre feet of water in 2015. Therefore, according to the MWD and SDCWA 2010 UWMPs, there is available water to meet all of the region's anticipated demand, including the development of the Village 3 North & portion of 4 SPA Project, in average/normal and dry water years, as shown in Table I.1, and I.2.

C. <u>Otay Water District:</u>

The Project is within the boundaries of the OWD, which provides water services to a large portion of San Diego East County and Eastern Chula Vista, including the EastLake community, Otay Ranch, and Otay Mesa along the U.S./Mexico International Border. OWD covers 137 square miles with approximately 450 miles of pipelines, 21 pump stations, and 37 reservoirs with a total storage capacity of approximately 190 million gallons. OWD provides 90% of its water service to residential and 10% to commercial, industrial, and other land uses. Average daily consumption is approximately 40,324 acre feet. OWD also operates the Ralph W. Chapman Water Recycling Facility.

The OWD 2010 UWMP provides an overview of OWD's service area, its current water supply sources, supply reliability, water demands, and measures to reduce water demand, and planned water supply projects and programs. Reliability for water service is based on the documentation in the UWMP's prepared by MWD and SDCWA and that these agencies have determined that they will be able to meet potable water demands through 2035, during normal and dry year conditions. The OWD 2010 UWMP relies on MWD and SDCWA for its potable supply, and OWD works with these agencies to prepare consistent demand projections for OWD's service area.

The OWD has several connections to SDCWA Pipeline No. 4 which delivers filtered water from the Metropolitan Water District's filtration plant at Lake Skinner in Riverside County. The OWD also has a connection to the La Mesa - Sweetwater Extension Pipeline, which delivers, filtered water from the R.M. Levy Water Treatment Plant in the Helix Water District.

1. **<u>Existing Potable Water System:</u>** There are no existing potable water facilities within the Project area. The project can be served by the Central Service Area of OWD. This area is supplied water from Connection Nos. 10 and 12 to the SDCWA aqueduct, which fills 624 Zone reservoirs. Water is then distributed within the 624 Zone and pumped to the 711 Zone storage and distribution systems. The Village 3 North & portion of 4 SPA Project is within the 624 Zone. According to the Dexter Wilson Water Study the following existing potable water facilities are located in the vicinity of the project area:

   340 Zone: There is a small area west of Village 3 North that is served by the 340 Zone. This area is fed by a pressure reducing station and includes a piping network that extends to the western boundary of Village 3 North. he proposed project would not be served by the 340 Zone, but improvements to the 340 Zone will be necessary per the *Otay Water District Water Resources Master Plan (WRMP, October 2008, last amended April 2013, Otay Water District.*

624 Zone: This zone has three existing storage reservoirs. The 624-2 Reservoir is located between Otay Lakes Road and East H Street, has a capacity of 8.0 million gallons, and is supplied by Connection No. 10 to the SDCWA aqueduct. The 624-1 and 624-3 Reservoirs are supplied by Connection No. 12, and have a capacity of 12.4 million gallons and 30 million gallons, respectively. The 624-1 Reservoir is located adjacent to the eastern boundary of Otay Ranch Village 5 and is located along EastLake Parkway, just north of Olympic Parkway. There are currently no 624 Zone facilities in the vicinity of the project area (Dexter Wilson Water Study).

711 Zone: There is currently one pump station in the 711 Zone, referred to as the Central Area Pump Station, that is located at the 624-1 Reservoir site adjacent to the eastern boundary of Otay Ranch Village 5. This station pumps water from the 624 Zone system into the 711 Zone distribution system and into two existing 711 Zone reservoirs located in the EastLake Greens development. The 711 Zone Pump Station currently has five pumps (one standby), each rated for 4,000 gallons per minute (gpm), which results in a firm station capacity of 16,000 gpm.

Three existing reservoirs are in the 711 Zone. The two EastLake Greens reservoirs have capacities of 2.8 and 2.2 million gallons for a total of 5.0 million gallons. A 16.0 million gallon reservoir, Reservoir 711-3, was constructed north of the Rolling Hills Ranch project. With construction of this reservoir, OWD has sufficient storage within the 711 Zone to meet the demands from projected development in this zone (Dexter Wilson Water Study).

The major 711 Zone pipelines in the vicinity of the project area include a 20-inch line in EastLake Parkway, a 16-inch line in Hunte Parkway, and 12-inch lines in La Media Road and Magdalena Avenue.

2. **Recycled Water:** The Ralph W. Chapman Water Recycling Facility has a rated capacity of 1.3 million gallons per day (mgd) with a maximum production of approximately 1.1 mgd and could be expanded to an ultimate capacity of 2.50 mgd. Typically the summer demands exceed the 1.1 mgd plant capacity. The District has the capability to supplement the recycled water supply with the potable water. The South Bay Water Treatment Plant has an ultimate rated capacity of 15 mgd and OWD obtained capacity rights to 8.0 mgd of recycled water. This additional source of recycled water will allow OWD to meet existing and future recycled water demands. The OWD has master planned a series of pump stations, reservoirs, and transmission lines to integrate this source of water into the existing recycled water system. Currently, there is an 8-inch recycled water main adjacent to the northwest corner of the Village 8 East SPA Plan (Dexter Wilson Water Study).

   Storage of the effluent from the Ralph W. Chapman facility is provided by two ponds in the District's Recycled Use Area. The storage ponds have a high water line of approximately 944 feet and 927 feet, respectively, and provide the storage and supply for the 927 Zone distribution system. The 680 Zone distribution system has been supplied by pressure reducing off the 927 Zone system, but ultimately will be supplied by the South Bay Water Reclamation Plant.

   According to the Dexter Wilson Water Study, the conveyance facilities to convey water from the South Bay Treatment Plant to the use areas, including the 680

Zone use areas, are currently being implemented. A 12-inch 680 Zone pipeline has been constructed in Hunte Parkway along the southern boundary of Village 11, and an 8-inch 927 Zone pipeline has been constructed in EastLake Parkway to Hunte Parkway.

X.5. Adequacy Analysis

A. Water Conservation Plan

A Water Conservation Plan is required for all major development projects (50 dwelling units or greater, or commercial and industrial projects with 50 EDUs of water demand or greater). This plan is required at the Sectional Planning Area (SPA) Plan level or equivalent for projects which are not processed through a Planned Community Zone. The city has adopted guidelines for the preparation and implementation of the Water Conservation Plan.

The *Otay Ranch Villages 3 North and A Portion of Village Four, Village 8 East, and Village 10 Water Conservation Plans, 2014, Dexter Wilson Engineering Inc.,* provides an analysis of water usage requirements of the proposed project, as well as a detailed plan of proposed measures for water conservation, use of recycled water, and other means of reducing per capita water consumption from the proposed project, as well as defining a program to monitor compliance. The Water Conservation Plan is presented in conjunction with the SPA Plan document as Chapter 9 and therefore is not included in the PFFP.

B. Otay Ranch Village 3 North & a portion of 4 SPA Water Demand

Table I.3 presents the duty factors used in projecting the total average day potable and recycled water demands for the project. The required fire flows and durations are also listed. The City of Chula Vista utilizes the Uniform Fire Code for determining required fire flows and durations for new development. For single-family residences, a fire flow of 1,500 gpm for duration of two hours is typically required.

Table I.3
Water Duty Factors

Land Use Designation	Domestic Demand	Required Fire Flow	Required Fire Flow Duration Hours
Single Family-Medium (1-3 DU/AC)	850 gpd/unit	1,500	2
Single Family-High (3-8 DU/AC)	500 gpd/unit	1,500	2
Multi-Family (>8 DU/AC)	300 gpd/unit	2,500	2
Schools	1,785 gpd/ac	3,500	3
Commercial	1,785 gpd/ac	3,000	3
CPF, Fire Station	893 gpd/ac	3,000	3
Industrial	893 gpd/ac	5,000	4
Irrigation (Recycled Water)	2,155 gpd/ac	--	--

Source: Dexter Wilson Engineering

Table I.4 provides the projected potable water demand for the project. The total estimated potable water use is approximately .56 mgd. The SPA Plan proposes a maximum of 1,597 dwelling-units. The estimated recycled water demand is 0.17 mgd.

Table I.4
Projected Potable Water Demands

Planning Area	Land Use	Quantity	Unit Flow	Total Average Demand, gpd	EDUs
R-1	SF	74 units	300 gpd/unit	22,200	44.4
R-2	SF	34 units	300 gpd/unit	10,200	20.4
R-3	SF	14 units	300 gpd/unit	4,200	8.4
R-4	SF	25 units	300 gpd/unit	7,500	15
R-5	SF	25 units	300 gpd/unit	7,500	15
R-6	SF	16 units	300 gpd/unit	4,800	9.6
R-7	SF	19 units	300 gpd/unit	5,700	11.4
R-8	SF	21 units	300 gpd/unit	6,300	12.6
R-9	SF	149 units	500 gpd/unit	74,500	149
R-10	SF	170 units	300 gpd/unit	51,000	102
R-11	SF	27 units	500 gpd/unit	13,500	27
R-12	SF	70 units	300 gpd/unit	21,000	42
R-13	SF	46 units	300 gpd/unit	13,800	27.6
R-14	SF	67 units	300 gpd/unit	20,100	40.2
R-15	SF	51 units	300 gpd/unit	15,300	30.6
R-16	SF	54 units	300 gpd/unit	16,200	32.4
R-17	SF	26 units	300 gpd/unit	7,800	15.6
R-18	SF	19 units	500 gpd/unit	9,500	19
R-19	SF	51 units	500 gpd/unit	25,500	51
R-20	SF	44 units	500 gpd/unit	22,000	44
R-21a	MF	190 units	255 gpd/unit	48,450	96.9
R-21b	MF	170 units	255 gpd/unit	43,350	86.7
R-21c	MF	155 units	255 gpd/unit	39,525	79.1
MU-1a-d	MF	80 units	255 gpd/unit	20,400	40.8
MU-1a-d	Commercial	1.9 ac[1]	1,607 gpd/ac	3,053	6.1
MU-2a-e	Commercial	5.5 ac[1]	1,607 gpd/ac	8,839	17.7
IND-1-3	Industrial	15.6 ac[2]	848 gpd/ac	13,229	26.5
O-1	Office	5.2 ac.	1,607 gpd/ac	8,356	16.7
S-1	School	8.3 ac	1,428 gpd/ac	11,852	23.7
P-1	Park	7.9 ac	0 gpd/ac[3]	2,160	4.3
P-2 (V4)	Park	17.8 ac	0 gpd/ac[3]	0	0
CPF-1	CPF	2.6 ac	714 gpd/ac	1,856	3.7
CPF-2	CPF	1.1 ac	0 gpd/ac[4]	0	0
CPF-3	CPF	0.5 ac	0 gpd/ac[4]	0	0
Subtotal		**1,597 Units**		**559,670**	**1,119**

[1] Mixed use commercial is based on 90 percent of gross acreage.
[2] Net acreage was used for industrial sites.
[3] To be irrigated with recycled water. Nominal potable water was estimated by Dexter Wilson to account for standard fixtures (lavatories, during fountains, etc.).
[4] Small CPF sites will be used as parks and have no potable water use.
[5] Open space preserve, freeway lots, future development areas, and AR-11 are not included in the potable water projections because either no potable water facilities are anticipated or no development is currently proposed.

Source: Dexter Wilson Engineering

Normally, the potable water distribution system is designed to maintain static pressures between 65 psi and 200 psi. This standard is used to initially divide a project between water service zones. According to Dexter Wilson Engineering, the potable water distribution system has been designed to yield a minimum of 40 psi residual pressure at any location under peak hour demand flows, and a minimum residual pressure of 20 psi during maximum day demand plus fire flow conditions. Potable water mains have been sized to maintain a maximum velocity of 10 feet per second under a maximum day plus fire flow scenario and a maximum velocity of 6 feet per second under peak hour flow conditions.

Table I.5
Village 3 North
Projected Recycled Water Demands

Land Use	Quantity	Percentage to be Irrigated	Irrigated Acreage	Recycled Water Irrigation Factor	Average Recycled Water Demand, gpd
Open Space	37.8 ac	100	37.8	2,155	81,459
Parks	25.7 ac	100	25.7	2,155	55,385
Commercial (MU-2a-e)	6.1 ac	10	0.6	2,155	1,293
Industrial	33.8 ac	5	1.7	2,155	3,664
MF Residential/MU-1 a-d	595 units	15	0	45	26,775
School	8.3 ac	20	1.7	2,155	3,660
Total					**172,236**

Source: Dexter Wilson Engineering

Landscape systems generally require a minimum of 80 psi at the meter to obtain adequate coverage of the irrigated area. Dexter Wilson Engineering expects that this minimum pressure can be achieved at all locations within the project. The primary criteria for sizing recycled water lines is the ability to meet peak hour recycled water demands while maintaining a maximum pipeline velocity of 8 feet per second.

C. Otay Water District Water Supply Assessment and Verification Report

The OWD prepared a Water Supply Assessment and Verification Report (WSA&V Report) at the request of the City of Chula Vista (City) for the University Villages Project, which includes Villages 3 North, a Portion of 4, 8 East, and 10. The WSA&V Report includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, water supply projects, or agreements relevant to the identified water supply needs for the proposed Project. This WSA&V Report assesses, demonstrates, and documents that sufficient water supplies are planned for and are intended to be available over a 20-year planning horizon, under normal conditions and in single and multiple dry years to meet the projected demand of the proposed University Villages project and the existing and other planned development projects to be served by the OWD. The WSA&V is attached as an appendix to the University Villages Project Environmental Impact Report.

X.6. Proposed Facilities:

A. Potable Water:

Potable water service to the Village 3 North development will be provided by extending the 624 Zone 12-inch water lines in Heritage Road and Village Two to the north. On-site development would be served by constructing 8-inch and 12-inch lines from this backbone 624 Zone loop. See Exhibit 9 for the proposed potable Water System.

The Portion of Village 4 that is being processed with the Village 3 North project is within the 711 Zone for water service. Water service to this site would be provided by constructing an off-site 12-inch line in La Media Road and extending water service to the P-2 park site.

Generally, the potable water distribution system is designed to maintain static pressures between 65 pounds per square inch (psi) and 200 psi. This criteria is used to initially divide a project between water service zones. The potable water distribution system has been designed to yield a minimum of 40 psi residual pressure at any location under peak hour demand flows, and a minimum residual pressure of 20 psi during maximum day demand plus fire flow conditions. Potable water mains are sized to maintain a maximum velocity of 10 feet per second under a maximum day demand plus fire flow scenario and a maximum velocity of 6 feet per second under peak hour flow conditions.

Fire flow also was evaluated by Dexter Wilson Engineering. The fire flow requirements for each building within the project area will be a function of building design, including height and structure type. Since this level of detail is not known at this planning stage, this analysis uses the OWD fire flow requirements in master planning storage, transmission, and distribution facilities throughout the District. As part of the building permit process, the City of Chula Vista Fire Department will evaluate the fire flow requirements.

According to the Dexter Wilson Water Study, the total projected potable water demand for the proposed project is approximately .55 mgd or approximately 600 acre feet per year. Per the WSAV and the Dexter Wilson Water Study, there are sufficient water supplies to meet the project demand.

All facilities within the boundaries of the proposed project would be constructed by the applicant or his/her designee. Final location, sizing, phasing, and hydraulic modeling of the project water system will be presented in the SAMP prepared for the proposed project. The applicant or his/her designee would be eligible for reimbursement for the construction of facilities included in OWD's Capital Improvement Program.

B. Recycled Water

The largest potential recycled water use areas in Otay Ranch Village 3 & a portion of 4 SPA include open space and parks. Recycled water may also be utilized to irrigate the common areas of schools, industrial, multi-family residential and commercial facilities. The project will be served by the 680 Zone recycled water system. The OWD Capital Improvement Program identifies 680 Zone transmission lines in Heritage Road, La Media Road, and Otay Valley Road. Exhibit 10 shows the recommended facilities to serve Village 3 North & a portion of Village 4.

X.7. Financing Water Facilities:

The financing and construction of potable water facilities is provided by two methods:

- **Capacity Fees:** OWD's Capital Improvement Program (CIP) wherein the District facilitates design and construction of facilities and collects an appropriate share of the cost from developers through collection of capacity fees from water meter purchases. Capital Improvement Projects typically include supply sources, pumping facilities, operational storage, terminal storage, and transmission mains.

  The OWD may use bond debt financing from Improvement Districts 22 and 27 to assist in the financing of the District's CIP program. CIP projects are paid for by capacity fees collected on the sale of water meters after building permit issuance.

- **Exaction:** The developer is required to finance, construct, dedicate water and recycled water facilities that serve only their development to the OWD.

Potable Water Improvement Costs
The total capital cost for potable water facilities will be determined at the time the system is designed and the SAMP is approved. In accordance with District Policy No. 26, the District may provide reimbursement for construction and design costs associated with development of these improvements.

Recycled Water Improvement Costs
The total capital cost for recycled water facilities will be determined at the time the system is designed and the SAMP is approved. The District may provide reimbursement for construction and design costs associated with development of these improvements.

X.8 Threshold Compliance

A. The OWD WSA&V Report documents that sufficient water supplies are planned for and are intended to be acquired, as well as the actions necessary and status to develop these supplies, to meet projected water demands of the University Villages project, which includes Village 3 North & portion of Village 4, as well as existing and other reasonably foreseeable planned development projects within the OWD for a 20-year planning horizon, in normal and in single and multiple dry years.

B. Prior to approval of the first Final Map for the Project, the Applicant(s) shall provide the City with a Village 3 North and a Portion of Village 4 Subarea Master Plan(s) (SAMP) for potable, recycled, and fire flow water, as approved by Otay Water District (OWD). Applicant(s) shall bond and construct for all on-site and off-site water facilities in accordance with the SAMP. The SAMP shall be consistent with the SPA Plan.

C. The Village 3 North & portion of 4 SPA Plan will develop in several phases although the precise order in which facilities will be constructed are not known at this time. At the time the SAMP is prepared for the project, more detailed information on the project phasing will be presented. At any given stage of development, the developer will be required to verify that the proposed water system will be capable of meeting the fire flow requirements that are in effect. The following discussion presents the major phases consistent with Exhibit 4 and a description of the water facilities required to serve each individual phase of the project.

1. Yellow Phase: The Yellow Phase includes Planning Areas I-1, I-2, I-3, and I-4. Development in this area is all industrial. This area of the project is in the 624 Zone. The 624 Zone development can be served by connecting to the existing 12-inch line in Heritage Road and providing adequate looping to the development area.
2. Green Phase: The Green Phase is located in the north end of the project and includes Planning Areas R-21a, R-21b, R-21c, MU-1a-1d, MU-2a-2f, CPF-1, O-1, P-1, and S-1. This area includes development of 595 residential units. This area is within the 624 Zone and can be served by constructing the 12-inch line in Heritage Road and providing adequate looping to the development area.
3. Red Phase: The Red Phase is located in the southwest portion of project and includes Planning Areas R-1 through R-10 and CPF-2. Development in this area includes 547 residential units. Development in this area is within the 624 Zone and requires looped connections to the 624 Zone north of the project
4. Blue Phase: The Blue Phase is located in the southern portion of the project and includes Planning Areas R-11 through R-20 and CPF-3. This area includes the development of 455 residential units. To provide water service to this area of the project, 12-inch 624 Zone water lines will need to be constructed from the north to connect to the existing system in Village 2.
5. Purple Phase: The Purple Phase is located within a portion of Village 4 and includes P-2. This area of the project will be served by utilities from the future Village 4 community park site to the north.

D. The project applicant shall comply with the Project EIR Water Utility mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The UTL designations correspond to the Project EIR numbered Utility measures:

UTL-1 Prior to issuance of each Final Map, the permit applicant/developer shall deliver to the City service availability letters from the OWD.

UTL-2 Prior to approval of the first Final Map, the applicant shall provide a SAMP to the Otay Water District. Water facilities improvements shall be financed or installed on-site and off-site in accordance with the fees and phasing pursuant to the PFFP and the SAMP.

UTL-3 Prior to approval of the first Final Map, the applicant shall obtain the OWD's approval of the SAMP for both potable and recycled water. Any on-site and off-site facilities identified in the SAMP required to serve a final mapped area, including but not limited to water facilities within the SR-125 overcrossing at Otay Valley Road, shall be secured or constructed by the Applicant prior to approval of the Final Map and in accordance with the phasing in the PFFP.

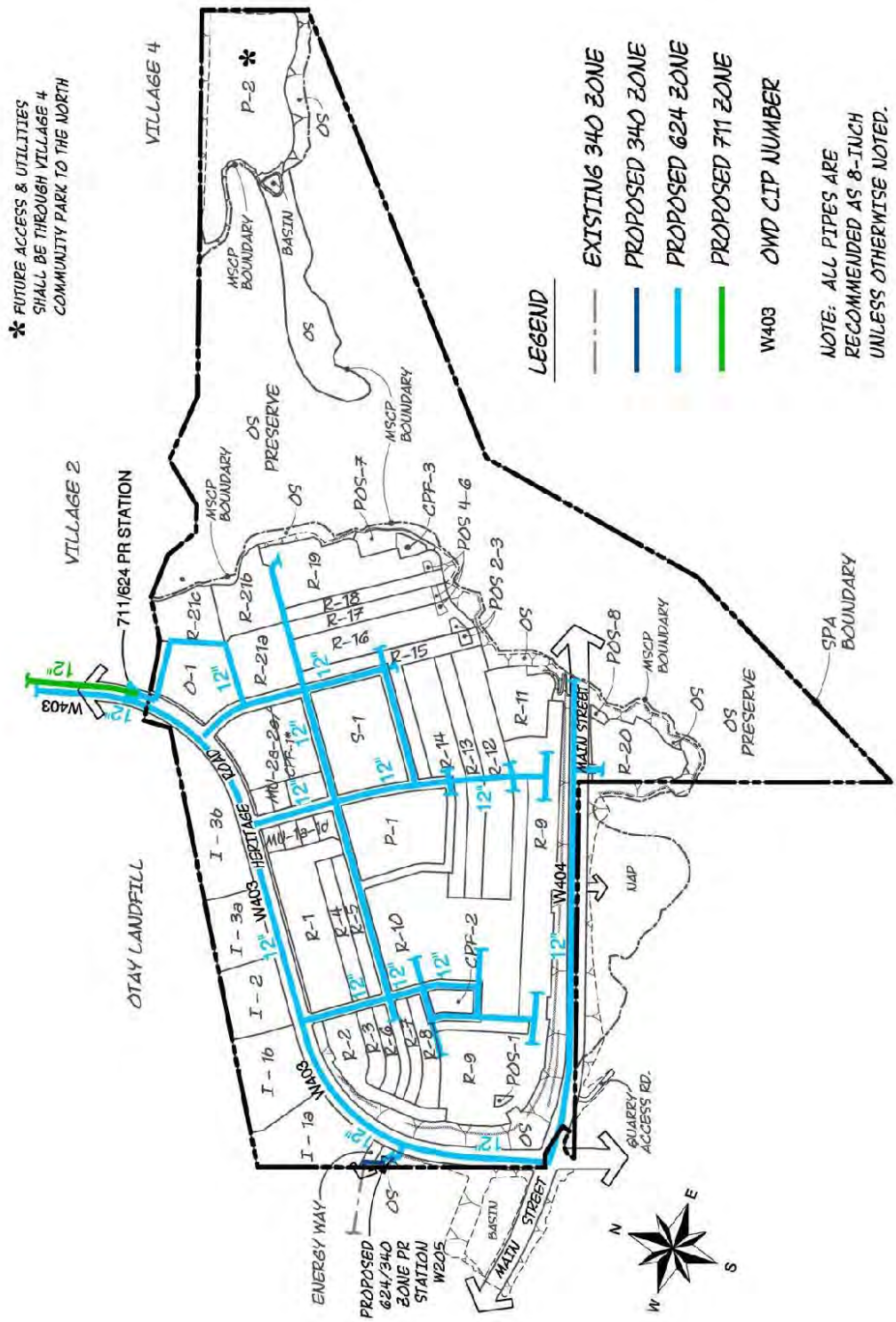
UTL-4 Prior to design review approval in accordance with the Density Transfer provision in the Village 3 North & portion of Village 4 SPA Plan, the applicant/developer shall provide an update to the Overview of Water Service for Otay Ranch University Villages (Dexter Wilson, 2014) with each proposed project requesting a density transfer. The density transfer technical study shall demonstrate to the satisfaction of the City Engineer that adequate on-site water infrastructure will be available to support the transfer. The transfer of residential density shall be limited by the ability of the on-site water supply infrastructure to accommodate flows.

Table I.6
Village 3 North
Water Facility Phasing Summary

Phase	Planning Area	Zone	In-Phase Water Improvements	Other Phase Water Improvements	Off-Site Water Improvements
Yellow	I-1, I-2, I-3, and I-4	624	• 12" line in Heritage Road	• 12" secondary feed through Green Phase	• 12" 624 Zone line in Heritage Road • 12" 711 Zone line in Village 2 to R-21 • 711/624 Zone PR Station
Green	R-21a,b,c, MU-1, MU-2, O-1, P-1, CPF-1, and S-1	624	• 12" loop through R-21 • Internal looping	• Portion of 12" line in Heritage Road in Yellow Phase	• 12" 624 Zone line in Heritage Road • 12" 711 Zone line in Village 2 to R-21 • 711/624 Zone PR Station
Red	R-1 through R-10 and CPF-2	624	• 12" line in Heritage Road • 624/340 Zone PR Station[1] • Internal looping	• 12" line in Heritage Road in Yellow Phase • 12" secondary feed through Green Phase	• 12" 624 Zone line in Heritage Road • 12" 711 Zone line in Village 2 to R-21 • 711/624 Zone PR Station
Blue	R-11 through R-21, R-23, and CPF-2	624	• 12" line in Main Street • Internal looping	• Portion of 12" line in Heritage Road in Yellow Phase • 12" Feeds through Green Phase	• 12" 711 Zone line in Heritage Road • 12" 624 Zone line in Village 2 to R-21 • 711/624 Zone PR Station
Purple	P-2	711	--------	--------	--------

[1] This PR station does not provide service to Village 3 North and can be constructed at any time after 12-inchline in Heritage Road is installed.

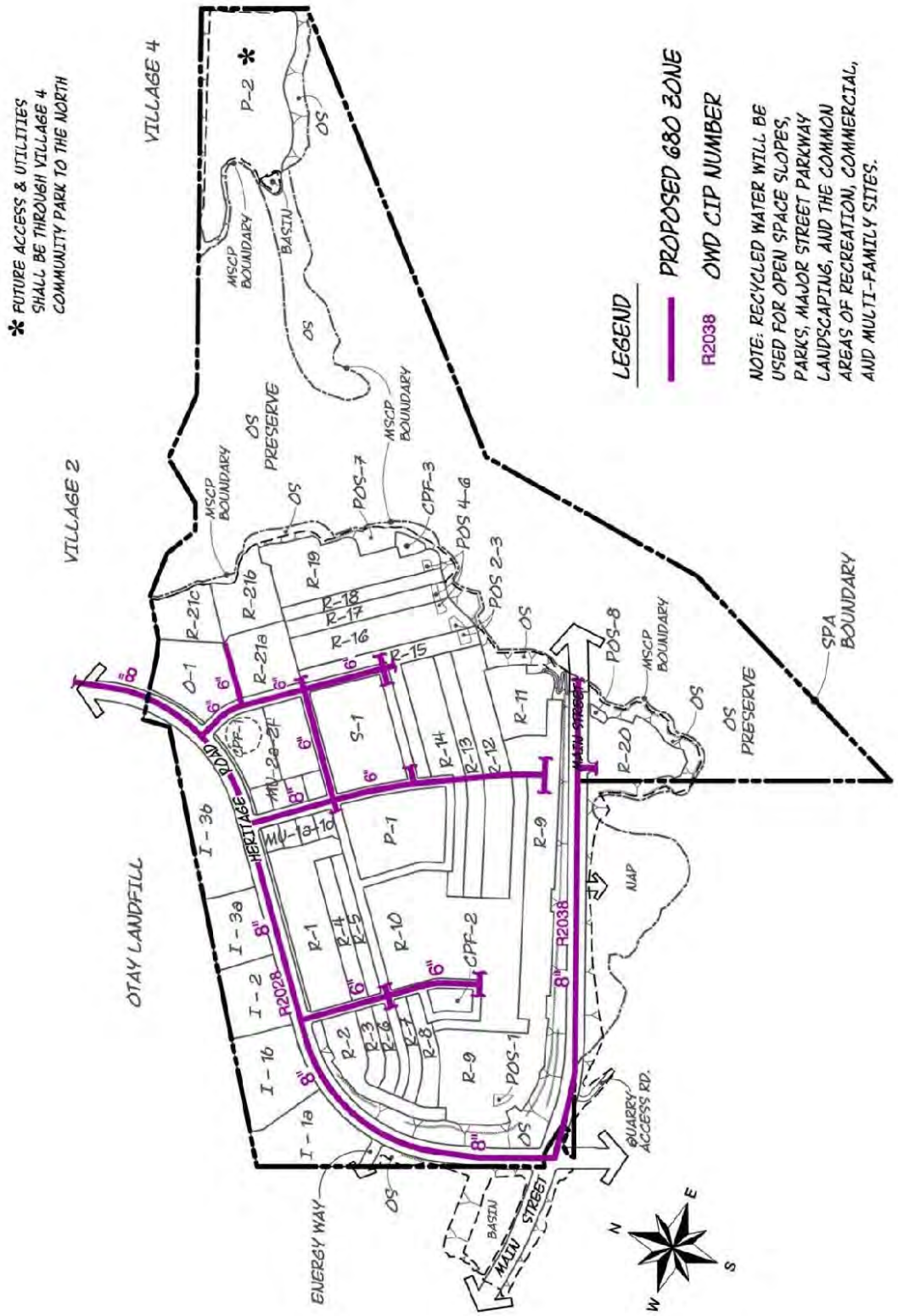
Source: Dexter Wilson Water Study



X

Source: Otay Ranch Village 3 North and a portion of Village 4 SPA Plan, July 25, 2014

Proposed Potable Water
Exhibit 9



Source: Otay Ranch Village 3 North and a portion of Village 4 SPA Plan, July 25, 2014

Proposed Recycled Water Facilities
Exhibit 10

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XI. SEWER

XI.1. Threshold Standard

A. Sewage flows and volumes shall not exceed City Engineering Standards as set forth in the subdivision manual adopted by city council Resolution No. 11175 on February 12, 1983, as may be amended from time to time.

B. The City will annually provide the City of San Diego Metropolitan Wastewater Department with a 12-18 month development forecast and request confirmation that the projection is within the City's purchased capacity rights and an evaluation of their ability to accommodate the forecast and continuing growth or the city engineering department staff shall gather the necessary data. The information provided to the GMOC shall include the following:

1. Amount of current capacity now used or committed.
2. Ability of affected facilities to absorb forecast growth.
3. Evaluation of funding and site availability for projected new facilities.
4. Other relevant information.

XI.2 Service Analysis

The Sewer Threshold Standard was developed to maintain healthful, sanitary sewer collection and disposal systems for the City of Chula Vista. Individual projects are required to provide necessary improvements consistent with the City of Chula Vista Wastewater Master Plan dated May 2005 and shall comply with all city engineering standards.

The City of San Diego Metro provides sewer treatment services for the City of Chula Vista in accordance with the terms of a multi-agency agreement (Metro Agreement). The Metro system currently has adequate sewage treatment capacity to serve the region until approximately 2025. In the City of Chula Vista, Development shall not occur without adequate sewer capacity, which is determined by the City Engineer. Building permits will not be issued if the City Engineer has determined that adequate sewer capacity does not exist. All development must comply with the Municipal Code, specifically Municipal Code sections 19.09.010(A) 6 and 13.14.030. Chula Vista oversees the construction, maintenance and the operation of the sewer trunk line system.

The source of information regarding the existing and recommended sewer facilities in this PFFP is from the *Overview of Sewer Service for Otay Ranch Villages 3 North, A Portion of 4, 8 East, and 10, May 2014 by Dexter Wilson Engineering, Inc.* This study is referred to as the Dexter Wilson Sewer Study throughout this PFFP.

The Village 3 North & portion of 4 SPA Plan project is planned as a mixed density residential community of 1,597 dwelling units. With supporting uses that include an elementary school, a neighborhood park, community purpose facilities, and open space. Residential products will include single-family detached and multi-family units.

XI.3 Project Processing Requirements

The SPA Plan and the PFFP are required by the Growth Management Program to address the following issues for Sewer Services:

A. Identify phased demands for all sewer trunk lines in conformance with the street improvements and in coordination with the construction of water facilities.

B. Identify location of facilities for onsite and offsite improvements, including reclaimed water facilities, in conformance with the Wilson Study.

C. Provide cost estimates for all facilities and proposed financing responsibilities.

D. Identify financing methods.

XI.4 Existing Conditions

The City of Chula Vista provides the sewer service for the Village 3 North & portion of 4 SPA Plan development. The Project is within the Salt Creek Sewer Basin. The Salt Creek Interceptor was constructed, and completed approximately 7 years ago, to serve regional development in the area of the project. This interceptor starts as a 15-inch line in Hunted Parkway within the Rolling Hills Ranch project. From there, the line increases in size as it heads south along Salt Creek. The interceptor then turns westerly and follows the Otay River to a point of connection with the City of San Diego Metro Sewer System. At the location where the Salt Creek Interceptor passes south of Village 10, this line is 30-inches in size. The line increases to 36-inch south of Village 8 East and to 42-inch south of Village 3 North.

All sewage generated within the City of Chula Vista is currently conveyed to the City of San Diego Metro Sewer System for treatment and disposal. The Metro sewer system treats wastewater from the City of San Diego and 15 other cities and districts, including Chula Vista. Flows are conveyed to the Point Loma Wastewater Treatment plant which has a capacity of 240 mgd and currently treats approximately 180 mgd.

The City of Chula Vista has capacity rights of 20.864 mgd in the Metro sewer system. Current flows in the City average approximately 16.2 mgd. While this excess available capacity is not anticipated to be adequate to serve ultimate buildout needs of the City, the current available capacity represents approximately 17,600 EDUs that can be connected to the system before the capacity is used up. Discussion on how the City will meet their buildout treatment needs is provided in the Dexter Wilson Sewer study and summarized in this PFFP.

XI.5 Adequacy Analysis

Sewer flows generated by the project were estimated by Dexter Wilson Engineering. Their estimates were based on current city planning criteria for the permanent and interim on-site sewer system conditions. These estimated flows are the basis for design of new sewer facilities and the evaluation of existing facilities that will serve the project.

A. <u>Wastewater Treatment:</u>

In accordance with the City of Chula Vista Subdivision Manual, Dexter Wilson Engineering used the City's sewage generation rate to estimate the total annual average wastewater flows produced from the project (see Table J.1).

Table J.1 City of Chula Vista Sewage Generation Factors	
Land Use	**Average Flow Factor**
Single Family Residential	265 gpd/unit
Multi-Family Residential	198.75 gpd/unit
Commercial/ Industrial	2,500 gpd/acre
Community Purpose Facilities	2,500 gpd/acre
Elementary Schools	15 gpd/student
Junior & High Schools	20 gpd/student
Parks	500 gpd/acre

Dexter Wilson 2014

On-site and off-site collection, trunk, and interceptor facilities were evaluated in the Dexter Wilson Sewer Study based on this sewage flow. In addition, the City's design criteria were used for the analysis of the existing sewer system as well as for design and sizing of proposed improvements and expansions to the system to accommodate the flows anticipated to be generated by the University Villages Project, which includes Village 3 North & portion of 4 SPA Plan.

The City of Chula Vista's Projected Sewage Flow and Treatment Capacity is shown on Table J.2 considers the projected growth between 2012 and 2017.

Table J.2 Chula Vista Projected Sewage Flow and Treatment Capacity					
Million Gallons per Day (MGD)	**FY 10/11**	**FY 11/12**	**18-month Projection**	**5-year Projection**	**"Build-out" Projection***
Average Flow	16.272	15.935	16.853**	17.948**	26.2*
Capacity	20.864	20.864	20.864	20.864	20.864

* Buildout Projection based on 2005 Chula Vista Wastewater Master Plan
** Growth rate per the "Residential Growth Forecast Years 2012 through 2016"

Source: GMOC 2013 Annual Report

The City of Chula Vista currently has capacity rights of 20.864 mgd of flow in the Metro sewer system. Existing average flows in the City are approximately 16 mgd. The estimated year 2030 flows based on the 2005 General Plan were 23.3 mgd. However, densification in the 2010 General Plan Update, the projected year 2030 average flow for the preferred alternative increased the flow to approximately 26.222 mgd. Therefore, the City of Chula Vista is required to acquire capacity rights for an additional approximate 5.358 mgd to accommodate year 2030 flows. *The Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch, prepared by Atkins (formerly PBS&J) in November 2010* as a supporting document to the 2010 General Plan Amendment EIR addresses the City's current projections regarding the need to acquire additional treatment plant capacity in the future. The total future treatment capacity at full buildout, including the proposed project, is approximately 32.548 mgd, leaving approximately 11.684 mgd that needs to be acquired above the City's current capacity rights. The City of Chula Vista may acquire additional capacity rights in the Metro system through negotiations with the City of San Diego, but there are other alternatives that the City of Chula Vista is evaluating including the construction of a new wastewater treatment plant to meet its

future treatment capacity and disposal requirements. Building permits for new development projects will be issued only if the City Engineer has determined that adequate sewer capacity exists.

The Dexter Wilson Sewer Study reviewed the aforementioned 2010 PBS&J study that provided EDU projections based on the 2005 General Plan and based on current land use agreements. Table J.3 summarizes the University Villages data from the PBS&J report, which provides information on the adjacent University Villages as well. Table J.3 provides a comparison of the University Villages Project projections. The projections for the portion of Village 4 were not included in this table since they are not part of the Village 3 projections from the PBS&J Report.

Table J.3
Otay Ranch University Villages
(Village 3 North, Village 8 East & Village 10)
EDU Summary

Description	EDUs			Average Flow, mgd			Total	
	Village 3 North	Village 8 East	Village 10	Village 3 North	Village 8 East	Village 10	EDUs	Average Flow, mgd
October 2010 PBS&J Report								
Baseline[1] (PBS&J)	2138.7	1957.8	1713.2	0.567	0.519	0.454	5809.7	1.540
Cumulative[2] (PBS&J)	2094.4	2507.4	2248.8	0.555	0.664	0.596	6850.6	1.815
Net Change (PBS&J)	**(44.3)**	**549.6**	**535.6**	**(0.012)**	**0.145**	**0.142**	**1040.9**	**0.275**
Current University Villages								
Baseline[1]	2138.7	1957.8	1713.2	0.567	0.519	0.454	5809.7	1.540
Current Proposed (Table 2-2)	1986[3]	3206	1573	0.526[3]	0.850	0.417	6765[3]	1.793[3]
Net Change	**(152.7)**	**1248.2**	**(140.2)**	**(0.041)**	**0.331**	**(0.037)**	**955.3**	**0.253**
Cumulative								
Baseline[1]	2138.7	1957.8	1713.2	0.567	0.519	0.454	5809.7	1.540
University Villages	1986[3]	3206	1573	0.526[3]	0.850	0.417	6765[3]	1.793[3]
Village 2 SPA Amend[4]	484	0	0	0.128	0	0	484	0.128
Net Change	**331.3**	**1248.2**	**(140.2)**	**0.087**	**0.331**	**(0.037)**	**1439.3**	**0.381**

[1] The Baseline Condition in the PBS&J report is defined as from land use projections in the 2005 Sewer Master Plan as updated to reflect the adopted 2005 General Plan.
[2] The Cumulative Condition in the PBS&J report is defined as the Baseline Condition plus the cumulative impact of any reasonably foreseeable project.
[3] Does not include P-2 flows since these areas are in Village 4 and are projected as part of Village 4 in the PBS&J study.
[4] The March 4, 2014 Sewer System Analysis for the Village 2 SPA Amendment projects an increased flow of 128,315 gpd from the baseline condition

Source: Dexter Wilson Sewer Study

Table J.3 indicates that the densification as proposed by the University Villages Project, which includes the Village 3 North & portion of 4 SPA Plan will require the City to obtain an additional 0.275 mgd of treatment capacity. Based on projections in the Dexter Wilson Sewer Study, the proposed University Villages project would decrease the additional capacity required for the project from 0.275 mgd to 0.253 mgd. For the cumulative condition, the table includes the Village 2 SPA Amendment that requires a treatment capacity of 0.381 mgd.

B. Salt Creek Interceptor:

The Salt Creek Interceptor was completed approximately 7 years ago to serve regional development in the area, which includes the Village 3 North & portion of 4, Village 8 East, and the Village 10 projects. Reimbursement to the City for the construction cost of the Salt Creek Interceptor comes from development that connects to this line. New development must pay a development impact fee. Ordinance 2974 provides the fees to be collected by the City for properties to be served by the Salt Creek Interceptor. Table J.8 summarizes the estimated Salt Creek Sewer impact fees to be paid by the Village 3 North & portion of 4 SPA Project.

The Dexter Wilson Sewer Study analyzed the cumulative flows of the Salt Creek Interceptor at the points of connection in comparison to the 2010 PBS&J Study (see Table J.4). Downstream of the connection of Village 3 North/Village 2 the maximum depth to Diameter (d/D ratio), is identified in the current cumulative condition of the 2010 PBS&J Study. The increased flow from these projects represents less than 1.0 percent of the total flows in the analyzed sections of the line. Refer to the Dexter Wilson Sewer Study for specific Node locations and design calculations.

Table J.4
Salt Creek Interceptor
Capacity Analysis Summary

Village	Location of Connection to Salt Creek Interceptor		Depth to Diameter (d/D Ratio)	
	Per PBS&J Study	Per Current Plan	Per PBS&J Study	Per Current Development Plan
10	Node 272	Node 222	0.62[2]	0.60[2]
8 East	Node 202	Node 202	0.44[3]	0.44[3]
3 North	Node 149	Node 371[1]	0.36[4]	0.36[4]

[1] Node 371 is the first node downstream of Node 149.
[2] From Node 222 to Node 220
[3] From Node 202 to Node 200
[4] From Node 371 to Node 145

Source: Dexter Wilson Sewer Study

C. Village 3 North Sewer Flows:

According to the Dexter Wilson Sewer Study the projected flows from the Village 3 North SPA Plan area are 526,355 gpd as shown in Table J.5. There may be minor variations between Table J.5 and the Site Utilization Plan regarding the total number of EDU's will remain substantially the same. The SPA Plan proposes a maximum of 1,597 Dwelling Units.

Table J.5
Village 3 & a Portion of 4
Projected Sewer Flows

Planning Area	Land Use	Quantity	Unit Flow	Total Average Flow, gpd	EDUs[1]
R-1	SF	74 units	265 gpd/unit	19,610	74
R-2	SF	34 units	265 gpd/unit	9,010	34
R-3	SF	14 units	265 gpd/unit	3,710	14
R-4	SF	25 units	265 gpd/unit	6,625	25
R-5	SF	25 units	265 gpd/unit	6,625	25
R-6	SF	16 units	265 gpd/unit	4,240	16
R-7	SF	19 units	265 gpd/unit	5,035	19
R-8	SF	21 units	265 gpd/unit	5,565	21
R-9	SF	149 units	265 gpd/unit	39,485	149
R-10	SF	170 units	265 gpd/unit	45,050	170
R-11	SF	27 units	265 gpd/unit	7,155	27
R-12	SF	70 units	265 gpd/unit	18,550	70
R-13	SF	46 units	265 gpd/unit	12,190	46
R-14	SF	67 units	265 gpd/unit	17,755	67
R-15	SF	51 units	265 gpd/unit	13,515	51
R-16	SF	54 units	265 gpd/unit	14,310	54
R-17	SF	26 units	265 gpd/unit	6,890	26
R-18	SF	19 units	265 gpd/unit	5,035	19
R-19	SF	51 units	265 gpd/unit	13,515	51
R-20	SF	44 units	265 gpd/unit	11,660	44
R-21a	MF	190 units	198.75 gpd/unit	37,760	142.5
R-21b	MF	170 units	198.75 gpd/unit	33,790	127.5
R-21c	MF	155 units	198.75 gpd/unit	30,805	116.3
MU-1a-d	MF	80 units	198.75 gpd/unit	15,900	60
MU-1a-d	Commercial	2.1 ac	2,500 gpd/ac	5,250	19.8
MU-2a-f	Commercial	6.1 ac	2,500 gpd/ac	15,250	57.5
IND-1a, b	Industrial	12.5 ac	2,500 gpd/ac	31,250	117.9
IND-2	Industrial	4.4 ac	2,500 gpd/ac	11,000	41.5
IND-3a, b	Industrial	11.7 ac	2,500 gpd/ac	29,250	110.4
IND-4	Industrial	5.2 ac	2,500 gpd/ac	13,000	49.1
S-1	School	948 students	15 gpd/student	14,220	53.7
P-1	Park	7.9 ac	500 gpd/ac	3,950	14.9
P-2	Park (V4)	17.8 ac	500 gpd/ac	8,900	33.6
CPF-1	CPF	2.6 ac	2,500 gpd/ac	6,500	24.5
CPF-2	CPF	1.1 ac	2,500 gpd/ac	2,750	10.4
CPF-3	CPF	0.5 ac	2,500 gpd/ac	1,250	4.7
TOTAL		**1,597 units**		**526,355**	**1,986**

[1] Sewer EDUs are based on 265 gpd/EDU (i.e. Total Average Flow divided by 265 gpd equals the number of EDUs).

Source: Dexter Wilson Sewer Study

XI.6 Recommended Sewerage Facilities

Village 3 North area can be served by constructing gravity sewer lines to convey flows south to points of connection with the Salt Creek Interceptor. The project area will be served by constructing onsite gravity sewer lines that convey flow south to Main Street. The sewer lines will convey flow to the intersection of Heritage Road and Main Street where a connection to the Salt Creek Interceptor will be made. Exhibit 11 shows the existing and proposed sewer facilities for the project. The sizing for future sewer lines is preliminary and based on assumed sewer slopes and should be verified during final engineering when slopes of the sewer lines have been established.

The sewer facilities within Heritage Road (within Village 3 North) will require oversizing to accommodate the flows from offsite development in the southern portion of Village 2. Based on the *Overview of Sewer Service for Otay Ranch Villages 3 and a portion of 4*, *May 2014, Dexter Wilson Engineering Inc.*, a flow of 292,080 gpd will be conveyed from this area. Based on the Sewer System Analysis for the Baldwin and Sons Village 2 SPA Amendment, March 4, 2014, the amendment will result in an increase in sewer flows in the Wolf/Salt Creek basin of 128,315 gpd. Thus, the total projected flow from the southern portion of Village 2 is 420,395 gpd. The Dexter Wilson Sewer Study provides excerpts from the sewer studies used to determine this projected flow.

The sewer line in Main Street also needs to be oversized to accommodate future potential flows from the east. *The Overview of Sewer Service for Village 8 West, November 2010, Dexter Wilson Engineering*, identified total potential average flows of 1,095,841 gpd at the western project boundary. This flow projection includes development within Village 8 West, Village 7, the Village 4 Park and the Eastern Urban Center. Further, between Village 8 West and Village 3 North, Dexter Wilson estimates that the future Village 4 development will have an average flow of 198,750 gpd (750 EDUs). According to the Dexter Wilson Sewer Study, the total offsite average flow that must be considered when sizing the trunk sewer line in Main Street is 1,294,591 gpd.

XI.6.1. Improvements

The recommended onsite sewer lines internal to Village 3 North will range from 8-inch to 12-inch gravity sewers. The required sizing should be verified once pipe slopes have been better defined during the preparation of the tentative map and/or final engineering of the project. Exhibit 11 provides the recommended onsite sewer line sizing for the project.

The portion of Village 4 area contains the P-2 Community Park site. The P-2 site will be served by a sewer lift station, which will be connected to the future sewer line in La Media Road. The La Media Road sewer line will convey flows south through Village 8 West project.

XI.6.2. Phasing

The project is anticipated to develop in several phases generally from north to south, the precise order in which the facilities will develop is not known at this time. The purpose of this section is to present the major phases of the project and provide a description of the sewer facilities required to serve each individual phase.

A. <u>Yellow Phase</u>

The Yellow Phase includes Planning Areas I-1, I-2, I-3, and I-4. Development in this area is all industrial. This development can be served by constructing a new sewer line in Heritage Road and connecting to the Salt Creek Interceptor at Main Street.

B. <u>Green Phase</u>

The Green Phase is located in the north end of the project and includes Planning Areas R-21a, R-21b, MU-1a-1d, MU-2a-2f, O-1, P-1, CPF-1, and S-1. This area includes development of 595 residential units. This area can be served by constructing the sewer line in Heritage Road and extending it to the connection to the Salt Creek Interceptor at Main Street.

C. <u>Red Phase</u>

The Red Phase is located in the southwest portion of the project and includes Planning Areas R-1 through R-10 and CPF-2. Development in this area includes 547 residential units. Development in this area can be served by constructing the downstream portion of the Heritage Road sewer line and connecting to the Salt Creek Interceptor at Main Street.

D. <u>Blue Phase</u>

The Blue Phase is located in the southern portion of the project and includes Planning Areas R-11 through R-20, and CPF-3. This area includes the development of 455 residential units. To provide sewer service to this area of the project, the sewer line in Heritage Road and connection to the Salt Creek Interceptor will need to be made. Sewer lines to convey west to Heritage Road will also be required.

E. <u>Purple Phase</u>

The Purple Phase is located within a portion of Village 4 and includes P-2. This area of the project can be served by constructing a sewer lift station pursuant to Council Policy, and connecting to the future sewer line in La Media Road that will convey flow south through Village 8 West.

Table J.6 provides a summary of proposed sewer system improvements by phase for Village 3 North.

Table J.6 Village 3 North Sewer Facility Phasing Summary			
Phase	**Planning Area**	**In-Phase Sewer Improvements**	**Other Phase Sewer Improvements**
Yellow	I-1, I-2, I-3, and I-4	• Sewer line in Heritage Road	• Sewer line in Heritage Road in Red Phase • Connection to Salt Creek Interceptor
Green	R-21a,b,c, MU-1, MU-2, CPF-1, O-1, P-1, and S-1	• Internal Sewer Lines	• Sewer line in Heritage Road in Red and Yellow Phases • Backbone sewer lines through Red Phase • Connection to Salt Creek Interceptor
Red	R-1 through R-10 and CPF-2	• Sewer line in Heritage Road • Connection to Salt Creek Interceptor • Internal Sewer Lines	----------
Blue	R-11 through R-20, and CPF-3	• Sewer line in Main Street • Internal Sewer Lines	• Backbone sewer lines in Red Phase • Sewer line in Green Phase south of P-1 • Connection to Salt Creek Interceptor
Purple	P-2	• Sewer Lift Station - financed by Developer.	----------

Source: Dexter Wilson Sewer Study

XI.7. Financing Sewerage Facilities

To fund the necessary improvements to the Salt Creek Interceptor, development impact fees have been established by the City of Chula Vista. A discussion of the required fees is provided below.

The *Salt Creek Basin Study by Wilson Engineering, November 1994* established a fee to fund future improvements to the Salt Creek Interceptor System. This fee is required to be paid by all future developments within the Salt Creek Drainage Basin to fund improvements required to serve ultimate development within the drainage basin. City of Chula Vista Ordinance Number 2617 established the fee to be paid for future development within the Salt Creek Basin that connects into the existing system. Table J.8 summarizes the current fees to be paid by each land use type. These fees are typically collected at the time building permits are issued.

Table J.7 Salt Creek Sewer Impact Fees		
Land Use	**EDU Factor**	**Fee $**
Single Family-Residential	1.0 EDU/unit	1,330/unit
Multi-Family Residential	0.75 EDU/unit	997.5/unit
Commercial/Industrial	9.43 EDU/acre	12,541.9/acre
CPF	9.43 EDU/acre	12,541.9/acre
Elementary School	0.06 EDU/student	79.8/student
Parks	1.89 EDU/acre	2,513.7/acre

The project estimated Salt Creek Basin Fee is $26,611,248 (see Table J.8). The estimated fee may change depending upon the final number of dwelling units, changes in acreages and/or fee revisions by the City Council.

Table J.8
Salt Creek Basin Impact Fees

Land Use		$/Unit	Red		Blue		Yellow		Green		Purple		Total
			EDU	Fee/Phase	EDU	Fee/Phase	EDU	Fee/Phase	EDU	Fee/Phase	EDU	Fee/Phase	
R-1	SFD	$1,330	74	$98,420	0	$0	0	$0	0	$0			$98,420
R-2	SFD	$1,330	34	$45,220	0	$0	0	$0	0	$0			$45,220
R-3	SFD	$1,330	14	$18,620	0	$0	0	$0	0	$0			$18,620
R-4	SFD	$1,330	25	$33,250	0	$0	0	$0	0	$0			$33,250
R-5	SFD	$1,330	25	$33,250	0	$0	0	$0	0	$0			$33,250
R-6	SFD	$1,330	16	$21,280	0	$0	0	$0	0	$0			$21,280
R-7	SFD	$1,330	19	$25,270	0	$0	0	$0	0	$0			$25,270
R-8	SFD	$1,330	21	$27,930	0	$0	0	$0	0	$0			$27,930
R-9	SFD	$1,330	98	$130,340	51	$67,830	0	$0	0	$0			$198,170
R-10	SFD	$1,330	155	$206,150	15	$19,950	0	$0	0	$0			$226,100
R-11	SFD	$1,330	0	$0	27	$35,910	0	$0	0	$0			$35,910
R-12	SFD	$1,330	0	$0	70	$93,100	0	$0	0	$0			$93,100
R-13	SFD	$1,330	0	$0	46	$61,180	0	$0	0	$0			$61,180
R-14	SFD	$1,330	0	$0	67	$89,110	0	$0	0	$0			$89,110
R-15	SFD	$1,330	0	$0	51	$67,830	0	$0	0	$0			$67,830
R-16	SFD	$1,330	0	$0	54	$71,820	0	$0	0	$0			$71,820
R-17	SFD	$1,330	0	$0	26	$34,580	0	$0	0	$0			$34,580
R-18	SFD	$1,330	0	$0	19	$25,270	0	$0	0	$0			$25,270
R-19	SFD	$1,330	0	$0	51	$67,830	0	$0	0	$0			$67,830
R-20	SFD	$1,330	0	$0	44	$58,520	0	$0	0	$0			$58,520
R-21	MF	$997.5	0	$0	0	$0	0	$0	515	$513,713			$513,713
MU-1	MF	$997.5	0	$0	0	$0	0	$0	80	$79,800			$79,800
Subtotal			481	$639,730	521	$692,930	0	$0	595	$593,513	0	$0	$1,926,173
		$/acre											
MU-2	MU	$12,541.9	0	$0	0	$0	0	$0	6.1	$76,506	0	$0	$76,506
O-1	O	$12,541.9	0	$0	0	$0	0	$0	5.2	$65,218	0	$0	$65,218
CPF-1	CPF	$12,541.9	0	$0	0	$0	0	$0	2.6	$32,609	0	$0	$32,609
CPF-2	CPF	$12,541.9	1.1	$13,796	0	$0	0.0	$0	0.0	$0	0	$0	$13,796
CPF-3	CPF	$12,541.9	0	$0	0.5	$6,271	0	$0	0.0	$0	0.6	$7,525	$13,796
P-1	N.P.	$2,513.7	0	$0	0	$0	0	$0	7.9	$19,858	0	$0	$19,858
P-2	C.P.	$2,513.7	0	$0	0	$0	0	$0	0.0	$0	17.8	$44,744	$44,744
I-1a	Ind.	$12,541.9		$0		$0	6.4	$80,268		$0		$0	$80,268
I-1b	Ind.	$12,541.9		$0		$0	6.1	$76,506		$0		$0	$76,506
I-2	Ind.	$12,541.9		$0		$0	4.4	$55,184		$0		$0	$55,184
I-3a	Ind.	$12,541.9		$0		$0	4.2	$52,676		$0		$0	$52,676
I-3b	Ind.	$12,541.9		$0		$0	7.5	$94,064		$0		$0	$94,064
Subtotal				$13,796		$6,271		$358,698		$194,191		$52,269	$625,225
		$/student							student				
S-1	Elem.	$79.8		$0		$0		$0	750	$59,850		$0	$59,850
Total				**$653,526**		**$699,201**		**$438,967**		**$787,703**		**$52,269**	**$2,611,248**

XI.8. Threshold Compliance

A. The City of Chula Vista would need to acquire capacity rights for an additional 5.4 mgd to accommodate year 2030 flows. The Salt Creek Interceptor Technical Sewer Study for South Otay Ranch addresses the City's current projections regarding the need to acquire additional treatment capacity. The City may acquire rights for this additional capacity in the Metro system through negotiations with the City of San Diego. In addition, the City of Chula Vista is evaluating construction of a new wastewater treatment plant and other

alternatives to meet its future treatment capacity and disposal requirements. The cumulative projects will be timed to proceed with the City's acquisition of additional treatment capacity. Building permits will be issued only if the City Engineer has determined that adequate sewer capacity exists.

Furthermore, all developments are required to prepare a PFFP that articulates needed facilities and funding mechanisms. The proposed project includes a PFFP and requires new and expanded sewer facilities to serve the proposed development. Implementation of existing policies and expanded sewer facilities would therefore avoid significant cumulative impacts associated with inadequate treatment capacity. Mitigation measures are also provided to ensure that adequate wastewater facilities are provided concurrently

B. Facilities to accommodate sewer flows have been identified in the Dexter Wilson Sewer Study. The construction of new sewer lines must be phased in before the construction of streets.

C. All gravity sewers will be designed to convey peak wet weather flow. For pipes with diameter of 12 inches and smaller, the sewers will be designed to convey this flow when flowing half full. For pipes of diameter larger than 12 inches, the sewers will be designed to convey peak wet weather flow when flowing at three-fourths of the pipe depth. All new sewers will be designed to maintain a minimum velocity of two feet per second (fps) at design capacity to prevent the deposition of solids.

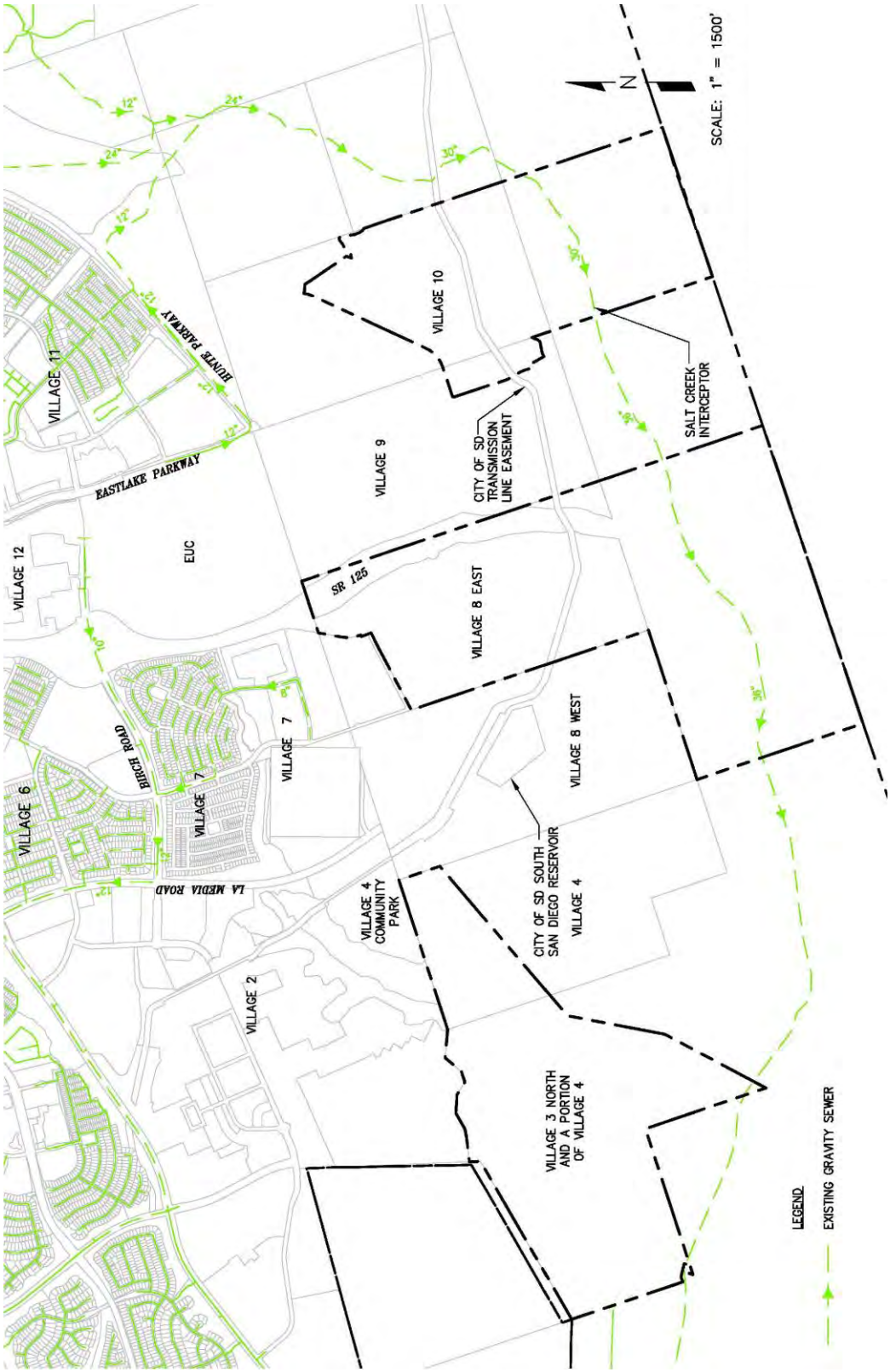
D. The applicant for the project shall:
   1. Underwrite the cost of all studies and reports required to support the addition of sewer flows to existing lines.
   2. Assume the capital cost of all sewer lines and connections identified herein.
   3. Pay all current sewer fees required of the City of Chula Vista.
   4. Comply with Section 3-303 of the City of Chula Vista Subdivision Manual.
   5. Construct off-site connections as required by the City Engineer.

F. The project applicant shall comply with the Project EIR Sewer Utility mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The following UTL designations correspond to the Project EIR numbered Utility measures:

UTL-5 The applicant or designee shall finance or install all on-site and off-site sewer facilities required to serve development in the proposed project in accordance with the fees and phasing in the approved Public Facilities Finance Plan to the satisfaction of the City Engineer.

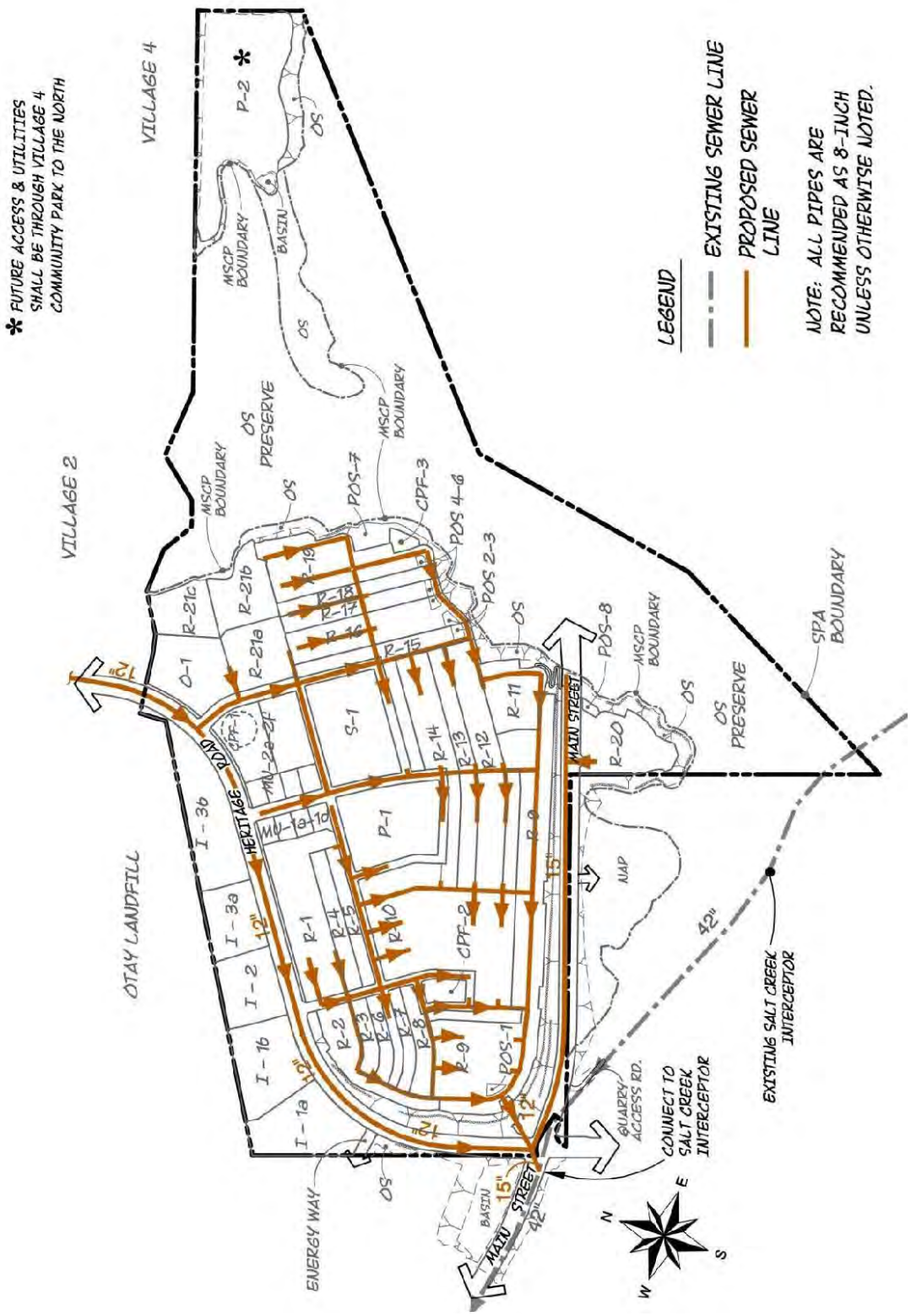
UTL-6 Prior to issuance of each building permit, the applicant or designee shall pay the Salt Creek Development Impact Fee at the rate in effect at the time of building permit issuance and corresponding to the sewer basin that the building will permanently sewer to, unless stated otherwise in a development agreement that has been approved by the City Council.

UTL-7 Prior to design review approval in accordance with the Intensity Transfer provision in the Village 3 North & a portion of Village 4 SPA Plan, the applicant or designee shall provide an update to Dexter Wilson Sewer Study with each proposed project requesting an intensity transfer. The technical study shall demonstrate to the satisfaction of the City Engineer that adequate on-site wastewater infrastructure will be available to support the transfer. The transfer of residential density shall be limited by the ability of the on-site sewerage facilities to accommodate flows.



Source: Dexter Wilson Sewer Study

Existing Sewer Facilities
Exhibit 11



Source: Otay Ranch Village 3 North and a portion of Village 4 SPA Plan, July 25, 2014

Proposed On-site Sewer Facilities
Exhibit 12

Source: Dexter Wilson Sewer Study

Proposed On-site Sewer Phasing
Exhibit 13

XII. DRAINAGE

XII.1. Threshold Standard

A. Storm water flows and volumes shall not exceed City Engineering Standards as set forth in the Subdivision Manual adopted by City Council Resolution No. 11175 on February 23, 1983, as may be amended from time to time.

B. The GMOC shall annually review the performance of the city's storm drain system to determine its ability to meet the goals and objectives above.

XII.2 Service Analysis

The City of Chula Vista Public Works Department is responsible for ensuring that safe and efficient storm water drainage systems are provided concurrent with development in order to protect the residents and property within the city. City staff is required to review individual projects to ensure that improvements are provided which are consistent with the drainage master plan(s) and that the project complies with all City engineering drainage standards. *The City of Chula Vista Subdivision Manual; Engineering Department and Land Development; section 3, March 2012,* provides design criteria to comply with city design standards.

The Village 3 North & portion of 4 SPA Plan project is under the jurisdiction of the San Diego Regional Water Quality Control Board (SDRWQCB) and is also subject to the National Pollutant Discharge Elimination System (NPDES) requirements both during and after construction. NPDES requirements stem from the Federal Clean Water Act and are enforced either by the State Water Resources Control Board (SWRCB) or the SDRWQCB. The Project is also subject to the current Hydromodification Management Plan (HMP) standards.

The Village 3 North & portion of 4 SPA Plan Pre-Development and Post-Development Conditions are identified in the *Tentative Map Drainage Study for Otay Ranch Village* 3 *North and a portion of Village 4 SPA, dated March 7, 2014, by Hunsaker & Associates.* This report is referred to as the Hunsaker Drainage Study in this PFFP. The purpose of the Hunsaker Drainage Study is to prepare hydrologic models to quantify existing and developed condition peak flows to the Otay River.

The treatment of the runoff from the Village 10 SPA project is addressed in the *Master Water Quality Technical Report for Otay Ranch Village* 3 *North and a portion of Village 4 SPA Tentative Map, dated March 7, 2014, by Hunsaker & Associates*. The Master Water Quality Technical Report (WQTR) will be referred to as the Hunsaker WQTR. The proposed design will utilize on-site Low Impact Development (LID), Best Management Practices (BMPs) and Bioretention Integrated Management Practices (IMP's) Treatment Controls to treat the 85th percentile flow from the development.

XII.3 Project Processing Requirements

The SPA Plan and the PFFP are required to address the following issues for drainage issues:

A. Identify phased demands.

B. Identify locations of facilities for onsite and offsite improvements.

C. Provide cost estimates.

D. Identify financing methods.

The *Development Storm Water Manual (DSWM), 2011, City of Chula Vista* applies to all projects requiring any permit approvals on or after March 24, 2010. The DSWM provides guidance for new development, redevelopment and public projects to achieve compliance with the City of Chula Vista's Standard Urban Storm Water Mitigation Plan (SUSMP). On January 24, 2007, the SDRWQCB adopted Order No. R9-2007-0001, renewing the Municipal Storm Water Permit. This order supersedes Order No. 2001-01 and includes several changes to requirements for post-construction stormwater management and would result in SUSMPs being modified and changes to standards for post-construction stormwater management practices. Specific changes that would directly affect the design of the proposed project include:

- **Low Impact Development (LID) BMP Requirements.** Project applicants with Priority Development Projects (projects subject to SUSMP requirements) are required to implement LID BMPs that collectively minimize directly connected impervious areas and promote infiltration. The LID BMP requirements are described in Section D.1.d. (4) of Order No. R9-2007-0001.
- **Hydromodification.** Limitations on Increases of Runoff Discharge Rates and Durations: Under Section D.1.g of Order No. R9-2007-0001, the Co-permittees would be required to prepare a Hydromodification Management Plan (HMP) and incorporate its requirements into their SUSMPs. Hydromodification refers to changes in a watershed's runoff characteristics resulting from development, together with associated morphological changes to channels receiving the runoff, such as changes in sediment transport characteristics and the hydraulic geometry (width, depth, and slope) of channels. These changes result in streambank erosion and sedimentation, leading to habitat degradation due to loss of overhead cover and loss of in-stream habitat structures.

XII.4. Existing Conditions

XII.4.1. Surface Hydrology

Approximately 191 acres within the 436 acre project area consists of Open Space and a Multiple Species Conservation Program (MSCP) preserve area. This open space area will be preserved as undisturbed areas, slopes, and natural drainage courses. The preserve area within the project boundary is located within Wolf Canyon and along the Otay River corridor. The remainder of project site will include single and multi-family residential, mixed use areas, office/commercial areas, parks, a school, community purposes facilities (CPF) sites, industrial development areas, and private open spaces areas.

The Village 3 North site flows south towards the Otay River in both the pre and post developed conditions. According to the Hunsaker Drainage Study, the site lies outside the FEMA floodplain boundary. Therefore, a Letter of Map Revision is not required. The MSCP Open Space Preserve is located immediately south of the site along the Otay River and east of the developed portion of Village 3 North within Wolf Canyon. The project as proposed will not encroach into the MSCP area with the exception of the eastern fringe of the development area, where a portion of Main Street requires encroachments for road improvements, and the proposed storm drain and sewer outfalls, which will have an assigned easement through the preserve. Since the project is located adjacent to a Preserve area it shall adhere to the City's *MSCP Subarea Adjacency Guidelines* pertaining to drainage and water quality.

See the Hunsaker Drainage Study for a detailed description of the methodology used for the computation of design rainfall events, runoff coefficients, and rainfall intensity values. The

criterion used by Hunsaker & Associates is based on the most current San Diego County Hydrology Manual and the City of Chula Vista Subdivision Manual.

The topography for the Village 3 North and portion of 4 project areas are characterized by farmland, rolling hills, vegetation consisting mainly of brush and incised canyons that partition the site into six defined watersheds. The watersheds will be affected by the proposed development. All the existing watersheds currently drain south directly into the Otay River.

The watershed boundary along the northern portion of the site is defined by the grading which has occurred for the Otay Landfill and by the proposed Otay Ranch Village 2 South development at the northeast corner of the site. Existing commercial businesses that consist of vehicle salvage yards and auto parts stores have established the western watershed boundary.

Table K.1 below summarizes the 100-year pre-development peak flows to each of the delineated watersheds. A runoff coefficient of 0.35 and 0.50 was assumed by Hunsaker & Associates for the existing tributary area per the City of Chula Vista Subdivision Manual. These coefficients correspond to farm land and vegetated rolling slopes.

Table K.1
Summary of Pre-Developed Flows to the Otay River

Discharge Location	Drainage Area (ac)	100-Year Peak Flow (cfs)
Watershed 1	51.58	94.83
Watershed 2	96.72	191.68
Watershed 3	25.81	42.75
Watershed 4	109.98	205.62
Watershed 5	18.98	46.92
Subtotal	**303.07**	**581.80**
Watershed 6 (Village 4 portion)	20.43	46.00
Total	**323.50**	**627.8**

Source: Hunsaker Drainage Study

The Village 4 (P-2 park) portion within the eastern part of the project boundary drains toward the southwest through one of the two canyons that tributary to Wolf Canyon.

XII.4.2. Water Quality

A. Surface Water Quality

The Porter-Cologne Act establishes a comprehensive program for the protection of beneficial uses of the waters of the state (see California Water Code Section 13050(f). Per the code section: "Beneficial uses of the waters of the state that may be protected against quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves." The list of the beneficial uses and their definitions for Otay River, Wolf Canyon and San Diego Bay are provided in the Hunsaker WQTR.

On October 30, 2006, the SWRCB approved the Section 303(d) list, which was approved by the EPA on November 30, 2006. The EPA approved the SWRCB's inclusion of all waters and pollutants identified for the San Diego region in its 2006 list of Water Quality Limited Segments. Within the Otay Hydrologic Unit, the San Diego Bay is impaired for pollution from organic compounds. Wolf Canyon and the Otay River are not on the 303(d) list.
Within the Otay Hydrologic Unit, the San Diego Bay is impaired for pollution from organic compounds. Wolf Canyon and the Otay River are not on the 303(d) list.

The *Final Hydromodification Management Plan (HMP), March 2011, County of San Diego*, exempts the Otay River from hydromodification criteria. Due to the combination of low gradients, significant peak attenuation, and wide floodplain areas, similar to those found in the Otay River, there is a low potential for channel erosion. Therefore the proposed outlets into the Otay River are exempt from hydromodification requirements. However, the proposed outlets into Wolf Canyon are not exempt.

Groundwater in the Otay Valley hydrologic area has been identified for following beneficial uses: municipal and domestic water supply, agricultural water supply and industrial service water supply. The Otay Hydrographic Unit contains groundwater that is rated poor to very poor due to high levels of total dissolved solids. No groundwater was encountered during a previous site field testing conducted as part of a Geotechnical Investigation in 2013. Groundwater elevations are dependent on seasonal precipitation, irrigation, and land use, among other factors, and vary as a result.

B. <u>Flooding</u>

Per the Flood Insurance Rate Map (FIRM) Nos. 06073C2159F and 06073C2178F, the Village 3 North & portion of 4 SPA Plan development areas are located outside the FEMA floodplain boundary; however, the active recreation area, including Community Park P-2, is within the dam inundation zone.

XII.5. Proposed Facilities

A. <u>Storm Drainage</u>

The developed Village 3 North & portion of 4 SPA Plan runoff will drain towards the southwest corner of the project area. Storm drain facilities will direct flows from Heritage Road, Main Street, and the residential areas to generally confluence at the intersection of Heritage Road and Main Street. Conceptually, the storm drain system and layout is designed to address peak flows, as well as to integrate water quality features needed to comply with the City of Chula Vista SUSMP requirements for water quality. The proposed storm drain system is designed to prevent the comingling of treated flows with untreated runoff. A cleanout with an internal weir wall will act to divert the 'water quality' amount towards the basin while allowing peak flows to continue downstream and outlet into the Otay River.

LID-based BMPs are proposed to treat the 85th percentile runoff from the project, including Main Street and Heritage Road, prior to discharging to the storm drain. Proposed LID BMPs include conservation of natural areas, minimizing impervious footprint, minimizing directly connected impervious areas to area drains, minimizing soil compaction in landscaped areas, soil amendments, and protection of slopes, channels and erosion control.

Table K.2 summarizes the 100-year developed condition peak flows to each of the discharge locations towards the Otay River. The details and precise discharge locations are provided in the Hunsaker Drainage Study.

Table K.2
Summary of Developed Flows to the Otay River

Discharge Location	Drainage Area (acres)	100-Year Peak Flow (cfs)
Watershed 1 - Outlet 1A	9.47	22.13
Watershed 1 – Outlet 1B	267.87	704.39
Watershed 2	1.24	4.04
Watershed 3	17.99	37.05
Watershed 4	26.79	47.51
Watershed 5	8.91	22.33
Subtotal	*332.27*	**837.45**
Watershed 6 (Village Four Portion)	25.31	24.49
Total	**357.58**	**861.94**

Source: Hunsaker Drainage Study

The HMP exempts projects that outlet directly to the Otay River from hydromodification criteria. The storm drain discharge locations are therefore exempt from hydromodification requirements except Watershed 6. A hydromodification analysis for Watershed 6 was performed by Hunsaker & Associates since the total watershed acreage increased. No additional measures would be needed to address hydromodification because the proposed condition frequency and duration curves do not exceed those during the existing condition more than 10%, in accordance with the General Permit for Storm Water Discharges. There would not be an increase in potential for erosion for the proposed conditions when compared to existing conditions. Landform grading has been incorporated to mimic existing conditions wherever possible. It is intended for the stormwater from the manufactured slopes to sheet flow and continue along their existing drainage patterns.

Approximately 15.6 acres of a portion of Village 4 pad area from will drain easterly. This area is included in Watershed 6 and is part of the total 25.31 acres shown on Table K.2. The park area is considered self-treating and therefore would be treated onsite. All impervious areas within the park site will be treated by a bioretention facility/facilities which will be sited with improvements plans since the final design of the park is not complete. These facilities would then connect to the proposed storm drain systems located at each end of the park site prior to outletting into the Otay River.

According to the Hunsaker Drainage Study, a temporary desilt basin will be located in the southwest portion of P-2. Runoff from the basin will be conveyed via storm drain east where it will tie into the Village 8 West storm drain system prior to outletting into a tributary of Wolf Canyon and continue downstream towards the Otay River. The area at the point of discharge is referred to as a Point of Compliance (POC). Results of the Hunsaker & Associates hydromodification analysis determined that the POC analyzed passed; therefore, erosion potential would not be increased compared to existing conditions. The proposed condition frequency and duration curves would not exceed those during the existing condition more than ten percent, in

accordance with the General Permit for Storm Water Discharges. This results in no requirements for additional hydromodification mitigation measures. There will not be an increase in potential for erosion as a result of the proposed development in Village 3 North and & portion of 4.

Table K.3 summarizes the effects of site development at the receiving Otay River. Development of Village 3 North and & portion of 4 would result in the net increase of runoff discharged to the adjacent Otay River by approximately 234 cfs.

Table K.3
Summary of Pre vs. Post-Developed Condition Flows to the Otay River

Discharge Location	Drainage Area (acres)	100-Year Peak Flow (cfs)
Pre-Developed	323.5	627.8
Post-Developed	357.5	861.9
Difference	**+34.1**	**+234.1**

*= Area diverted along eastern project boundary and at bioretention basin.

Source: Hunsaker Drainage Study

The project area is located downstream of the Savage Dam at the Lower Otay Reservoir. According to the Otay River Watershed Management Plan, the Savage Dam impounds runoff from over 60% of the Otay River's tributary watershed, which reduces the increase in flows from development downstream of the dam compared to the flows prior to dam construction. Detention for any development below the dam would be ineffective since the peak flows from these smaller watersheds would pass well before the reservoir outflows would reach the project area.

The tributary area to the Otay River is over 100 square miles, there would be substantial lag time between the time peak flows from Village 3 North & portion of 4 project would outlet to the river and the time the peak flows would reach the proposed outlet location. According to the Hunsaker Drainage Study, because of this lag time, the development of the project would result in no net increase of flows to the Otay River when compared to existing conditions. Therefore, no detention basins are proposed for this project other than for bioretention and as water quality devices.

Hunsaker & Associates determined that the combination of the proposed construction and permanent LID BMPs that have been incorporated in the design of Village 3 North & portion of 4 project will ensure water quality treatment is maximized throughout the development. However, even with implementation of the project BMPs, the development of Village 3 North & portion of 4 would still have the potential to violate water quality standards or waste discharge requirements. Therefore, impact would be potentially significant and mitigation measures included in the EIR and this PFFP.

All developed areas within the Village 3 North & portion of 4 SPA runoff will receive full water quality treatment prior to discharge from the site, in accordance with the most current City of Chula Vista Storm Water Manual standards applicable at the time of final engineering. The project will be designed to avoid violation of any water quality standards or waste discharge requirements. Details of the proposed storm water treatment design are provided in the Hunsaker WQTR.

The following is a summary of the Hunsaker Drainage Study conclusions:

- Drainage facilities within the Village 3 North & portion of 4 SPA will be designed in accordance with the requirements of the Chula Vista Subdivision Manual, the San Diego County Hydrology Manual and the requirements of the SDRWQCB.

- Peak discharge flows from the project will occur approximately 9.5 minutes after the storm event begins. The peak discharge flow from the Otay River Basin, at the Village 3 North & portion of 4 Outlet, will occur more than 20 hours after the storm event begins. Due to this difference in time, the projects direct, indirect and cumulative impacts within the Otay River are not significant.

- Development of the project site will not further degrade potential beneficial uses of downstream water bodies as designated by the Regional Water Quality Control Board, including water bodies listed on the Clean Water Section 303d list.

- Onsite and offsite drainage easements shall be provided to the satisfaction of the Director of Public Works.

B. <u>Storm Water Quality</u>

Urban runoff discharged from municipal storm water conveyance systems has been identified by local, regional, and national research programs as one of the principal causes of water quality problems in most urban areas. The Municipal Storm Water Pollutant Discharge Elimination System (NPDES) Permit (Municipal Permit), originally issued on February 21, 2001 to the City of Chula Vista, the County of San Diego, the Port of San Diego, and 17 other cities in the region by the SDRWQCB, requires re-issuance every 5 years. The City of Chula Vista and the other aforementioned County jurisdictions must update their development and implementation of storm water regulations every 5 years to address the storm water pollution issues in private and public development planning and construction projects.

The City requires that sufficient information and analysis on how the project will meet the water quality requirements shall be provided as part of the Tentative Map and/or Site Plan review process. In this manner, the type, location, cost, and maintenance characteristics of the selected BMPs will be given consideration during the project planning and design. Therefore, the City requires that prior to approval of any Tentative Map and/or Site Plan for the project, whichever occurs first, the applicant shall obtain the approval of the City Engineer of a Water Quality Technical Report containing specific information and analysis on how the project will meet the requirements of the City of Chula Vista Storm Water and Discharge Control Ordinance and the NPDES Municipal Permit (including the Final Model SUSMP for the San Diego Region).

The Village 3 North & portion of 4 site design includes a bioretention basin in the northwest corner of the Heritage Road and Main Street intersection. The Village 4 Community Park site is self-treating. Hunsaker designed the storm drain system and layout to address peak flows as well as to integrate water quality features needed to

comply with the City of Chula Vista Standard Urban Stormwater Mitigation Plan (SUSMP) requirements for water quality.

The Hunsaker WQTR proposes Low Impact Design (LID) based BMP's to treat the 85th percentile runoff from the Village 10 SPA project prior to discharge to the downstream storm drain. The report lists the proposed LID BMPs and the sizing of Bioretention Impact Management Practices (IMP) areas.

Runoff generated by any interim mass graded pad will drain to a desilt basin to be sized and located for each respective pad. For mass graded pads, the only potential pollutant of concern generated by these pads is sediment. Desilt basins will target this sole pollutant prior to discharging flows to the receiving storm drain system. Applicable erosion control measures for permanent stabilization will comply with California Stormwater Quality Association (CASQA) Handbook measures and as indicated by each area's Storm Water Pollution Prevention Plan. Future development of each mass graded pad will be the responsibility of the future builder.

The 85th percentile flows generated by the paved streets, sidewalks and other impervious areas for the development of Village 3 North & portion of 4 SPA will receive treatment via bioretention based IMPs, filtering out sediments, nutrients, heavy metals, organic compounds, trash and debris, oxygen demanding substances and oil/hydrocarbons.

After review and analysis of various treatment options, Hunsaker selected the Bioretention IMPs and LID Site Design BMPs that were deemed to be the most effective and feasible BMP treatment for the Village 3 North & portion of 4 SPA project.

The Hunsaker WQTR summarizes the following City of Chula Vista's standard water quality mitigation measures to be implemented for the Village 3 North & portion of 4 SPA project.

- **Storm Water Pollution Prevention Plan:** Prior to issuance of each grading permit for Otay Ranch Village 10 or any land development permit, including clearing and grading, the project applicant shall submit a notice of intent and obtain coverage under the NPDES permit for construction activity from the SWRCB. Adherence to all conditions of the General Permit for Construction Activity is required. The applicant shall be required under the SWRCB General Construction Permit to develop a SWPPP and monitoring plan that shall be submitted to the City Engineer and the Director of Public Works. The SWPPP shall be incorporated into the grading and drainage plans and shall specify both construction and post construction structural and non-structural BMPs on site to reduce the amount of sediments and pollutants in construction and post-construction surface runoff before it is discharged into off-site storm water facilities. Section 7 of the City's Storm Water Manual outlines construction site BMP requirements. The SWPPP shall also address operation and maintenance of post-construction pollution prevention measures, including short-term and long-term funding sources and the party or parties that will be responsible for said measures. The grading plans shall note the condition requiring a SWPPP and monitoring plans.

- **Supplemental Water Quality Report:** Prior to issuance of each grading permit, the applicant shall submit a supplemental report to the Hunsaker WQTR that identifies

which on-site storm water management measures from the Master Water Quality Technical Report have been incorporated into the project to the satisfaction of the City Engineer.

- **Post-Construction/Permanent BMPs:** Prior to issuance of each grading permit, the City Engineer shall verify that parcel owners have incorporated and will implement post-construction BMPs in accordance with current regulations.

- **Limitation of Grading:** The project applicant shall comply with the Chula Vista Development Storm Water Manual limitation of grading requirements.

- **Hydromodification Criteria:** The project applicant shall comply, to the satisfaction of the City Engineer, with current hydromodification criteria or the hydrograph modification management plan, as applicable.

The combination of proposed construction and permanent BMP's will reduce, to the maximum extent practicable, the expected project pollutants and will not adversely impact the beneficial uses of the receiving waters. If new technology that increases treatment capacity at the time of construction is developed, it will also be utilized.

XII.6. Financing Drainage Facilities

A. Onsite Facilities

City policy requires that all master planned developments provide for the conveyance of storm waters throughout the project to City engineering standards. The project will be required to construct all onsite facilities that have not yet been identified through the processing of a subdivision.

In newly developing areas east of I-805, it is the City's policy that development projects assume the burden of funding all maintenance activities associated with drainage facilities. As such, the City will enter into an agreement with the project applicant whereby maintenance of drainage facilities will be assured by one of the following funding methods:

1. A property owner's association that would raise funds through fees paid by each property owner; or
2. A Community Facilities District (CFD) established over the entire project to raise funds through the creation of a special tax for drainage maintenance purposes.

B. Offsite Facilities

Off-site drainage facilities that are necessary to support the proposed project are either constructed or are in the process of being designed and processed with the City of Chula Vista by other projects. There are no off-site drainage facilities required of the project. However, if other projects do not complete an off-site drainage facility that is necessary for this project the applicant may be required to complete the facility.

XII.7. Threshold Compliance

A. Prior to approval of the Tentative Map and/or Site Plan by the Design Review Committee, whichever occurs first, applicant shall demonstrate compliance with the City of Chula Vista Storm Water and Discharge Control Ordinance and the NPDES Municipal Permit (including the Final Model SUSMP for the San Diego Region). The Applicant shall obtain the approval of the City Engineer of a WQTR.

B. The project shall comply with the recommended mitigation measures provided in the Hunsaker Drainage Study and the Hunsaker WQTR.

C. The project shall be responsible for the conveyance of storm water flows in accordance with City Engineering Standards. The City Engineering Division will review all plans to ensure compliance with such standards.

D. The project shall incorporate urban runoff planning in the Tentative Map.

E. The project shall be required to comply with all current regulations related to water quality for the construction and post construction phases of the project. Both the future land development construction drawings and associated reports shall be required to include details, notes and discussions relative to the required or recommended BMPs.

F. The project applicant will assure the maintenance of drainage facilities–by a property owner's association that would raise funds through fees paid by each property owner and/or participation in a CFD established over the entire project to raise funds through the creation of a special tax for drainage maintenance purposes.

G. Additional drainage analysis may be required at the tentative map phase of the project to demonstrate the adequacy of the proposed on-site storm drain system(s) and the existing storm drain connections.

H. Future drainage reports shall be prepared by the Applicant, as required by the City of Chula Vista, for the final engineering phase(s) of the project.

I. The project applicant shall comply with the Project EIR Water Quality & Hydrology mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The HYD designations correspond to the Project EIR numbered Hydrology measures:

HYD-1: *Erosion Control.* The developer shall monitor any erosion at the project's outfalls at the Otay River and, prior to the last building permit for the project, obtain approval for and complete any reconstructive work necessary to eliminate any existing erosion and prevent future erosion from occurring, all to the satisfaction of the Development Services Director.

HYD-2: *Storm Water Pollution Prevention Plan.* Prior to issuance of each grading permit for each village or any land development permit, including clearing and grading, the project applicant shall submit a notice of intent and obtain coverage under the NPDES permit for construction activity from the SWRCB. Adherence to all conditions of the General Permit for Construction Activity is required. The applicant shall be required under the SWRCB General Construction Permit to develop a SWPPP and monitoring plan that shall be submitted to the City Engineer and the Director of Public Works. The SWPPP shall be incorporated into the grading and drainage plans and shall specify both construction and post-construction structural and non-structural BMPs on site to reduce the amount of sediments and pollutants in construction and post-construction surface

runoff before it is discharged into off-site storm water facilities. Section 7 of the City's Storm Water Manual outlines construction site BMP requirements. The SWPPP shall also address operation and maintenance of post-construction pollution prevention measures, including short-term and long-term funding sources and the party or parties that will be responsible for said measures. The grading plans shall note the condition requiring a SWPPP and monitoring plans.

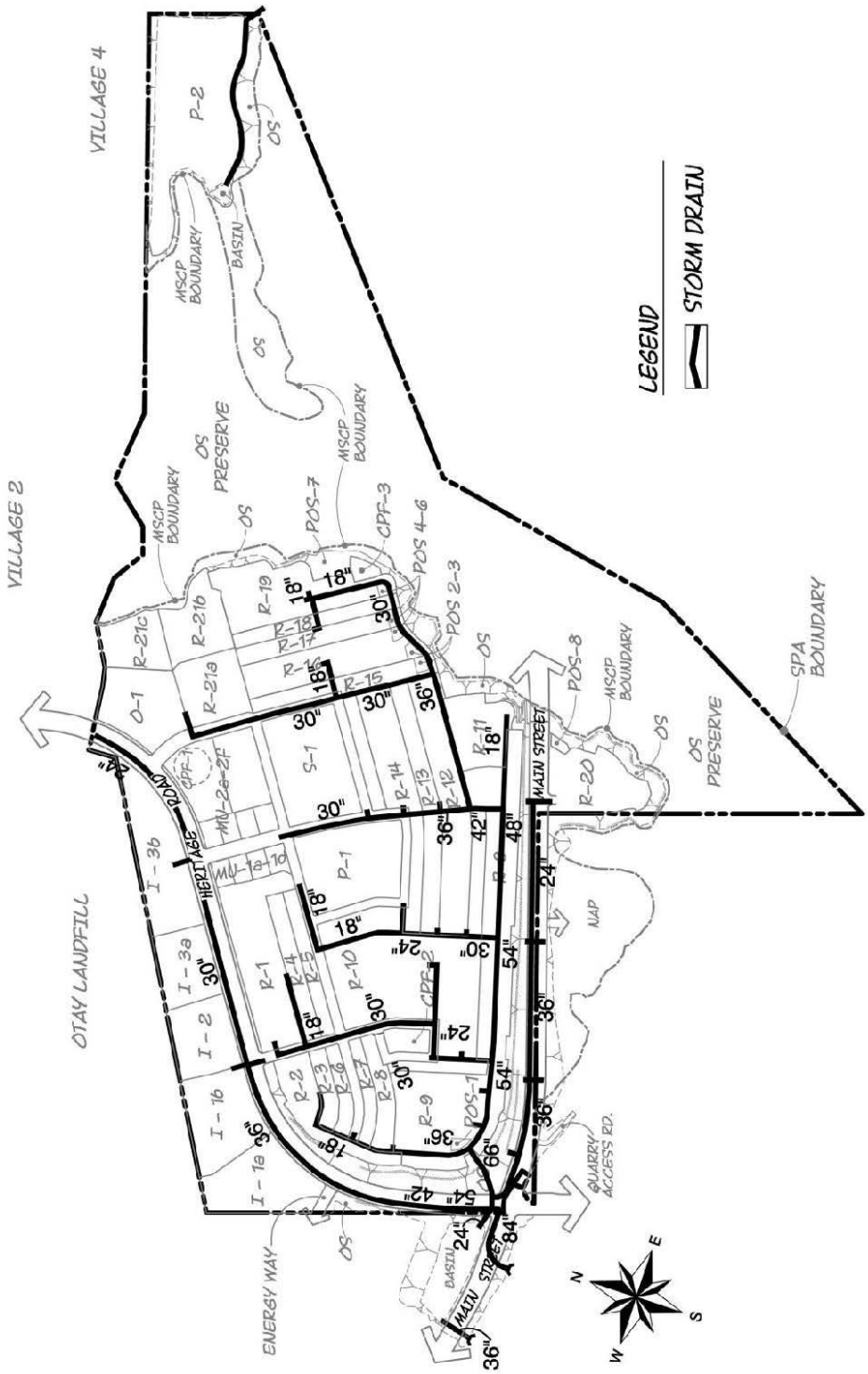
HYD-3: *Supplemental Water Quality Report.* Prior to issuance of each grading permit, the applicant shall submit supplemental reports to the Otay Ranch Village 8 East Tentative Map Water Quality Technical Report, prepared by Hunsaker and Associates San Diego, Inc. (2014) that identifies which onsite storm water management measures from the Water Quality Technical Report have been incorporated into the project to the satisfaction of the City Engineer. If a storm water management option is chosen by the parcel owner that is not shown in the water quality technical report, a project-specific water quality technical report shall be prepared for the parcel, referencing the Otay Ranch Village 8 East Tentative Map Water Quality Technical Report for information relevant to regional design concepts (e.g., downstream conditions of concern) to the satisfaction of the City Engineer.

HYD-4: *Post-Construction/Permanent BMPs*. Prior to issuance of each grading permit, the City Engineer shall verify that parcel owners have incorporated and will implement post-construction BMPs in accordance with current regulations. In particular, applicants are required to comply with the requirements of Section 2c of the City of Chula Vista's Standard Urban Storm Water Management Plan (SUSMP), the Chula Vista Development Storm Water Manual, and the Otay Ranch Village 8 East Tentative Map Water Quality Technical Report, respectively, or any supplements thereto to the satisfaction of the City Engineer. Specifically, the applicant shall implement low impact development BMPs in the preparation of all site plans and, the applicant shall incorporate structural on-site design features into the project design to address site design and treatment control BMPs as well as requirements of the hydromodification management plan. The applicant shall monitor and mitigate any erosion in downstream locations that may occur as a result of on-site development.

HYD-5: *Limitation of Grading*. The project applicant shall comply with the Chula Vista Development Storm Water Manual limitation of grading requirements, which limit disturbed soil area to 100 acres, unless expansion of a disturbed area is specifically approved by the Director of Public Works. With any phasing resulting from this limitation, if required, the project applicant shall provide, to the satisfaction of the City Engineer, erosion and sediment control BMPs in areas that may not be completed, before grading of additional area begins.

HYD-6: *Hydromodification Criteria.* The project applicant shall comply, to the satisfaction of the City Engineer, with City Hydromodification Criteria or the hydrograph modification management plan, as applicable, addressed regionally at the SPA Plan level concurrent with grading and improvement plans.

HYD-7: *Scour Analysis.* Concurrent with all grading plan submittals, the applicant shall prepare a scour analysis for all structures within the 100-year flood hazard area. Additionally, all said structures shall be monitored until the last building permit for the project has been issued.



Source: Otay Ranch Village 3 North and a portion of Village 4 SPA Plan, July 25, 2014

Proposed Drainage Facilities
Exhibit 14

XIII. AIR QUALITY

XIII.1 Threshold Standard

The GMOC shall be provided with an Annual Report which:

A. Provides an overview and evaluation of local development projects approved during the prior year to determine to what extent they implemented measures designed to foster air quality improvement pursuant to relevant regional and local air quality improvement strategies.

B. Identifies whether the city s development regulations. policies. and procedures relate to. and/are consistent with current. applicable federal state. and regional air quality regulations and programs.

C. Identifies non-development related activities being undertaken by the city toward compliance with relevant federal. state. and local regulations regarding air quality. and whether the city has achieved compliance.

The city shall provide a copy of said report to the Air Pollution Control District (APCD) for review and comment. The APCD shall report on overall regional and local air quality conditions as well as the status of regional air quality improvement implementation efforts under the Regional Air Quality Strategy and related federal and state programs. Further, the APCD report includes the effect of those efforts/programs on the city of Chula Vista and local planning and development activities.

XIII.2 Service Analysis

The City of Chula Vista has a Growth Management Element (GME) in its General Plan. One of the stated objectives of the GME is to be proactive in its planning to meet federal and state air quality standards. This objective is incorporated into the GME's action program.

To implement the GME, the City Council has adopted the Growth Management Program that requires Air Quality Improvement Plans (AQIP) for major development projects (50 residential units or commercial/industrial projects with equivalent air quality impacts). Title 19 (Sec. 19.09.0508) of the Chula Vista Municipal Code requires that a SPA submittal contain an AQIP. The AQIP shall include an assessment of how the project has been designed to reduce emissions as well as identify mitigation measures in accordance with the adopted AQIP Guidelines.

The Chula Vista City Council adopted the 2008 state Energy Code (Title 24) with an amendment requiring an increased energy efficiency standard. This amendment went into effect on February 26, 2010, as Section 15.26.030 of the Municipal Code. As required by this amendment, all building permits applied for and submitted on or after this date are subject to these increased energy efficiency standards. The increase in energy efficiency is a percentage above the new 2008 Energy Code and is dependent on climate zone and type of development proposed.

- New residential and nonresidential projects that fall within climate zone 7 must be at least 15% more energy efficient than the 2008 Energy Code.

- New low-rise residential projects (three-stories or less) that fall within climate zone 10 must be at least 20% more energy efficient than the 2008 Energy Code.

In Addition, per Section 15.12 of the City's Municipal Code, all new residential construction, remodels, additions, and alterations must provide a schedule of plumbing fixture fittings that will reduce the overall use of potable water by 20%.

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality. The City is a part of the Cities for Climate Protection Program, which is headed by the International Council of Local Environmental Initiatives (ICLEI). In November 2002, Chula Vista adopted the CO_2 Reduction Plan to lower the community's major greenhouse gas emissions, strengthen the local economy, and improve the global environment. The CO_2 Reduction Plan focuses on reducing fossil fuel consumption and decreasing reliance on power generated by fossil fuels, which would have a corollary effect in the reduction of air pollutant emissions into the atmosphere.

XIII.2 Adequacy Analysis

The Air Quality and Global Climate Change Technical Report for the Otay Ranch University Villages Project, dated May 2014 *, by Dudek,* (Dudek AQIP) evaluated the potential for adverse impacts to the ambient air quality due to construction and operational emissions resulting from the Project. The Dudek AQIP indicates that construction would result in a temporary addition of pollutants to the local air shed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials.

Dudek estimated emissions from the project construction phase through the use of emission factors from the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007). Construction is anticipated to begin with Village 3 North and continue over a 15-16 year period. Project construction would end with buildout of Village 10, which is anticipated to occur in August 2029. A detailed description of construction subphases (mass grading, fine grading, trenching, paving, building construction, and architectural coatings), as well as other assumptions made for the purposes of modeling, is included in the Dudek AQIP (Appendix A). Further, the Dudek AQIP provides a detailed analysis of construction emission impacts.

The Village 3 North SPA Plan project is subject to SDAPCD Rule 55 – Fugitive Dust Control. This requires that the project take steps to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit any fugitive dust (PM10 and PM2.5) that may be generated during grading and construction activities. The Dudek AQIP determined that the active construction sites should be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter.

The project is also subject to SDAPCD Rule 67. Architectural Coatings which requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Because the project phasing overlaps with other villages, construction emissions for Village 3 North and portion of Village 4, Village 8 East and Village 10, can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust (PM10 and PM2.5) emissions would primarily result from grading and site preparation activities. NOx and CO emissions would primarily result from the use of construction equipment and motor vehicles.

The Dudek AQIP concludes that construction emissions would not exceed the City's significance thresholds for CO and SOx. However, the VOC, NOx, PM10, and PM2.5 emissions associated with project construction would exceed the City of Chula Vista's emission threshold. Mitigation measures are provided that would reduce construction-related emissions. These measures are included in the PFFP for Threshold Compliance.

Table L.1, Estimated Daily Maximum Operational Emissions, presents the maximum daily emissions associated with the operation of the proposed project after all phases of construction have been completed. The values shown are the maximum summer and winter daily emissions results from the Dudek AQIP.

Table L.1
Estimated Daily Maximum Operational Emissions – 2030 (pounds/day)
Villages 3 North/Portion of 4, 8 East, and 10

Proposed Project Emissions	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer						
Motor Vehicles	248.06	242.40	2,753.76	8.32	1,349.61	261.83
Area Sources	396.82	87.52	168.02	0.01	0.52	0.52
Total	644.88	329.92	2,921.78	8.33	1,350.13	262.35
City of Chula Vista Threshold	55	55	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Winter						
Motor Vehicles	266.89	291.97	2,576.56	6.92	1,349.61	261.83
Area Sources	377.07	131.50	56.44	0.29	3.84	3.80
Total	643.96	423.47	2,633	7.21	1,353.45	265.63
City of Chula Vista Threshold	55	55	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Source: URBEMIS 2007 Version 9.2.4. See Dudek AQIP Appendix A for complete results.
Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village 3 and a Portion of Village 4, Village 8 East, and Village 10.
"Summer" emissions are representative of the conditions that may occur during the ozone season (May 1 to October 31) and "Winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30)

Source: Dudek AQIP

As shown above, daily operational emissions would not exceed the City's significance thresholds for SOx. However, the VOC, NOx, CO, SOx, PM_{10}, and $PM_{2.5}$ emissions associated with operation of the project would exceed the City of Chula Vista's significance thresholds. Project design features would help to reduce operational emissions; however, significant reductions in VOC, NOx, CO, PM10, and PM2.5 emissions would be required to reduce emissions of these pollutants to less than significant, and mitigation measures are not available to achieve these reductions. Therefore, even with incorporation of these design features, criteria pollutant emissions are anticipated to be above the thresholds for VOC, NOx, CO, SOx, PM10, and PM2.5. This impact is therefore considered significant and unavoidable.

The Village 3 North AQIP also evaluated the potential effect on global climate change, and

emissions of greenhouse gases were estimated based on the use of construction equipment and vehicle trips associated with construction activities, as well as operational emissions once construction phases are complete. The estimated GHG emissions associated with vehicular traffic, area sources, electrical generation, water supply, and solid waste generation are shown below in Table L.2. Because the project phasing overlaps with other villages, Table L.2 includes emissions for Village 3 North and portion of Village 4, Village 8 East and Village 10. The estimated emissions of CO_2E would be 203,688 metric tons per year without the GHG reduction measures ("business as usual"), and 144,520 metric tons per year with the GHG reduction measures. As indicated in L.2, the GHG reduction measures would reduce GHG emissions by approximately 29%.

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality while also addressing global climate change. In November 2002, Chula Vista adopted the Carbon Dioxide Reduction Plan. Implementation of GHG reduction measures by the proposed project would reduce GHG emissions by 29%. The proposed project would therefore exceed the target of 20% below business as usual that has been established for the purposes of assessing operational GHG emissions of projects in the City of Chula Vista, and this reduction would be consistent with the goals of AB 32. Furthermore, the project would be consistent with Section 15.26.030 of the City's Municipal Code by employing energy efficient measures beyond that required by the Energy Code, resulting in a 15% reduction in emissions generated by energy use.

Table L.2
Estimated Operational GHG Emissions (metric tons/year
Villages 3 North/Portion of 4, 8 East, and 10

Source	CO_2E Emissions	CO_2E Emissions w/ GHG Reduction Measures	Percent Reduction
Motor Vehicles	138,188	93,968	32%
Area Sources			
Natural Gas Combustion	18,213	12,749	30%
Hearth Combustion	26	26	0%
Landscaping	39	39	0%
Electrical Generation	22,031	15,422	30%
Water Supply	9,844	6,970	29%
Solid Waste	14,043	14,043	0%
Amortized Annual Const. Emissions	1,304	1,304	0%
Total	**203,688**	**144,520**	**29.0%**

Note: Construction emissions shown include emissions from construction of the University Villages project including Village 3 and a Portion of Village 4, Village 8 East, and Village 10

Source: Dudek AQIP

XIII.3 Threshold Compliance

The project applicant shall comply with the Project EIR Air Quality mitigation measures. A full discussion of these mitigation measures can be found in the Project EIR. The AQ designations correspond to the Project EIR numbered Air Quality measures:

A. AQ-1: Prior to approval of any grading permits, the project applicant or its designee shall place the following requirements on all grading plans, and shall be implemented during grading of each phase of the project to minimize NOx emissions:

- Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall turn their engines off when not in use to reduce vehicle emissions;
- All construction equipment shall be outfitted with best available control technology (BACT) devices certified by CARB. A copy of each unit's BACT documentation shall be provided at the time of mobilization of each applicable unit of equipment;
- All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications;
- All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used, or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible;
- The effectiveness of the latest diesel emission controls is highly dependent on the sulfur content of the fuel. Therefore, diesel fuel used by on- and off-road construction equipment shall be low sulfur (less than 15 ppm) or other alternative, low-polluting diesel fuel formulation.
- The use of electrical construction equipment shall be employed where feasible;
- The use of catalytic reduction for gasoline-powered equipment shall be employed where feasible;
- The use of injection timing retard for diesel-powered equipment shall be employed where feasible.

B. AQ-2: Prior to approval of any grading permits, and during project construction, the project applicant or its designee shall require implementation of the City's Standard Construction Best Management Practices (BMPs), including:

- Water the grading areas at least twice daily to minimize fugitive dust;
- Stabilize grading areas as quickly as possible to minimize fugitive dust;
- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Remove any visible track-out into traveled public streets within 30 minutes of occurrence;
- Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 miles per hour (mph);
- Cover/water on-site stockpiles of excavated material; and
- Enforce a 20 mph speed limit on unpaved surfaces.
- Pave permanent roads as quickly as possible to minimize dust;
- During construction, site grading activities within 500 feet of a school in operation shall be discontinued or all exposed surfaces shall be discontinued or all exposed surfaces shall be watered to minimize dust transport off site to the maximum degree feasible, when the wind velocity is greater than 15mph in the direction of the school;

- During blasting, utilize control measures to minimize fugitive dust. Control measures may include, but are not limited to, blast enclosures, vacuum blasters, drapes, water curtains or wet blasting.

C. **AQ-3** Prior to approval of the building permit for any uses that are regulated for TACs by the SDAPCD, the project applicant shall demonstrate to the satisfaction of the Development Services Director (or their designee) that the use complies with established criteria (such as those established by SDAPCD Rule 1200 and CARB). Also, gas stations shall not be located within 50 feet of a sensitive receptor, in accordance with CARB's siting recommendations.

XIV. CIVIC CENTER:

XIV.1 City Threshold Standards:

There are no adopted Threshold Standards for the Civic Center. Funds for the most recent renovation of the Civic Center are tied to the PFDIF fees in effect at the time building permits are issued.

XIV.2 Existing Conditions:

The Chula Vista Civic Center Complex, the construction of the new Public Services Building and the gutting and remodeling of the old Police Station for additional offices was completed in 2008. This complex was designed to accommodate the projected growth of the City of Chula Vista.

XIV.3 Adequacy Analysis:

The need for the Civic Center cannot be easily related to population figures or acres of commercial and industrial land which will be developed in the future. The 2008 expansion of the Civic Center Complex included space planning, design, and construction to keep pace with demand for future work space. The Civic Center Complex includes a state of the art Council Chambers, a conversion of the old Police Station to additional office space and re-building of the Public Services Building.

XIV.4 Financing Civic Center Facilities:

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 7, 2006 by adoption of Ordinance 3050. The PFDIF amount is subject to change as it is amended from time to time. The Civic Center PFDIF Fee for Single Family Development is $2,756/unit. The Civic Center PFDIF Fee for Multi-Family Development is $2,610/unit. Only residential development impact fees apply to the project. The PFDIF amount is subject to change as it is amended from time to time. At the current fee rate, the project Civic Center Fee obligation at buildout is approximately $4,486,867 (see Table M.1).

Table M.1 Village 3 North & portion of 4 SPA Public Facilities Fees For Civic Center									
Phase	**Dwelling Units**		**Com'l Acres**	**Ind. Acres**	**Civic Center Fee**				
	SF	**MF**			**Single Family $2,756/DU**	**Multi-Family $2,610/DU**	**Com'l[1] $8,792/Ac.**	**Ind. $2,779/Ac**	**Total Fee**
Red	481	0	0	0	$1,325,636	$0	$0	$0	$1,325,636
Blue	477	44	0	0	$1,314,612	$114,840	$0	$0	$1,429,452
Yellow	0	0	0	28.6	$0	$0	$0	$79,479	$79,479
Green	0	595	11.3	0	$0	$1,552,950	$99,350	$0	$1,652,300
Purple	0	0	0	0	$0	$0	$0	$0	$0
Subtotal	958	639	11.3	28.6	$2,640,248	$1,667,790	$99,350	$79,479	$4,486,867
Total	1597		11.3	28.6	$2,640,248	$1,667,790	$99,350	$79,479	$4,486,867

Footnote:
[1] Office uses are treated as Commercial Uses for PDIF.

Table M.1 is only an estimate. Actual fees at the time building permits are requested may be different. PDIF Fees are subject to change depending upon City Council actions and or Developer actions that change residential densities, industrial acreage or commercial acreages.

They are to be paid prior to the issuance of building permits at the rate in effect at the time payment is made.

XV. CORPORATION YARD

XV.1. Threshold Standards:

There are no adopted Threshold Standards for the Corporation Yard.

XV.2. Existing Conditions:

The 2.5 acre John Lippitt Public Works Center located at 1800 Maxwell Road was previously an SDG&E equipment and repair facility. The city renovated and added new improvements for the maintenance and repair of city owned equipment. The administration building was renovated and updated to provide offices for City of Chula Vista Public Works Department. Also, the facilities consist of shop buildings and the maintenance building, including parking for employees, city vehicles and equipment. In addition, there is a Bus Wash/Fuel Island/CNG and associated equipment on-site.

XV.3 Adequacy Analysis:

The need for a Corporate Yard cannot be easily related to population figures or acres of commercial and industrial land which will be developed in the future. The growth in population, increase in street miles and the expansion of developed areas in Chula Vista, requires more equipment for maintenance as well as more space for storage and the administration of increased numbers of employees. The need for a larger Corporation Yard has been specifically related to new development.

XV.4. Financing Corporate Yard Facilities:

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 7, 2006 by adoption of Ordinance 3050. The PFDIF amount is subject to change as it is amended from time to time. The Corporate Yard PFDIF Fee for Single Family Development is $450/unit and for Multi-Family Development it is $360/unit. At the current fee rate, the Village 3 North & Portion of 4 SPA Corporate Yard Fee obligation at build-out is $850,261 (see Table N.1).

Table N.1 Village 3 North & portion of 4 SPA Public Facilities Fees For Corporate Yard									
Phase	**Dwelling Units**		**Com'l Acres**	**Ind. Acres**	**Civic Center Fee**				
	SF	**MF**			**Single Family $450/DU**	**Multi-Family $360/DU**	**Com'l[1] $7,635/Ac.**	**Ind. $3,596/Ac**	**Total Fee**
Red	481	0	0	0	$216,450	$0	$0	$0	$216,450
Blue	477	44	0	0	$214,650	$15,840	$0	$0	$230,490
Yellow	0	0	0	28.6	$0	$0	$0	$102,846	$102,846
Green	0	595	11.3	0	$0	$214,200	$86,276	$0	$300,476
Purple	0	0	0	0	$0	$0	$0	$0	$0
Subtotal	958	639	11.3	28.6	$431,100	$230,040	$86,276	$102,846	$850,261
Total	1597		11.3	28.6	$431,100	$230,040	$86,276	$102,846	$850,261

Footnote:
[1] Office uses are treated as Commercial Uses for PDIF.

Table M.1 is only an estimate. Actual fees may be different. PDIF Fees are subject to change depending upon City Council actions and or Developer actions that change residential densities. Actual fees may be different.

They are to be paid prior to the issuance of building permits at the rate in effect at the time payment is made.

XVI. OTHER PUBLIC FACILITIES

XVI.1. Threshold Standard:

There are no adopted Threshold Standards for other facilities which are part of the Public Facilities Development Impact Fee (PFDIF) Program. The information regarding these capital items is being provided in this section of the PFFP to aid the city in calculating the required PFDIF.

XVI.2. Existing Conditions:

The City collects funds from building permit issuance in the Eastern Territories for deposit to the accounts associated with Administration costs only and not the other aforementioned public facilities. Funds are not currently collected for Records Management, Telecommunications, Computer Systems and GIS.

XVI.3. Financing Other Public Facilities:

The Public Facilities Development Impact Fee (PFDIF) was updated by the Chula Vista City Council on November 7, 2006 by adoption of Ordinance 3050. The PFDIF amount is subject to change as it is amended from time to time. The Administration PFDIF Fee for Single-Family Development is $601/unit and Multi-Family Development is $568/unit. At the current fee rate, the Village 3 North & portion of 4 SPA Other Public Facilities Fee obligation at build-out is approximately $977,704 (see Table O.1). Table O.1 is an estimate only.

Table O.1
Village 3 North & portion of 4 SPA
Public Facilities Fees For Other Public Facilities

Phase	Dwelling Units		Com'l Acres	Industrial Acres	Other Public Facilities Fees				
	SF	MF			Single Family $601/DU	Multi-Family $568/DU	Com'l[1] $1,917/Ac.	Ind. $606/Ac	Total Fee
Red	481	0	0	0	$289,081	$0	$0	$0	$289,081
Blue	477	44	0	0	$286,677	$24,992	$0	$0	$311,669
Yellow	0	0	0	28.6	$0	$0	$0	$17,332	$17,332
Green	0	595	11.3	0	$0	$337,960	$21,662	$0	$359,622
Purple	0	0	0	0	$0	$0	$0	$0	$0
Subtotal	958	639	11.3	28.6	$575,758	$362,952	$21,662	$17,332	$977,704
Total	**1597**		**11.3**	**28.6**	**$575,758**	**$362,952**	**$21,662**	**$17,332**	**$977,704**

Footnote:
1 Office uses are treated as Commercial Uses for PDIF.

Table O.1 is an estimate only since PDIF Fees are subject to change as it is amended from time to time. Changes in the number of dwelling units, Industrial Acreage or Commercial Acreage may affect the estimated fee.

The PFDIF shall be paid prior to the issuance of building permits at the rate in effect at the time payment is made.

XVII. FISCAL ANALYSIS

XVII.1. Threshold Standard

A. The GMOC shall be provided with an annual fiscal impact report, which provides an evaluation of the impacts of growth on the City, both in terms of operations and capital improvements. This report should evaluate actual growth over the previous 12-month period, as well as projected growth over the next 12-18 month period, and 3-5 year period.

B. The GMOC shall be provided with an annual "development impact fee" which provides an analysis of development impact fees collected and expended over the previous 12-month period.

XVII.2. Facility Master Plan

There is no existing Master Plan for fiscal issues. However, an economic base study and a long range fiscal impact study was prepared by P&D Technologies as part of the Chula Vista General Plan.

XVII.3. Project Processing Requirements

The SPA Plan and the PFFP are required by the Growth Management Program to prepare a phased fiscal/economic report dealing with revenue vs expenditures including maintenance and operations.

XVII.4 Project Description

SSBT LCRE V, LLC has prepared and submitted the Village 3 North & portion of 4 SPA Plan, which will eliminate the Village 3 North area from the boundary of the approved Otay Ranch Village 2, 3 and a portion of 4 SPA Plan. The proposed SPA Plan also includes a portion of Village 4. The City of Chula Vista retained HR&A Advisors (HR&A), an experienced fiscal consultant, to estimate the fiscal impacts of the proposed amendment. The amendment proposes approximately 1,597 single-family, multi-family & mixed use residential units, 33.4 acres of industrial uses, commercial uses, community purpose facilities (CPF), 25.7 acres of parkland (17.8 acre Community Park in Village 4), nearly 200 acres of permanent open space and an elementary school.

XVII.5 Fiscal Analysis of Project

This section of the PFFP is based upon the *Draft Fiscal Impact Analysis of University Village 3 North &a portion of Village 4 to the City of Chula Vista, dated June 9, 2014, by HR&A Advisors*. This FIA is referred to as the HR&A FIA throughout this document. The HR&A FIA evaluates the net fiscal impacts to the City of Chula Vista by the development of the Village 3 North & portion of 4 SPA Plan. Net fiscal impacts represent total fiscal revenues to the City of Chula Vista less fiscal costs.

The City of Chula Vista's SPA Fiscal Impact Framework was used by HR&A to estimate the net fiscal impacts. As prescribed in the SPA Fiscal Impact Framework, HR&A used historical City of Chula Vista revenue and expenditure factors from the SPA Fiscal Impact

Framework to estimate fiscal revenues and expenditures expected to grow proportionally with new development. Special analysis models are used to estimate revenues, such as property tax revenues, motor vehicle license fee (MVLF) in lieu revenues, and sales taxes that may not grow proportionately with new development.

The detailed methodology of the SPA Fiscal Impact Framework is described in the memorandum *"SPA Fiscal Analysis –Fiscal Model Methodology Including the Development of Fiscal Factors in the Analysis of SPA Proposals", dated February 2008*.

XVII.6. Fiscal Impacts

The HR&A FIA projects all the fiscal revenues and fiscal expenditures to the City of Chula Vista as outlined in the City of Chula Vista's SPA Fiscal Impact Framework. The fiscal revenues are compared to the fiscal expenditures associated with the Village 3 North & portion of 4 SPA Plan to estimate the net fiscal impact of the project. These are summarized in Table P.1. The figures in this table have been adjusted to reflect 2014 dollars. The HR&A FIA is attached as Appendix A and presents the detailed analysis of the project in narrative and tabular form.

This fiscal impact analysis projects all fiscal revenues and fiscal expenditures to the City of Chula Vista as outlined in the City of Chula Vista's SPA Fiscal Impact Framework. Annual fiscal revenues are compared to annual fiscal expenditures associated with the Village 3 North & portion of 4 SPA Plan land use plan to estimate the net fiscal impact.

Table P.1 indicates that Village 3 North is expected to generate a positive annual net fiscal impact of $401,000 in 2030 (Year 17) to the City of Chula Vista. Village 3 North is anticipated to generate annual fiscal revenues of approximately $2.5 million in 2030 (Year 17). Property taxes are the greatest source of revenues, followed by MVLF In-Lieu revenues. In addition, Village 3 is projected to generate $2.1 million in annual fiscal costs to the City of Chula Vista in 2030 (Year 17). Public safety costs—police and fire—make up 64 percent of annual fiscal costs.

The development generates annual net fiscal costs between 2014 and 2016 (Year 1 through Year 3), primarily due to the lag in property tax receipts. During this period, the project will generate a net fiscal cost to the City of Chula Vista totaling -$164,000. Village 3 generates a net fiscal revenue starting in 2017 (Year 4). There is a one-time surge in annual fiscal impacts in 2019 (Year 6) due to property transfer tax from the last year of residential absorption. Thereafter, net fiscal revenues gradually increase as industrial acres and commercial acres are absorbed between 2018 and 2028 (Year 5 and Year 15).

Table P.1
Village 3 North & portion of 4 SPA Plan Fiscal Impact Summary

	2014 Year 1	2015 Year 2	2016 Year 3	2017 Year 4	2018 Year 5	2019 Year 6	2020 Year 7	2021 Year 8	2022 Year 9	2023 Year 10
2014 Dollar Inflation Factor	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*
Total Expenditures	$231,131	$744,697	$1,258,264	$1,600,111	$1,874,791	$1,901,383	$1,956,767	$1,965,171	$1,973,575	$1,981,979
Total Revenues	$197,631	$656,079	$1,216,811	$1,661,425	$1,992,622	$2,141,631	$2,123,495	$2,153,724	$2,176,134	$2,204,209
Net Fiscal Impacts (2014 Dollars)	**($33,500)**	**($88,618)**	**($41,453)**	**$61,313**	**$117,831**	**$240,248**	**$166,728**	**$188,553**	**$202,559**	**$222,229**

	2024 Year 11	2025 Year 12	2026 Year 13	2027 Year 14	2028 Year 15	2029 Year 16	2030 Year 17
2014 Dollar Inflation Factor	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*
Total Expenditures	$1,990,384	$2,016,976	$2,043,568	$2,070,160	$2,080,805	$2,080,805	$2,080,805
Total Revenues	$2,234,179	$2,275,501	$2,331,040	$2,384,592	$2,432,497	$2,460,484	$2,481,552
Net Fiscal Impacts (2014 Dollars)	**$243,795**	**$258,526**	**$287,472**	**$314,432**	**$351,692**	**$379,679**	**$400,747**

Source: HR&A

XVIII. PUBLIC FACILITY FINANCE

XVIII.1. Overview

All development within the City of Chula Vista must be in compliance with the City's Growth Management Program. Appropriate public facility financing mechanisms are required and approved by the City to fund the acquisition, construction and maintenance of public facilities. New facilities will be required to support the planned development of the project.

Public facilities are generally provided or financed in one or more of the following ways: Subdivision Exaction, Development Impact Fee, and Debt Financing. It is anticipated that two methods will be utilized for the Otay Ranch Village 3 North & a portion of Village 4 SPA project to construct and finance public facilities.

XVIII.2. Subdivision Exactions

Neighborhood level public improvements will be developed simultaneously with related residential and non-residential subdivisions. Through the Subdivision Map Act, it is the responsibility of the developer to provide for all local street, utility and recreation improvements. The use of subdivision conditions and exactions, where appropriate, will insure that the construction of neighborhood facilities is timed with actual development.

The imposition of subdivision conditions and exactions does not preclude the use of other public facilities financing mechanisms to finance the public improvement, when appropriate.

XVIII.3. Development Impact Fee Programs

Development Impact Fees are imposed by the City of Chula Vista and the Otay Municipal Water District, consistent with State law, to contribute to the financing of capital facilities improvements. Public infrastructure is constructed by the public agency or Developer with a reimbursement or credit against specific fees. The Otay Ranch Village 3 North & a portion of Village 4SPA Project is subject to fees established to help defray costs of facilities that will benefit the project. These fees include but may not be limited to:

A. Transportation Development Impact Fee (TDIF): Established to provide financing for circulation element road projects of regional significance.
B. Public Facilities Development Impact Fee (PFDIF): Established to collect funds for civic center facilities, police, corporation yard, libraries, fire suppression system, recreation and administration.
C. Traffic Signal Fees: To pay for traffic signals associated with circulation element streets.
D. Park Acquisition and Development Fee — PAD Fee established to pay for the acquisition and development of park facilities.
E. Otay Water District (OWD) Fees: The district may require annexation to an existing improvement district or creation of some other finance mechanism that may result in specific fees being modified.
F. Poggi Canyon and Wolf Canyon/Salt Creek Sewer Development Impact Fee: To pay for sewer facilities within the Poggi Canyon and Wolf Canyon/Salt Creek basins.

XVIII.4. Debt Finance Programs

The City of Chula Vista has historically used assessment districts to finance a number of street improvements, as well as sewer and drainage facilities. The OWD has used such improvement districts for water system improvements. Both school districts have implemented Mello-Roos Community Facilities Districts to finance school facilities.

A. Assessment Districts

Special assessment districts may be proposed for acquiring, constructing and/or maintaining certain public improvements under the Municipal Improvement Act of 1913 and the Improvement Bond Act of 1915. The City has suspended the use of the Lighting and Landscape Act of 1972 for new open space district formation due to the passage of Proposition 218. The administration of the special assessment district is the responsibility of the public agency.

B. Community Facilities District (CFD)

On January 13, 1998, the City Council adopted the "City of Chula Vista statement of goals and policies regarding the establishment of Community Facilities Districts" (CFD's). The approval of this document ratified the use of CFD's as a public financing mechanism for:

- The construction and/or acquisition of public infrastructure, and
- The financing of authorized public services, including services provided by open space districts.

On April 28, 1998, the City Council enacted the "Chula Vista Community Facilities District Ordinance." This ordinance adopted the Mello-Roos Act with modifications to additionally include the following:

- Incorporate all maintenance activities authorized by the "Landscaping & Lighting Act of 1972" (1972 Act) and
- Include maintenance activities not listed in the "Mello-Roos Act" or the "1972 Act."

Special assessment financing may be appropriate when the value or benefit of the public facility can be assigned to specific properties. Assessments are levied in specific amounts against each individual property on the basis of relative benefit. Special assessments may be used for both publicly dedicated on-site and off-site improvements.

C. Mello-Roos Community Facilities Act of 1982

The Mello-Roos Community Facilities Act of 1982 authorizes formation of community facilities districts, which impose special taxes to provide the financing of certain public facilities or services. Facilities that can be provided under the Mello-Roos Act include the purchase, construction, expansion, or rehabilitation of the following:

- Local park, recreation, or parkway facilities;
- Elementary and secondary school sites and structures;
- Libraries;
- Any other governmental facilities that legislative bodies are authorized to construct, own or operate including certain improvements to private property.

In addition, the City has enacted an ordinance that adopted the Mello-Roos Act with modifications to accomplish the maintenance of facilities.

XVIII.5. Other Methods Used to Finance Facilities

A. General Fund

The City of Chula Vista's general fund pays for many public services throughout the City. Those facilities and services identified as being funded by general fund sources represent those that will benefit not only the residents of the proposed project, but also Chula Vista residents throughout the City. In most cases, other financing mechanisms are available to initially construct or provide the facility or service, and then general fund monies would only be expected to fund the maintenance costs once the facility is accepted by the City.

B. State and Federal Funding

These funds are rarely available to fund an entire project. Federal and State financial and technical assistance programs have been available to public agencies, in particular the public school districts.

C. Dedications

Dedication of sites by developers for public capital facilities is a common financing tool used by many cities.

D. Homeowners Associations

One or more Community Homeowner Associations may be established by the developer to manage, operate and maintain private facilities and common areas within the project.

E. Developer Reimbursement Agreements

Certain facilities that are off-site of project and/or provide regional benefits may be constructed in conjunction with the development of the project. In such instances, developer reimbursement agreements will be executed to provide for a future payback to the developer for the additional cost of these facilities. Future developments are required to pay back their fair share of the costs for the shared facility when development occurs.

F. Special Agreements/Development Agreement

This category includes special development programs for financing special arrangements between the City and the developer such as credits against fees, waiver of fees, or charges for the construction of specific facilities.

A development agreement can play an essential role in the implementation of the Public Facilities Financing Plan. The Public Facilities Financing Plan clearly details all public facility responsibilities and assures that the construction of all necessary public improvements will be appropriately phased with actual development, while the development agreement identifies the obligations and requirements of both parties.

G. Park Acquisition and Development Fees

Fee established to pay land and improvements by new development.

XVIII.6. Public Facility Finance Policies

The following finance policies were included and approved with the Growth Management Program to maintain a financial management system that will be implemented consistently when considering future development applications. These policies will enable the City to

effectively manage its fiscal resources in response to the demands placed on the City by future growth.

A. Prior to receiving final approval, developers shall demonstrate and guarantee that compliance is maintained with the City's adopted Threshold Standards.

B. The Capital Improvement Program Budget will be consistent with the goals and objectives of the Growth Management Program. The Capital Improvement Program Budget establishes the timing for funding of all fee related public improvements.

C. The priority and timing of public facility improvements identified in the various City fee programs shall be made at the sole discretion of the City Council.

D. Priority for funding from the City's various fee programs shall be given to those projects which facilitate the logical extension or provision of public facilities as defined in the Growth Management Program.

E. Fee credits, reimbursement agreements, developer agreements or public financing mechanisms shall be considered only when it is in the public interest to use them or these financing methods are needed to rectify an existing facility threshold deficiency. Such action shall not induce growth by prematurely extending or upgrading public facilities.

F. All fee credit arrangements or reimbursement agreements will be made based upon the City's plans for the timing and funding of public facilities contained in the Capital Improvement Program Budget.

G. Public facility improvements made ahead of the City's plans to construct the facilities will result in the need for additional operating and maintenance funds. Therefore all such costs associated with the facility construction shall become the responsibility of the developer until such time as the City had previously planned the facility improvement to be made.

XVIII.7. Cumulative Debt

The City of Chula Vista has an established policy limiting the maximum debt to be placed on a residential dwelling unit to an additional one percent above the property tax. This policy was restated in the adopted Growth Management Program.

Like many other cities, Chula Vista has long understood that it is not the only agency that can utilize public finance mechanisms and, therefore, cannot always guarantee that the total debt will remain at or below a maximum of 2 percent. As a result, the City makes an effort to coordinate its debt finance programs with the other special districts (schools and water), which provide service to the residents of Chula Vista to ensure that the cumulative debt does not become excessive. Coordination is also necessary to guarantee all public facilities needed to support a development can be financed and constructed as needed.

XVIII.8. Lifecycle Cost

Section 19.09.060 Analysis subsection F (2) of the Growth Management Ordinance requires the following:

> "...The inventory shall include Life Cycle Cost ("LCC") projections for each element in 19.09.060(E)...as they pertain to City fiscal responsibility. The LCC projections shall be for estimated life cycle for each element analyzed. The model used shall be able to identify and estimate initial and recurring life cycle costs for the elements..."

Background

Life cycle costing (LCC) is a method of calculating the total cost of asset ownership over the life span of the asset. Initial costs and all subsequent expected costs of significance are included in the life cycle cost analysis as well as disposal value and any other quantifiable benefits to be derived as a result of owning the asset. Operating and maintenance costs over the life of an asset often times far exceed initial costs and must be factored into the decision process.

Life cycle cost analysis should not be used in each and every purchase of an asset. The process itself carries a cost and therefore can add to the cost of the asset. Life Cycle Cost analysis can be justified only in those cases in which the cost of the analysis can be more than offset by the savings derived through the purchase of the asset.

Four major factors which may influence the economic feasibility of applying LCC analysis are:

A. Energy Intensiveness — LCC should be considered when the anticipated energy costs of the purchase are expected to be large throughout its life.

B. Life Expectancy — For assets with long lives (i.e., greater than five years), costs other than purchase price take on added importance. For assets with short lives, the initial costs become a more important factor.

C. Efficiency — The efficiency of operation and maintenance can have significant impact on overall costs. LCC is beneficial when savings can be achieved through reduction of maintenance costs.

D. Investment Cost — As a general rule, the larger the investment the more important LCC analysis becomes.

The four major factors listed above are not, however, necessary ingredients for life cycle cost analysis. A quick test to determine whether life cycle costing would apply to a purchase is to ask whether there are any post-purchase costs associated with it. Life cycle costs are a combination of initial and post-purchase costs.

Applications for LCC Analysis

The City of Chula Vista utilizes the concepts of life cycle cost analysis in determining the most cost effective purchase of capital equipment as well as in the determination of replacement costs for a variety of rolling stock. City staff uses LCC techniques in the preparation of the City's Five Year Capital Improvement Budget (CIP) as well as in the Capital Outlay sections of the annual Operating Budget.

City Codes and Regulations provide the standards and design specifications that are required for infrastructure. Developers and contractors are required to meet city standards and design regulations. These standards and specifications have been developed over time to achieve the maximum life cycle of infrastructure that will be owned and maintained by the city. Prior to approval of new infrastructure, City Staff thoroughly reviews all plans and specifications to insure the maximum life cycle.

The initial construction of roads, traffic signals, sewers, drainage, lighting, etc., usually accounts for the bulk of the costs associated with a project. The initial construction activities consist of preliminary engineering, construction engineering, traffic control, etc. Subsequent to initial construction, the City of Chula Vista is responsible for maintenance, rehabilitation and eventual reconstruction/replacement over a projected 50 year life expectancy.

All project public facilities for the Otay Ranch Village 3 North & a portion of Village 4 Comprehensive SPA Plan are subject to the City's life cycle cost analysis before construction. The City uses LCC analysis prior to or concurrent with the design of public facilities required by new development. Such requirement assists in the determination of the most cost effective selection of public facilities.

APPENDIX

A. Fiscal Impact Analysis Report

Fiscal Impact Analysis of University Village 3 North and a Portion of Village 4 to the City of Chula Vista

Prepared for:
The City of Chula Vista
June 9, 2014

Prepared by:
HR&A Advisors, Inc.
700 South Flower Street, Suite 2730
Los Angeles, CA 90017

HR&A Analyze. Advise. Act.

Executive Summary

The development proposal for the University Village 3 North and Portion of Village 4 Sectional Planning Area (Village 3) includes 1,597 homes with a mixed-use retail, commercial and residential village core, industrial, parks, open space, and public facilities on a 436-acre site in Village 3 and a portion of Village 4.

The City of Chula Vista has retained HR&A Advisors (HR&A) to estimate the fiscal impacts of the development of Village 3 using the City's SPA Fiscal Impact Framework. The fiscal impact analysis will be included as part of the Public Facilities Financing Plan.

Results

As presented in Figure 1, ***Village 3 is expected to generate a positive annual net fiscal impact of $401,000 in 2030 (Year 17) to the City of Chula Vista.***

Village 3 will generate annual fiscal revenues of approximately $2.5 million in 2030 (Year 17). Property taxes are the greatest source of revenues, followed by MVLF In-Lieu revenues.

Village 3 is projected to generate $2.1 million in annual fiscal costs to the City of Chula Vista in 2030 (Year 17). Public safety costs—police and fire—make up 64 percent of annual fiscal costs.

Conclusions

The development generates annual net fiscal costs between 2014 and 2016 (Year 1 through Year 3), primarily due to the lag in property tax receipts. During this period, the project will generate a net fiscal cost to the City of Chula Vista totaling -$164,000. ***Village 3 generates a net fiscal revenue starting in 2017 (Year 4).*** There is a one-time surge in annual fiscal impacts in 2019 (Year 6) due to property transfer tax from the last year of residential absorption. Thereafter, net fiscal revenues gradually increase as industrial acres and commercial acres are absorbed between 2018 and 2028 (Year 5 and Year 15).

Figure 1: Village 3 - Net Fiscal Impact Summary

	2014 Year 1	2015 Year 2	2016 Year 3	2017 Year 4	2018 Year 5	2019 Year 6	2020 Year 7	2021 Year 8	2022 Year 9	2023 Year 10
2014 Dollar Inflation Factor	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*
Total Expenditures	$231,131	$744,697	$1,258,264	$1,600,111	$1,874,791	$1,901,383	$1,956,767	$1,965,171	$1,973,575	$1,981,979
Total Revenues	$197,631	$656,079	$1,216,811	$1,661,425	$1,992,622	$2,141,631	$2,123,495	$2,153,724	$2,176,134	$2,204,209
Net Fiscal Impacts (2014 Dollars)	**($33,500)**	**($88,618)**	**($41,453)**	**$61,313**	**$117,831**	**$240,248**	**$166,728**	**$188,553**	**$202,559**	**$222,229**

	2024 Year 11	2025 Year 12	2026 Year 13	2027 Year 14	2028 Year 15	2029 Year 16	2030 Year 17
2014 Dollar Inflation Factor	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*
Total Expenditures	$1,990,384	$2,016,976	$2,043,568	$2,070,160	$2,080,805	$2,080,805	$2,080,805
Total Revenues	$2,234,179	$2,275,501	$2,331,040	$2,384,592	$2,432,497	$2,460,484	$2,481,552
Net Fiscal Impacts (2014 Dollars)	**$243,795**	**$258,526**	**$287,472**	**$314,432**	**$351,692**	**$379,679**	**$400,747**

Source: HR&A

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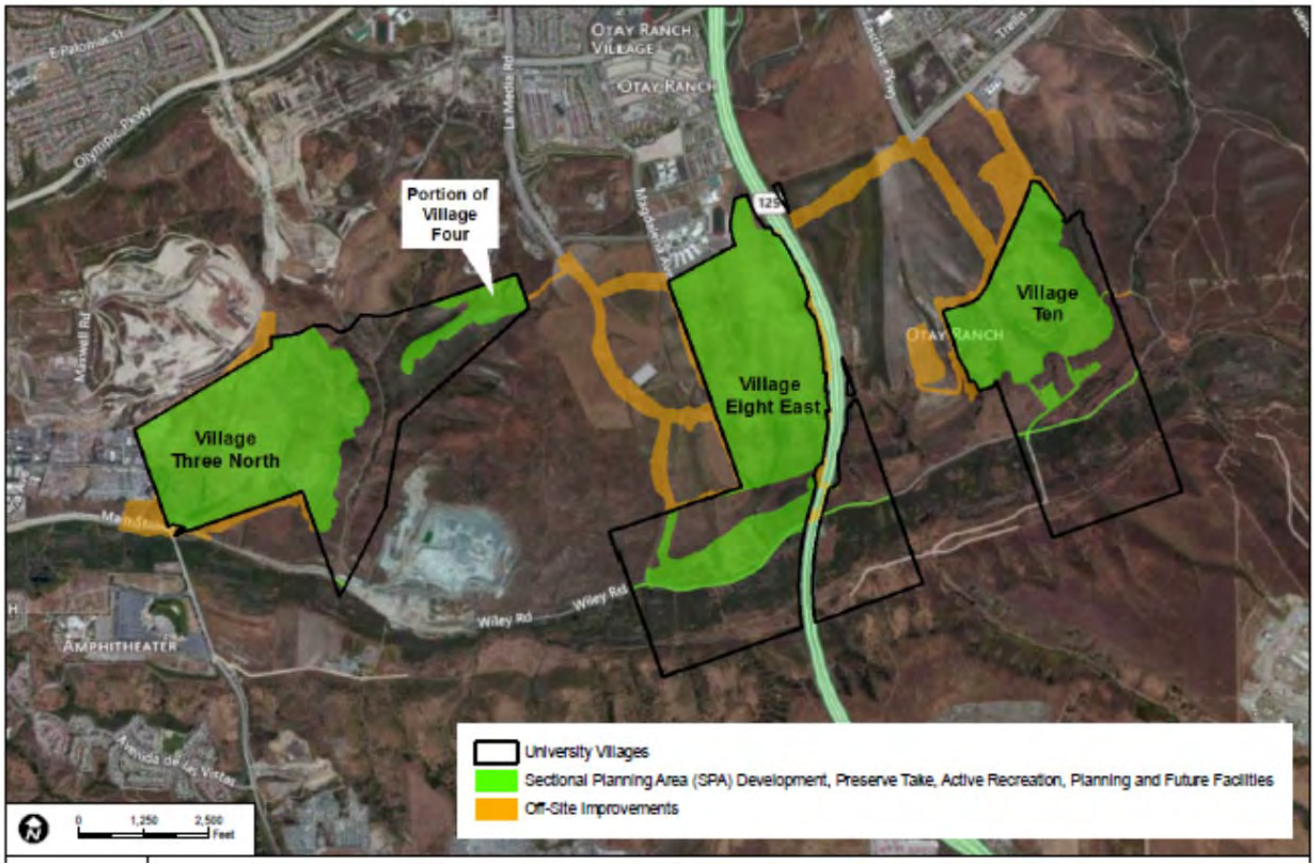
Introduction

Otay Ranch is a master planned community in the City of Chula Vista established in 1993 under the Otay Ranch General Development Plan, located at the southern boundary of the city. This plan sets a framework for the development of nine villages, from which additional village plan areas have been sub-divided.

The development proposal for the University Village 3 North and Portion of Village 4 Sectional Planning Area (Village 3) consists of the development of 1,597 homes with a mixed-use retail, commercial and residential village core, industrial, parks, open space, and public facilities on a 436-acre site in Village 3 and a portion of Village 4. Village 3 is being considered in conjunction with development proposals for two other University villages, as shown in Figure 2.

The City of Chula Vista has retained HR&A Advisors (HR&A) to estimate the fiscal impacts of the development of Village 3 using the City's SPA Fiscal Impact Framework.

Figure 2: Map of University Villages



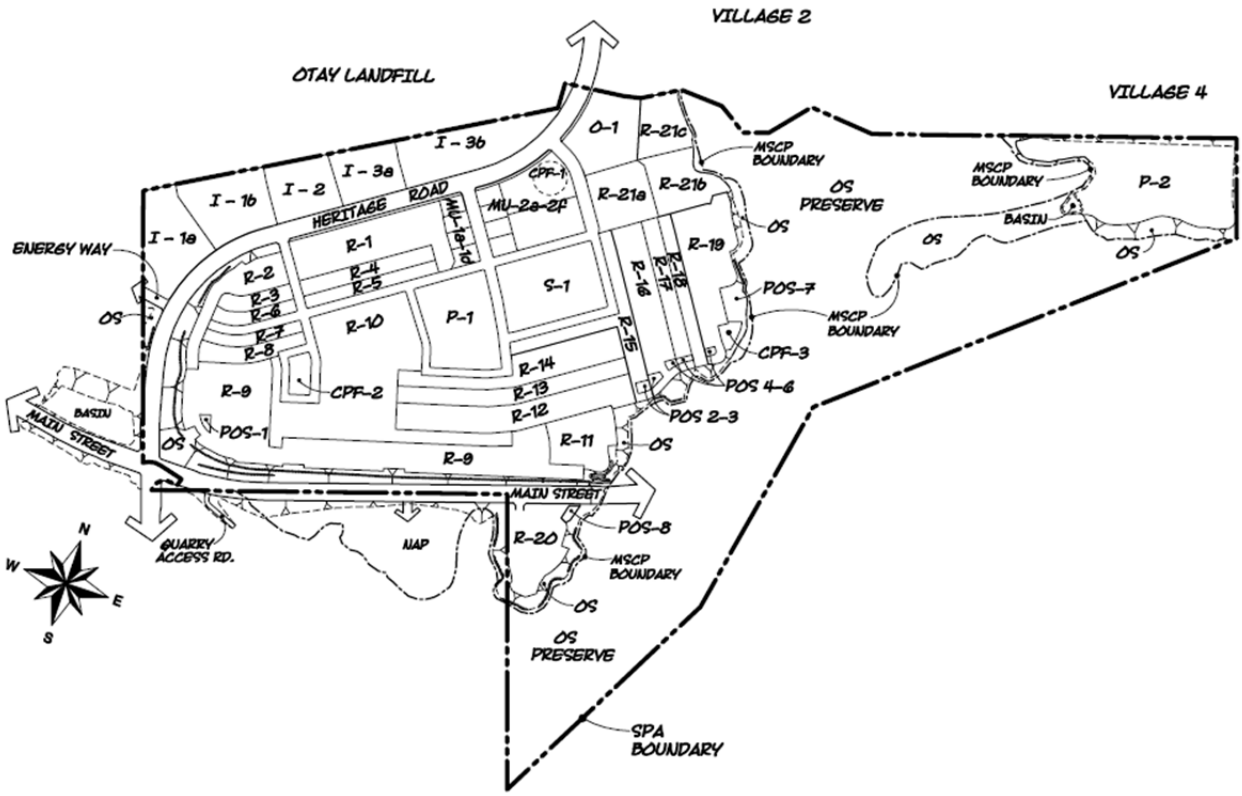
Source: Lenska Aerial Photography via Otay Ranch Homes (Developer)

Project

The proposed Village 3 encompasses approximately 436 acres. Village 3 is located west of Wolf Canyon between the Otay River Valley and Otay Valle Regional Park to the South and the Otay Land Fill to the north. The portion of Village 4 included within the proposed project is located on the northeastern edge of Wolf Canyon north of the rock quarry.

The proposed project consists of both single-family and multi-family homes, surrounding a mixed-use retail and commercial core. Village 3 also includes a school, community purpose facilities, neighborhood parks, public open space and private open space, small recreation sites. Industrial uses are located within the plan area north of Heritage Road. The portion of Village 4 included in the plan, 29.7 acres, includes community parks and open space.

Figure 3: Otay Ranch University Village 3 Site Utilization Plan



Source: Otay Ranch Homes (Developer)

Land Use Program
Village 3 is planned as a pedestrian-oriented urban village. The village includes a balance of residential, commercial, parks, public uses, and open space.

Village 3 includes 1,002 single family homes and 595 multi-family units. For purposes of this analysis, HR&A estimates that 25 percent of the multi-family units will be rental and 75 percent of multi-family units will be for-sale.

A mixed-use residential/retail component (MU-1) and commercial area (MU-2) are centrally located at the village core. The mixed-use area includes 20,000 square feet of commercial/retail uses and approximately 80 of the multi-family units. The commercial area is assumed to be 80 percent office and 20 percent retail and includes 4.2 acres of CPF[1] uses. In addition to the mixed-use commercial core, there are approximately 33.8 acres of industrial uses north of Heritage Road.

Village 3 also includes public and private open space and neighborhood parks. Public and private open spaces are both considered as open space. *It should be noted that the plan includes 25.7 acres of park uses, but to appropriately account for the fiscal costs generated by proposed development, the analysis includes only 15.2 required park acres. The park acres used in the analysis are based on requirements provided for the City of Chula Vista.*

Figure 4 presents the land uses by acres and units.

Population and Employment
Figure 4 also presents the estimated population and employment of Village 3.

Population projections are based on the City of Chula Vista provided population per household estimate of 3.24 for both single-family and multi-family units.

Employees per acre are estimated based on industry benchmarks of square feet per employee and the average floor-to-area ratio for similar product in Chula Vista, shown in Appendix Table A-4.

[1] The Developer has suggested that they may be interested in developing the CPF land into an educational training facility, which would generate additional revenues as a private use, but it is unclear whether this use can and will be located at the site. For the purposes of this analysis, we have included all CPF lands as CPF use according to the SPA Fiscal Impact Framework.

Figure 4: Village 3 Land Use Program

Land Use		Village 3 North SPA	
Single Family Residential Units		1,002	*(115.2 Ac.)*
Multi-Family Residential Units		*595*	*(12.90 Ac.)*
MF Attached - For Sale		*446*	*(7.6 Ac.)*
MF Attached - Rental		*69*	*(3.2 Ac.)*
Mixed Use (Attached) Rental		*80*	*(2.10 Ac.)*
Industrial Acres		33.80	
Commercial Acres (MU2 Acres Only)		6.1	
Mixed Use Residential Commercial - Retail SF		*20,000*	
Park Acres (Required)[1]		15.2	
CPF		4.2	
School		8.3	
Subtotal Developed Acres		***195.7***	
Public Open Space		35.4	
Private Open Space		2.4	
Preserve		155.2	
Other Acres/ROW		36.8	
Total Acres		**425.5**	
Population			
Single Family Persons/DU@	3.24	3,246	
Multi Family Persons/DU@	3.24	1,928	
Total Est. Population		**5,174**	
Employment			
Retail SF/Emp	400	50	
Retail, employees per acre @	24	29	
Industrial, employees per acres @	17.5	591	
Office, employees per acres @	100	490	
Total Est. Employment		**1,159**	

[1]The village will include 25.7 park acres, but the analysis evaluates the fiscal impact of the required park acres, as shown.

Source: Otay Ranch Homes

Projected Absorption Schedule
The projected absorption schedule is shown in Figure 5. The projected development absorption schedule for residential was provided by the developer. The absorption for commercial uses and the school was adapted based on an absorption schedule used for initial traffic studies for Village 3.

The projected absorption schedule anticipates the first units and public amenities are placed in service in 2014 (Year 1). Residential units are absorbed between 2014 and 2018 (Year 1 through Year 5). The mixed-use retail is expected to be absorbed at the end of the residential absorption schedule in 2017 and 2018 (Year 4 and Year 5). The commercial acres are anticipated to be absorbed in two three-year periods, between 2018 - 2020 (Year 5 – Year 7) and 2025 – 2027 (Year 12 – Year 14). Industrial acres are expected to be absorbed across an 11-year period, between 2018 and 2028 (Year 5 through Year 15).

Parks and CPF acres are absorbed in line with residential uses between 2014 and 2018 (Year 1 through Year 5), while preserve, right-of-way, and open space acres are absorbed in line with total developed acres between 2014 and 2028 (Year 1 through Year 15). The school is expected to be functional in 2020 (Year 7).

Figure 5: Village 3 Projected Cumulative Land Use Absorption

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Cumulative Land Use Program																		
Single Family Residential Units		200	401	602	802	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002
Multi-Family Residential Units (Includes Multi-Use Residential)		0	255	510	595	595	595	595	595	595	595	595	595	595	595	595	595	595
MF For Sale		*0*	*186*	*441*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*
MF Rental		*0*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*
Mixed Use (Attached) Rental		*0*	*0*	*0*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*
Industrial Acres		0.0	0.0	0.0	0.0	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.8	33.8	33.8
Commercial Acres		-	-	-	-	1.0	2.0	3.1	3.1	3.1	3.1	3.1	4.1	5.1	6.1	6.1	6.1	6.1
Mixed Use Retail SF		0	0	0	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Parks		2.7	6.1	9.5	12.5	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
CPF		0.8	1.7	2.6	3.4	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
School		0.0	0.0	0.0	0.0	0.0	0.0	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Subtotal Developed Acres		*26.5*	*59.5*	*92.4*	*121.1*	*151.6*	*155.6*	*167.9*	*170.9*	*173.9*	*176.9*	*179.9*	*183.9*	*187.9*	*191.9*	*195.7*	*195.7*	*195.7*
Public Open Space (Public and Private)		5.1	11.5	17.9	23.4	29.3	30.0	32.4	33.0	33.6	34.2	34.7	35.5	36.3	37.1	37.8	37.8	37.8
Preserve		21.0	47.2	73.3	96.0	120.2	123.4	133.1	135.5	137.9	140.3	142.6	145.8	149.0	152.2	155.2	155.2	155.2
Other Acres/ROW		5.0	11.2	17.4	22.8	28.5	29.2	31.6	32.1	32.7	33.3	33.8	34.6	35.3	36.1	36.8	36.8	36.8
Total Acres		57.6	129.3	201.0	263.2	329.5	338.2	365.0	371.5	378.0	384.6	391.1	399.8	408.5	417.3	425.5	425.5	425.5
Cumulative Population																		
Single Family Persons/DU@	3.24	648	1,299	1,950	2,598	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246
Multi Family Persons/DU@	3.24	0	826	1,652	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928
Total Est. Population		648	2,125	3,603	4,526	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174
Cumulative Employment																		
Retail SF/Emp@	400.0	0	0	0	25	50	50	50	50	50	50	50	50	50	50	50	50	50
Retail, employees per acre @	23.5	0	0	0	0	5	10	14	14	14	14	14	19	24	29	29	29	29
Industrial, employees per acres @	17.5	0	0	0	0	52	105	157	210	262	315	367	420	472	525	591	591	591
Office, employees per acres @	100.4	0	0	0	0	82	163	245	245	245	245	245	327	408	490	490	490	490
Total Est. Employment		0	0	0	25	189	328	467	519	572	624	676	815	954	1,093	1,159	1,159	1,159

Source: Otay Ranch Homes, HR&A

Methodology

This analysis evaluates the net fiscal impacts to the City of Chula Vista from the development of Village 3. Net fiscal impacts represent total annual fiscal revenues to the City of Chula Vista less annual fiscal costs.

The City of Chula Vista's SPA Fiscal Impact Framework is used to estimate the net fiscal impacts of the plan. As prescribed in the SPA Fiscal Impact Framework, HR&A uses historical City of Chula Vista revenue and expenditure factors to estimate fiscal revenues and expenditures expected to grow proportionally with new development. Special analysis models are used to estimate revenues, such as property tax revenues, motor vehicle license fee (MVLF) in lieu revenues, and sales taxes that may not grow proportionately with new development.

The detailed methodology of the SPA Fiscal Impact Framework is described in the memorandum "SPA Fiscal Analysis –Fiscal Model Methodology Including the Development of Fiscal Factors in the Analysis of SPA Proposals", dated February 2008. The following methodology section highlights key inputs and updates made to the methodology for the Village 3 fiscal impact analysis.

Budget and Revenue Factors

The budget revenue and expenditure factors provided by the City are based on the FY 2009 City of Chula Vista budget. Adjustments have been made to these budget factors to provide a more accurate accounting of future impacts, including: (1) an expenditure and revenue adjustment to account for appropriate service standards, (2) a retail expenditure density adjustment, and (3) a 2014 current dollar adjustment.

Service Standard Adjustment (Real Inflation Adjustment)

Due to the 2007 recession, the City of Chula Vista implemented several rounds of budget reduction between FY 2007 and FY 2009, cutting the City's service standard below the desired level. The expenditure and revenue adjustment factors use a 5-year average of inflation-adjusted per capita revenue and expenditures to determine an appropriate level of future expenditures and revenues. This adjustment is applied to the FY 2009 budget factors to bring them in line with the 5-year average service cost.

Retail Expenditure Density Factor

Retail expenditure factors were developed based on historical citywide acres and account for a historical citywide floor-to-area (FAR) ratio. Based on the citywide FAR, a factor is determined that translates the retail expenditure budget factor from acres of land area into square feet of building area.

Figure 6: Retail Expenditure Factor Density Adjustment

Land Use	Citywide Density	Acres to SF Density Factor
Retail	0.28 FAR	0.00008

Source: City of Chula Vista, SPA Fiscal Framework

2014 Current Dollar Adjustment

Finally, given that the FIA is based on FY 2009 budget, the inflation adjustment adjusts final total revenues and expenditures from 2009 dollars to 2014 dollars. This adjustment is made in the final net fiscal impacts summary table.

Revenue Methodology
Special models are used to estimate fiscal impacts for property taxes, property transfer taxes, MVLF in-lieu fees, sales tax. Special models were built based on the SPA Fiscal Framework with updated tax rates, as appropriate, and assessed value and household income inputs.

Other discretionary revenues, not estimated using special models, are estimated based on historical pro rata factors.

Assessed Values and Property Taxes
The incremental assessed value attributable to Village 3 is used to estimate property taxes, property transfer taxes, and MVLF in-lieu fees. As described below, HR&A reviewed current market data for residential and commercial uses and reviewed the assessed value of comparable projects to determine appropriate assessed values to be applied in this analysis.

Single-Family Residential Assessed Value
Village 3 will include a variety of single family home types, on lot sizes ranging from 0.07 acres to 0.16 acres. HR&A reviewed sales prices for homes currently for sale or recently closed in Otay Ranch by subdivision, as reported by Meyers Data. Average prices were reviewed by quarter in 2013 and were then weighted by the number of sales that occurred in each quarter and in each development to determine an average sales price for Otay Ranch in 2013. Finally, this average was inflated by 2 percent to estimate single family home assessed values for 2014 applicable to this analysis. Detail on these sales are shown in Figure 7.

Multi-Family Residential Assessed Value
Village 8 will also include a significant component of multifamily housing, both for-sale and rental. Assessed value of for-sale units were derived through an analysis similar to what was conducted for single-family homes. The average sales price was based on sales data for 61 multifamily units in two developments, Avalon and Villas de Avila. Given that there were relatively few sales in one of these two developments, an un-weighted average price was calculated. As with single-family homes, this average was inflated by 2 percent to project values for 2014 applicable to this analysis. Detail on these sales is presented in Figure 8.

Rental unit assessed value is based on a market capitalization approach. The values of the rental units were derived by first estimating an average rent of $1,950 per unit, based on an average of 21 apartment and townhouse rental listings on Zillow.com, as shown in Figure 9. Based on typical operating assumptions and market scan of multi-family real estate in suburban San Diego County, a vacancy rate of 5 percent, a gross expense estimate of 30 percent, and a capitalization rate of 5.5 percent were applied to derive the assessed value per unit. The assessed value of rental units is estimated at $280,000. Detail on the assessed value calculation for rental units is included in Appendix Table A-5.

Figure 7: Sales of Single Family Homes in Otay Ranch, 2013

	Q1		Q2		Q3		Q4		Overall	
	# of Sales	Average Price	# of Sales	Average Price	# of Sales	Average Price	# of Sales	Average Price	# of Sales	Average Price
Otay Ranch										
Anacapa			2	$422,500					2	$ 422,500
Bacara							10	$420,900	10	$ 420,900
Casitas de Avila	4	$344,400							4	$ 344,400
Corta Bella			9	$428,425	7	$454,400	7	$465,650	23	$ 447,660
Monte Sereno			4	$569,900					4	$ 569,900
Presidio V7			6	$488,400	1	$502,500			7	$ 490,414
Santa Rita V2 R8			3	$501,900	10	$507,900	12	$517,400	25	$ 511,740
Terraza I V7			5	$427,400					5	$ 427,400
Terraza II V2			10	$427,400					10	$427,400
Otay Ranch- Overall, Weighted	*4*	*$344,400*	*39*	*$457,116*	*18*	*$486,794*	*29*	*$471,633*	*90*	*$462,720*
Inflation-Adjusted										*$471,974*

*Only sales for which a price is available are included
Source: Meyers Research and HR&A

Figure 8: Sales of Multifamily Units in Otay Ranch, 2013

	Q1		Q2		Q3		Q4		Overall	
	# of Sales	Average Price	# of Sales	Average Price	# of Sales	Average Price	# of Sales	Average Price	# of Sales	Average Price
Otay Ranch										
Avalon	17	$255,900	12	$284,900	8	$307,900	14	$310,400	51	$ 285,841
Villas de Avila	10	$311,400							10	$ 311,400
Otay Ranch- Average	*27*	*$276,456*	*12*	*$284,900*	*8*	*$307,900*	*14*	*$310,400*	*61*	*$298,621*
Inflation-Adjusted										*$304,593*

Source: Meyers Research and HR&A

Figure 9: Listings for Apartment and Townhouse Rentals in Otay Ranch, March 2013

Address	Type	Rent	SF	Rent/SF
1575 Rose Garden Ln	Townhouse	$1,900	1,134	$1.68
1460 Levant Ln, 1	Apartment	$1,650	1,008	$1.64
1460 Levant Ln, 6	Apartment	$1,750	1,008	$1.74
1863 Hazel Ct, Unit 11	Apartment	$2,095	1,565	$1.34
1810 Calvedos Dr	Townhouse	$1,750	1,060	$1.65
1480 Burgundy Dr	Townhouse	$2,000	1,429	$1.40
1484 Canvas Dr, Unit 5	Apartment	$1,895	1,372	$1.38
2144 Big Horn Dr, Unit 253	Townhouse	$1,900	1,396	$1.36
1476 Levant Ln	Townhouse	$1,650	1,008	$1.64
1894 Lorient Pl, 2524	Apartment	$1,575	975	$1.62
1894 Lorient Pl, 724	Apartment	$1,650	975	$1.69
1894 Lorient Pl, 1011	Apartment	$1,875	1,315	$1.43
1894 Lorient Pl, 1736	Apartment	$1,995	1,315	$1.52
	Apartment	$1,695	1,008	$1.68
1828 Olive Green St, Unit 7	Apartment	$2,099	1,604	$1.31
1737 Cripple Creek Dr, Unit 2	Apartment	$2,250	1,728	$1.30
2166 Nopalito Dr, Unit 69	Apartment	$2,100	1,695	$1.24
1884 Aquamarine Ct, Unit 10	Apartment	$1,850	1,500	$1.23
1670 Roadrunner Ct, Unit 258	Apartment	$1,950	1,395	$1.40
1627 Cliff Rose Dr, Unit 151	Apartment	$2,195	1,561	$1.41
1875 Cannes Pl	Apartment	$2,040	1,400	$1.46
Otay Ranch- Overall, Weighted		*$1,935*	*1,307*	*$1.48*

Source: Zillow.com and HR&A

Retail Assessed Value

The capitalized value approach was used to estimate the market value of retail properties as shown in Appendix Table A-5. The average rental rate for shopping center retail in the greater Eastlake retail submarket is approximately $1.68 per gross leasable square foot according to CoStar. This average includes a variety of retail types and older developments. CoStar lists approximately ten recently built retail properties in east Chula Vista currently for lease with rates, as shown in Figure 10. These properties are used to estimate lease rates for commercial uses in each of the villages.

The commercial planned in each village is within a mixed use context. The mixed use commercial is most likely to be similar to mixed use retail such as Heritage Town Center at 1392 E. Palomar Street. For the mixed-use retail in Village 3, HR&A uses an average retail lease rent of $1.85, and a conservative capitalization rate (cap rate) for a Class B to Class C product based on the CBRE's First Half of 2013 Capitalization Rate Survey. For the shopping center retail, HR&A uses an average retail lease rate of $2.25 per square foot.

Heritage Town Center Mixed Use Retail

The capitalized value approach, as shown in Appendix Table A-5, provides an assessed value of approximately $214.00 per square foot for the mixed use retail uses and an assessed value of approximately $3.0 million per acre shopping center retail.

Figure 10: East Chula Vista Retail Properties Currently For Lease

Building Name	Building Address	Property Type	Rentable Building Area	Year Built	Percent Leased	Average Monthly Weighted Rent
	2110 Birch Rd	Community Center	8,686	2008	26.87	$2.25
	1741 Eastlake Pky	Community Center	10,387	2008	62.74	$2.25
The Marketplace at Windingwalk	1745 Eastlake Pky	Community Center	106,000	2008	96.12	$2.25
	2315 Otay Lakes Rd	Neighborhood Center	8,400	2004	82.9	$3.50
Heritage Town Center	1392 E Palomar St	Mixed Use Retail	38,000	2003	93.61	$1.95
	2318 Proctor Valley Rd	Neighborhood Center	12,109	2007	69.5	$2.00
	2322 Proctor Valley Rd	Neighborhood Center	11,896	2007	57.91	$2.00
	851-881 Showroom Pl	Community Center	162,967	2006	85.47	$1.81
	891 Showroom Pl	Community Center	14,542	2006	87.19	$2.45
Average					**73.59**	**$2.27**

Source: CoStar and HR&A

Industrial Assessed Value

The capitalized value approach was used to estimate the market value of industrial properties as shown in Appendix Table A-5. HR&A reviewed current general industrial and industrial flex rental rates of available properties in the Otay Ranch/Chula Vista area to estimate projected prices in Village 3, as shown in Figure 11.

The monthly average lease rate for general industrial in the Otay Ranch area is $0.58 per square foot. For the FIA, HR&A uses an average industrial lease rate of $0.60 per square foot for general industrial.

The monthly average lease rate for industrial flex space in the Otay Ranch area is $0.97 per square foot. For the FIA, HR&A uses an average industrial lease rate of $0.95 per square foot for research/limited industrial.

The capitalized value approach, as shown in Appendix Table A-5, provides an assessed value of approximately $1.0 million per acre for general industrial uses and an assessed value of approximately $1.7 million per acre for research/limited industrial. For purposes of this analysis, we assume that 40 percent of industrial space will be general industrial and 60 percent will be limited/research industrial.

Figure 11: Industrial Properties Currently for Lease

Building Address	Bldg Size	Year Built	Lease Rate Type	Monthly Lease Rate/SF
General Industrial				
1710 Dornoch Court	86,592	1987	Industrial Gross	$0.55
2515 Britannia Boulevard	39,569	2002	Industrial Gross	$0.60
8578 & 8620 Avenida Costa Blanca	24,705	2002	Industrial Gross	$0.60
General Industrial Average				**$0.58**
Industrial/Flex				
821 Kuhn Drive	50,081	2004	Triple Net	$1.25
8580 Avenida de la Fuente	31,695	2004	Industrial Gross	$0.90
3441 Main Street	20,158	2004	Industrial Gross	$0.88
3451 Main Street	86,831	2004	Industrial Gross	$0.85
Industrial Flex Average				**$0.97**

Source: CoStar, Loopnet, and HR&A

Office Assessed Value

Similar to industrial and retail uses, the capitalized value approach was used to estimate the market value of office properties as shown in Appendix Table A-5. HR&A reviewed office rental rates of available properties in the Otay Ranch/Chula Vista area to estimate projected prices in Village 3, as shown in Figure 12.

The monthly average monthly lease rate for office in the Otay Ranch area is $1.97 per square foot. For the FIA, HR&A uses an average monthly office lease rate of $2.00 per square foot for office. Using this average lease rate, the capitalized value approach, as shown in Appendix Table 4, provides an assessed value of approximately $6.4 million per acre for office uses.

Figure 12: Otay Ranch Area Office Properties Currently for Lease

Building Address	Bldg Size	Year Built	Lease Rate Type	Monthly Lease Rate/SF
Office				
2080 Otay Lakes Rd	7,776	2007	Modified Gross	$2.30
2082 Otay Lakes Rd	5,128	2007	Modified Gross	$2.30
2082 Otay Lakes Rd	5,623	2007	Modified Gross	$2.30
2084 Otay Lakes Rd	10,716	2007	Modified Gross	$2.30
2086 Otay Lakes Rd	8,191	2007	Modified Gross	$1.95
2088 Otay Lakes Rd	6,919	2007	Modified Gross	$1.95
2088 Otay Lakes Rd	5,771	2007	Modified Gross	$1.95
2090 Otay Lakes Rd	6,638	2007	Modified Gross	$1.95
2090 Otay Lakes Rd	5,925	2007	Modified Gross	$1.95
2555 Mast Way	1,674	2005	NA	$1.25
900 Lane Ave	16,996	1987	Full Service	$1.50
860 Kuhn Drive	22,665	2004	Triple Net	$1.94
Office Average				**$1.97**

NA=Not Available

Source: CoStar, Loopnet, and HR&A

Property Tax Rate

Village 3 is in San Diego County Tax Rate Area 01298. The City of Chula Vista captures 10.636% of the 1 percent property tax

Transfer taxes were assessed at $0.55 per $1,000 of assessed value, according to the City of Chula Vista rate.

Property Tax Growth
It should be noted that the SPA Fiscal Impact Framework assumes that 5 to 10 percent of properties turnover each year and are inflated to a market value that increases by 2 percent, in real terms, a year.

The 2 percent estimate benchmarks the real inflation-adjusted average of California property growth across the long term (30+ years); actual annual value increases may vary.

VLF Fees
Until July of 2011, 0.65 percent VLF revenues were estimated based on population increases while the property taxes in-lieu of VLF fees ("MVLF In-Lieu Fees") are proportional to incremental growth in assessed value.

The State of California's Legislature passed SB89 in 2011 that eliminates 0.65% VLF payments as of July 2011. The California League of Cities filed suit to challenge the law, but the State Superior Court recently ruled against the League in March of 2012.

The 0.65% VLF fees generated based on population have been excluded from this analysis. The MVLF In-Lieu Fees are still allocated proportionally, based on incremental growth in assessed value as described in the SPA Fiscal Impact Framework.

Sales Tax
Sales taxes are estimated based on projected resident spending using the approach prescribed in the SPA Fiscal Impact Framework.

Other Discretionary Revenues
As described above, revenue factors from the SPA Fiscal Impact Framework were used to estimate revenues that are expected to grow proportionally with development. These calculations are presented in Appendix Tables A-8 & A-9. These factors are summarized in Figure 13.

Figure 13: Other Discretionary Revenue Factors

Summary of Other Discretionary Revenue Factors	
Commercial (Per Acre)	$839.44
Retail Commercial (Per SF)	$0.07
Industrial (Per Acre)	$759.37
Residential (Per Acre)	$1,600.36
Residential (Per DU)	$3.60
Employees (Per Employee)	$19.45
Population (Per Resident)	$3.86

Source: City of Chula Vista and HR&A

Expenditure Methodology
As described above, expenditure factors from the SPA Fiscal Impact Framework were used to estimate expenditures that are expected to grow proportionally with development. The factors provided by the City of Chula Vista are summarized in Figure 14.

Special models are used to estimate the allocation of public safety fiscal expenditures generated by dwelling units. The public safety expenditures allocated to dwelling units are estimated proportionally (there are no adjustments at this time), but are presented in a special model because these costs are typically a major fiscal expenditure.

Figure 14: Expenditure Factors and Public Safety Dwelling Unit Factors

Expenditure Factors	
Retail (Per SF)	$1.36
Retail (Per Acre)	16,527.08
Office (Per Acre)	$13,661.45
Industrial (Per Acre)	$2,177.48
Population (Per Resident)	$76.53
Open Space (Acres)	$160.43
Public Parks (Acres)	$2,448.06
Public Use (Per Acre)	$2,710.85
Other (Per Acre)	$2,759.40
Dwelling Unit Factor (Not including Public Safety)	$119.40

Special Model Factors	
Police (Per DU)	$293.70
Fire (Per DU)	$210.64

Source: City of Chula Vista and HR&A

Fiscal Impacts

The following section describes the fiscal impacts generated by development of Village 3. This fiscal impact analysis projects all fiscal revenues and fiscal expenditures to the City of Chula Vista as outlined in the City of Chula Vista's SPA Fiscal Impact Framework. The fiscal revenues are compared to the fiscal expenditures associated with Village 3 to estimate the net fiscal impact of the project. These are summarized in Figure 15. The figures in this table have been adjusted to reflect 2014 dollars. The detailed analysis is provided within the Appendix.

As described in the Methodology section, Figure 15 presents anticipated revenues estimated based on special models such as property taxes, MVLF in-lieu fee revenues, and sales and use tax, and other revenues calculated on a pro rata basis. Estimated expenditures are calculated and presented by land use category.

Using the methodology described above, Village 3 will generate annual fiscal revenues of approximately $2.5 million in 2030 (Year 17).

Property taxes are the greatest source of revenues, followed by MVLF In-Lieu revenues. In 2030 (Year 17), property taxes and property transfer taxes combine to generate an estimated $1.0 million annually. MVLF In-Lieu Fees are also based on growth in assessed value and are expected to generate approximately $700,000 in annual fiscal receipts. Together, property-based taxes and MVLF In Lieu fees make up approximately 70 percent of total anticipated revenues. Sales tax, based on Village 3 residents spending in Chula Vista, is anticipated to support $297,000 in annual fiscal receipts, 17 percent of total anticipated revenues.

Village 3 is projected to generate $2.1 million in annual fiscal costs to the City of Chula Vista. The greatest fiscal cost of the project will be public safety, which accounts for $1.3 million (64% of costs at in 2030), accounting for allocations from housing units and other land uses.

In 2030 (Year 17), Village 3 is expected to generate an annual positive net fiscal impact of approximately $401,000 to the City of Chula Vista. The development generates annual net fiscal costs between 2014 and 2016 (Year 1 through Year 3), totaling -$164,000. Annual net fiscal costs start at -$34,000 in the first year, due to the lag in property tax receipts, and grow to -$89,000 in 2015 (Year 2). Annual net fiscal costs decrease to -$42,000 in 2016 (Year 3) and an annual net fiscal revenue is projected in 2017 (Year 4).

2018 (Year 5) is the last year of residential absorption and absorption of the mixed-use retail. This year also includes the absorption of the first year of industrial and commercial (office/retail), resulting in a jump in net fiscal revenue in 2019 (Year 6). Property transfer revenues, and overall net fiscal impacts, decline in 2020 and 2021 (Year 7 and Year 8), after the absorption of the residential uses. Net fiscal impacts grow gradually after 2021 (Year 8), in line with real growth in property values and the absorption of commercial and industrial acres[2].

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[2] As described in the Methodology section, it should be noted that the model assumes that 5 to 10 percent of properties turnover and are inflated to a market value that increases by 2 percent, in real terms, a year. 2 percent represents the real inflation-adjusted average of California property growth across the long term (30+ years). Actual annual value increases may vary which will impact annual net fiscal results.

Figure 15: Village 3 Fiscal Impact

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
2014 Dollar Inflation Factor	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*
Revenues																	
Property Taxes	$0	$107,322	$300,492	$500,238	$642,739	$771,916	$788,048	$804,318	$815,840	$828,536	$842,347	$857,219	$881,196	$906,322	$932,573	$952,900	$966,579
Property Transfer Taxes	$0	$55,496	$108,152	$121,233	$101,871	$101,975	$47,880	$49,171	$46,552	$47,629	$48,730	$49,856	$55,275	$56,756	$58,274	$56,177	$53,273
MVLF Revenues	$76,548	$214,329	$356,800	$458,440	$550,577	$562,083	$573,688	$581,906	$590,962	$600,812	$611,420	$628,522	$646,443	$665,167	$679,666	$689,422	$699,716
Sales and Use Tax	$71,924	$164,458	$271,575	$345,816	$403,971	$405,028	$406,085	$406,485	$406,884	$407,283	$407,683	$408,740	$409,797	$410,854	$411,360	$411,360	$411,360
Other Revenues	$49,158	$114,475	$179,793	$235,698	$293,464	$300,628	$307,793	$311,844	$315,896	$319,948	$323,999	$331,164	$338,329	$345,493	$350,625	$350,625	$350,625
Total Annual Revenues	**$197,631**	**$656,079**	**$1,216,811**	**$1,661,425**	**$1,992,622**	**$2,141,631**	**$2,123,495**	**$2,153,724**	**$2,176,134**	**$2,204,209**	**$2,234,179**	**$2,275,501**	**$2,331,040**	**$2,384,592**	**$2,432,497**	**$2,460,484**	**$2,481,552**
Expenditures																	
Retail (SF)	$0	$0	$0	$16,957	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914	$33,914
Retail (Acres)	$0	$0	$0	$0	$4,205	$8,411	$12,616	$12,616	$12,616	$12,616	$12,616	$16,821	$21,027	$25,232	$25,232	$25,232	$25,232
Office (Acres)	$0	$0	$0	$0	$13,905	$27,809	$41,714	$41,714	$41,714	$41,714	$41,714	$55,619	$69,523	$83,428	$83,428	$83,428	$83,428
Industrial (Acres)	$0	$0	$0	$0	$8,175	$16,349	$24,524	$32,699	$40,873	$49,048	$57,223	$65,397	$73,572	$81,747	$92,101	$92,101	$92,101
Park (Acres)	$8,380	$18,817	$29,253	$38,305	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685	$46,685
Population (Persons)	$62,057	$203,546	$345,035	$433,465	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522	$495,522
Open Space (Acres)	$2,027	$4,551	$7,075	$9,264	$11,598	$11,906	$12,848	$13,078	$13,308	$13,537	$13,767	$14,074	$14,381	$14,689	$14,980	$14,980	$14,980
Public Use (Acres)	$2,557	$5,743	$8,928	$11,690	$14,248	$14,248	$42,404	$42,404	$42,404	$42,404	$42,404	$42,404	$42,404	$42,404	$42,404	$42,404	$42,404
Expenditures Allocated to DUs (excl. Public Safety)	$29,884	$98,021	$166,158	$208,743	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628	$238,628
Public Safety Costs Alloc. to DUs	$126,226	$414,020	$701,815	$881,686	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912	$1,007,912
Total Annual Expenditures	**$231,131**	**$744,697**	**$1,258,264**	**$1,600,111**	**$1,874,791**	**$1,901,383**	**$1,956,767**	**$1,965,171**	**$1,973,575**	**$1,981,979**	**$1,990,384**	**$2,016,976**	**$2,043,568**	**$2,070,160**	**$2,080,805**	**$2,080,805**	**$2,080,805**
Net Fiscal Impact	**($33,500)**	**($88,618)**	**($41,453)**	**$61,313**	**$117,831**	**$240,248**	**$166,728**	**$188,553**	**$202,559**	**$222,229**	**$243,795**	**$258,526**	**$287,472**	**$314,432**	**$351,692**	**$379,679**	**$400,747**

Source: HR&A

Appendix

Table A-1

Proposed Land Uses

Land Use		Village 3 North SPA	
Single Family Residential Units		1,002	*(115.2 Ac.)*
Multi-Family Residential Units		*595*	*(12.90 Ac.)*
MF Attached - For Sale		*446*	*(7.6 Ac.)*
MF Attached - Rental		*69*	*(3.2 Ac.)*
Mixed Use (Attached) Rental		*80*	*(2.10 Ac.)*
Industrial Acres		33.80	
Commercial Acres (MU2 Acres Only)		6.1	
Mixed Use Residential Commercial - Retail SF		*20,000*	
Park Acres (Required)[1]		15.2	
CPF		4.2	
School		8.3	
Subtotal Developed Acres		***195.7***	
Public Open Space		35.4	
Private Open Space		2.4	
Preserve		155.2	
Other Acres/ROW		36.8	
Total Acres		**425.5**	
Population			
Single Family Persons/DU@	3.24	3,246	
Multi Family Persons/DU@	3.24	1,928	
Total Est. Population		**5,174**	
Employment			
Retail SF/Emp	400	50	
Retail, employees per acre @	24	29	
Industrial, employees per acres @	17.5	591	
Office, employees per acres @	100	490	
Total Est. Employment		**1,159**	

[1]The village will include 25.7 park acres, but the analysis evaluates the fiscal impact of the required park acres, as shown.

Source: Otay Ranch New Homes, City of Chula Vista and HR&A

Table A-2
Proposed Land Use Absorption

Village 3 North SPA

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Cumulative Land Use Program																		
Single Family Residential Units		200	401	602	802	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002
Multi-Family Residential Units (Includes Multi-Use Residential)		0	255	510	595	595	595	595	595	595	595	595	595	595	595	595	595	595
MF For Sale		*0*	*186*	*441*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*	*446*
MF Rental		*0*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*	*69*
Mixed Use (Attached) Rental		*0*	*0*	*0*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*	*80*
Industrial Acres		0.0	0.0	0.0	0.0	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.8	33.8	33.8
Commercial Acres		-	-	-	-	1.0	2.0	3.1	3.1	3.1	3.1	3.1	4.1	5.1	6.1	6.1	6.1	6.1
Mixed Use Retail SF		0	0	0	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Parks		2.7	6.1	9.5	12.5	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
CPF		0.8	1.7	2.6	3.4	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
School		0.0	0.0	0.0	0.0	0.0	0.0	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Subtotal Developed Acres		*26.5*	*59.5*	*92.4*	*121.1*	*151.6*	*155.6*	*167.9*	*170.9*	*173.9*	*176.9*	*179.9*	*183.9*	*187.9*	*191.9*	*195.7*	*195.7*	*195.7*
Public Open Space (Public and Private)		5.1	11.5	17.9	23.4	29.3	30.0	32.4	33.0	33.6	34.2	34.7	35.5	36.3	37.1	37.8	37.8	37.8
Preserve		21.0	47.2	73.3	96.0	120.2	123.4	133.1	135.5	137.9	140.3	142.6	145.8	149.0	152.2	155.2	155.2	155.2
Other Acres/ROW		5.0	11.2	17.4	22.8	28.5	29.2	31.6	32.1	32.7	33.3	33.8	34.6	35.3	36.1	36.8	36.8	36.8
Total Acres		57.6	129.3	201.0	263.2	329.5	338.2	365.0	371.5	378.0	384.6	391.1	399.8	408.5	417.3	425.5	425.5	425.5
Cumulative Population																		
Single Family Persons/DU@	3.24	648	1,299	1,950	2,598	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246	3,246
Multi Family Persons/DU@	3.24	0	826	1,652	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928	1,928
Total Est. Population		648	2,125	3,603	4,526	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174
Cumulative Employment																		
Retail SF/Emp@	400.0	0	0	0	25	50	50	50	50	50	50	50	50	50	50	50	50	50
Retail, employees per acre @	23.5	0	0	0	0	5	10	14	14	14	14	14	19	24	29	29	29	29
Industrial, employees per acres @	17.5	0	0	0	0	52	105	157	210	262	315	367	420	472	525	591	591	591
Office, employees per acres @	100.4	0	0	0	0	82	163	245	245	245	245	245	327	408	490	490	490	490
Total Est. Employment		0	0	0	25	189	328	467	519	572	624	676	815	954	1,093	1,159	1,159	1,159

Source: Otay Ranch New Homes and HR&A

Table A-3

Chula Vista - Expenditure Real Inflation Adjustment[1]

	2005	2006	2007	2008	2009	5 Year Average
Population	216,961	223,604	227,850	231,157	234,011	
Households	70,916	73,365	74,527	75,259	75,752	
City Staff	1,169	1,227	1,264	1,249	1,110	
Revenues (Actuals)	$137,763,583	$157,809,965	$161,564,721	$153,938,093	$140,502,938	
Expenditures (Actuals)	$142,195,531	$160,826,968	$166,056,406	$155,021,736	$140,365,277	
CPI (San Diego Area)	220.6	228.1	233.3	242.3	242.3	
Expenditure/Capita	$655.40	$719.25	$728.80	$670.63	$599.82	
Revenues/Capita	$634.97	$705.76	$709.08	$665.95	$600.41	
2009 CPI Adjustment Factor	1.10	1.06	1.04	1.00	1.00	
Exp/Cap in 2009 Dollars	$719.87	$764.02	$756.91	$670.63	$599.82	
Rev/Cap in 2009 Dollars	$697.43	$749.69	$736.44	$665.95	$600.41	
Expenditure Adjustment Factor	120%	127%	126%	112%	100%	117%
Revenue Adjustment Factor (Relative to 2009 Levels)	116%	125%	123%	111%	100%	115%

[1]Provided by the City of Chula Vista

Source: City of Chula Vista and HR&A

Table A-4

Employment Density Calculation

Land Use	FAR Estimate	Units Per Acre	Employmnet Factor	Building Efficiency	Occupancy	Employees/ Acre
Retail	0.30 FAR	13,068	400 SF/Emp	80%	90%	23.52
Office	0.80 FAR	34,848	250 SF/Emp	80%	90%	100.36
General Industrial	0.35 FAR	15,246	1000 SF/Emp	90%	90%	12.35
Research/Limited Industrial	0.40 FAR	17,424	600 SF/Emp	80%	90%	20.91

Source: City of Chula Vista, CoStar, HR&A

Table A-5

Commecial Asssessed Value Calculation

Commercial Land Uses	FAR Estimate	Units Per Acre		Mo. Rent /SF	Building Efficiency	Occupancy Rate	Admin / Vacancy Cost	Net Income/SF	Cap Rate	Assessed Value	Per Unit
Mixed Use Retail				$1.85	90%	90%	5%	$17.08	8.0%	$213.54	Per SF
Shopping Center Retail	0.30 FAR	13,068	SF	$2.25	80%	90%	5%	$18.47	8.0%	$3,016,748	Per Acre
Office	0.80 FAR	34,848	SF	$2.00	80%	90%	20%	$13.82	7.50%	$6,423,183	Per Acre
General Industrial	0.35 FAR	15,246	SF	$0.60	90%	90%	10%	$5.25	7.75%	$1,032,557	Per Acre
Research/Limited Industrial	0.40 FAR	17,424	SF	$0.95	80%	90%	10%	$7.39	7.75%	$1,660,833	Per Acre
Rental Residential Land Use				**Avg. Monthly Rent/Unit**	**Avg. Annual Rent/Unit**	**Occupancy Rate**	**Gross Expense Estimate**	**Net Income/Unit**	**Cap Rate**	**Assessed Value**	**per Unit**
Rental Apartments				$1,935.00	$23,220	95%	30%	$15,441	5.50%	$280,751	Per Unit

Source: CoStar, CB Richard Ellis Cap Rate Survey, Developers and HR&A

Table A-6

Citywide Cost Factors by Function/Department[1]

						Land Uses					
	Population	Retail	Office	Hotel	Industrial	Parks (per acre)		Public Use	Open Space	Other	Residential
	(Per Person)	(Per Acre)	(Per Acre)	(Per Acre)	(Per Acre)	Private	Public	(Per Acre)	(Per Acre)	(Per Acre)	(Per DU)
Legislative and Administration											
City Council	$2.00										
Boards and Commissions											
City Clerk	$1.37										
City Attorney		$80.11	$86.52	$51.21	$21.13						$12.11
Administration	$0.29										$0.35
Management and Information Services	$4.60										
Human Resources											
Development and Maintenance Services											
Economic Development Function	$0.00	$301.43	$325.55	$192.68	$79.51					$0.00	
Planning and Building Services	$0.00	$203.44	$219.57	$130.70	$55.00					$31.70	$30.69
Engineering		$274.44	$145.29	$64.57	$27.44		$15.53			$16.85	$3.07
Public Works		$5,914.17	$3,131.03	$1,391.57	$591.42		$69.58	$347.89		$347.89	$68.43
General Services											
Public Safety											
Police (Excluding Residential)	$11.01	$6,836.27	$6,836.27	$6,836.27	$1,006.09		$2,202.49	$2,202.49		$2,202.49	
Fire (Excluding Residential)	$1.05	$2,917.22	$2,917.22	$2,917.22	$396.88	$160.46	$160.46	$160.46	$160.46	$160.46	
Culture and Leisure											
Parks and Recreation	$18.90										
Library	$37.32										$4.77
Nature Center											
Sub-Total Unit Cost	$76.53	$16,527.08	$13,661.45	$11,584.21	$2,177.48	$160.46	$2,448.06	$2,710.85	$160.46	$2,759.40	$119.40
Acre to SF Density Adjustment Factors		0.00008									
Total - Density Adjusted Unit Costs	$76.53	$1.36	$13,661.45	$11,584.21	$2,177.48	$160.46	$2,448.06	$2,710.85	$160.46	$2,759.40	$119.40

[1]All Cost Factors and Subtotal Cost factors provided by the City

Source: City of Chula Vista and HR&A

Table A-7
Dwelling Unit Public Safety Costs

Village 3 North SPA

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Project Residential Units		200	656	1,112	1,397	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597
Current Service Costs																		
Police Service Costs/ DU	$293.70																	
Fire Service Costs/ DU	$210.64																	
Annual Public Safety (Allocated to Project Dwelling Units)																		
Police		$58,740	$192,667	$326,594	$410,299	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039	$469,039
Fire		$42,128	$138,180	$234,232	$294,264	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392	$336,392
Total Annual Public Safety Costs		**$100,868**	**$330,847**	**$560,826**	**$704,563**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**	**$805,431**

Source: City of Chula Vista and HR&A

Table A-8

City of Chula Vista - Discretionary Revenues (Based on the FY 2009 Amended Budget)

Non-Departmental Revenue Categories	Discretionary Revenues	Program Revenues	Net Revenues	Revenue Distribution	
	Amended Budget 2009	(Estimate)		Fixed Revenues	Variable Revenues
Property Taxes					
Current Taxes - Secured	$28,363,165		$28,363,165		$28,363,165
State Secured - Unitary	$300,000		$300,000		$300,000
Current Taxes - Unsecured	$979,200		$979,200		$979,200
Delinquent Taxes	$590,000		$590,000		$590,000
Subtotal	*$30,232,365*	*$0*	*$30,232,365*	*$0*	*$30,232,365*
Other Local Taxes					
Sales and Use Taxes	$29,677,977		$29,677,977		$29,677,977
Franchise Fees	$8,732,093		$8,732,093		$8,732,093
Utility Taxes	$7,122,095		$7,122,095		$7,122,095
Business License Tax	$1,322,847		$1,322,847		$1,322,847
Transient Occupancy Taxes	$2,752,514		$2,752,514		$2,752,514
Real Property Transfer Tax	$841,402		$841,402		$841,402
Subtotal	*$50,448,928*	*$0*	*$50,448,928*	*$0*	*$50,448,928*
Use of Money and Property					
Subtotal	*$4,163,212*	*$0*	*$4,163,212*	*$4,163,212*	*$0*
Revenues from other Agencies					
Sales Tax: Public Safety Augment	$875,347		$875,347		$875,347
State Homeowners Property Tax Relief	$282,800		$282,800		$282,800
State Motor Vehicle Licenses	$20,215,866		$20,215,866		$20,215,866
Other Revenues from other Agencies	$4,324,532		$4,324,532		$4,324,532
Subtotal	*$25,698,545*		*$25,698,545*		*$25,698,545*
Charges for Services[1]					
Subtotal	*$8,854,774*	*$0*	*$8,854,774*	*$8,854,774*	*$0*
Other Revenues (less CIP)[2]					
Subtotal	*$10,580,609*	*$0*	*$10,580,609*	*$10,580,609*	*$0*
Transfers In					
Subtotal	*$12,272,473*	*$0*	*$12,272,473*	*$12,272,473*	*$0*
Total Discretionary Revenues (Less CIP Transfers)	$142,250,906	$0	$142,250,906	$35,871,068	$106,379,838

[1]Includes Licenses and Permits

[2]Other Revenue excludes funds from the CIP fund. Fines, Forfeitures, and Penalties are included in this category.

Source: City of Chula Vista

Table A-9
Chula Vista - Other Discretionary Revenue Allocation Factors (Based on 2009 Information)

2009 Citywide Conditions	
Population	226,694
Dwelling Units	78,615
Employees	71,153

Land Uses	Developed Acres	Employees (estimated)	AV Share (Estimates)
Commercial (Retail and Office)	2,048	46,842	25%
Industrial	917	21,162	8%
Residential	9,565		67%
Subtotal Taxable	12,530	68,004	
Other (Parks, Public/Quasi-public, Open Space)	7,171	3,149	
Total	19,702	71,153	

Incremental Revenue Factors by Development Unit

Revenue Category	2009 Revenues	Allocation Method	Share	Allocation	Units
Property Taxes					
Current Taxes - Secured	$28,363,165	Calculated Separately			
State Secured - Unitary	$300,000	Commercial AV	25%	$36.61	Acres
		Industrial AV	8%	$26.17	Acres
		Residential AV	67%	$21.01	Acres
Current Taxes - Unsecured	$979,200	Commercial AV	25%	$119.51	Acres
		Industrial AV	8%	$85.42	Acres
		Residential AV	67%	$68.59	Acres
Delinquent Taxes	$590,000	Commercial AV	25%	$72.01	Acres
		Industrial AV	8%	$51.47	Acres
		Residential AV	67%	$41.33	Acres
Other Local Taxes					
Sales and Use Taxes	$29,677,977	Calculated Separately			
Franchise Fees[1]	$8,732,093	Commercial Land	7%	$298.40	Acres
		Industrial Land	3%	$285.66	Acres
		Residential Land	90%	$821.63	Acres
Utility Taxes[1] with Adjustment	$7,122,095	Commercial Land	9%	$312.92	Acres
		Industrial Land	4%	$310.65	Acres
		Residential Land	87%	$647.80	Acres
Business License Tax	$1,322,847	Employees (Non-Public)		$19.45	Employees
Transient Occupancy Taxes	$2,752,514	Not Included			
Real Property Transfer Tax	$841,402	Calculated Separately			
Revenues from Other Agencies					
Sales Tax: Public Safety Augment	$875,347	People		$3.86	Person
State Homeowners Property Tax Relief	$282,800	Dwelling Units		$3.60	DU
State Motor Vehicle Licenses	$20,215,866	Calculated Separately			
Total Discretionary Revenues	$102,055,306				

Summary of Other Discretionary Revenue Factors	
Commercial (Acres)	$839.44
Retail Commercial (SF)	$0.07
Industrial (Acres)	$759.37
Residential (Acres)	$1,600.36
Residential (DU)	$3.60
Employees	$19.45
Population	$3.86

[1] As presented in SPA Fiscal Impact Framework, allocation share by land use based on FIND model estimates

Source: City of Chula Vista and HR&A

Table A-10

Projected Program Assessed Value

		Village 3 North SPA																
		2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**
Cumulative Program Assessed Value	**Est. Assessed Value Per Unit**	**(Millions $)**																
Land Use																		
Single Family Residential Units	*$ 472,000*	$94.4	$189.3	$284.1	$378.5	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9	$472.9
MF For-Sale	*$305,000*	0.0	56.7	134.5	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0	136.0
Total For Sale Product		**$94.4**	**$246.0**	**$418.6**	**$514.6**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**	**$609.0**
Rental Residential - MF	*$280,000*	$0.0	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3	$19.3
Rental Residential - MF Mixed Use	*$280,000*	0.0	0.0	0.0	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4
Industrial Acres	$1,410,000	0.0	0.0	0.0	0.0	4.2	8.5	12.7	16.9	21.2	25.4	29.6	33.8	38.1	42.3	47.7	47.7	47.7
Office Acres	$6,423,000	0.0	0.0	0.0	0.0	5.2	10.4	15.7	15.7	15.7	15.7	15.7	20.9	26.1	31.3	31.3	31.3	31.3
Retail Commercial Acres	$3,017,000	0.0	0.0	0.0	0.0	0.6	1.2	1.8	1.8	1.8	1.8	1.8	2.5	3.1	3.7	3.7	3.7	3.7
Mixed Use Retail Commercial SF	$214	0.0	0.0	0.0	2.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Total Income Generating Product		**$0.0**	**$19.3**	**$19.3**	**$43.86**	**$56.1**	**$66.1**	**$76.2**	**$80.4**	**$84.7**	**$88.9**	**$93.1**	**$103.2**	**$113.2**	**$123.3**	**$128.7**	**$128.7**	**$128.7**
Total Assessed Value		**$94.4**	**$265.3**	**$438.0**	**$558.4**	**$665.0**	**$675.1**	**$685.2**	**$689.4**	**$693.6**	**$697.9**	**$702.1**	**$712.2**	**$722.2**	**$732.3**	**$737.6**	**$737.6**	**$737.6**

Source: HR&A

Table A-11

Property Tax Estimate

Village 3 North SPA

		Year 1 (Value)	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Annual For Sale Product AV (Millions)		$94.4	$151.6	$172.6	$95.9	$94.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Annual Income Generating Product AV (Millions)		$0.0	$19.3	$0.0	$24.5	$12.2	$10.1	$10.1	$4.2	$4.2	$4.2	$4.2	$10.1	$10.1	$10.1	$5.4	$0.0	$0.0
Appreciation Factor:	***Annual Rate***	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**Yr 6**	**Yr 7**	**Yr 8**	**Yr 9**	**Yr 10**	**Yr 11**	**Yr 12**	**Yr 13**	**Yr 14**	**Yr 15**	**Yr 16**	**Yr 17**
Real Appreciation Rate	2.00%	100%	102%	104%	106%	108%	110%	113%	115%	117%	120%	122%	124%	127%	129%	132%	135%	137%
Proposition 13 AV Limitation less Inflation of 2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Residential Annual Turnover Rate	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Commercial Turnover Rate	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
For Sale Residential Product																		
Year Property First Sold:																		
	Yr 1	$94.4	$94.6	$95.0	$95.5	$96.1	$97.0	$97.9	$98.9	$100.1	$101.4	$102.7	$104.2	$105.8	$107.4	$109.1	$110.9	$112.8
	Yr 2		$154.6	$154.9	$155.5	$156.4	$157.5	$158.8	$160.3	$162.1	$164.0	$166.1	$168.3	$170.7	$173.2	$175.9	$178.7	$181.7
	Yr 3			$179.62	$180.0	$180.7	$181.7	$182.9	$184.5	$186.3	$188.3	$190.5	$192.9	$195.5	$198.3	$201.2	$204.4	$207.6
	Yr 4				$101.8	$102.0	$102.4	$103.0	$103.7	$104.5	$105.6	$106.7	$108.0	$109.3	$110.8	$112.4	$114.0	$115.81
	Yr 5					$102.2	$102.4	$102.8	$103.3	$104.1	$104.9	$106.0	$107.1	$108.4	$109.7	$111.2	$112.8	$114.5
	Yr 6						$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 7							$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 8								$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 9									$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 10										$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 11											$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	Yr 12												$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	Yr 13													$0.00	$0.00	$0.00	$0.00	$0.00
	Yr 14														$0.00	$0.00	$0.00	$0.00
	Yr 15															$0.00	$0.00	$0.00
	Yr 16																$0.00	$0.00
	Yr 17																	$0.00
For Sale Residential Assessed Value (Millions)		$94.4	$249.2	$429.5	$532.8	$637.4	$640.9	$645.4	$650.8	$657.1	$664.1	$672.0	$680.5	$689.7	$699.5	$709.9	$720.9	$732.4

Table A-11

Property Tax Estimate (Cont.)

Village 3 North SPA

		Year 1 (Value)	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Annual For Sale Product AV (Millions)		$94.4	$151.6	$172.6	$95.9	$94.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Annual Income Generating Product AV (Millions)		$0.0	$19.3	$0.0	$24.5	$12.2	$10.1	$10.1	$4.2	$4.2	$4.2	$4.2	$10.1	$10.1	$10.1	$5.4	$0.0	$0.0
Appreciation Factor:	***Annual Rate***	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**Yr 6**	**Yr 7**	**Yr 8**	**Yr 9**	**Yr 10**	**Yr 11**	**Yr 12**	**Yr 13**	**Yr 14**	**Yr 15**	**Yr 16**	**Yr 17**
Real Appreciation Rate	2.00%	100%	102%	104%	106%	108%	110%	113%	115%	117%	120%	122%	124%	127%	129%	132%	135%	137%
Proposition 13 AV Limitation less Inflation of 2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Residential Annual Turnover Rate	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Commercial Turnover Rate	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
Commercial and Rental Residential Product																		
Year Property First Sold:																		
	Yr 1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 2		$19.71	$19.7	$19.8	$19.8	$19.9	$20.0	$20.1	$20.2	$20.4	$20.5	$20.7	$20.9	$21.1	$21.3	$21.6	$21.8
	Yr 3			$0.00	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	Yr 4				$26.04	$26.1	$26.1	$26.2	$26.3	$26.4	$26.6	$26.7	$26.9	$27.1	$27.4	$27.6	$27.9	$28.2
	Yr 5					$13.21	$13.2	$13.2	$13.3	$13.3	$13.4	$13.5	$13.6	$13.7	$13.8	$13.9	$14.0	$14.1
	Yr 6						$11.12	$11.1	$11.1	$11.2	$11.2	$11.3	$11.3	$11.4	$11.5	$11.6	$11.7	$11.8
	Yr 7							$11.34	$11.3	$11.4	$11.4	$11.4	$11.5	$11.6	$11.6	$11.7	$11.8	$11.9
	Yr 8								$4.86	$4.9	$4.9	$4.9	$4.9	$4.9	$5.0	$5.0	$5.0	$5.1
	Yr 9									$4.96	$5.0	$4.97	$4.99	$5.00	$5.03	$5.06	$5.09	$5.12
	Yr 10										$5.06	$5.1	$5.1	$5.1	$5.1	$5.1	$5.2	$5.2
	Yr 11											$5.16	$5.2	$5.2	$5.2	$5.2	$5.2	$5.3
	Yr 12												$12.52	$12.53	$12.55	$12.59	$12.64	$12.70
	Yr 13													$12.77	$12.78	$12.81	$12.84	$12.89
	Yr 14														$13.02	$13.04	$13.06	$13.10
	Yr 15															$7.07	$7.08	$7.09
	Yr 16																$0.00	$0.00
	Yr 17																	$0.00
Commercial and Rental Residential Assessed Value (Millions)		$0.0	$19.7	$19.7	$45.8	$59.1	$70.3	$81.9	$87.0	$92.3	$97.8	$103.5	$116.7	$130.1	$144.0	$152.0	$153.0	$154.2
Total Assessed Value (Residential and Commercial) (Millions)		$94.4	$268.9	$449.2	$578.6	$696.5	$711.2	$727.3	$737.8	$749.4	$762.0	$775.5	$797.1	$819.8	$843.5	$861.9	$873.9	$886.6
Less Base Assessed Value		*0.0*	*(4.6)*	*(9.2)*	*(13.2)*	*(17.5)*	*(18.1)*	*(19.8)*	*(20.2)*	*(20.6)*	*(21.1)*	*(21.5)*	*(22.0)*	*(22.6)*	*(23.2)*	*(23.7)*	*(23.7)*	*(23.7)*
Incremental AV (Residential and Commercial) (Millions)		$94.4	$264.3	$440.0	$565.4	$679.0	$693.2	$707.5	$717.6	$728.8	$740.9	$754.0	$775.1	$797.2	$820.3	$838.2	$850.2	$862.9
Total Incremental Property Taxes Collected[1]	**1.00%**	**$0**	**$944,000**	**$2,643,118**	**$4,400,078**	**$5,653,512**	**$6,789,755**	**$6,931,650**	**$7,074,760**	**$7,176,105**	**$7,287,781**	**$7,409,259**	**$7,540,074**	**$7,750,978**	**$7,971,983**	**$8,202,885**	**$8,381,684**	**$8,502,001**
Property Tax Share to the City	**10.636%**	**$0**	**$100,407**	**$281,131**	**$468,006**	**$601,326**	**$722,180**	**$737,273**	**$752,494**	**$763,274**	**$775,152**	**$788,073**	**$801,986**	**$824,419**	**$847,926**	**$872,485**	**$891,503**	**$904,300**

[1]With a year lag to account for property tax receipt to the City.

Source: HR&A

Table A-12

Annual Property Transfer Tax Estimate

Village 3 North SPA

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Annual For Sale Product AV (Millions)		$94.4	$151.6	$172.6	$95.9	$94.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Annual Income Generating Product AV (Millions)		$0.0	$19.3	$0.0	$24.5	$12.2	$10.1	$10.1	$4.2	$4.2	$4.2	$4.2	$10.1	$10.1	$10.1	$5.4	$0.0	$0.0
Appreciation Factor:	*Annual Rate*	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17
Real Appreciation Rate	2.00%	100%	102%	104%	106%	108%	110%	113%	115%	117%	120%	122%	124%	127%	129%	132%	135%	137%
Residential Annual Turnover Rate	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Commercial Turnover Rate	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*
For Sale Residential Product																		
Year Property First Sold:																		
	Yr 1	$51,920	$5,296	$5,402	$5,510	$5,620	$5,732	$5,847	$5,964	$6,083	$6,205	$6,329	$6,456	$6,585	$6,716	$6,851	$6,988	$7,128
	Yr 2		$85,049	$8,675	$8,848	$9,025	$9,206	$9,390	$9,578	$9,769	$9,965	$10,164	$10,367	$10,575	$10,786	$11,002	$11,222	$11,446
	Yr 3			$98,792	$10,077	$10,278	$10,484	$10,694	$10,907	$11,126	$11,348	$11,575	$11,807	$12,043	$12,284	$12,529	$12,780	$13,035
	Yr 4				$55,988	$5,711	$5,825	$5,941	$6,060	$6,182	$6,305	$6,431	$6,560	$6,691	$6,825	$6,961	$7,101	$7,243
	Yr 5					$56,200	$5,732	$5,847	$5,964	$6,083	$6,205	$6,329	$6,456	$6,585	$6,716	$6,851	$6,988	$7,128
	Yr 6						$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Yr 7							$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Yr 8								$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Yr 9									$0	$0	$0	$0	$0	$0	$0	$0	$0
	Yr 10										$0	$0	$0	$0	$0	$0	$0	$0
	Yr 11											$0	$0	$0	$0	$0	$0	$0
	Yr 12												$0	$0	$0	$0	$0	$0
	Yr 13													$0	$0	$0	$0	$0
	Yr 14														$0	$0	$0	$0
	Yr 15															$0	$0	$0
	Yr 16																$0	$0
	Yr 17																	$0
For Sale Residential Property Transfer Taxes		$51,920	$90,345	$112,869	$80,423	$86,834	$36,980	$37,719	$38,474	$39,243	$40,028	$40,828	$41,645	$42,478	$43,328	$44,194	$45,078	$45,979

Table A-12

Annual Property Transfer Tax Estimate (Cont.)

Village 3 North SPA

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Annual For Sale Product AV (Millions)		$94.4	$151.6	$172.6	$95.9	$94.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Annual Income Generating Product AV (Millions)		$0.0	$19.3	$0.0	$24.5	$12.2	$10.1	$10.1	$4.2	$4.2	$4.2	$4.2	$10.1	$10.1	$10.1	$5.4	$0.0	$0.0
Appreciation Factor:	*Annual Rate*	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	Yr 13	Yr 14	Yr 15	Yr 16	Yr 17
Real Appreciation Rate	2.00%	100%	102%	104%	106%	108%	110%	113%	115%	117%	120%	122%	124%	127%	129%	132%	135%	137%
Residential Annual Turnover Rate	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Commercial Turnover Rate	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Commercial and Rental Residential Product																		
Year Property First Sold:																		
	Yr 1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Yr 2		$10,839	$553	$564	$575	$587	$598	$610	$623	$635	$648	$661	$674	$687	$701	$715	$729
	Yr 3			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Yr 4				$14,320	$730	$745	$760	$775	$791	$806	$822	$839	$856	$873	$890	$908	$926
	Yr 5					$7,265	$371	$378	$385	$393	$401	$409	$417	$426	$434	$443	$452	$461
	Yr 6						$6,113	$312	$318	$324	$331	$337	$344	$351	$358	$365	$373	$380
	Yr 7							$6,236	$318	$324	$331	$337	$344	$351	$358	$365	$373	$380
	Yr 8								$2,672	$136	$139	$142	$145	$148	$150	$153	$157	$160
	Yr 9									$2,726	$139	$142	$145	$148	$150	$153	$157	$160
	Yr 10										$2,780	$142	$145	$148	$150	$153	$157	$160
	Yr 11											$2,836	$145	$148	$150	$153	$157	$160
	Yr 12												$6,885	$351	$358	$365	$373	$380
	Yr 13													$7,022	$358	$365	$373	$380
	Yr 14														$7,163	$365	$373	$380
	Yr 15															$3,888	$198	$202
	Yr 16																$0	$0
	Yr 17																	$0
Commercial and Rental Residential Property Transfer Tax		$0	$10,839	$553	$14,884	$8,570	$7,815	$8,284	$5,079	$5,317	$5,563	$5,816	$10,069	$10,621	$11,192	$8,363	$4,762	$4,858
Total		$51,920	$101,183	$113,422	$95,307	$95,405	$44,795	$46,003	$43,553	$44,560	$45,590	$46,644	$51,714	$53,099	$54,519	$52,557	$49,840	$50,837
Total Annual Property Taxes to the City			$51,920	$101,183	$113,422	$95,307	$95,405	$44,795	$46,003	$43,553	$44,560	$45,590	$46,644	$51,714	$53,099	$54,519	$52,557	$49,840

Source: HR&A

Table A-13
Motor Vehicle License Fee Estimates

	Village 3 North SPA																
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**
Motor Vehicle In Lieu Fee (MVLF) Adjustment																	
Base Year (2004) Assessed Valuation of the City (Millions)	$15,596																
Base Year (2004) Motor Vehicle In Lieu Fee Adjustment (MVLF) (Millions)	$11.8																
Cumulative AV of New Development (Millions)	$94.4	$268.9	$449.2	$578.6	$696.5	$711.2	$727.3	$737.8	$749.4	$762.0	$775.5	$797.1	$819.8	$843.5	$861.9	$873.9	$886.6
AV Adjustment of Base Value (Millions)	$0.0	($4.6)	($9.2)	($13.2)	($17.5)	($18.1)	($19.8)	($20.2)	($20.6)	($21.1)	($21.5)	($22.0)	($22.6)	($23.2)	($23.7)	($23.7)	($23.7)
Adjusted Cumulative AV Development (Millions)	$94.4	$264.3	$440.0	$565.4	$679.0	$693.2	$707.5	$717.6	$728.8	$740.9	$754.0	$775.1	$797.2	$820.3	$838.2	$850.2	$862.9
Cumulative Citywide AV Growth (Millions)	$15,691	$15,861	$16,036	$16,162	$16,275	$16,289	$16,304	$16,314	$16,325	$16,337	$16,350	$16,371	$16,393	$16,416	$16,434	$16,446	$16,459
Percent Increase in AV	0.61%	1.69%	2.82%	3.62%	4.35%	4.44%	4.54%	4.60%	4.67%	4.75%	4.83%	4.97%	5.11%	5.26%	5.37%	5.45%	5.53%
Cumulative MVLF generated by the Project	$71,616	$200,519	$333,810	$428,902	$515,102	$525,867	$536,724	$544,413	$552,885	$562,101	$572,025	$588,025	$604,792	$622,309	$635,874	$645,001	$654,631
Total Annual MVLF Fees	$71,616	$200,519	$333,810	$428,902	$515,102	$525,867	$536,724	$544,413	$552,885	$562,101	$572,025	$588,025	$604,792	$622,309	$635,874	$645,001	$654,631

[1] As presented in the SPA Fiscal Impact Framework

Source: City of Chula Vista and HR&A

Table A-14
Estimated Onsite Retail Sales Tax

Average Est. HH Income[1]																		
Single Family Units	$109,000																	
Multi Family Units																		
MF Detached	$75,000																	
Rental Townhomes	$77,400																	
MF Mixed Use	$77,400																	
		Village 3 North SPA																
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**
Households																		
Single Family Units		200	401	602	802	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002	1,002
Multi Family Units																		
MF Detached		0	186	441	446	446	446	446	446	446	446	446	446	446	446	446	446	446
Rental Townhomes		0	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
MF Mixed Use		0	0	0	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Total Units		200	656	1,112	1,397	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597
Employees		0	0	0	25	189	328	467	519	572	624	676	815	954	1,093	1,159	1,159	1,159
Aggregate HH Income		$21,800,000	$62,999,600	$104,033,600	$132,400,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600
Average Annual Income/HH		$109,000	$96,036	$93,555	$94,775	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556
Countywide Income/HH[2]	$83,935																	
Countywide Retail Exp/HH[3]	$36,583																	
Retail Expenditure/HH Adj. Factor for SPA		130%	114%	111%	113%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%
SPA Avg. Retail Expenditure/HH		$47,508	$41,858	$40,776	$41,308	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084
Gross Retail Sales of Village 3 Residents																		
Neighborhood Center	33%	$3,135,524	$9,061,320	$14,963,298	$19,043,363	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888
Community Center	20%	1,900,318	5,491,709	9,068,665	11,541,432	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750
Regional Center	4%	380,064	1,098,342	1,813,733	2,308,286	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350
Super Regional Center	7%	665,111	1,922,098	3,174,033	4,039,501	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613
Other Centers	36%	3,420,572	9,885,077	16,323,598	20,774,578	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150
Onsite Capture																		
Neighborhood Center	60%	$1,881,315	$5,436,792	$8,977,979	$11,426,018	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333	$13,307,333
Community Center	20%	$380,064	$1,098,342	$1,813,733	$2,308,286	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350
Regional Center	0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Super Regional Center	0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	10%	$342,057	$988,508	$1,632,360	$2,077,458	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515	$2,419,515
Gross Retail Sales from SPA Employees																		
Annual Expenditure/Employee	$1,175																	
Onsite Capture																		
Neighborhood Center	30%	$0	$0	$0	$8,813	$66,575	$115,525	$164,476	$182,966	$201,456	$219,947	$238,437	$287,387	$336,337	$385,288	$408,709	$408,709	$408,709
Community Center	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regional Center	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Super Regional Center	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Centers	10%	0	0	0	2,938	22,192	38,508	54,825	60,989	67,152	73,316	79,479	95,796	112,112	128,429	136,236	136,236	136,236
Total Taxable Retail Sales	% Taxable																	
Neighborhood Center	64%	$1,204,041	$3,479,547	$5,745,906	$7,318,291	$8,559,301	$8,590,629	$8,621,957	$8,633,791	$8,645,625	$8,657,459	$8,669,293	$8,700,621	$8,731,949	$8,763,277	$8,778,266	$8,778,266	$8,778,266
Community Center	77%	292,649	845,723	1,396,574	1,777,381	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030	2,070,030
Regional Center	97%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Super Regional Center	100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Centers	97%	331,795	958,852	1,583,389	2,017,983	2,368,456	2,384,283	2,400,110	2,406,089	2,412,067	2,418,046	2,424,024	2,439,851	2,455,679	2,471,506	2,479,079	2,479,079	2,479,079
Total Taxable Retail Sales		$1,828,486	$5,284,123	$8,725,870	$11,113,655	$12,997,786	$13,044,941	$13,092,097	$13,109,909	$13,127,722	$13,145,534	$13,163,346	$13,210,502	$13,257,657	$13,304,812	$13,327,375	$13,327,375	$13,327,375
Annual Sales Taxes to the City @	**1%**	**$18,285**	**$52,841**	**$87,259**	**$111,137**	**$129,978**	**$130,449**	**$130,921**	**$131,099**	**$131,277**	**$131,455**	**$131,633**	**$132,105**	**$132,577**	**$133,048**	**$133,274**	**$133,274**	**$133,274**

[1]Derived based on estimate of mortgage payment as 25% of income and 20 percent down. Rental incomes are estimated assuming 30 percent of income is made for housing.

[2]American Community Survey 2009

[3]Board of Equalization 2009 Annual Data per county capita

Source: City of Chula Vista and HR&A

Table A-15
Estimated Offsite Retail Sales Tax

Average Est. HH Income[1]																		
Single Family Units	$109,000																	
Multi Family Units																		
MF Detached	$75,000																	
Rental Apartments	$77,400																	
MF Mixed Use	$77,400																	
		Village 3 North SPA																
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**
Households																		
Multi Family Units																		
MF Attached		0	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
Total Units		200	656	1,112	1,397	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597
Employees		0	0	0	25	189	328	467	519	572	624	676	815	954	1,093	1,159	1,159	1,159
Aggregate HH Income		$21,800,000	$62,999,600	$104,033,600	$132,400,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600	$154,200,600
Average Annual Income/HH		$109,000	$96,036	$93,555	$94,775	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556	$96,556
Countywide Income/HH[2]	$83,935																	
Countywide Retail Exp/HH[3]	$36,583																	
Retail Expenditure/HH Adj. Factor for SPA		130%	114%	111%	113%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%	115%
Project Avg. Retail Expenditure/HH		$47,508	$41,858	$40,776	$41,308	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084	$42,084
Gross Retail Sales of Village 3 Residents																		
Neighborhood Center	33%	$3,135,524	$9,061,320	$14,963,298	$19,043,363	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888	$22,178,888
Community Center	20%	1,900,318	5,491,709	9,068,665	11,541,432	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750	13,441,750
Regional Center	4%	380,064	1,098,342	1,813,733	2,308,286	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350	2,688,350
Super Regional Center	7%	665,111	1,922,098	3,174,033	4,039,501	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613	4,704,613
Other Centers	36%	3,420,572	9,885,077	16,323,598	20,774,578	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150	24,195,150
Off Site Share																		
Neighborhood Center	40%	$1,254,210	$3,624,528	$5,985,319	$7,617,345	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555	$8,871,555
Community Center	80%	$1,520,254	$4,393,367	$7,254,932	$9,233,146	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400	$10,753,400
Regional Center	100%	$380,064	$1,098,342	$1,813,733	$2,308,286	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350	$2,688,350
Super Regional Center	100%	$665,111	$1,922,098	$3,174,033	$4,039,501	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613	$4,704,613
Other Centers	90%	$3,078,515	$8,896,569	$14,691,238	$18,697,120	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635	$21,775,635
Chula Vista Capture																		
Neighborhood Center	85%	$2,665,196	$3,080,849	$5,087,521	$6,474,743	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822	$7,540,822
Community Center	85%	$1,615,270	$3,734,362	$6,166,693	$7,848,174	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390	$9,140,390
Regional Center	70%	$266,044	$768,839	$1,269,613	$1,615,801	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845	$1,881,845
Super Regional Center	55%	$365,811	$1,057,154	$1,745,718	$2,221,726	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537
Other Centers	40%	$1,368,229	$3,558,628	$5,876,495	$7,478,848	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254	$8,710,254
Gross Retail Sales from SPA Employees																		
Annual Expenditure/Employee	$1,175																	
Offsite Spending																		
Neighborhood Center	25%	$0	$0	$0	$7,344	$55,479	$96,271	$137,063	$152,472	$167,880	$183,289	$198,698	$239,489	$280,281	$321,073	$340,591	$340,591	$340,591
Community Center	20%	0	0	0	5,875	44,383	77,017	109,650	121,977	134,304	146,631	158,958	191,592	224,225	256,858	272,473	272,473	272,473
Regional Center	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Super Regional Center	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Centers	15%	0	0	0	4,406	33,288	57,763	82,238	91,483	100,728	109,973	119,219	143,694	168,169	192,644	204,354	204,354	204,354
Chula Vista Capture																		
Neighborhood Center	80%	$0	$0	$0	$5,875	$44,383	$77,017	$109,650	$121,977	$134,304	$146,631	$158,958	$191,592	$224,225	$256,858	$272,473	$272,473	$272,473
Community Center	85%	$0	$0	$0	$4,994	$37,726	$65,464	$93,203	$103,681	$114,159	$124,636	$135,114	$162,853	$190,591	$218,330	$231,602	$231,602	$231,602
Regional Center	70%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Super Regional Center	55%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	40%	$0	$0	$0	$1,763	$13,315	$23,105	$32,895	$36,593	$40,291	$43,989	$47,687	$57,477	$67,267	$77,058	$81,742	$81,742	$81,742
Taxable Retail Sales	% Taxable																	
Neighborhood Center	64%	$1,705,725	$1,971,743	$3,256,014	$4,147,596	$4,854,531	$4,875,417	$4,896,302	$4,904,191	$4,912,081	$4,919,970	$4,927,859	$4,948,745	$4,969,630	$4,990,515	$5,000,508	$5,000,508	$5,000,508
Community Center	77%	$1,243,758	$2,875,459	$4,748,353	$6,046,939	$7,067,149	$7,088,508	$7,109,867	$7,117,934	$7,126,002	$7,134,070	$7,142,138	$7,163,497	$7,184,856	$7,206,214	$7,216,434	$7,216,434	$7,216,434
Regional Center	97%	$258,063	$745,774	$1,231,525	$1,567,326	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390	$1,825,390
Super Regional Center	100%	$365,811	$1,057,154	$1,745,718	$2,221,726	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537	$2,587,537
Other Centers	97%	$1,327,182	$3,451,869	$5,700,200	$7,256,192	$8,461,862	$8,471,358	$8,480,855	$8,484,442	$8,488,029	$8,491,616	$8,495,203	$8,504,700	$8,514,196	$8,523,692	$8,528,236	$8,528,236	$8,528,236
Total Taxable Retail Sales		$4,900,540	$10,101,999	$16,681,810	$21,239,779	$24,796,469	$24,848,210	$24,899,950	$24,919,494	$24,939,039	$24,958,583	$24,978,127	$25,029,868	$25,081,608	$25,133,348	$25,158,104	$25,158,104	$25,158,104
Annual Sales Taxes to the City @	**1%**	**$49,005**	**$101,020**	**$166,818**	**$212,398**	**$247,965**	**$248,482**	**$248,999**	**$249,195**	**$249,390**	**$249,586**	**$249,781**	**$250,299**	**$250,816**	**$251,333**	**$251,581**	**$251,581**	**$251,581**

[1]Derived based on estimate of mortgage payment as 25% of income and 20 percent down. Rental incomes are estimated assuming 30 percent of income is made for housing.

[2]American Community Survey 2009

[3]Board of Equalization 2009 Annual Data per county capita

Source: City of Chula Vista and HR&A

Table A-16
Village 3 - Revenue Summary (2009 $)

Village 3 North SPA

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17
Revenue Drivers																		
Population(Persons)		648	2,125	3,603	4,526	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174
Private Employment (Employees)		0	0	0	25	189	328	467	519	572	624	676	815	954	1,093	1,159	1,159	1,159
Dwelling Units		200	656	1,112	1,397	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597
Retail Commercial (SF)		0	0	0	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Commercial (Acres)		0.0	0.0	0.0	0.0	1.0	2.0	3.1	3.1	3.1	3.1	3.1	4.1	5.1	6.1	6.1	6.1	6.1
Industrial Land (Acres)		0.0	0.0	0.0	0.0	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.8	33.8	33.8
Residential Land (Acres)		23.0	51.6	80.3	105.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1
Annual Revenues	**Revenue Factors**																	
Revenue Adjustment Factor		*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*	*115%*
Population(Persons)	$3.86	$2,875	$9,431	$15,987	$20,085	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960	$22,960
Private Employment (Employees)	$19.45	$0	$0	$0	$559	$4,222	$7,326	$10,431	$11,603	$12,776	$13,948	$15,121	$18,225	$21,330	$24,434	$25,919	$25,919	$25,919
Dwelling Units	$3.60	$827	$2,712	$4,597	$5,775	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602	$6,602
Retail Commercial (SF)	$0.07	$0	$0	$0	$791	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582	$1,582
Commercial (Acres)	$839.44	$0	$0	$0	$0	$981	$1,962	$2,942	$2,942	$2,942	$2,942	$2,942	$3,923	$4,904	$5,885	$5,885	$5,885	$5,885
Industrial (Acres)	$759.37	$0	$0	$0	$0	$2,618	$5,236	$7,854	$10,472	$13,090	$15,708	$18,326	$20,944	$23,562	$26,180	$29,496	$29,496	$29,496
Residential Land (Acres)	$1,600.36	$42,289	$94,956	$147,624	$193,302	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590	$235,590
Property Taxes		$0	$100,407	$281,131	$468,006	$601,326	$722,180	$737,273	$752,494	$763,274	$775,152	$788,073	$801,986	$824,419	$847,926	$872,485	$891,503	$904,300
Property Transfer Taxes		$0	$51,920	$101,183	$113,422	$95,307	$95,405	$44,795	$46,003	$43,553	$44,560	$45,590	$46,644	$51,714	$53,099	$54,519	$52,557	$49,840
MVLF Revenues		$71,616	$200,519	$333,810	$428,902	$515,102	$525,867	$536,724	$544,413	$552,885	$562,101	$572,025	$588,025	$604,792	$622,309	$635,874	$645,001	$654,631
Sales and Use Tax		$67,290	$153,861	$254,077	$323,534	$377,943	$378,932	$379,920	$380,294	$380,668	$381,041	$381,415	$382,404	$383,393	$384,382	$384,855	$384,855	$384,855
Total Annual Revenues		**$184,897**	**$613,807**	**$1,138,409**	**$1,554,376**	**$1,864,233**	**$2,003,642**	**$1,986,673**	**$2,014,955**	**$2,035,921**	**$2,062,187**	**$2,090,226**	**$2,128,886**	**$2,180,846**	**$2,230,948**	**$2,275,766**	**$2,301,950**	**$2,321,661**

Source: HR&A

Table A-17
Village 3 - Expenditure Summary (2009 $)

		Village 3 North SPA																
Expense Drivers	**Unit Cost**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**
Dwelling Units		200	656	1,112	1,397	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597
Population		648	2,125	3,603	4,526	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174	5,174
Retail (SF)		0	0	0	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Commercial Acres		0.0	0.0	0.0	0.0	1.0	2.0	3.1	3.1	3.1	3.1	3.1	4.1	5.1	6.1	6.1	6.1	6.1
Industrial Acres		0.0	0.0	0.0	0.0	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.8	33.8	33.8
Park Acres		2.7	6.1	9.5	12.5	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
Open Space and ROW Acres		10.1	22.7	35.2	46.1	57.8	59.3	64.0	65.1	66.3	67.4	68.6	70.1	71.6	73.2	74.6	74.6	74.6
Public Use Acres (School and CPF)		0.8	1.7	2.6	3.4	4.2	4.2	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Expenditure Adjustment Factor		*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*	*117%*
Retail (SF)	$1.36	$0	$0	$0	$15,864	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729	$31,729
Retail (Acres)	$16,527.08	$0	$0	$0	$0	$3,934	$7,869	$11,803	$11,803	$11,803	$11,803	$11,803	$15,737	$19,672	$23,606	$23,606	$23,606	$23,606
Office (Acres)	$13,661.45	$0	$0	$0	$0	$13,009	$26,017	$39,026	$39,026	$39,026	$39,026	$39,026	$52,035	$65,044	$78,052	$78,052	$78,052	$78,052
Industrial (Acres)	$2,177.48	$0	$0	$0	$0	$7,648	$15,296	$22,944	$30,592	$38,240	$45,888	$53,536	$61,184	$68,832	$76,479	$86,167	$86,167	$86,167
Park (Acres)	$2,448.06	$7,840	$17,604	$27,368	$35,837	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677	$43,677
Population (Persons)	$76.53	$58,058	$190,431	$322,803	$405,536	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595	$463,595
Open Space and ROW (Acres)	$160.46	$1,896	$4,258	$6,619	$8,667	$10,851	$11,139	$12,020	$12,235	$12,450	$12,665	$12,880	$13,167	$13,455	$13,742	$14,014	$14,014	$14,014
Public Use (Acres)	$2,710.85	$2,393	$5,373	$8,353	$10,937	$13,330	$13,330	$39,672	$39,672	$39,672	$39,672	$39,672	$39,672	$39,672	$39,672	$39,672	$39,672	$39,672
Expenditures Allocated to DUs (excluding Public Safety)	$119.40	$27,959	$91,705	$155,452	$195,293	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252	$223,252
Public Safety Costs Allocated to DUs		$118,093	$387,344	$656,595	$824,878	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970	$942,970
Total Est. Annual Expenditures (2009 Dollars)		**$216,239**	**$696,715**	**$1,177,191**	**$1,497,013**	**$1,753,994**	**$1,778,873**	**$1,830,688**	**$1,838,551**	**$1,846,414**	**$1,854,276**	**$1,862,139**	**$1,887,018**	**$1,911,896**	**$1,936,775**	**$1,946,734**	**$1,946,734**	**$1,946,734**

Source: HR&A

Table A-18
Net Fiscal Impacts
Village 3 North SPA

CPI (San Diego Area)[1]	End of 2013	258.96
	2009	242.27

	Village 3 North SPA																
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**	**Year 11**	**Year 12**	**Year 13**	**Year 14**	**Year 15**	**Year 16**	**Year 17**
2014 Dollar Inflation Factor	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*	*1.069*
Total Expenditures	$231,131	$744,697	$1,258,264	$1,600,111	$1,874,791	$1,901,383	$1,956,767	$1,965,171	$1,973,575	$1,981,979	$1,990,384	$2,016,976	$2,043,568	$2,070,160	$2,080,805	$2,080,805	$2,080,805
Total Revenues	$197,631	$656,079	$1,216,811	$1,661,425	$1,992,622	$2,141,631	$2,123,495	$2,153,724	$2,176,134	$2,204,209	$2,234,179	$2,275,501	$2,331,040	$2,384,592	$2,432,497	$2,460,484	$2,481,552
Net Fiscal Impacts (2014 Dollars)	**($33,500)**	**($88,618)**	**($41,453)**	**$61,313**	**$117,831**	**$240,248**	**$166,728**	**$188,553**	**$202,559**	**$222,229**	**$243,795**	**$258,526**	**$287,472**	**$314,432**	**$351,692**	**$379,679**	**$400,747**

[1]Bureau of Labor Statistics

Source: HR&A

FIRE PROTECTION PLAN
University Villages – Villages 3 North and Portion of Village 4

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EXECUTIVE SUMMARY

This document addresses fire protection for the University Villages – Village 3 North and a Portion of Village 4 Project in Chula Vista, San Diego County, California. This Fire Protection Plan (FPP) provides measures for fire protection that meet Chula Vista Fire and Building Codes. Fire protection measures are provided based on code requirements and the analyzed fire risk associated with the Project's proposed land uses. The fire risk analysis forms the basis for identifying requirements for fuel modification, building design and construction and other pertinent development infrastructure criteria for fire protection. The primary focus of this FPP is providing an implementable framework for suitable protection of the planned structures and the people living and utilizing them. Tasks completed in the preparation of this FPP include data review, code review, site fire risk analysis, land use plan review, fire behavior modeling, and site-specific recommendations.

Where possible, this FPP incorporates principles of sustainability that are an important component of the project. Preservation and conservation of resources, including native plant communities, energy and water, along with conservation and maintenance of the site's aesthetics, are important components of the proposed Project and have been duly considered and integrated in this FPP, where possible, without compromising fire safety.

This FPP provides details regarding site-specific policies and implementation measures concerning fire protection. Further, the FPP outlines a “systems approach” to fire prevention, protection, suppression, and emergency relocation to ensure proposed improvements and uses will reduce potential risks associated with fire hazard. The structures in this community will include ignition resistant materials per the latest (2013) Chula Vista Fire and Building Codes. Structure protection will be complemented by a system of improved water availability, capacity and delivery; fire department access; monitored defensible space/fuel modification; interior fire sprinkler systems in all structures, monitored interior sprinklers in applicable structures; and other components to provide properly equipped and maintained structures with a high level of fire ignition resistance. Most of these features are required by code, but are specifically included because they address vulnerabilities noted in recent mega-fires in San Diego County and elsewhere. Structures built to the current fire and building codes are much less likely to be involved with fire and typically suffer much less damage from fire than structures built under less–stringent codes.

The site fire risk analysis conducted for this project resulted in the determination that wildfire may occur in the open space preserve areas within the Project area, but with moderate overall intensity. This FPP outlines defensible space requirements based on the potential risk and predicted fire behavior. The modeling and fire risk analysis of the Project

site helps assess its unique fire risk and fire behavior, and this process helped determine that a 100-foot wide fuel modification zone will be suitable for anticipated fire intensity. The fuel modification zones perform as designed if they are maintained to original specifications; therefore, the fuel modification zones will be maintained in perpetuity by a Community Facilities District or Homeowner's Association (or similarly funded entity), ensuring the required inspections and fuel reduction work occur annually.

The City's current threshold for fire emergency response is 6 minutes for 80% of the responses (2010 Growth Management Oversight Committee Annual Report) and includes dispatch and turnout time, which are commonly provided 1 minute each (resulting in a 4 minute travel time). A recently City Council-approved study by the Fire Department (2012 Fire Facility, Equipment, and Deployment Master Plan - FFMP) analyzes the need for new fire stations and the most efficient response coverage using the existing NFPA standard of 4 minutes travel time to 90% of incidents (6 minutes response time including dispatch and turnout) with that of a 5-minute response travel time (7 minutes with dispatch and turnout) for application in Chula Vista. As the FFMP is implemented over the next 15 years, three new fire stations are constructed and funding becomes available, the City plans to implement a customized response standard (hybrid of the Growth Management and Oversight Commissions' and NFPA 1710's response standards) which would include a 7 minute response (5 minute travel time plus 1 minute for dispatch and 1 minute for turnout) for 90% of calls. The anticipated population and number of structures associated with the Project and the corresponding, calculated medical and fire calls will affect the response capabilities of CVFD's nearest existing stations. However, the Project is located in an area with nearby existing Chula Vista fire stations (Stations 3 and 7) as well as planned stations in Village 8 West and the Eastern Urban Center (EUC) that would enable a 5-minute travel time standard for 90% of the project site (consistent with the approved FFMP) and the 4-minute travel time standard for approximately 65% of the project site, substantially in conformance with the existing goals and NFPA standard.

1.0 INTRODUCTION

This Focused Fire Protection Plan (FPP) was prepared for Village 3 North and Portion of Village 4 and provides specific measures for fire protection which meet Chula Vista Fire Department (CVFD) Fire and ignition resistant Building Codes. It also identifies the fire risk associated with proposed land uses, and identifies requirements for fuel modification, building design and construction and other pertinent development infrastructure criteria for fire protection. The primary focus of this FPP is providing an implementable framework for suitable protection of the planned structures and the people living and utilizing them.

The purpose of an FPP, as described in the International Code Council: Urban-Wildland Interface Code (Section 202) is:

> *Fire Protection Plan: A document prepared for a specific project or development proposed for the urban-wildland interface area. It describes ways to minimize and mitigate the fire problems created by the project or development, with the purpose of reducing impact on the community's fire protection delivery system.*

This FPP utilizes a "systems approach" for specifying fire protection measures. The measures consist of the components of fuel modification, passive and active structural protection, water supply, fire protection systems, access (ingress/egress), and emergency response. This FPP also provides additional details regarding wildfire risk assessment, fire history, fire behavior modeling, and construction and fire protection features that will be provided within this community.

1.1 Fire Protection Plan Summary

This FPP will guide the design, construction, and management of project-related improvements in compliance with applicable fire codes. When properly implemented and managed, the requirements and recommendations detailed herein are designed to result in fire hazard risk reduction and minimize the impact on the CVFD's fire protection system. To that end, preparation of this FPP reflects completion of the following tasks:

1. On-site risk assessment
2. Fire history analysis
3. Fire behavior modeling
4. Review of project site land use plans
5. Review of Chula Vista Fire Department's 2012 FFMP
6. Review and incorporation of Chula Vista Fire, Building (Chapter 7A), and Wildland Urban Interface Codes, as applicable

7. Emergency Response Travel Time Analysis
8. Generation of project-specific requirements and alternatives for fire protection.

1.2 Intent

The intent of this FPP is to provide management guidance and requirements for reducing fire risk and demand for fire protection services associated with Village 3 North and Portion of Village 4. To that end, the fire protection "system" detailed in this FPP includes a redundant layering of measures including: pre-planning, fire prevention, fire protection, passive and active suppression and related measures proven to reduce fire risk. The fire safety system that will be enacted by the proposed Project has proven through real-life wildfire encroachment examples to significantly reduce the fire risk associated with this type of project.

1.3 Applicable Codes/Existing Regulations

This FPP demonstrates compliance with 2013 Chula Vista Fire Code requirements, namely Title 15 – Building and Construction, Sections 15.34 (Fire Zones), 15.36 (Fire Code adopting the 2013 California Fire Code), and 15.38 (Urban Wildland Interface Code adopting the 2000 Urban Wildland Interface Code) and Section 15.08 adopting the 2013 California Building Code, specifically, Chapter 7A for development in wildland urban interface areas. Additionally, this FPP is consistent with the Chula Vista Fire Department's Fire Prevention Division's Fire Safety Detail and Specification Sheets. Additionally, this FPP conforms to the City's MSCP Sub Area Plan Brush Management Guidelines and Resource Management Plan Preserve Edge Requirements. The project will comply with the applicable adopted codes in place at the time of construction.

1.4 Project Description

The Village 3 North and Portion of Village 4 land plan proposes approximately 1,597 homes arranged in a mixed use village core surrounded by multi-family attached and detached neighborhoods. Village 3 North also includes an elementary school and neighborhood park site as well as small, private recreation sites that extend recreational opportunities into residential neighborhoods. Land adjacent to the existing landfill remains classified as Industrial. The proposed mix of land use designations for Village 3 North includes: Single Family Residential, Multi-Family Residential, Mixed Use, Office/Commercial, Parks, Private Open Space, School, Community Purpose Facilities, Industrial, Open Space, Preserve, and Circulation. Industrial buildings will be maximum 35 feet or two stories. Buildings including retail on the first floor and residential above will be up to 60 feet (four stories). A portion of Village 4 is included in the project for a community park site.

2.0 RISK ANALYSIS METHODS

2.1 Field Assessment

A field assessment of the Village 3 North and Portion of Village 4 project area was conducted to document existing site conditions and for gathering necessary information to support overall fire risk evaluation. Assessments of the area's topography, natural vegetation and fuel loading, available setback areas, and general susceptibility to wildfire formed the basis of the site risk assessment.

Site photographs were collected (Attachments A) and fuel conditions were mapped using 100-scale aerial images. Field observations were utilized to augment existing site data in generating the fire behavior models and formulating the requirements provided in this FPP.

2.2 Site Characteristics

2.2.1 Location

As depicted in Figure 1 and Attachment 1 (site photograph exhibit), Village 3 North and Portion of Village 4 is located directly north of the intersection of existing Main Street, Heritage Road and Wiley Road in southern Chula Vista. The site is roughly 2 miles west of the South Bay Expressway (SR 125) and roughly 1.2 miles south of Olympic Parkway.

2.2.2 Access

Access to the Village 3 North portion of the project will be provided at three locations from an extension of Heritage Road. The Heritage Road extension would connect generally north to south through the northern portion and along the western boundary of the site. Northbound access is provided via an internal surface street that links to Heritage Road. Access to the residential neighborhood located south of Main Street is provided directly from Main Street. For the Village 4 portion of the site, access is provided via an internal surface street which connects to La Media Road (off-site).

2.2.3 Topography

Village 3 North and Portion of Village 4 is located on a broad, gently sloping parcel that is located north of the Otay River Valley. The property slopes north to south and includes several north-south trending, small drainage valleys that empty to the Otay River Valley. Elevations range from roughly 200 feet above mean sea level (amsl) in the southwestern drainage valley bottom to nearly 450 feet amsl at the extreme north-central property boundary. Overall gradients are inclined up to 10%. Local sections are inclined at 30% or steeper along the eastern portion of the property.

2.2.4 Flammable Vegetation

Figure 2 provides Village 3 North and Portion of Village 4 and surrounding area vegetation mapping results. Attachment 1 provides photographs of the site and adjacent vegetation. The dominant vegetation type on site is non-native grassland which encompasses roughly 60.3% of the site. Non-native grassland occurs throughout the property where development will occur. The slopes of the drainage valleys, especially on the eastern and western periphery of the project, contain stands of native coastal sage scrub habitat. Coastal sage scrub cover on the site is limited to 19.7% of the property. Other vegetation occurring on the site includes: maritime succulent scrub (10.5%), agriculture (6.5%), disturbed land (1.7%), mulefat scrub (>0.1%), cismontane alkali marsh (0.1%), valley needlegrass grassland (0.2%), developed land (0.5%), and tamarisk scrub (0.2%). Adjacent to the site, in areas that will not be converted to urban landscapes, there is a mix of coastal sage scrub and riparian habitat to the south in Otay River Valley, coastal sage scrub to the southeast and east, and patches of coastal sage scrub and maritime succulent scrub to the east.

2.2.5 Climate

Throughout Southern California, including at the Project site, climate has a large influence on fire risk. Local climate is typical of a Mediterranean area, with warm, dry summers and wetter winters. Precipitation typically occurs between December and March. The prevailing wind is an on-shore flow with fall Santa Ana winds from the northeast that may gust to 50 miles per hour (mph) or higher. Drying vegetation (fuel moisture of less than 5% for 1-hour fuels is possible) during the summer months becomes fuel available to advancing flames should an ignition occur. Extreme conditions, used in fire modeling for this site, include 92°F temperatures in summer and winds of up to 50 mph during the fall. Relative humidity of 12% or less is possible during fire season.

2.3 Fire History and Hazard

Fire history is an important component of FPPs. Fire history information can provide an understanding of fire frequency, fire type, most vulnerable areas, and significant ignition sources. In turn, this understanding of why fires occur in an area and how they typically behave can be used for pre-planning and designing defensible communities. There have been numerous fires recorded by California Department of Forestry and Fire Protection (CAL FIRE) in their Fire and Resource Assessment Program (FRAP) database in the vicinity of the Project site, although no recorded fires have burned on site.

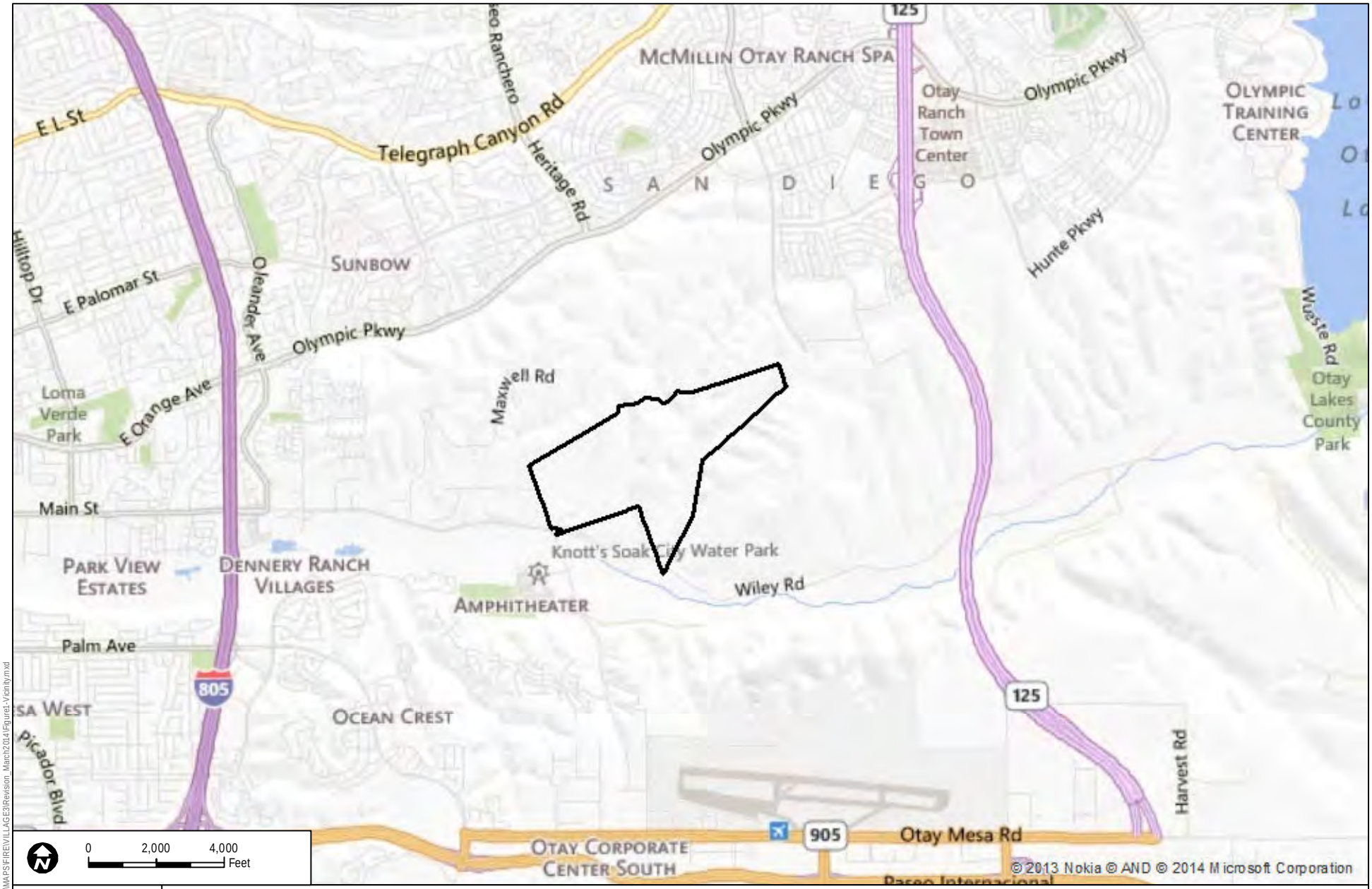

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FIGURE 1

Vicinity Map

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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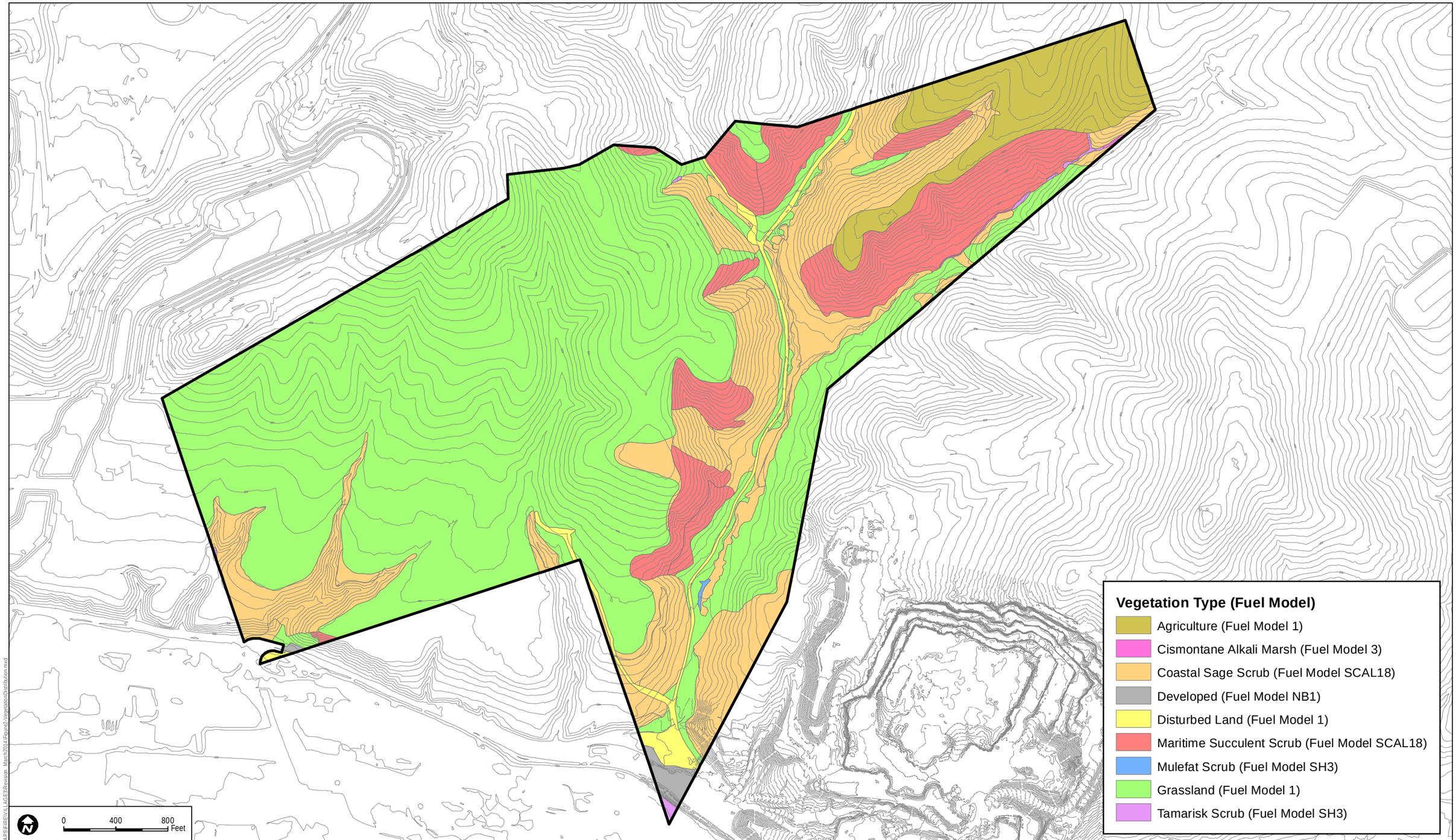

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FIGURE 2

Vegetation/Fuels Distribution

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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The lack of a fire history does not indicate that fire cannot occur in the vegetation that will be adjacent to the project. It is expected that fires have not consistently spread into the Project area due to several factors: 1) the position of urban development to the north which is newer and ignition resistant, 2) the position of Otay Lake to the east, presenting a very wide fuel break, 3) the position of the Otay River valley to the south, where fire spread is inhibited due to higher vegetation moisture and less ignition prone vegetation types, and 4) the narrow opening south of Otay Lake and north of the Otay River Valley which can be more easily defended under typical fire conditions.

The nearest wildfires to the Village 3 North and Portion of Village 4 site include the 1984 Maxwell Fire (approximately 0.6 miles to the northwest of Village 3 North and Portion of Village 4), the 1980 Assist #14 Fire (approximately 0.4 miles to the south of Village 3 North and Portion of Village 4), an un-named 1945 fire (approximately 1.3 miles to the north of Village 3 North and Portion of Village 4) and the 1969 Telegraph Fire (approximately 1.7 miles to the north of Village 3 North and Portion of Village 4). Figure 3, Fire History Exhibit, presents fire history in the Project vicinity and provides a graphical representation of the quantity of times the landscape has burned in the area.

2.4 FlamMap Analysis

FlamMap software was utilized to graphically depict fire behavior modeling results for the Project area, which includes the Project site and the area within one-half mile of the site. FlamMap utilizes the same fire spread equations built into the BehavePlus software package, but allows for a geographical presentation of fire behavior outputs as it applies the calculations to each pixel in the associated GIS landscape (Finney 1998). Both summer weather conditions (on-shore flow) and more extreme fall weather conditions (off-shore, Santa Ana conditions) were modeled.

2.4.1 FlamMap Fuel Model Inputs

FlamMap software requires a minimum of five separate input files that represent field conditions in the Project area, including elevation, slope, aspect, fuel model, and canopy cover. Each of these files was created as a raster GIS file using ArcGIS 9.3.1 software, exported as an ASCII grid file, then utilized in creating a FARSITE (Finney 1998) Landscape file that served as the base for the FlamMap runs. The resolution of each grid file and associated ASCII file that was used in the models for Project area is 30 meters, based on digital terrain data available from the San Diego Association of Governments (SANDAG 2010).

In addition to the Landscape file, wind and weather data are incorporated into the model inputs. For the FlamMap analysis, gridded wind speed and direction data was generated and incorporated into the model. Utilizing the WindNinja computer program (v. 2.0.3), ASCII grid files were generated for incorporation into the FlamMap analysis to better evaluate the effect of topography on wind flow (speed and direction).

The output files chosen for each of the modeling runs included flame length (feet) and fireline intensity (Btu/foot/second). The following provides descriptions of the input variables used in processing the FlamMap models. In addition, data sources are cited and any assumptions made during the modeling process are explained.

Elevation

Elevations were derived from digital terrain data available from SANDAG, projected in the UTM coordinate system, Zone 11 with units in meters. The resolution of the file was 30 meters and elevation within the Project area ranges from 34 meters (112 feet) to 197 meters (646 feet).[1] These data were utilized to create an elevation grid file, using units of meters above sea level. The elevation data are a necessary input file for FlamMap runs and are necessary for adiabatic adjustment of temperature and humidity and for conversion of fire spread between horizontal and slope distances.

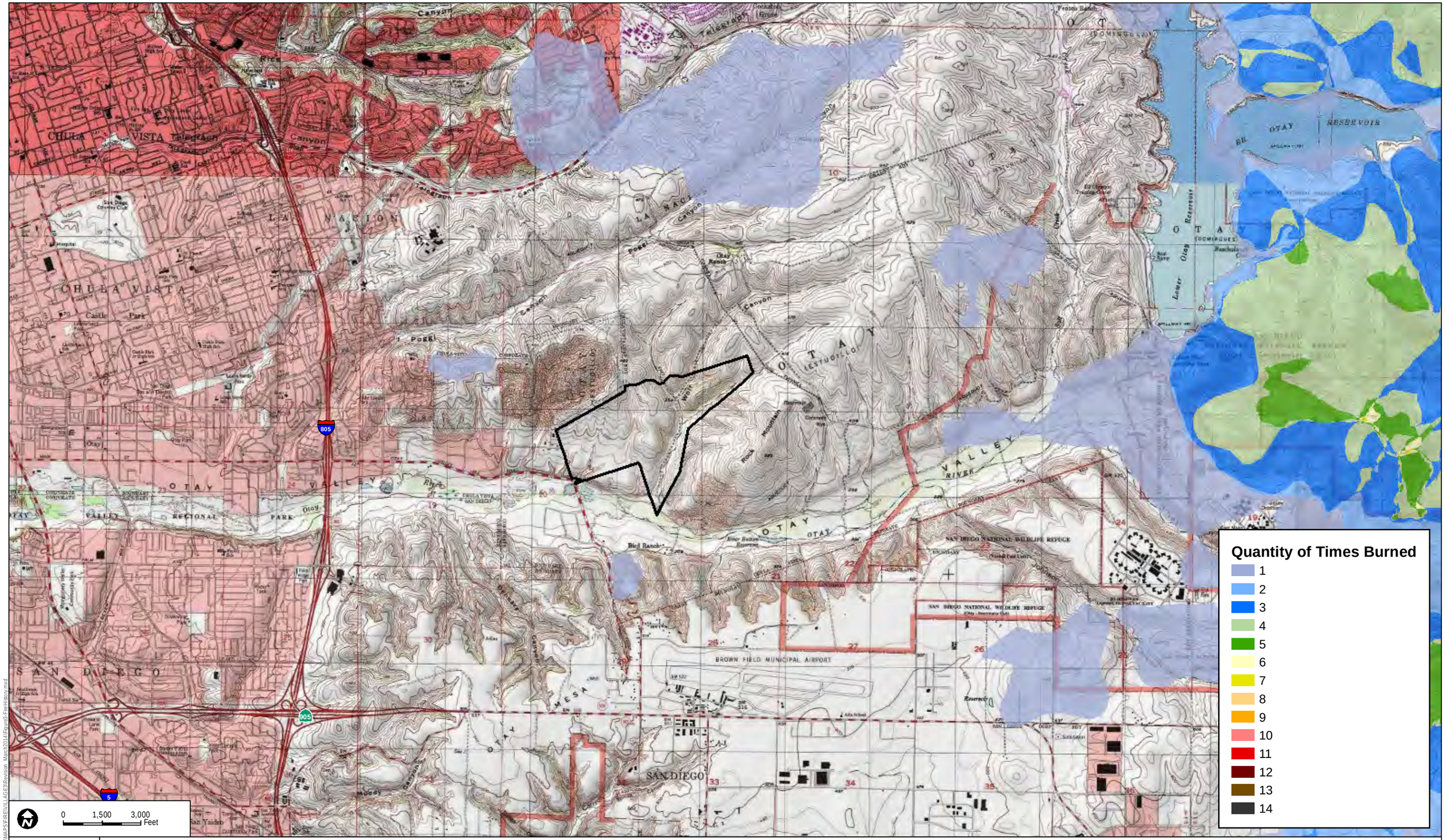
Slope

Using ArcGIS Spatial Analyst tools, a slope grid file was generated from the elevation grid file described above. Slope measurements utilized values in degrees of inclination from horizontal. Slope values in the Project area range from 0–27 degrees. The slope input file is necessary for computing slope effects on fire spread and solar radiance.

Aspect

Using ArcGIS Spatial Analyst tools, an aspect grid file was generated from the elevation grid file described above. The aspect values utilized were azimuth degrees. Aspect values are important in determining the solar exposure of grid cells.

[1] Villages 3 North, a portion of Village 4, and nearby Villages 8 East and 10 were modeled comprehensively; hence, the site elevations described here reflect the high and low elevations over the four villages. The actual topography of the site is described in Section 2.2.3 and falls within this range.



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SOURCE: FRAP 2013

FIGURE 3

Fire History

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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Fuel Model

Vegetation coverage data in the form of a GIS shapefile were used in this analysis to create a fuel model file, which was derived from vegetative cover type mapping data for the Project area (SanGIS 2010). Using the Community type category, each vegetation type was coded with a unique fuel model value as described in Table 1. Vegetation mapping data was utilized in field efforts to classify vegetation cover type with an appropriate fuel model. The result includes seven separate fuel models utilized for the Project area, of which, one is a non-combustible types (e.g., water, agriculture, development). Once fuel model values were assigned to general vegetation types, the vector-based vegetation data file was converted to a grid file for inclusion in FlamMap modeling. Table 1 outlines the fuel model values applied to the general vegetation types found in the Project area.

Table 1
General Vegetation Types and Related Fuel Model Assignments in Vicinity of Project

General Vegetation Type	Fuel Model	Canopy Cover	Acreage	Percentage Cover
Non-Native Vegetation	GS2	0	74.6	3.39%
Disturbed Habitat*	1	0	62.4	2.84%
Urban/Developed	NB1	0	658.2	29.93%
Extensive Agriculture - Field/Pasture, Row Crops	1	0	289.5	13.17%
Maritime Succulent Scrub	SCAL18	0	64.2	2.92%
Diegan Coastal Sage Scrub	SCAL18	0	396.9	18.05%
Valley and Foothill Grassland	1	0	398.9	18.14%
Non-Native Grassland	1	0	160.3	7.29%
Freshwater Marsh	3	0	10.0	0.45%
Coastal and Valley Freshwater Marsh	3	0	0.7	0.03%
Southern Riparian Scrub	SH3	0	0.2	0.01%
Mulefat Scrub	SH3	0	10.2	0.46%
Southern Willow Scrub	9	0	6.7	0.30%
Tamarisk Scrub	SH3	0	66.2	3.01%
		Total	**2,199.0**	**100.00**

* Assumes conversion to grassland-type fuels

Canopy Cover

Canopy Cover is a required raster file for FlamMap operations. It is necessary for computing shading and wind reduction factors for all fuel models. Canopy cover is measured as the horizontal fraction of the ground that is covered directly overhead by tree canopy. Crown closure refers to the ecological condition of relative tree crown density. Stands can be classified as

"closed" to recruitment of canopy trees but still only have 40% or 50% canopy cover. Coverage units can be categories (0–4) or percentage values (0–100).

For the purposes of the FlamMap analysis, Dudek utilized vegetation type classifications to determine canopy cover assignments. For the purposes of this analysis, tree-dominated vegetation types (e.g., coast live oak woodland, riparian forest) were assigned a value of "3," while non-tree vegetation types were assigned a value of "0." Canopy classifications by vegetation type are presented in Table 1.

Weather

In order to evaluate specific weather variables for the Project area, data from the San Miguel Remote Automated Weather Station (RAWS) was analyzed. The San Miguel RAWS is the closest RAWS, located approximately 5.8 miles due north of the Project area, in a similar inland position and estimated to include consistent weather conditions as the Project area. The location and available data range for the San Miguel station is:

- San Miguel RAWS
  - Latitude: 32.68611
  - Longitude: -116.97833
  - Elevation: 425 feet
  - Data years: 2002 to 2010

Utilizing the FireFamily Plus v. 4.0.2 (FireFamily Plus 2008) software package, data from the San Miguel RAWS was processed and analyzed to determine 50th (typical) and 97th (extreme) percentile wind and fuel moisture conditions to be used in the fire behavior modeling efforts conducted for the Project area. Fuel moisture information was analyzed and incorporated into the Initial Fuel Moisture file used as an input in FlamMap, as well as directly input into the focused BehavePlus runs discussed in Section 2.5. Wind speed (20-foot) values for all fire behavior modeling runs were used as inputs into the WindNinja analysis in order to create the wind flow grids to be used in FlamMap. Two separate wind scenarios were analyzed in WindNinja and incorporated into the FlamMap model: summer fire (50th percentile values from June 1 to August 31) with 8 mph on-shore winds, and fall fire (97th percentile values from September 1 to November 30) with 50 mph winds (representing maximum wind gust speed). The use of 50 mph winds in modeling efforts is intended to represent wind gusts rather than sustained maximum wind speeds. The maximum RAWS wind speed for the San Miguel RAWS during the 97th percentile weather period (September 1 to November 30) was 20 mph, which represents a 10-minute average wind speed, not the maximum gust speed. As FlamMap presents a static

representation of fire behavior, the inclusion of gust speed is appropriate to evaluate worst-case fire behavior outputs. Table 2 presents the weather and fuel moisture input variables used for all fire behavior modeling conducted for this FPP.

Table 2
Fire Behavior Weather and Fuel Moisture Inputs

Model Variable	50th Percentile (Onshore Flow)	97th Percentile (Offshore/Santa Ana conditions)
1 h fuel moisture	8%	2%
10 h fuel moisture	10%	3%
100 h fuel moisture	15%	7%
Live herbaceous moisture	90%	60%
Live woody moisture	122%	92%
20-ft. wind speed (mph)	8 mph	50 mph (representing max. gust)
Wind direction	Onshore, 270˚ for FlamMap	Offshore, 90˚ for FlamMap

2.4.2 FlamMap Fuel Model Outputs

Two output grid files were generated for each of the two FlamMap runs, and include representations of flame length (feet) and fireline intensity (BTU/foot/second). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2004). It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fire personnel in evaluating fireline intensity and is worth considering as an important fire variable (Rothermel 1991). Maps depicting flame length and fireline intensity for the 50th and 97th percentile weather scenarios are included in Figures 4 through 7. The fire behavior analysis results for the Project area vary depending on topography and fuel type. As FlamMap utilizes site-specific digital terrain data (including slope, vegetation, aspect, and elevation data) slight variations in predicted flame length values can be observed based on fluctuations of these attributes across the landscape. As presented, wildfire behavior in each of the fuel types varies depending on weather conditions. Maximum flame lengths may exceed 45 feet in some sections of the analysis area under worst-case conditions. As presented in Figures 4 through 7, expected fire behavior during extreme, Santa Ana wind-driven fires is closely correlated with fuel type and topography. Areas with light, flashy fuels (grasses) exhibit lower flame lengths and resulting fireline intensities but will promote fire spread at faster rates than heavier chaparral and sage scrub fuels, which exhibit higher flame lengths and resulting intensities. In general, the grasslands throughout much of the village areas exhibits lower flame length of less than 8 feet

and lower fireline intensity potential due to lower fuel loads and more gently sloping topography. The areas that include a sage scrub element result in higher flame lengths from 11–45 feet and higher intensities, but are still considered "moderate" in terms of overall fire severity. Off-site, adjacent fire behavior varies with vegetation and terrain and includes predominantly flame lengths under 20 feet, with areas of higher flame length associated with sage vegetation. Roughly 75% of the off-site adjacent fuels would produce flame lengths lower than 20 feet, while the remaining 25%, mostly in the northeastern area of the Village, would produce greater than 30 foot flame lengths under worst-case weather input conditions. Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. The information in Table 3 presents an interpretation of these fire behavior variables as related to fire suppression efforts.

Table 3
Fire Suppression Guidelines

Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4	Under 100	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4–8	100–500	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8–11	500–1,000	Fires may present serious control problems—torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11	Over 1,000	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Source: BehavePlus 5.0.2 fire behavior modeling program (Andrews, Bevins, and Seli 2004)

Note: The fire behavior results described herein depict values based on inputs to the FlamMap software. Localized changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis, but assumed (averaged) across the landscape based on the available data resolution. Further, this modeling analysis assumes a correlation between the available vegetation data and fuel model characteristics. Recent fire activity may temporarily alter fuel beds, but fire behavior modeling efforts conducted for this project assume natural succession of burned areas to more mature stand conditions, resulting in a conservative (near worst-case) estimate of fire behavior. Since fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns, modeling results are applicable as a basis for planning, but need to be considered in context with other site variables.

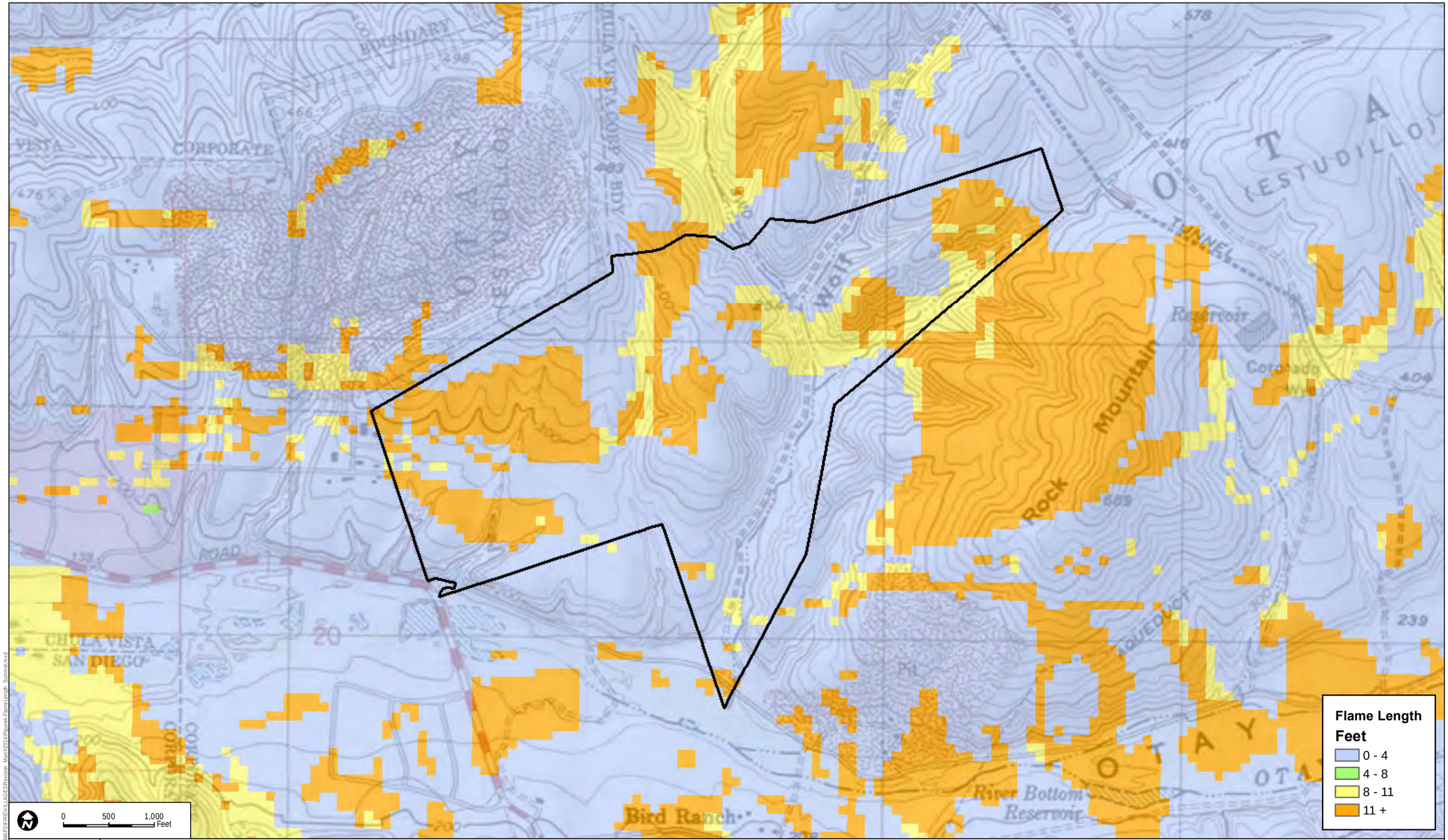

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FIGURE 4

FlamMap Flame Length Analysis – Summer Fire

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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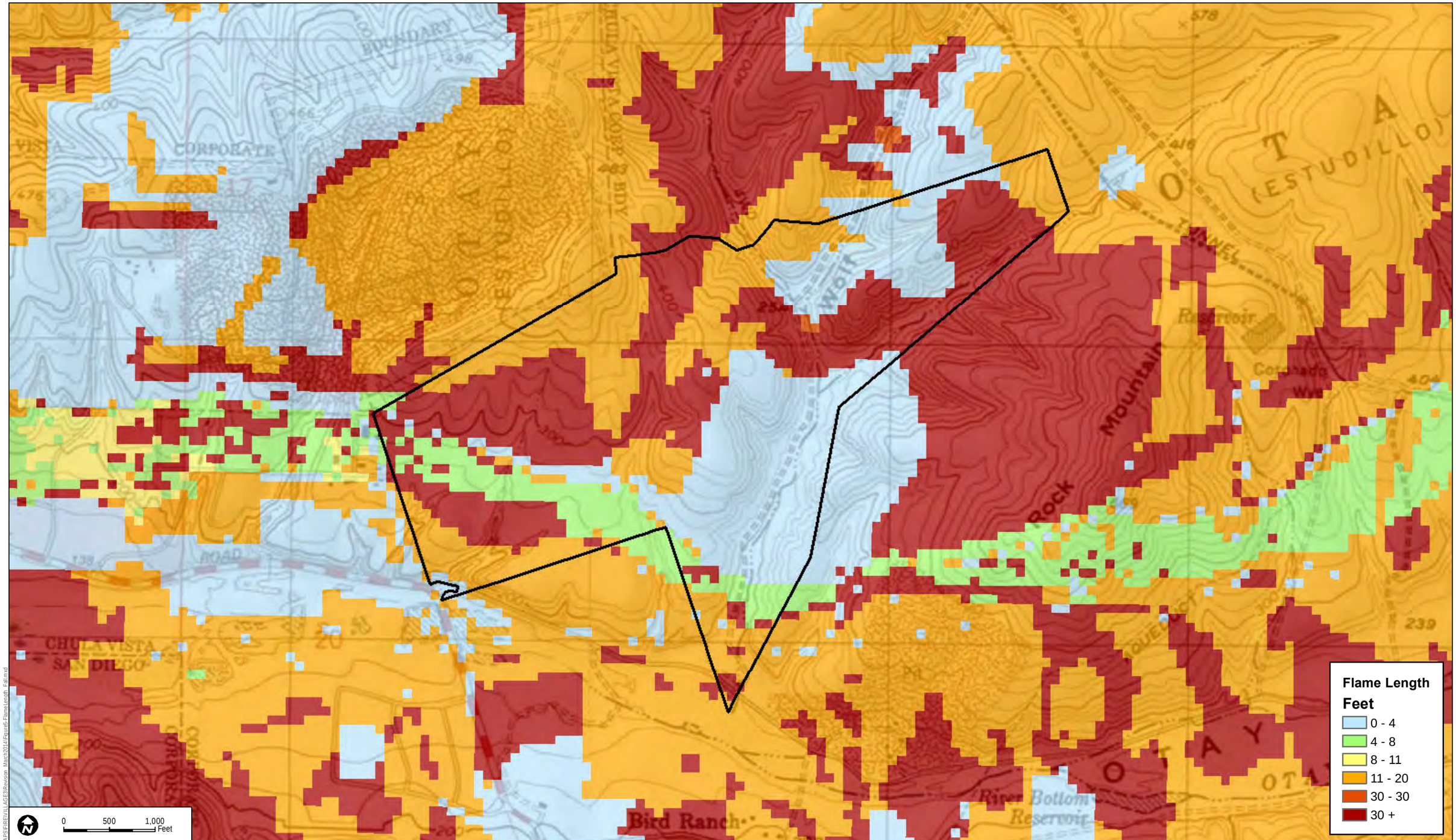

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FIGURE 5

FlamMap Flame Length Analysis – Fall Fire

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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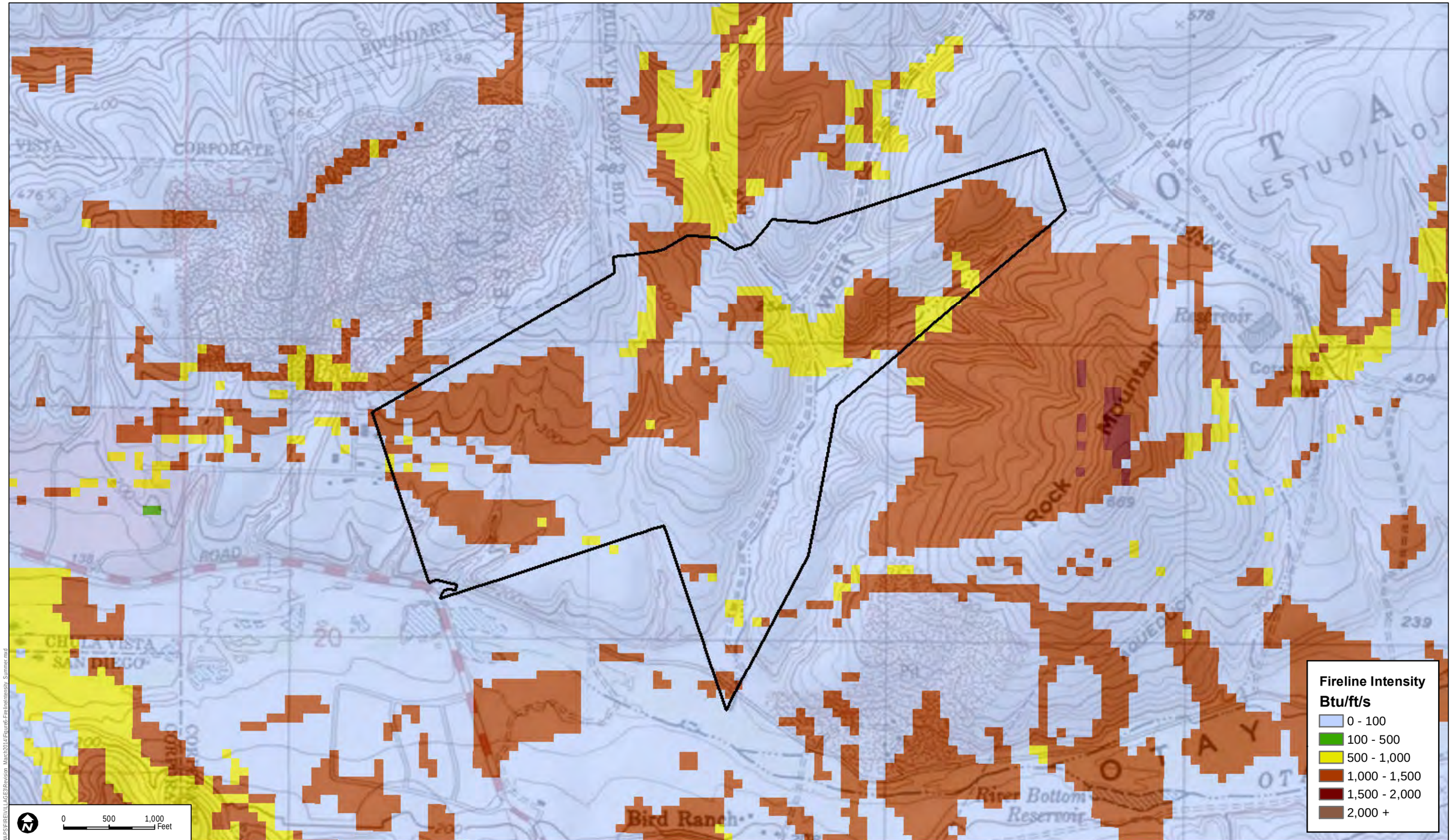

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FIGURE 6

FlamMap Fireline Intensity – Summer Fire

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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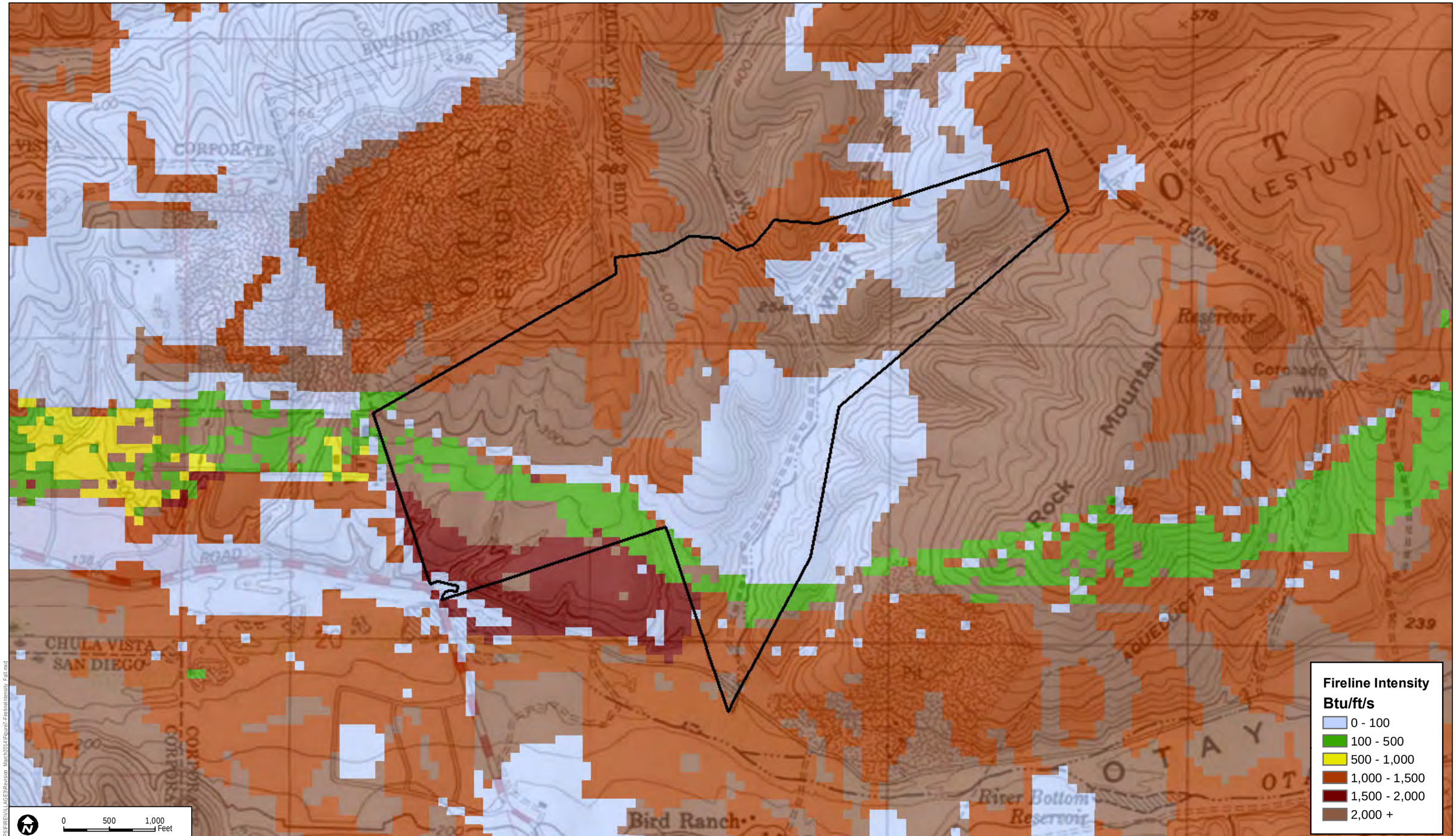

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FIGURE 7

FlamMap Fireline Intensity – Fall Fire

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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2.5 BehavePlus Fire Behavior Modeling

In addition to the FlamMap fire behavior modeling conducted for the Village 3 North and Portion of Village 4 site, more focused fire behavior modeling utilizing BehavePlus 5.0.2 was conducted for Village 3 North and Portion of Village 4. Similar to the FlamMap modeling, two weather scenarios were evaluated with BehavePlus. All fuel moisture and weather inputs remain consistent between the FlamMap and BehavePlus modeling efforts conducted in support of this FPP. Fuel model typing was completed in the field concurrent with site hazard evaluations. Based on field analysis, two different fire scenarios were evaluated for Village 3 North and Portion of Village 4.

- **Scenario 1**: Typical fire weather with on-shore wind and fire burning in preserved opens space along the southern project boundary.
- **Scenario 2**: Extreme fire weather with off-shore, Santa Ana winds and fire burning in the preserve open space to the east and south of the project.

2.5.1 BehavePlus Fuel Model Inputs

BehavePlus software requires site-specific variables for surface fire spread analysis, including fuel type, fuel moisture, wind speed, and slope data. The output variables used in this analysis include flame length (feet), fireline intensity (BTU/feet/second), and spotting distance (miles). The following provides a description of the input variables used in processing the BehavePlus models for Village 3 North and Portion of Village 4. The unique terrain and fuel models used for BehavePlus modeling at Village 3 North and Portion of Village 4 are presented in Table 4, and the results of modeling efforts are provided in Table 5. Locations of BehavePlus model runs are presented graphically in Figure 8.

Weather

The same historical fuel moisture and wind speed data that was analyzed and used in the FlamMap analysis discussed previously were used for all BehavePlus runs prepared for this FPP. Table 2 presents the fuel moisture and wind speed values used for the BehavePlus analyses included in this FPP.

As wind speed values derived from RAWS data represent 20-foot wind speeds, BehavePlus includes a wind adjustment factor. In the case of the BehavePlus analyses completed in support of this FPP (which occur in shrub vegetation types), a wind speed adjustment factor of 0.5 was utilized to account for vertical differences in wind speed from the 20-foot recording height to mid-flame height prior to BehavePlus modeling efforts. A conservative wind adjustment factor of 0.5 indicates a fuel bed that is unsheltered from the wind with a fuel bed depth greater than 2.7 feet. It should be noted that mid-flame wind speeds may be only 10% of the wind speeds recorded or predicted at 20 feet, resulting in a conservative calculation.

Topography

Elevation data were derived from digital topographic files available for Village 3 North and Portion of Village 4. This data source was evaluated in ArcGIS software in order to determine specific site elevation ranges and slope gradients. Elevation and slope are important components in fire behavior analysis as they affect temperature, humidity, solar radiance, and fire spread rates.

Fuel Model

Fuel model assignments for each of the BehavePlus modeling runs were based on field observations documented during the fire hazard assessments conducted in support of this FPP. Fire behavior model variables for BehavePlus modeling efforts are presented in Table 4.

Table 4
Village 3 North and Portion of Village 4 Fire Behavior Model Variables

Scenario	Fuel Model(s)	Slope	Aspect
1	Grass (1)	20%	South
2	Maritime succulent scrub (SCAL18)	32%	East

2.5.2 BehavePlus Fuel Model Results

Based on the BehavePlus analysis, expected flame lengths for Scenario 1 reach 3.6 feet during 50th percentile weather conditions with wind speeds of 8 mph, with fireline intensities reaching 90 BTU/feet/second and, a spread rate of 0.1 mph, and spotting up to 0.1 mile. A fire originating east of Village 3 North and Portion of Village 4 and pushed by winds from the northeast/east (Scenario 2) results in flame lengths reaching 37.7 feet and fireline intensities reaching 15,181 BTU/feet/second and a spread rate of 2.4 mph. Spotting distance for this extreme fire weather scenario reaches 2.2 miles. The results from the BehavePlus fire behavior modeling scenarios are presented in Table 5.

Table 5
Village 3 North and Portion of Village 4 BehavePlus Fire Behavior Model Results

Scenario	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1: Grassland on south-facing, 20% slope				
On-shore (50th Percentile)	3.6	90	0.7	0.1
Scenario 2: Maritime succulent scrub on east-facing, 32% slope				
Santa Ana (97th percentile with 50mph gusts)	37.7	15,181	2.4	2.2

Note: The results presented in Table 2 depict values based on inputs to the BehavePlus software. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

Modeling Inputs:

50th Percentile Weather (RUN 1):
1h Fuel Moisture – 8%
10h Fuel Moisture – 10%
100h Fuel Moisture – 15%
Live Herbaceous Moisture – 90%
Live Woody Moisture – 122%
20-foot Wind Speed – 8 mph
Wind Adjustment Factor – 0.5

97th Percentile Weather (RUN 2):
1h Fuel Moisture – 2%
10h Fuel Moisture – 3%
100h Fuel Moisture – 7%
Live Herbaceous Moisture – 60%
Live Woody Moisture – 92%
20-foot Wind Speed – 50 mph (gust)
Wind Adjustment Factor – 0.5

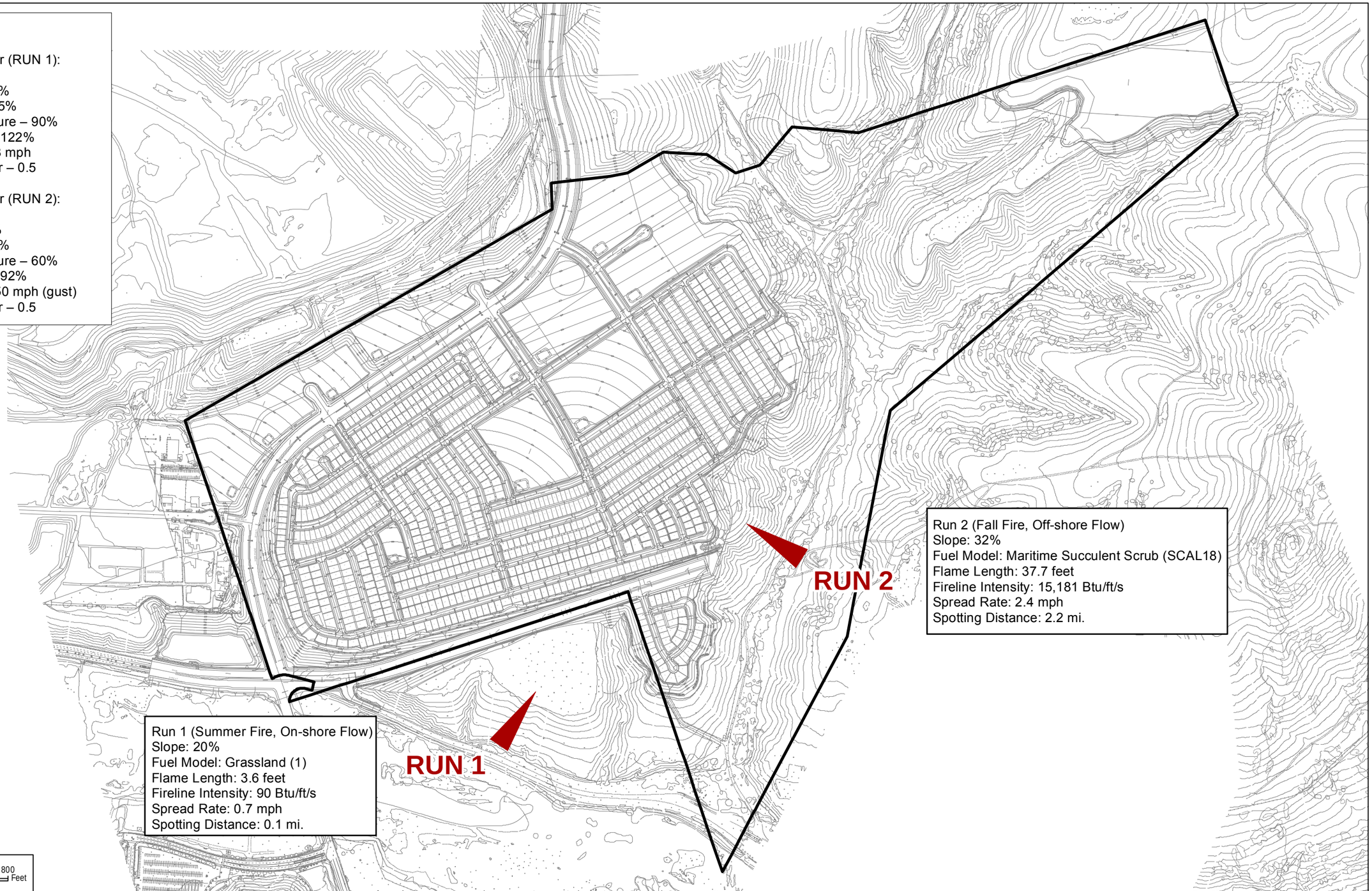

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FIGURE 8

BehavePlus Fire Behavior Modeling/Conceptual Site Plan

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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2.6 Result – Exposure to Wildland Fire

Given the climatic, vegetation, ignition sources, wildland-urban interface location, and topography characteristics along with the fire history, ignition sources and fire behavior modeling results previously discussed in this FPP, the Project site is determined to be potentially exposed to wildfire encroaching on the perimeter of the development or spotting into the preserve areas to the south and east of the site, especially from up-wind fires driven by on-shore or Santa Ana type winds funneled into the Otay River Valley. Based on this information and the recorded history of fires in the area, along with the persistence of naturally vegetated open space on two Village 3 North and Portion of Village 4 exposures, it is expected that wind driven wildfires could occur near this site in the future.

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3.0 FIRE RESPONSE CAPABILITIES

3.1 Estimated Calls and Demand for Service from the Project

This section analyzes the Village 3 North and Portion of Village 4 Project in terms of current CVFD Fire Service capabilities and resources to provide Fire Protection and Emergency Services. The analysis that follows examines the ability of the existing fire stations as well as fire stations planned in the approved FFMP to serve the area and ensure the timely provision of local fire protection and emergency service facilities. Response times were evaluated using build-out conditions. It was assumed that phased construction would include access roads to the newly constructed dwelling units and that the shortest access route to those dwellings would be utilized.

The nearest existing stations (Stations 3 and 7) vary with regard to their current call volume. The following call volumes were estimated from the Chula Vista Fire Department's FFMP. Station 3 included responses from engine 53 (800 calls) and rescue unit 53 (1,250 calls) and Station 7 responses included engine 57 (1,100 calls) and truck 57 (350 calls).

These call volumes can be used to calculate average daily call volume. Based on the total number of calls handled in 2009 by each of these stations, the average daily call volume for each of the units within Stations 3 and 7 were:

- **Station 3:** engine 53 – 2.1 calls per day, rescue 53 – 3.4 calls per day
- **Station 7:** engine 57 – 3.0 calls per day, truck 57 – 1.0 call per day

As shown in Table 6, using the CVFD estimate of 67 annual calls per 1,000 population (2009 data), the Project's estimated 5,126 residents and visitors would generate approximately 343 calls per year (about 0.94 calls per day), roughly 80– 85% of which (0.8) call per day are expected to be medical emergencies, based on past call statistics.

Table 6
Calculated Call Volume Associated with the University Villages

Emergency Calls per 1,000 (2009 Chula Vista Data)	Estimated Population	Avg. No. Calls per Year (8,180\1,000)x67	Avg. No. Calls per Day (548/365)
67	5,126	343	0.94

Type of call	Per capita call generation factor	Number of estimated annual calls
Total Calls	100%	343
Total Fires	1.2%	4.1
Total EMS/Rescue Calls	85.9%	295
Total Other Calls	12.9%	44.2

The City predicts a population increase in the Otay Ranch Sub Area of some 53,000 people at build out. This corresponds to a calculated call volume increase of nearly 3,500 calls per year, or roughly 10 calls per day. This call volume added to existing call volume from existing stations that would respond to this area as first responder or as Effective Fighting Force (EFF) would represent a significant increase. Additional stations would be necessary, as identified by the City in its FFMP, to adequately absorb the increased demand from build out of Otay Ranch. With the addition of two planned fire stations in the area, as described in Section 3.2, and the currently low call volume at Station 7, the additional calls associated with build out can be absorbed and still result in better than adequate emergency response. Only a small number (estimated at 4.1 calls per year) of fire related calls would be potentially realized at build out while the majority of calls would be medical related.

Based on the relatively low call volumes from existing, nearby fire stations, there is capacity to respond to a higher call volume. The stations are currently considered somewhat average based on their roughly five or fewer calls per day. A typical station averages around five calls per day and a busy station responds to about ten calls per day. Table 7 presents estimated call volume increases based on the demand from Village 3 North and Portion of Village 4. The estimated call volume increase assumes that each station would respond to the calculated 0.9 calls/day given the proximity of stations.

Table 7
Calculated Call Volume Increase Per Station Associated with Village 3 North and Portion of Village 4

Chula Vista Fire Station	Current Daily Call Volume	Estimated Daily Call Volume Increase	Estimated Total Daily Call Volumes with proposed Project
3	2.1 (engine) + 3.4 (rescue)	0.94	6.4
7	3 (engine) + 1 (truck)	0.94	4.9

If based only on call volume, the existing stations would be able to respond to Village 3 North and Portion of Village 4 call volume increases. However, response times and cumulative call volume increases in Chula Vista's developing areas must also be considered when determining whether existing resources are adequate, or whether additional resources are necessary. Longer response times to structural fire emergencies may be partially mitigated based on the mandate of interior sprinklers in all structures. Sprinklers extend the fire flashover time or extinguish most room fires, thus compensating for a longer response. The measures outlined in Section 4 of this FPP would mitigate potential longer response times by limiting the spread of and minimizing risks associated with fires.

3.2 Emergency Response

The Project Site is located within the City of Chula Vista Fire Department jurisdictional area. Village 3 North and Portion of Village 4 would be serviced by existing Fire Station 7, located 2.9 miles from the furthest point in the project along with existing Fire Station 3, located 3.6 miles from the project. If constructed as anticipated in the approved Chula Vista FFMP, the proposed Village 8 West Fire Station located 3.5 miles (to the most remote portion of the village) from the project area would also respond to emergency calls for service. Existing Fire Station 4 (3.7 miles from the project) and the approved EUC Fire Station (4.9 miles from the project) would possibly also respond. Dudek conducted GIS based emergency response modeling from existing and planned fire stations to the project to determine potential response coverage. The modeling utilized CVFD input variables that are consistent with the FFMP. Emergency travel time for first arriving engines from each station are provided in Table 8. Automatic and/or Mutual Aid agreements with surrounding fire departments are in place and would result in additional resources not analyzed in this FPP.

Table 8
Village 3 North and Portion of Village 4 CVFD Emergency Response Analysis

Chula Vista Fire Department Station No.	Total Mileage to Village 3 North and Portion of Village 4 (furthest point)	Estimated Response Travel Time (minutes)	% of Village within 5-minute travel time
		First Arriving	*First Arriving*
7	2.9	5:35	90%
3	3.6	6:46	0%
4	3.7	6:56	0%
Proposed Village 8 West	3.5	6:36	15%
Approved EUC**	4.9	8:59	5%

* Table 8 presents results of response travel time utilized the ISO formula (T=.65+1.7D) that discounts speed to account for slowing along the response route whereas Figures 9 through 11 illustrate model runs with a constant speed of 35 mph which results in faster overall coverage times and 100% coverage under 5 minutes.

** Note that the EUC B station was used for modeling prior to selection by the City of EUC A station. Response time differences from EUC A are minimal.

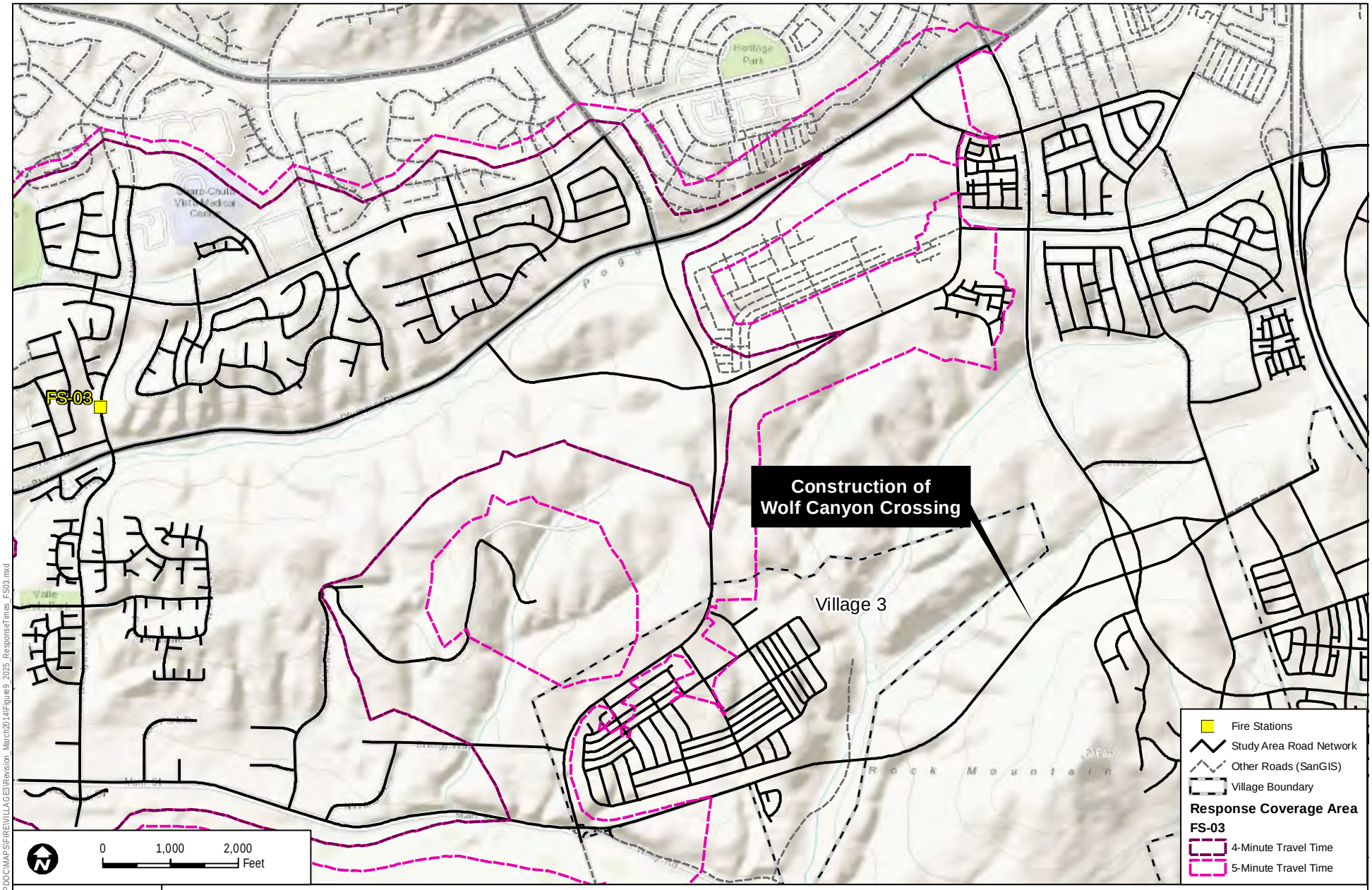
As indicated in Table 8 and Figures 9 through 11, the first arriving engine from Station 7 achieves a 5-minute travel time throughout nearly 90% of the development, substantially conforming with the approved goal of 7 minutes 90% of the time (5 minutes travel + dispatch + turnout). The 90% achievement is based on a study of the number of lots in the project and the percentage of those lots that can be reached within 5 minutes travel using the Insurance Service Office's travel time forumula. The Effective Fighting Force (first 3 engines, 1 truck and battalion chief) could be on-scene within roughly 6:56 travel time from three existing stations and within 6:36 minutes (to the furthest village extent) from the proposed Village 8 West station. In this case, the proposed Village 8 West station does not provide significant time savings, as both EFF responses are under the 8-

minute travel time goal. Even with proposed stations, travel time response at 4-minutes or less is only achievable in all portions of Village 3 North and Portion of Village 4 from Station 7.

Station 7 can successfully achieve response to 90% of Village 3 North and Portion of Village 4 within 5 minutes 7.5 seconds travel time and the remainder areas within 5 minutes 35 seconds. Achievement of 90% coverage in just over 5 minutes is considered substantially conforming to the City's standard and the number of homes beyond 5 minutes totals 209 lots, which would not be expected to generate high numbers of calls. The proposed Village 8 West Station, as well as Stations 3 and 4, can respond within roughly 6:56 minutes, rounding out the EFF. NFPA 1710 sets the 4-minute response travel time standard, but includes a 90% qualifier, meaning 90% of the responses should include a 4-minute travel time for fire and medical responses. Paramedics (ALS) are not required to arrive until 8 minutes driving time for 90% of incidents, if there is a Basic Life Support (BLS) engine company with AED on scene sooner. Chula Vista includes paramedics on each engine and therefore, exceeds NFPA 1710 to Village 3 North and Portion of Village 4. Based on the portion of Village 3 North and Portion of Village 4 that is not within the 4-minute travel time coverage and the number of emergency calls anticipated from those areas, the net effect on the City's ability to meet a 4-minute travel time, 90% of the time will not be significantly affected.

Based on the available firefighting resources from existing stations, the call volume currently experienced along with that generated by Village 3 North and Portion of Village 4, and the response times achievable by the existing stations, it is expected that overall response will substantially conform with NFPA 1710, at existing response resource levels. Call volume at Stations 7, 3, and 4 are currently estimated at 1,200, 1,500, and 1,400 per year, respectively (extrapolation from Chula Vista FFMP). The additional 0.94 call per day expected to be generated by Village 3 North and Portion of Village 4 would not significantly stress existing emergency response capabilities of existing stations, but when considered cumulatively with surrounding development and related calls, would have the potential to result in a significant impact.

Medical response does not meet the 5.5–6-minute critical time standards for first arriving including dispatch and turnout for the entire Village, but does cover a substantial portion of Village 3 within that total response timeframe. With build-out of the area, Station 7 may not be available to respond to every medical emergency at Village 3 North and Portion of Village 4, thus a slower response may be realized. None of the fire station locations provides an ideal solution to reduce travel times. However, with the addition of the proposed Village 8 West station, Station 7 may be more available to respond to medical and other emergencies in Village 3 North and Portion of Village 4, resulting in maintenance of a reasonable response travel time (under 7-minutes for first responding) and adequate resources available to respond to typical wildfire and structure fires. Medical emergencies may be slower, unless contract ambulance response can be used to enhance medical emergency response.



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SOURCE: ESRI 2013, SanGIS 2013, Hunsaker 2012, Hale Engineering 2012

FIGURE 9

Village 3 Proposed 2025 Road Network - FS-03 Fire Station Response Times

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

NOTE: Assumes average roads network speeds of 35 MPH.

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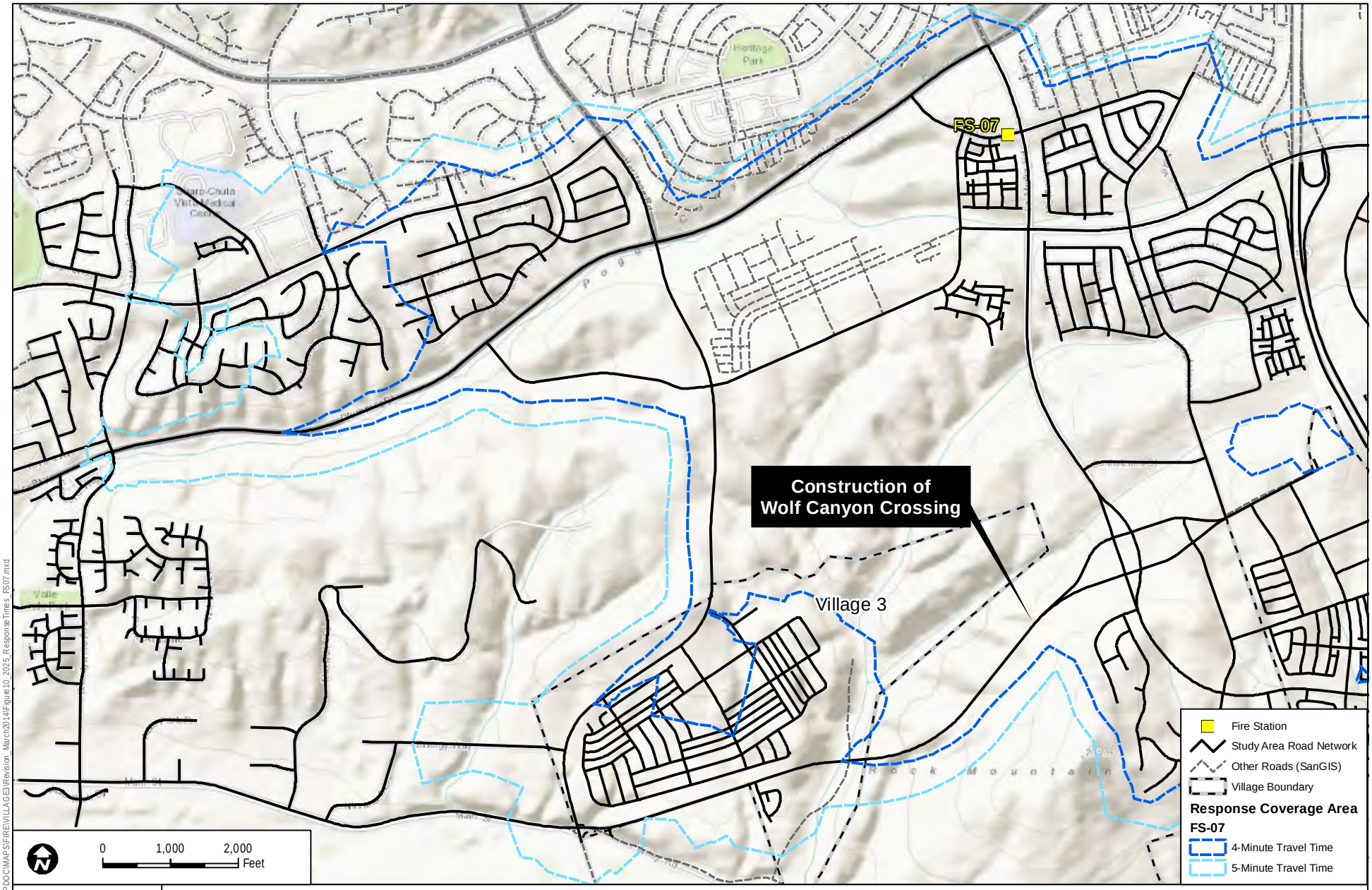

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SOURCE: ESRI 2013, SanGIS 2013, Hunsaker 2012, Hale Engineering 2012

FIGURE 10

Village 3 Proposed 2025 Road Network - FS-07 Fire Station Response Times

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

NOTE: Assumes average roads network speeds of 35 MPH.

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SOURCE: ESRI 2013, SanGIS 2013, Hunsaker 2012, Hale Engineering 2012

FIGURE 11

Village 3 Proposed 2025 Road Network - VLG 8-A Fire Station Response Times

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

NOTE: Assumes average roads network speeds of 35 MPH.

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3.3 Impacts and Mitigation

3.3.1 Fire Response

The Village 3 North and Portion of Village 4 Project includes a substantial number of new single- and multi-family housing units and associated schools, commercial and light industrial structures, and up to 5,126 people. Service level requirements could, in the absence of additional fire facilities and resources improvements, cause a decline in the CVFD response times and capabilities. The requirements described in this FPP are intended to aid fire-fighting personnel and minimize the demand placed on the existing emergency service system.

Cumulative impacts from this type of project can cause fire response service decline and must be analyzed for each project. The Village 3 North and Portion of Village 4 Project represents an increase in service demand due to the number of new structures and people living in or using the community. Based on the calculations presented in the preceding sections, and the estimated calls per day generated by the project, Village 3 north and Portion of Village 4 is anticipated to have a moderate impact on the response capability of the existing CVFD Fire Stations.

A second potential impact resulting from development in a Wildland Urban Interface (WUI) setting is related to the potential for increased exposure of residents to wildland fire. More people in a given area results in more opportunity for fire starts and subsequent exposure to dangerous conditions. The inclusion of homes adjacent to preserved open space areas and the potential for wildfire indicates the need for measures to minimize the likelihood of fire ignition and specialized wildland firefighting apparatus nearby should wildland fire occur.

The potential impacts to the firefighting and response resources and to the residents residing within this area are considered insignificant with respect to wildland fire. The project's inclusion of the most recent fire safety codes and a layered fire protection system, designed to reduce demands placed on the fire responders while minimizing exposure of humans to potentially harmful fire environments, will result in wildfire exposure levels that are below the significant threshold.

Features which are required and are therefore typically not considered mitigation, but that are relatively new Code requirements and play a critical role in minimizing structure ignition are; ignition resistant construction including roofs, walls and decks, vent restrictions, interior fire sprinklers, windows (dual pane/tempered), and fuel reduction areas. Although fire agencies do not provide "credit" for these features since they are required in the code, they do provide measureable safety improvements when used and are in the Code because they are so effective. Among other features that provide fire protection to Village 3 North and Portion of Village 4 are:

1. Specialized firefighting apparatus within the CVFD fleet for wildland and structure fires along with highly trained firefighters;

2. Customized fuel modification zones that will be managed and maintained throughout the year; The term "customized fuel mod zone" refers to fuel modification zones that are customized to this project based on results of fire behavior, ignition sources, weather, and fire risk.
3. Highly restrictive Fire and Building Codes for both residential and commercial/industrial buildings; and
4. Robust mutual and automatic aid agreements that provide a large arsenal of firefighters, and ground- and aerial- based firefighting apparatus.

Even with these fire protection features, the project and the Otay Ranch Sub Area will require construction, staffing and equipping of the two proposed fire stations discussed above to meet the demands created by build out of the Otay Ranch and enable CVFD to respond within the new CVFD goal of 5-minute travel timeframe to 90% of incidents (first unit) and to assemble an EFF within 8 minutes. Overall phasing of the project and nearby projects (which all provide funding to these stations on a fair-share basis) will determine when additional fire stations are constructed. The Village 3 North and Portion of Village 4 Public Facilities Finance Plan includes a detailed analysis of fire facility phasing and funding. The Project must comply with the approved Chula Vista FFMP (2012), as approved by the Chula Vista City Council. With the two proposed fire stations, construction of which will be supported on a fair share basis by the Project through property tax and payment of the Chula Vista Public Facility Development Impact Fee, City' new goal of 5 minutes driving time to 90% of all structure fires and medical emergency calls will be substantially conforming. An appropriate trigger will be negotiated and included in the Village 3 North and portion of 4 Public Facilities Finance Plan with regard to fair-share funding and commencement of any fire station necessary to serve the project.

3.3.2 Medical Response

The number of estimated EMS calls per day represents a significant impact on current response capabilities and to the people who could require fast medical response for a variety of emergency medical situations. Response times will increase, given the potential for up to 0.94 calls per day associated with Village 3 North and Portion of Village 4 and especially with build-out of the area without additional resources. The combination of two additional fire stations with paramedic units, as proposed by Chula Vista Fire Department, along with ambulance service unit increases is anticipated to result in sufficient resources to respond throughout the Otay Ranch Sub Area, including Village 3 North and Portion of Village 4 at build out.

Medical emergency response times cannot be mitigated for the most serious medical emergencies such as cardiac related emergencies. Advanced life support provided by paramedics on responding engines must arrive as quickly as possible, within 5.5–6 minutes to improve survivability (8

minutes if basic life support can be provided sooner). Six minutes includes the time to notify 911, for 911 to dispatch the closest engine, for the firefighters to "turnout", travel to the incident, locate the victim and engage medical treatments. It is common to require 60–90 seconds for dispatch and another 60–90 seconds for turnout. Travel times vary, but for Village 3 North and Portion of Village 4, would be less than 5-minutes 35 seconds.

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4.0 FIRE SAFETY REQUIREMENTS

The Chula Vista area experiences periodic wildfire and there are dedicated preserve areas that provide wildland fuels adjacent Village 3 North and Portion of Village 4. Although Village 3 North and Portion of Village 4 has not burned during the recorded fire history period, it is expected that wildfire could burn or spot onto the site. Additionally, structural fires and medical emergencies occur in urbanized areas and require response. As such, this FPP provides a summary of proposed and required infrastructure and special measures to provide fire protection.

4.1 Fuel Modification

WUI fire protection requires a systems approach, which includes the components of infrastructure and water, structural safeguards, and adequate fuel modification areas. This section provides fuel modification details for Village 3 North and Portion of Village 4. Figure 12 illustrates the Village 3 North Fuel Modification Zones while Figure 12-1 illustrates the typical edge condition at Village 3's community park.

4.1.1 Fuel Modification Zones

Definition

Fuel Modification Zone: A brush management area from the perimeter structures extending outwards towards Preserve areas. All brush management zones and related fuel modification activities shall occur outside of the Preserve.

General Criteria

1. Vegetation included on the Prohibited Plant List (Attachment 3) is prohibited in any Fuel Modification Zone.
2. All plant and seed material in Zones 1 and 2 to be locally sourced to the greatest extent possible to avoid genetically compromising the existing Preserve Vegetation
3. Plant 50%–70% of the overall fuel modification zone with deep rooting plant material.
4. Maintain all plant material in irrigated zones in a hydrated condition.
5. Remove debris and trimmings produced by thinning and pruning from the site, except for larger woody debris that may be chipped and left on site for weed and erosion control.
6. Hedging of shrubs is prohibited.
7. All trees must be limbed to six feet or 3x the height of understory plants, whichever is greater.
8. Plant shrubs in clusters not exceeding a total of 400 square feet.

9. Provide a distance of no less than the width of the largest shrub's mature spread between each shrub cluster.
10. Provide "Avenues" devoid of shrubs a minimum width of 6 feet and spaced a distance of 200 linear feet on center to provide a clear access route from toe of slope to top of slope.
11. Combustible materials, including chipped biomass, bark, wood chips should be no closer than 30 feet to structures unless of size and type shown to reduce potential ignitions.
12. Provide a minimum 30 foot distance between mature canopies on slopes that exceed 40%.

Zone 1 (0–50 feet from structure)

Zone 1 – Definition:

All public and private areas located between a structure's edge and 50 feet outward. These areas may be located on public slopes, private open-space lots, public streets, as defined in the landscape fuel modification exhibits.

Zone 1 – Specific Criteria:

1. Provide a permanent irrigation system within this irrigated wet zone.
2. Only those trees on the approved plant list and those approved by the Development Services Director as not being invasive are permitted within this zone.
3. Tree limbs shall not encroach within 10 feet of a structure or chimney, including outside barbecues or fireplaces.
4. Provide a minimum of 10 feet between tree canopies.
5. Additional trees (excluding prohibited or highly flammable species) may be planted as parkway trees on single loaded streets.
6. Limit 75% of all groundcover and sprawling vine masses to a maximum height of 18 inches.
7. 25% of all groundcover and sprawling vine masses may reach a maximum height of 24 inches.
8. Ground covers must be of high-leaf moisture content.
9. Shrubs shall be less than 2 feet tall and planted on 5-foot centers.
10. Randomly place approved succulent type plant material may exceed the height requirements, provided that they are spaced in groups of no more than three and a minimum of five feet away from described "clear access routes."
11. Vegetation/Landscape Plans shall be in compliance with this FPP.

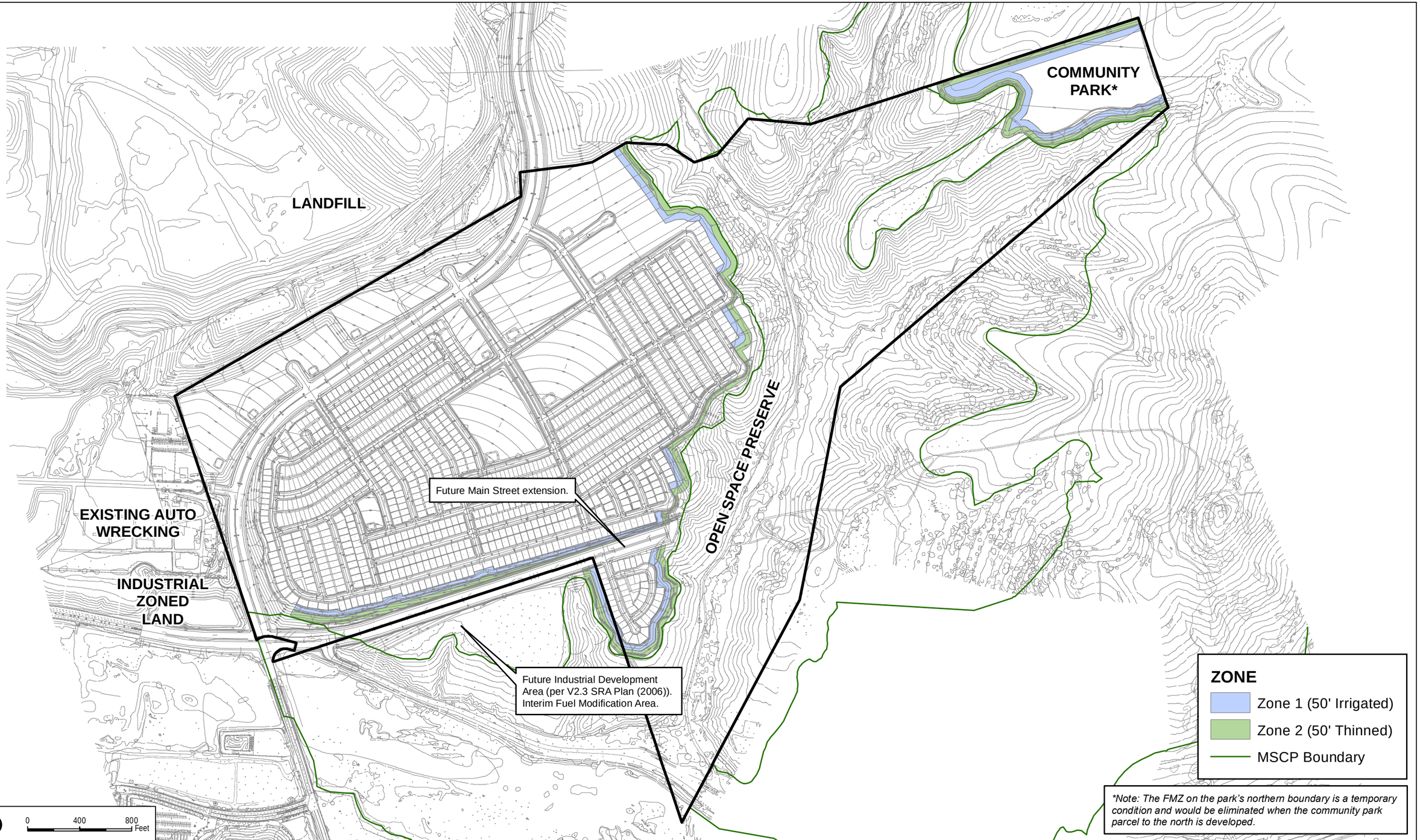

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FIGURE 12

Fuel Modification Zone Exhibit

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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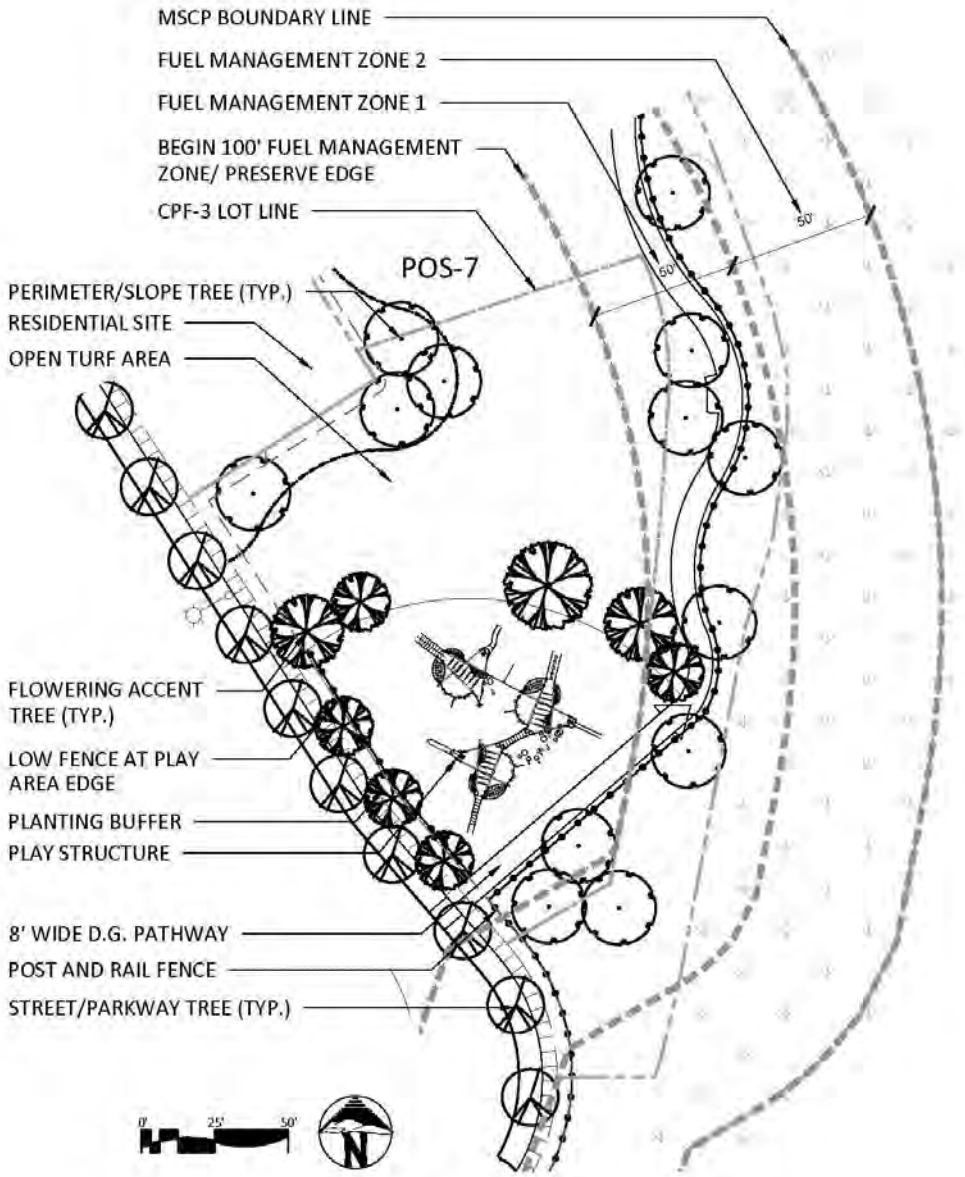
Figure 12-1 Typical Edge Condition at Village 3 Park Facility 3



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Zone 2 (51–100 feet from structure)

Zone 2 – Definition:

All public and private areas located between the outside edge of Zone 1 and 50 feet outward to 100 feet, per this FPP. These areas may be located on public slopes, private open-space lots, public streets, as defined in the landscape fuel management exhibits.

Zone 2 – Specific Criteria:

1. Utilize temporary irrigation to ensure the establishment of vegetation intended to stabilize the slopes and minimize erosion.
2. Trees may be located within this zone, provided they are planted in clusters of no more than three. A minimum distance of no less than 30 feet shall be maintained between the tree cluster's mature canopies.
3. Only those trees on the approved plant list and those approved by the Development Services Director as not being invasive shall be permitted within this zone.
4. 100% of all groundcover and sprawling vine masses shall be limited to a maximum height of 36 inches.
5. Shrubs may be planted in clusters not exceeding a total of 400 sq ft.
6. Provide a distance of no less than the width of the largest shrub's mature spread between each shrub cluster.
7. Provide “Avenue” devoid of shrubs a minimum width of 6 feet and spaced a distance of 200 linear feet on center to provide a clear access route from toe of slope to tope of slope.
8. When shrubs or other plants are planted underneath trees, the tree canopy shall be maintained at a height no less than three times the shrub or other plant's mature height (break up any fire laddering effect).
9. Hedging of shrubs is prohibited.

Village 3 North and Portion of Village 4 Specific Criteria

Fuel modification for Village 3 North and Portion of Village 4 provides at least 100 feet of defensible space. In addition, the fuel modification zones will consist of non-traditional, but effective placement of low-flammability land uses that function as fuel modification (e.g., parking, swimming pools, tennis courts, irrigated green space) on the perimeter of the development footprint. Details follow:

1. Fuel modification will include at least 100 feet of modified fuels with a Zone 1 consisting of 50 feet of irrigated and restricted planting zone, and Zone 2, consisting of 50 feet of temporary irrigation reduced fuel and planting.

2. The Project must comply with the landscape and fuel modification plant palette contained in Attachment 2, Approved Plant List.
3. The community park proposed along the eastern boundary of the Village 3 North and Portion of Village 4 site (technically a part of Village 4), includes placement of parking areas and community recreation facilities (swimming pool(s), tennis court(s)) and irrigated green spaces, at the perimeter of the park. No structures are proposed for this area, but fuel modification is provided around its perimeter. Note that the FMZ on the park's northern boundary is a temporary condition and would be eliminated when the community park parcel to the north is developed. Additionally, the irrigated and maintained vegetation within the remaining portions of the park will function as an extended fire buffer.
4. Fuel modification to the north of Village 3 North and Portion of Village 4 will tie into existing/proposed development area landscaping. There will be no true interface to the north.
5. The interface to the west is bisected by Heritage Road, which provides a 165-foot non-flammable boundary between residential structures and non-maintained fuels.
6. The remaining fuel modification zones provide at least 100 feet of defensible space, including at least a 50-foot irrigated Zone 1 and a 50-foot thinned Zone 2. The provided fuel modification represents nearly 3-times the modeled worst-case flame lengths for the site.
7. Engineered retaining walls (Figures 13 through 15) on the perimeter of the project (within fuel modification areas) will be plantable walls that are irrigated and include a fuel modification consistent plant palette (Attachment 2). In addition, the walls will be maintained free of dead/dying and undesirable species through annual maintenance of the fuel modification zone. To facilitate maintenance, a 10' maintenance access route will be provided at the base of the wall(s). These walls will provide benefits of breaking up vertical fuel continuity, deflecting heat and flames, and augmenting the function of the fuel modification zones.

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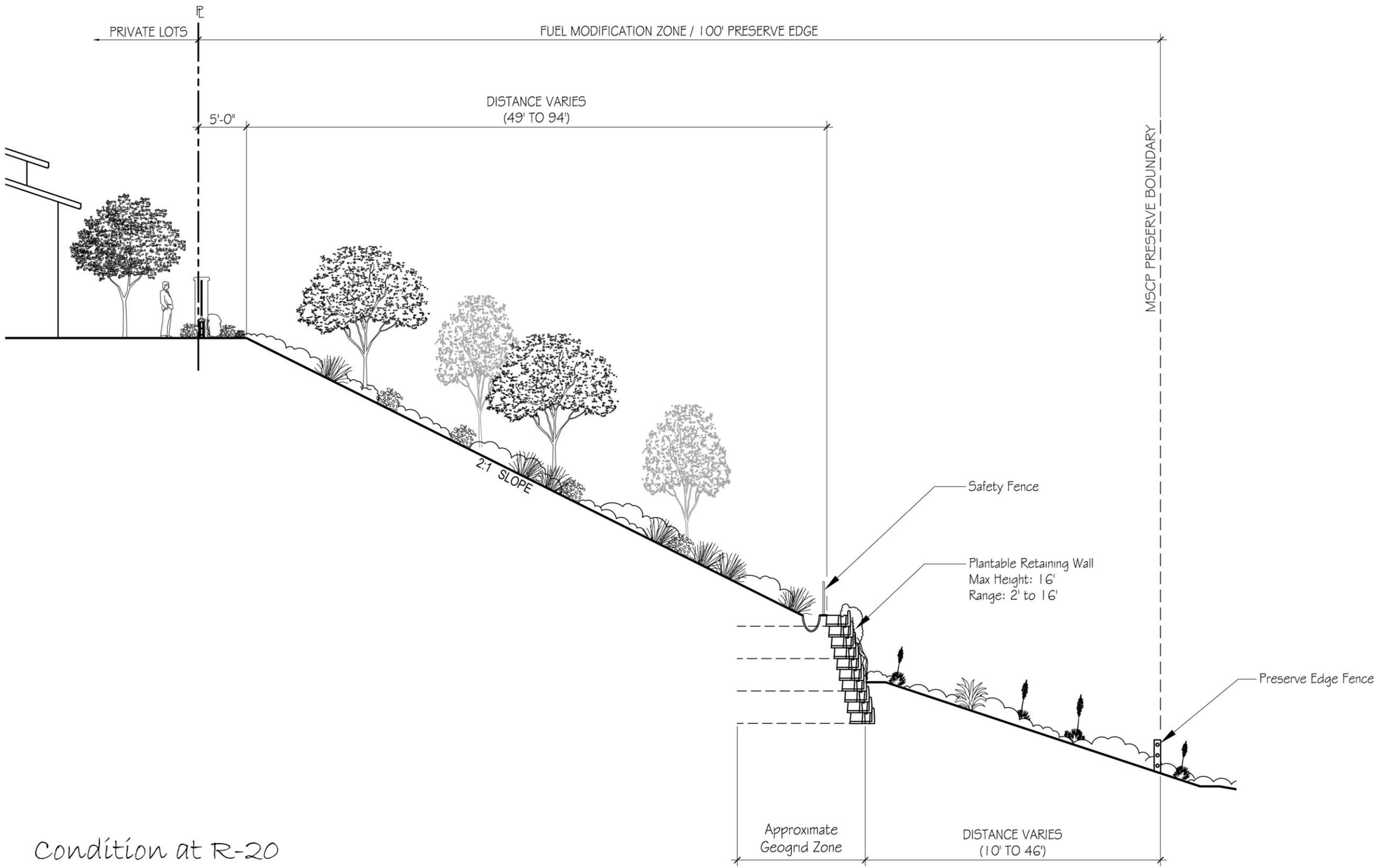
Figure 13 Profile View of Plantable Retaining Wall within Fuel Modification Zones (Street CC)



Condition at R-20

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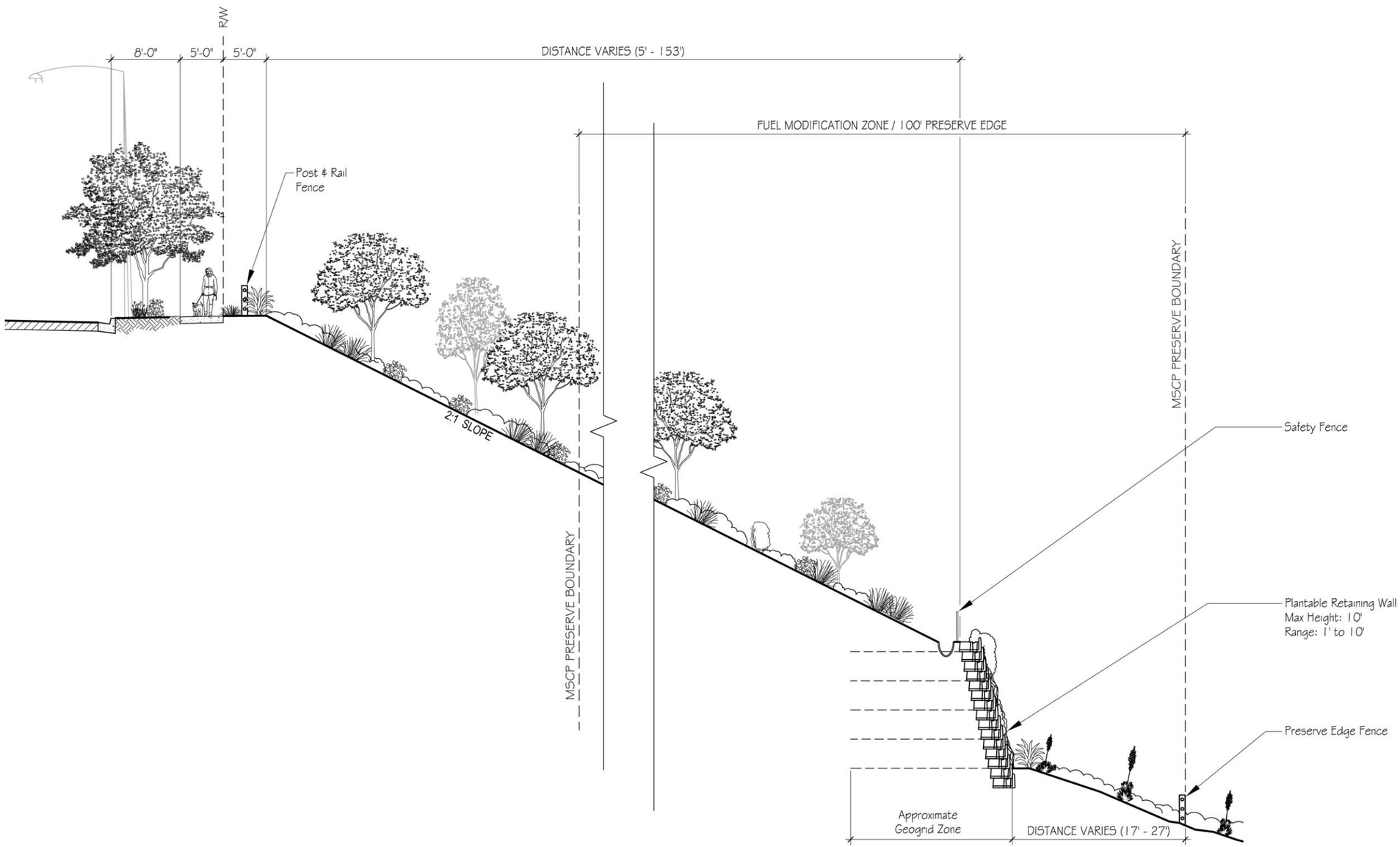
Figure 14 Profile View of Plantable Retaining Wall within Fuel Modification Zones (R20)



Condition at Street "F"

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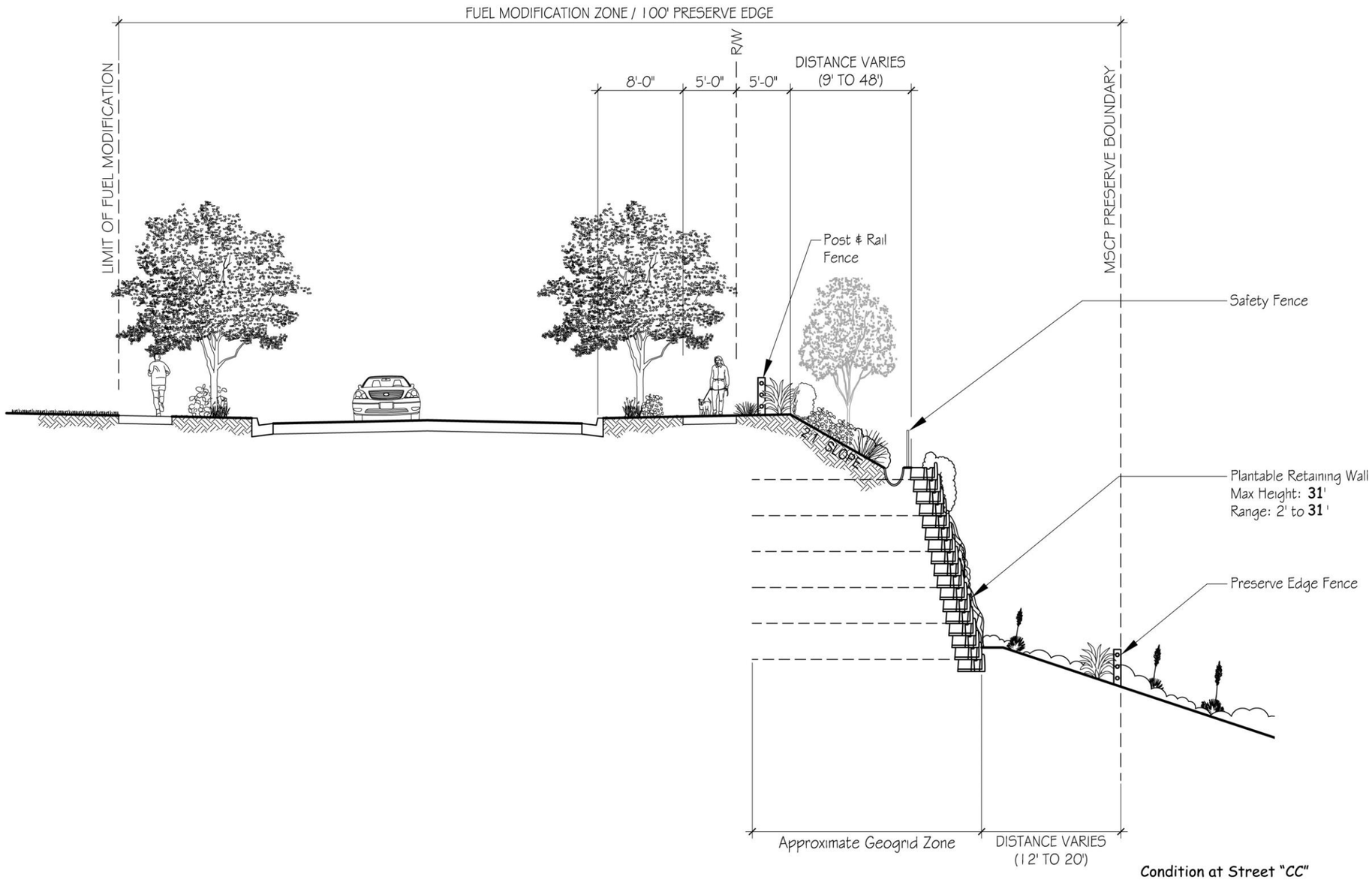
Figure 15 Profile View of Plantable Retaining Wall within Fuel Modification Zones (Street F)



Condition at Street "CC"

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4.1.2 Other Vegetation Management

A. Construction Period Vegetation Management

Vegetation management requirements will be implemented at commencement and throughout the construction phase. Vegetation management will be performed pursuant to CVFD requirements on all lots or areas prior to the start of work and prior to any import of combustible construction materials. Adequate fuel reductions will occur through thinning, mowing, or blading around all grading, site work, and other construction activities in areas where there is flammable vegetation In addition to the requirements outlined above, the project will comply with the following important risk reducing vegetation management guidelines:

1. All new power lines will be underground, for fire safety during high wind conditions or during fires on a right of way which can expose aboveground power lines. Temporary overhead power/utility lines are permitted in construction zones.
2. Fuel modification zones will not extend into biological open space or other sensitive biological areas, or other areas controlled by the City and/or resource agencies without first having written formal permission from all applicable agencies.
3. Caution must be used to avoid erosion or ground (including slope) instability or water runoff due to vegetation removal, vegetation management, maintenance, landscaping, or irrigation. No uprooting of treated plants is necessary.
4. Vegetation management activities associated with facilities under construction within the MSCP Preserve shall be limited to the impact area identified and analyzed in the Village 3 North and Portion of Village 4 Project EIR. No vegetation management activities are permitted within the Preserve. Emergency brush management activities within the MSCP Preserve must comply with the Chula Vista MSCP Subarea Plan, Section 7.4.4.3 Emergency Brush Management.
5. All structures will be in strict, ongoing compliance with all Fire and Building Code requirements.

B. Roadside Fuel Modification Zones (Including Driveways)

1. High BTU producing flammable vegetation including shrubs and trees shall be cleared and are prohibited.
2. Tree and shrub canopies shall be spaced such that interruptions of tree crowns occur and horizontal spacing of 20 feet between mature canopies of trees or tree groups is maintained.
3. Mow/trim grass to 4 inches.

4. Single tree specimens, fire resistive shrubs, or cultivated ground cover such as green grass, succulents or similar plants used as ground covers may be used, provided they do not form a means of readily transmitting fire.
5. All roads in the development will have vegetation clearance of flammable vegetation on each side, as follows:
   a. Fire Access Roads – 30 feet from edge of pavement
   b. New roads/driveways – 30 feet from edge of pavement
   c. Existing roads/driveways – 20 feet from edge of pavement.
6. Trees are permitted within the Roadside Vegetation Management Zones subject to following criteria:
   a. Provide 20 feet between mature tree canopies (30 feet if adjacent to a slope steeper than 41%).
   b. Limb trees up to one-third the height of mature tree or 6 feet, whichever is greater.
   c. Tree canopies lower than 13 feet 6 inches are prohibited over roadways.
   d. Tree trunks may not intrude into roadway width.
   e. Comply with the Prohibited Plant List (Attachment 3) .
   f. Remove flammable understory beneath trees.
   g. Maintain vegetation under trees to 2 feet in height or below, and no more than one third the height of the lowest limb/branch on the tree, in order to keep the area fire resistive.

C. Parks, Open Space, etc.

1. Parks and open space landscape areas must comply with the guidelines in this FPP.
2. Remove flammable vegetation.
3. Maintain and mow/trim grasses to 4 inches.
4. Trees, plants, and shrubs must comply with the criteria in the FPP and the Approved Plant List (Attachment 2).
5. Comply with the Prohibited Plant List (Attachment 3) .
6. Remove down and dead vegetation as observed.
7. Properly plant and maintain trees consistent with this FPP.

D. Vacant Parcels and Lots

1. Vegetation management will not be required on vacant lots until construction begins. However, perimeter Vegetation Management Zones must be implemented prior to commencement of construction utilizing combustible materials.
2. Vacant lots adjacent to active construction areas/lots will be required to implement vegetation management if they are within 30 feet of the active construction area. Perimeter areas of the vacant lot shall be maintained as a Vegetation Management Zone extending 30 feet from roadways and adjacent construction areas.
3. Prior to issuance of a permit for any construction, grading, digging, installation of fences, etc., the 30 feet at the perimeter of the lot is to be maintained as a Vegetation Management Zone. However, this 30 foot vegetation management zone may not extend into the MSCP Preserve.
4. In addition to the establishment of a 30-foot-wide vegetation management zone prior to combustible materials being brought on site, existing vegetation on the lot shall be reduced by at least 60% upon commencement of construction.
5. Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels shall be removed and trees/shrubs shall be properly limbed, pruned and spaced per this plan.

E. Preserve Areas

At the time of this FPP, there is no anticipated need to conduct vegetation management within adjacent Preserve areas. However, should conditions arise due to unforeseen or uncontrollable circumstances that leads to unsafe conditions, emergency brush management activities within the MSCP Preserve must comply with the Chula Vista MSCP Subarea Plan, Section 7.4.4.3 Emergency Brush Management.

F. Alternative Methods

As fire protection technology continues to evolve and application of fire protection and suppression systems, materials, and methods become acceptable to fire agencies, this FPP provides an alternate means of providing defensible space. Builders or private lot owners may submit a site specific risk assessment and detailed Vegetation Management Plan (VMP) with an Alternative Materials and Methods justification, to the CVFD proposing alternative methods of fire protection and providing justification for any variance from the recommended vegetation management zones, if there is a practical difficulty, or environmental constraint, in providing the entire size of the necessary vegetation management zone detailed herein. The VMP will need to fully justify any alternative means and methods/mitigation measures proposed for reductions in

the fuel modification areas and the CVFD Fire Marshal shall have full authority to approve or deny the requested variance.

G. Private Lots

This FPP provides direction for selecting lower flammability plant material along with planting and maintenance requirements. The 100 feet fuel modification zone is required to use low flammability plantings consistent with this FPP. In addition, it is recommended that none of the plant materials listed in the "Prohibited Plant List" (Attachment 3) in this plan or otherwise known to be especially flammable be planted on private lots. This FPP or a summary of its key points will be provided to all buyers in a private property owner's guide to living in a fire environment. Deed restrictions will be recorded indicating the fuel modification zones on each private lot, as appropriate. Deed restrictions shall run with the land and be conveyed to any subsequent owner of the private lot. In addition, the project Codes, Covenants, and Regulations (CC&Rs) shall include a reference to the FPP to ensure compliance with the FPP.

All subsequent landscape plans and associated plant pallets prepared for areas located adjacent to the preserve are subject to the review and approval of the MSCP Section of the Development Services Department.

4.1.3 Maintenance

Vegetation management shall be completed annually by May 1 of each year and more often as needed for fire safety, as determined by the CVFD. Homeowners and private lot owners shall be responsible for all vegetation management on their lots, in compliance with this FPP which is consistent with CVFD requirements. The "Approved Maintenance Entity" shall be responsible for and shall have the authority to ensure long term funding, ongoing compliance with all provisions of this FPP, including vegetation planting, fuel modification, vegetation management, and maintenance requirements on all private lots, multifamily residences, commercial, school (CVFD may inspect schools and enforce fuel modification requirements), parks, common areas, roadsides, and open space under their control (if not considered biological open space). Any water quality basins, flood control basins, channels, and waterways should be kept clear of flammable vegetation, subject to Section 4.1.2.D. The Approved Maintenance Entity shall obtain an inspection and report from a CVFD–authorized Wildland Fire Safety Inspector, in May of each year, certifying that vegetation management activities throughout the Project Site have been performed pursuant to this FPP and CVFD standards. This report will be funded by the Approved Maintenance Entity and submitted to CVFD Fire Marshal for approval.

Note: non-emergency brush management within Zone 2 (zone closest to the preserve) shall be performed outside the bird breeding season, to the extent practical for consistency with the MSCP and the Migratory Bird Treaty Act. Brush management activities within this zone are subject to review by the MSCP Section of the Development Services Department and may require additional technical information including pre-implementing bird surveys and noise monitoring. Maintenance activities in any environmentally sensitive areas that contain sensitive habitat including jurisdictional waters/wetlands are subject to the prior review and approval of the City and appropriate resource agency (i.e., California Department of Fish and Game, U.S. Fish and Wildlife Service, Army Corps of Engineers).

4.2 Infrastructure

4.2.1 Access

Site access, including fire lane, driveway, and entrance road widths, primary and secondary access, gates, turnarounds, turning radius, dead end lengths, signage, aerial fire apparatus access, surface, and other requirements will comply with the requirements of the Chula Vista Fire Code (including 2013 Fire Code {Appendix D} and 2000 Urban-Wildland Interface Code {Section 403}) or will be reviewed and approved by CVFD.

Open Space/Canyon Access for firefighters will be provided every 1,000 lineal feet on the perimeter of the project adjacent Preserve areas.

4.2.2 Secondary Access

1. Village 3 North includes three primary ingress/egress roadways, while the portion of Village 4 included in this FPP includes one primary ingress/egress roadway.
2. Dead end roads longer than 150 feet shall have approved provisions for fire apparatus turnaround.
3. Cul-de-sac bulbs are required on dead-end roads in residential areas where roadways serve more than two residences and per City standards.
4. Fire apparatus turnarounds to include turning radius of a minimum 35 feet, measured to inside edge of improved width, (CVFC and Section 31 Standard Operational Guidelines).
5. The longest dead-end road (cul-de-sac) allowed by the CVFC is 800 feet for this community. No dead-end cul-de-sac lengths will exceed 800 feet.
6. Roadways and/or driveways will provide fire department access to within 150 feet of all portions of the exterior walls of the first floor of each structure.

7. Roadway design features (e.g., speed bumps, humps, speed control dips, planters, fountains) that could interfere with emergency apparatus response speeds and required unobstructed access road widths will not be installed or allowed to remain on roadways (CVFC). Traffic Calming features (i.e., raised intersections, intersection neck downs, roundabouts and parallel bay parking with landscape pop-outs) shall be allowed, subject to approval by the CVFD.
8. Vertical clearance of vegetation along roadways will be maintained at 13 feet, 6 inches. Vertical clearance in the commercial, school, and multi-family structure areas to be clear to the sky to allow aerial ladder truck operation. There shall be no power or utility lines over roadway.
9. Angle of driveway/roadway approach/departure will not exceed 7° (12%) per CVFD.
10. Road grades will not exceed 10%, unless approved by the Fire Chief.
11. Developer will provide information illustrating the new roads, in a format acceptable to the Fire District, for updating of Fire District maps (CVFC).
12. Any roads that have traffic lights shall have Fire District–approved traffic preemption devices (Opticom) compatible with devices on the Fire Apparatus.

4.2.3 Gates

Access gates will comply with CVFC requirements applicable at the time of building plan approval.

4.2.4 Driveways

Any structure that is 150 feet or more from a common road in the development shall have a paved driveway meeting CVFC requirements:

4.2.5 Water Supply

Water service will be provided by the Otay Water District. Water supply requirements specified in the Chula Vista Fire Code (Section 404 of the Wildland-Urban Interface Code and Appendix B – Fire Flow Requirements for Buildings, Appendix C – Fire Hydrant Locations and Distribution {Chula Vista revisions – Sections 15.36.050 and 15.36.055}) including for hydrants and interior sprinklers will be provided for Village 3 North and Portion of Village 4.

4.3 Structure Requirements

4.3.1 Ignition-Resistance

Village 3 North and Portion of Village 4 structures will include single family detached, multi-family, light industrial, commercial, and a school. Each of these structures will include the latest wildland urban interface construction methods and materials required by the latest building or fire code (Chapter 7A of the 2013 Building Code and Chapter 5 of the Urban-Wildland Interface Code).

While these standards will provide a high level of protection to structures in this development, and should reduce the potential for ordering evacuations in a wildfire, there is no guarantee that compliance with these standards will prevent damage or destruction of structures by fire in all cases.

4.3.2 Fire Protection System Requirements

All structures within Village 3 North and Portion of Village 4 will include interior sprinklers, per code requirements (Section R313.3 of the 2013 California Residential Code, Chapter 9, Section 903 of the 2013 Chula Vista Fire Code, and Section 602 of the Urban-Wildland Interface Code). Sprinklers will be specific to each occupancy type and based on the most recent NFPA 13, 13R, or 13D, requirements.

4.3.3 Additional Requirements and Recommendations Based on Occupancy Type

This section includes conceptual occupancy-specific recommendations based on the type of occupancy.

Additional Building Requirements for High Occupancy and Higher Hazard Potential Buildings

All CVFC and CVBC requirements for higher occupancy structures will be provided to Village 3 North buildings that include higher occupancies. Included in the high occupancy category are multi-family residences over three units, attached condominiums, multi-story buildings over two stories, industrial, commercial, and schools.

Schools

Building Plans will be subject to approval of the State Architect. Construction in this area should comply with CBC, Chapter 7-A, structures should be no more than two-stories, and shall comply with other state requirements for fire safety. Access, water supply and hydrant plans are subject to CVFD approval.

4.3.4 Wildfire Education

Village 3 North residents and visitors of commercial and property facilities will be provided on-going education regarding wildfire, the City evacuation plan, and this FPP's requirements. This educational information will be prepared by the community HOA, reviewed by the CVFD, and will support the fire safety and relocation features/plans designed for this community. Informational handouts, community Web-site page, mailers, fire safe council participation, inspections, and seasonal reminders, are some methods that will be used to disseminate wildfire and relocation awareness information. CVFD will review and approve all wildfire educational material/programs before the HOA printing and distribution.

5.0 CONCLUSION

This FPP for the proposed Village 3 North and Portion of Village 4 complies with the requirements of Chula Vista Fire Department and its adopted Fire Codes (2013 California Fire Code and 2000 Urban-Wildland Interface Code) and Building Codes (Chapter 7A).

This FPP utilizes a "systems approach" for specifying fire protection measures. The measures consist of the components of fuel modification, structural protection, water supply, fire protection systems, access (ingress/egress), and well-planned emergency response. This FPP provides details regarding the general fire protection features as well as the site specific, restrictive policies that will govern Village 3 North and Portion of Village 4 with regards to fire protection. In addition, this FPP incorporates and relies on the proposed fire station locations outlined in the 2014 Council-approved, Chula Vista FFMP. Village 3 North and Portion of Village 4 must comply with this plan.

The requirements and recommendations provided in this FPP have been designed specifically for the proposed improvements adjacent to the wildland urban interface zone at Village 3 North and Portion of Village 4.

Ultimately, it is the intent of this FPP to guide the fire protection efforts for Village 3 North and Portion of Village 4 in a comprehensive manner. Implementation of the measures detailed in this FPP will reduce the risk of wildfire at this site, will improve the ability to safely relocate people from the area during wildfire events or temporarily shelter them under emergency conditions, and will improve the ability to fight fires on the properties and protect property and neighboring resources irrespective of the cause or location of ignition.

It must be noted that during extreme fire conditions, there are no guarantees that a given structure will not burn. Precautions and minimizing actions identified in this report are designed to reduce the likelihood that fire will impinge upon Village 3 North and Portion of Village 4 assets or threaten its residents or visitors. Additionally, there are no guarantees that fire will not occur in the area or that fire will not damage property or cause harm to persons or their property. Implementation of the required enhanced construction features provided by the applicable codes and the fuel modification requirements provided in this FPP will reduce the site's vulnerability to wildfire. It will also help accomplish the goal of this FPP to assist firefighters in their efforts to defend existing structures and reduce overall fire risk.

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6.0 MAINTENANCE AND LIMITATIONS

In order to ensure that the proposed improvements and uses are provided suitable fire protection that will minimize risks associated with fire, all components of the fire protection system must be maintained and in place. This FPP, when approved, provides the direction and nexus for that maintenance to occur. Specifically, the HOA or other funded management entity will be funded and authorized to ensure that at least annual inspections of the fuel modification areas, construction features, fire protection systems, and infrastructure to ensure that they meet the requirements specified in this FPP.

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ATTACHMENT 1

Select Project Area Photographs

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

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Photograph 11

Photograph 12

Photograph 13

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Photograph 16

Photograph 17

Photograph 18

Photograph 19

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Photograph 22

Photograph 23

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Photograph 25

Photograph 26

Photograph 27

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Project Area Photographs

FIRE PROTECTION PLAN - VILLAGE 3 NORTH AND PORTION OF VILLAGE 4

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ATTACHMENT 2

Village 3 North and Portion of Village 4
Landscape Plant Palette

VILLAGE 3N/4 APPROVED MASTER PLANT LIST
JULY 2014

FUEL MODIFICATION ZONE 1

BOTANICAL NAME	COMMON NAME	NOTES

Plant and seed material should be locally sourced to the greatest extent possible to avoid genetically compromising existing Preserve vegetation

Trees:

Heteromeles arbutifolia	Toyon	May be planted within Fuel Management Zone 1 up to 10% of the plant palette mix. No single mass shall exceed 400 sf. These shall be spaced such that the nearest shrub is no closer than the tallest shrub height (at maturity)
Metrosideros exelsus (un-cut leader)	New Zealand Christmas Tree	
Plantanus racemosa	California Sycamore	
Quercus agrifolia	Coast Live Oak	
Rhus lancea	African Sumac	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)

Shrubs, Cacti & Groundcovers:

Acalypha californica	California Copperleaf	
Agave Shawii	Coastal Agave	
Arctostphylos 'Emerald Carpet'	Emerald Carpet Mazanita	
Baccharis Pilularis	Coyote Brush	Only local native shrub species will be utilized. No cultivars shall be permitted.
Bloomeria Crocea	Common goldstar	
Ceanothus verrocosus	Wartystem Ceanothus	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Comarostaphylis diversifolia	Summer Holly	
Cotoneaster dammeri 'Lowfast'	Bearberry Cotoneaster	
Cotoneaster horizontalis	Rock Cottoneaster	
Cylindropuntia prolifera	Coast Cholla	
Dudleya pulverulenta	Chalk Lettuce	
Encielia californica	California Encelia	
Epilobium californicum	California Fushcia	
Euphorbia misera	Cliff Spurge	
Galvezia speciosa	Bush Snapdragon	
Helianthemum scoprium	Sun Rose	

VILLAGE 3N/4 APPROVED MASTER PLANT LIST
JULY 2014

BOTANICAL NAME	COMMON NAME	NOTES
Isomeris arborea	Bladder Pod	
Iva hayesiana	San Diego Marsh Elder	
Lupinus succulentus	Arroyo Lupine	
Lycium californicum	Box Thorn	
Malachothamnus fasciculatus	Chaparrel Bushmallow	
Malamosa laurina	Hollyleaf Cherry	
Nassella pulchra	Purple Needlegrass	
Opuntia littoralis	Coastal Prickly Pear Cactus	Plants must be locally sourced
Opuntia oricola	No Common Name	Plants must be locally sourced
Rhamnus crocea	Redberry	
Rhus Integrifolia	Lemonade Berry	
Ribes speciosum	Fuschia Flowering Gooseberry	
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera* is a prohibited species
Simmondsia chinesnsis	Jojoba	May be planted in limited quantities and must be properly spaced
Sisyrinchium bellum	Blue-Eyed Grass	
Thymus serphyllum 'Reiters'	Creeping Thyme	Restricted to 30% of area at time of planting. Use in irrigated areas only
Yucca schidigera	Mojave Yucca	
Yucca whipplei	Our Lord's Candle	

Hydroseed Mix:

Baccharis Pilularis	Coyote Brush	Only local native shrub species will be utilized. No cultivars shall be permitted.
Ceanothus verrocosus	Wartystem Ceanothus	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Encielia californica	California Encelia	
Hazardia squarrosa	Sawtooth Goldenfields	
Isomeris arborea	Bladder Pod	
Iva hayesiana	San Diego Marsh Elder	
Layia platyglossa	Tidy tips	
Lupinus succulentus	Arroyo Lupine	
Malachothamnus fasciculatus	Chaparrel Bushmallow	

VILLAGE 3N/4 APPROVED MASTER PLANT LIST
JULY 2014

BOTANICAL NAME	COMMON NAME	NOTES
Malamosa laurina	Hollyleaf Cherry	
Nassella pulchra	Purple Needlegrass	
Phacelia campanularia	California Blue Bells	
Rhamnus crocea	Redberry	
Rhus Integrifolia	Lemonade Berry	
Salvia apiana	White Sage	
Sisyrinchium bellum	Blue-Eyed Grass	
Viguiera laciniata	San Diego Sunflower	
Yucca whipplei	Our Lord's Candle	

Hydroseed Mix (Plantable Retaining Walls):

Baccharis Pilularis	Coyote Brush	Only local native shrub species will be utilized. No cultivars shall be permitted.
Camissonia cheiranthifolia	Beach Evening Primrose	
Ceanothus verrocosus	Wartystem Ceanothus	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Clarkia bottae	Botta's Clarkia	
Eriophyllum confertiflorum	Golden Yarrow	
Hazardia squarrosa	Sawtooth Goldenfields	
Lasthenia californica	California Gold Rush	
Mimulus aurantiacus	Sticky Monkey Flower	Plants must be locally sourced
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera is a prohibited species*
Sisyrinchium bellum	Western Blue-Eyed Grass	
Viguiera laciniata	San Diego Sunflower	
Yucca whipplei	Our Lord's Candle	

VILLAGE 3N/4 APPROVED MASTER PLANT LIST
JULY 2014

FUEL MODIFICATION ZONE 2

BOTANICAL NAME	COMMON NAME	NOTES

Plant and seed material should be locally sourced to the greatest extent possible to avoid genetically compromising existing Preserve vegetation

Trees:

Quercus agrifolia	Coast Live Oak	

Shrubs, Cacti & Groundcovers:

Acalypha californica	California Copperleaf	
Agave shawii	Coastal Agave	
Aristida pupurea	Purple Three-Awn	
Chlorogalum parviflorum	Smallflower Soap Plant	
Cotoneaster dammeri 'Lowfast'	Bearberry Cotoneaster	
Cylindropuntia prolifera	Coast Cholla	
Deinandra fasciculata	Fascicled Tarplant	
Dodonaea viscose	Hop Bush	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Dudleya pulverulenta	Chalk Lettuce	
Encelia californica	Coastal Sunflower	
Epilobium californicum	California Fushcia	
Euphorbia misera	Cliff Spurge	
Grindelia robusta	Gum Plant	
Helianthemum scoprium	Sun Rose	
Isomeris arborea	Bladderpod	
Lupinus succulentus	Arroyo Lupine	
Lycium californicum	Box Thorn	
Malachothamnus fasciculatus	Chaparrel Bushmallow	
Mirabilis californica	Wishbone Bush	
Nassella pulchera	Purple Needlegrass	
Opuntia littoralis	Coastal Prickly Pear Cactus	Plants must be locally sourced
Opuntia oricola	No Common Name	Plants must be locally sourced
Prunus ilicifolia	Hollyleaf Cherry	
Rhamnus crocea	Redberry	
Rhus integrefolia	Lemonade Berry	
Ribes speciosum	Fuschia Flowering	

BOTANICAL NAME	COMMON NAME	NOTES
	Gooseberry	
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera is a prohibited species*
Simmondsia chinesnsis	Jojoba	
Sisyrinchium bellum	Western Blue-Eyed Grass	
Yucca schidigera	Mojave Yucca	
Yucca whipplei	Foothill Yucca	

Hydroseed Mix:

Bloomeria crocea	Common Goldstar	
Encelia californica	Coastal Sunflower	
Eriophyllum confertiflorum	Golden Yarrow	
Gnaphalium bicolor	Bicolor Cudweed	
Hazardia squarrosa	Sawtooth Goldenfields	
Heteromeles arbutifolia	Toyon	
Isomeris arborea	Bladderpod	
Isocoma menziesii	Coast Goldenbush	
Lasthenia californica	Goldfields	
Layia platyglossa	Tidy tips	
Lupinus bicolor	Miniature Lupine	
Lupinus succulentus	Arroyo Lupine	
Nassella pulchera	Purple Needlegrass	
Phacelia campanularia	California Blue Bells	
Plantago erecta	Dot-Seed Plantain	
Rhamnus crocea	Redberry	
Rhus integrefolia	Lemonade Berry	
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera is a prohibited species*
Sisyrinchium bellum	Blue-Eyed Grass	
Sphaeralcea ambigua	Desert Mallow	
Viguiera laciniata	San Diego Sunflower	
Yucca whipplei	Foothill Yucca	

Hydroseed Mix (Plantable Retaining Walls - irrigated):

VILLAGE 3N/4 APPROVED MASTER PLANT LIST
JULY 2014

BOTANICAL NAME	COMMON NAME	NOTES
Clarkia bottae	Botta's Clarkia	
Eriophyllum confertiflorum	Golden Yarrow	
Eschscholzia californica	California Poppy	
Hazardia squarrosa	Sawtooth Goldenfields	
Lasthenia californica	Goldfields	
Mimulus aurantiacus	Sticky Money Flower	
Sisyrinchium bellum	Blue-Eyed Grass	
Viguiera laciniata	San Diego Sunflower	

ATTACHMENT 3

Village 3 North and Portion of Village 4
Prohibited Plant List

PROHIBITED PLANT SPECIES

Certain plants are considered to be undesirable in the landscape due to characteristics that make them highly flammable and/or incompatible with the adjacent MSCP Preserve. The Chula Vista MSCP Subarea Plan, Appendix K provides a comprehensive list of plants that are prohibited adjacent to Preserve areas. These characteristics can be either physical or chemical. Physical properties that would contribute to high flammability include large amounts of dead material retained within the plant, rough or peeling bark, and the production of copious amounts of litter. Chemical properties include the presence of volatile substances such as oils, resins, wax, and pitch. Certain native plants are notorious for containing these volatile substances. Plants with these characteristics shall not be planted in any of the fuel modification zones. Should these species already exist within these areas, they shall be removed because of the potential threat they pose to any structures. They are referred to as target species since their complete removal is a critical part of hazard reduction. These fire-prone plant species include, but are not limited to, the following:

Botanical Name/Common Name

Cynara cardunculus/Artichoke Thistle

Ricinus communis/Castor Bean Plant

Cirsium vulgare/Wild Artichoke

Cytisus spp./Broom

Brassica nigra/Black Mustard

Silybum marianum/Milk Thistle

Sacsola austails/Russian Thistle or Tumbleweed

Nicotiana bigelevil/Indian Tobacco

Nicotiana glauca/Tree Tobacco

Lactuca serriola/Prickly Lettuce

Conyza canadensis/Horseweed

Heterothaca grandiflora/Telegraph Plant

Anthemix cotula/Mayweed

Urtica urens/Burning Nettle

Cardaria draba/Noary Cress or Perennial Peppergrass

Brassica rapa/Wild Turnip, Yellow Mustard, or Field Mustard

Adenostoma fasciculatum/Chamise

Adenostoma sparsifolium/Red Shanks

Cortaderia selloana/Pampas Grass

Artemisia californica/California Sagebrush

Eriogonum fasciculatum/Common Buckwheat

Salvia mellifera/Black Sage

Ornamental:

Cortaderia selloana/Pampas Grass

Cupressus spp./Cypress

Eucalyptus spp./Eucalyptus

Juniperus spp./Juniper

Pinus spp./Pine

Washingtonia spp./Palm

UNIVERSITY VILLAGES

Otay Ranch Village 3 North and a Portion of Village 4

Preserve Edge Plan

ADOPTED DECEMBER 2, 1014
BY RESOLUTION NO. 2014-234

December 2, 2014

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A. INTRODUCTION

The purpose of the Preserve Edge Plan is to identify allowable uses within appropriate land use designations for areas adjacent to the Otay Ranch Preserve. In accordance with Policy 7.2 of the Otay Ranch Resource Management Plan, a Preserve Edge Plan is to be developed for all SPA Plans that contain areas adjacent to the Preserve. The Preserve Edge is a 100-foot wide strip of land adjacent to the Preserve. To provide further guidance relating to the content of the Preserve Edge Plan, the Chula Vista MSCP Subarea Plan contains policies related to land use adjacency. Otay Ranch GDP, RMP and Chula Vista MSCP Subarea Plan policies are summarized and evaluated below. Areas subject to the Preserve Edge Plan requirements are depicted on Exhibit 1 and further described below.

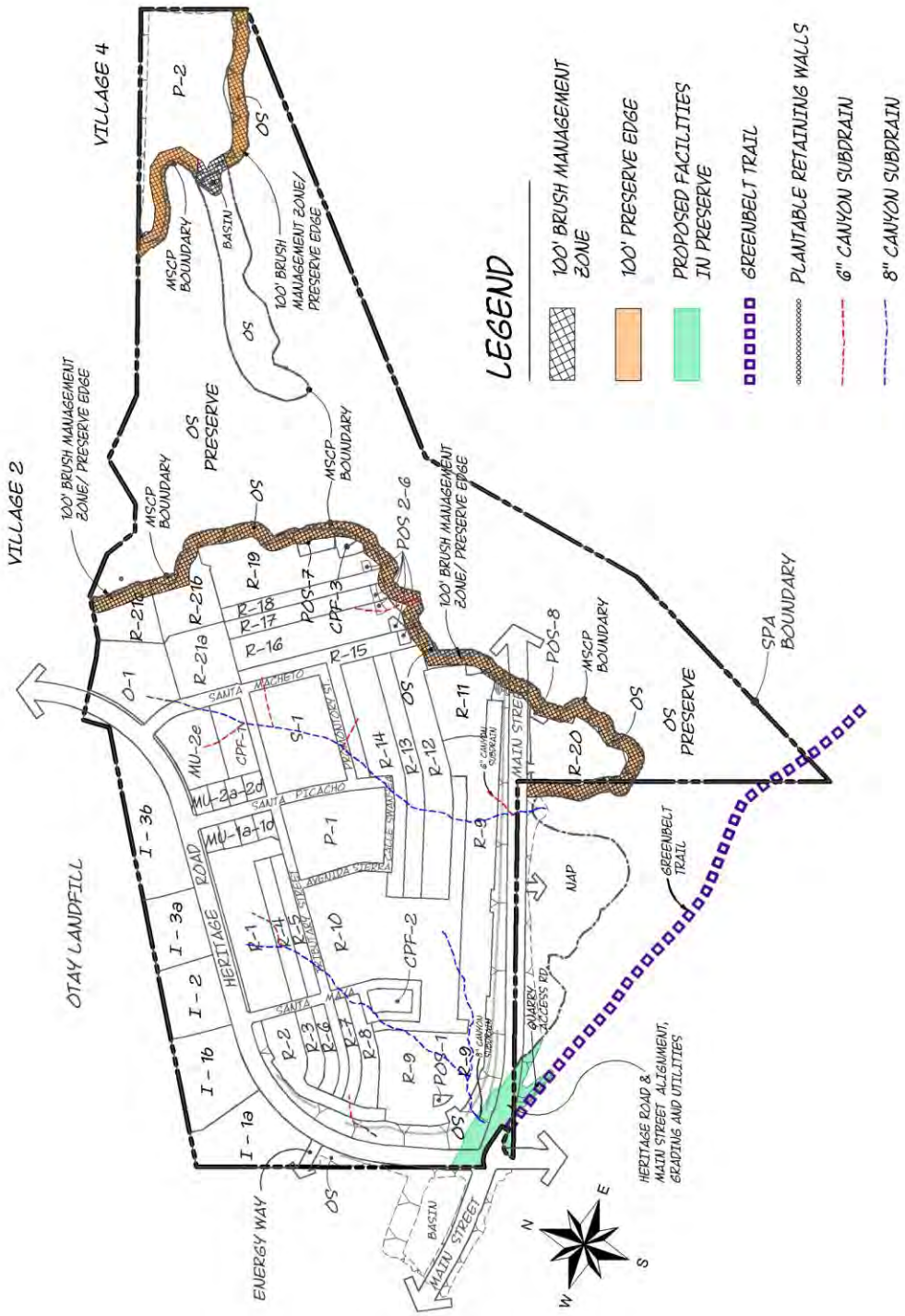


Exhibit 1
Areas Subject to the Preserve Edge Plan and Facilities Proposed in the Preserve

B. FACILITIES AND IMPROVEMENTSPROPOSED WITHIN THE PRESERVE

The facilities described below and depicted on Exhibit 1 are proposed within the MSCP Preserve and are not subject to this Preserve Edge Plan, but rather are discussed for context purposes only. Per the MSCP Subarea Plan, certain infrastructure and roads planned in conjunction with development will be allowed to be constructed, operated and maintained within the Preserve. The Subarea Plan anticipated these "Planned" and "Future" facilities and requires compliance with the siting criteria identified in Section 6.3.3.4 or the Subarea Plan. The Project's Biological Report provides the siting criteria analysis. Facilities proposed within the Preserve include:

1. Access Facilities

The Village 3 North and a Portion of Village 4 SPA Plan ("Project") includes the extension of Main Street and Heritage Road through the Project site. In conjunction with the extension of Main Street, modifications to the off-site Quarry Access (Wiley Road) are also proposed.

- Both Main Street and Heritage Road are 6-Lane Prime Arterials on the Chula Vista General Plan Circulation Element. These roadways are identified on Table 6.1 of the Chula Vista MSCP Subarea Plan as "Planned Facilities." In addition to roadway improvements, utilities are co-located within the right-of-way to serve both Village 3 North and portions of Village 2. The Project's Biological Technical Report includes a detailed analysis of the Heritage Road and Main Street grading impacts as they relate to the MSCP Planned and Future Facility Siting Criteria. (Exhibit 2)

- The Quarry Access (Wiley Road) located off-site south of Village 3 North has been redesigned to intersect with Main Street east of Heritage Road. This two lane improved road serves the existing Otay Quarry and has been designed at the steepest gradient physically possible in order to minimize grading impacts on the Preserve. The Project's Biological Report includes a detailed analysis of the impacts as they relate to the MSCP Planned and Future Facility Siting Criteria. (Exhibit 2)

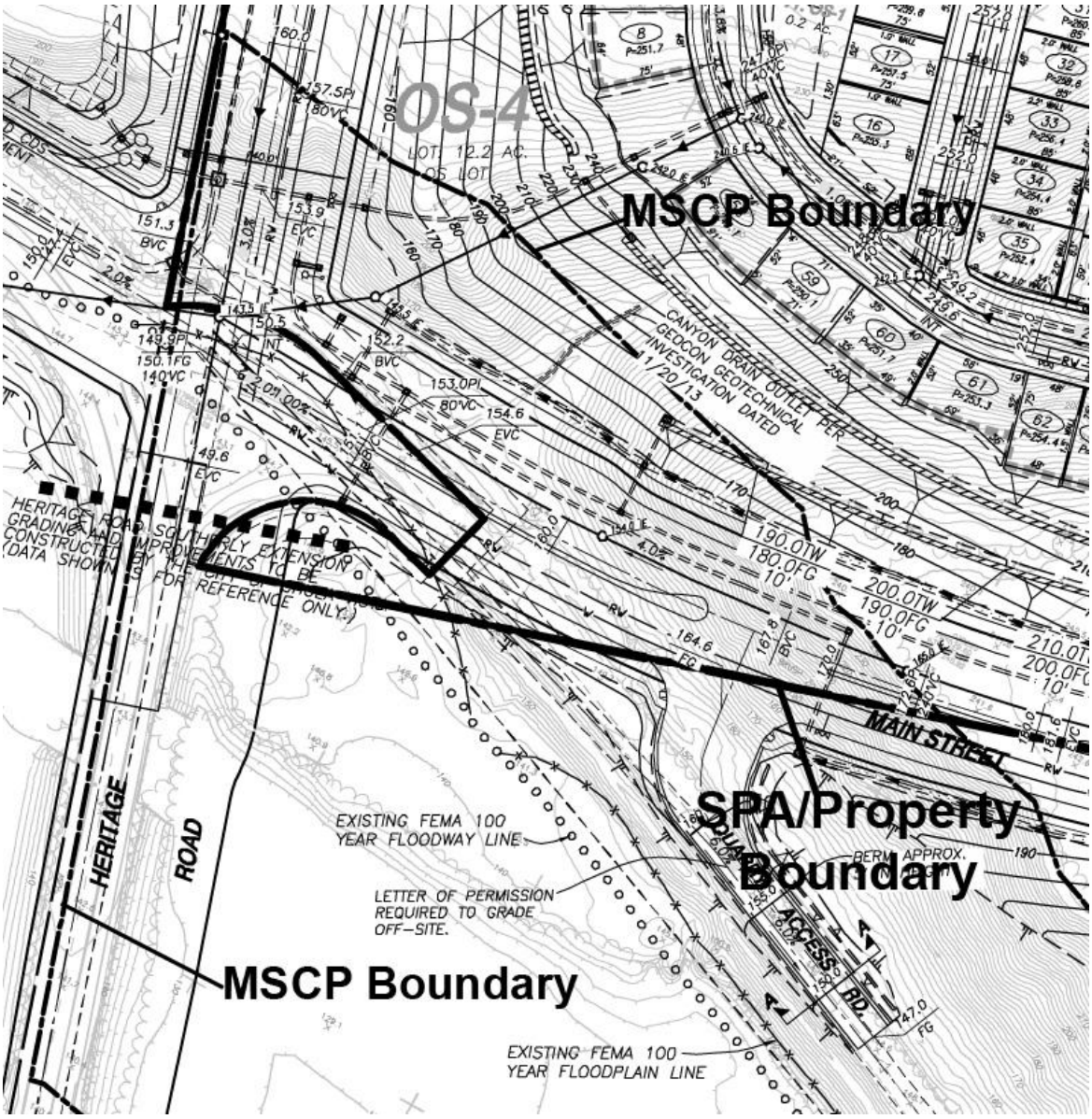


Exhibit 2
Heritage Road/Main Street, Off-site Quarry Access Facility within the Preserve

- The Chula Vista Greenbelt/OVRP Trail is co-located within the existing Salt Creek Sewer Easement on the north side of the Otay River Valley, south of Village 3 North. Village 3 North includes a small segment of this trail (289') located south of Village 3 North, within the MSCP Preserve. This trail is a Planned Facility within the MSCP Subarea Plan. Physical implementation of this trail facility would not create any additional impacts on the MSCP Preserve. See Biological Report for MSCP adjacency analysis. (Exhibit 3)

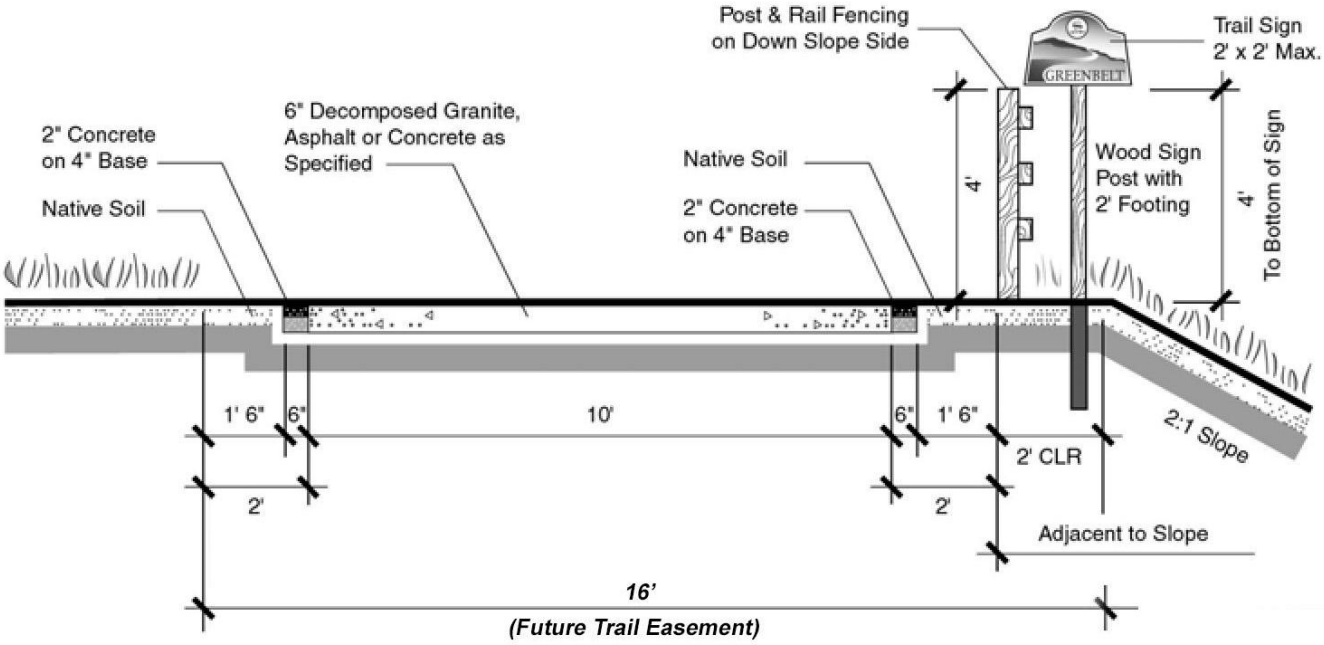


Exhibit 3
Chula Vista Greenbelt Trail

C. FACILITIES PROPOSED WITHIN THE 100-FOOT PRESERVE EDGE

Several facilities are proposed within the 100' Preserve Edge as depicted on Exhibit 1 and described below:

1. Residential Street

A residential street at the Project southern perimeter is proposed within the 100' Preserve Edge. These improvements include two travel lanes, landscaped parkways and sidewalks. Post and rail fencing is provided outside the right-of-way, behind the sidewalk. Standard City streetlights are also proposed along these residential streets. Lighting within the 100' Preserve Edge is subject to the Village 3 North Design Plan, Page 94 Lighting within the 100' Preserve Edge.

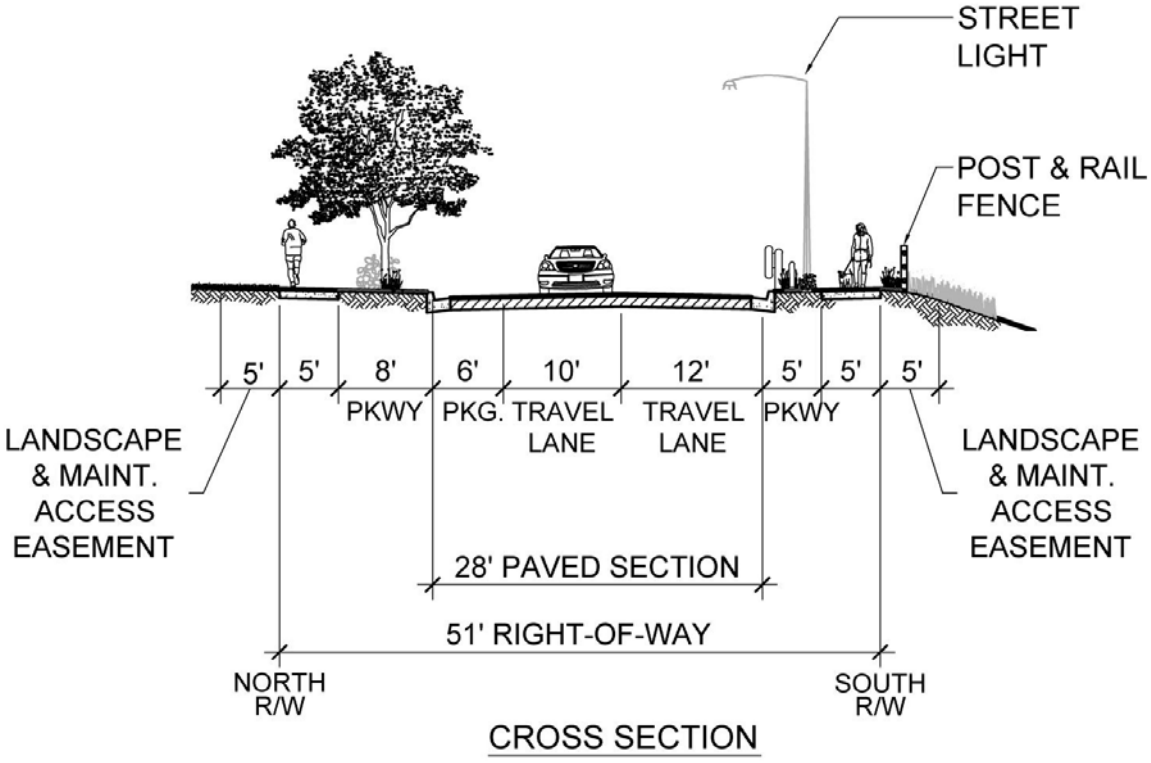
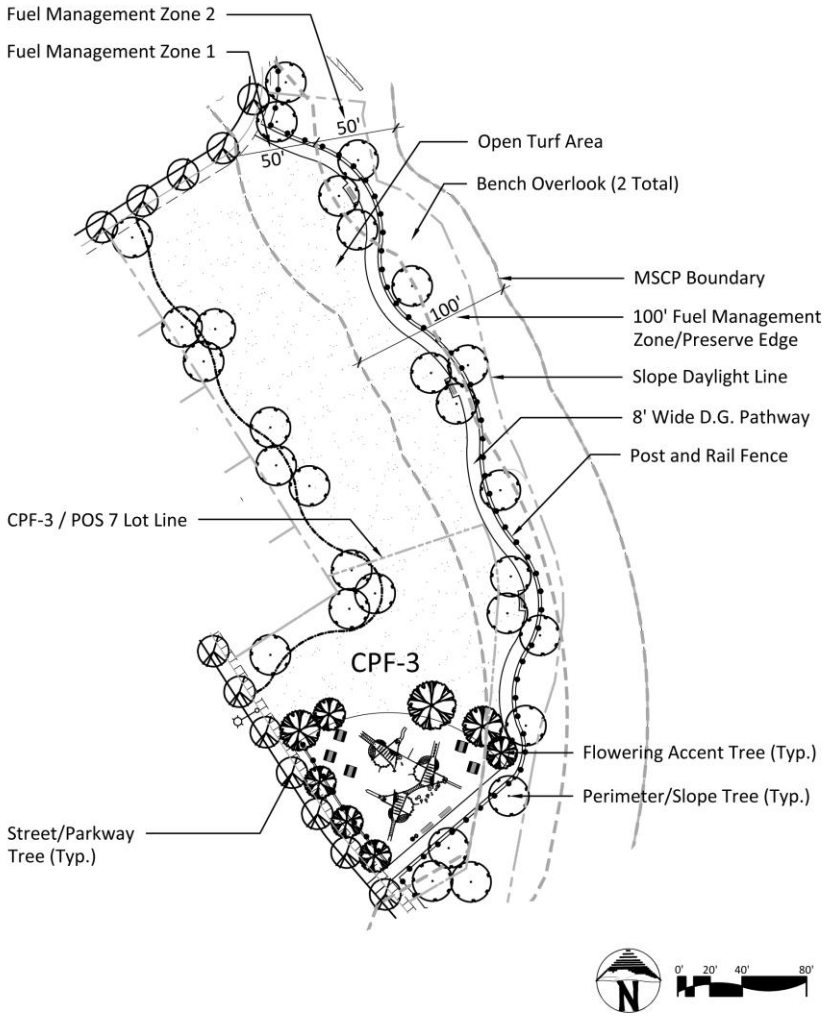


Exhibit 4
Modified Parkway Residential Street Section (Single Loaded)

2. Community Purpose Facility (CPF-3) / Private Open Space (POS-7)

CPF-3 is a Private Recreation Facility. The conceptual design includes picnic and play areas, play equipment and sports courts. A portion of the CPF-3 site comprised of landscaped lawn and planter area is within the 100' Preserve Edge. No facilities are proposed within the 100' Preserve Edge.

Directly adjacent to the CPF-3 site is with POS-7 site. The portion of the site within the 100' Preserve Edge is comprised of open lawn, an 8' wide D.G. pathway and a bench. A post and rail fence is located adjacent to the pathway. The CPF-3/POS-7 Concept Plan is provided in Exhibit 5.



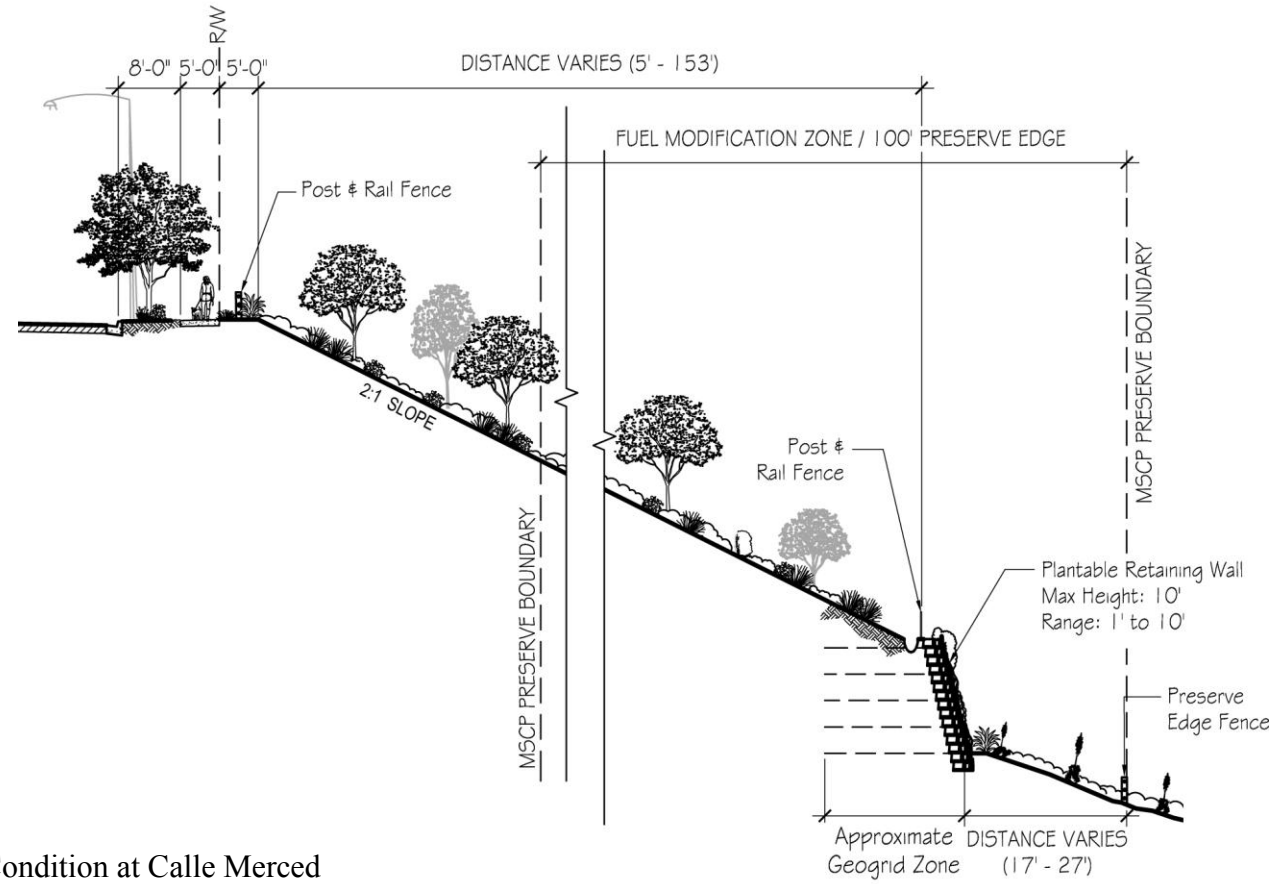
No structures other than fencing and walls shall be allowed within 100-feet Preserve Edge. Perimeter fences and walls within the 100-foot Preserve Edge shall be built and landscaped to minimize visual impacts on the Preserve and the Otay Valley Regional Park. Landscape plans for areas adjacent to the MSCP Preserve must be consistent with the "Approved Plant List" (Attachment A) and the Preserve Edge Plan landscaping and irrigation requirements. Any proposed use within the Preserve Edge shall be subject to review and approval of the Deputy City Manager / Development Services Director.

Exhibit 5
CPF-3 / POS-7 Concept Plan

This concept plan is for illustrative purposes only. Actual site development may vary from concepts depicted in this exhibit.

3. Plantable Retaining Walls

Plantable Retaining walls are proposed within the 100' Preserve Edge at the Project perimeter, outside of the MSCP Preserve (See Exhibit 6). The retaining walls range in height between 1' and 22'. A minimum 10' (range 10' to 46) pedestrian only access and maintenance buffer area is provided between the base of the wall and the MSCP Preserve Boundary, A fence is provided at the Preserve Boundary



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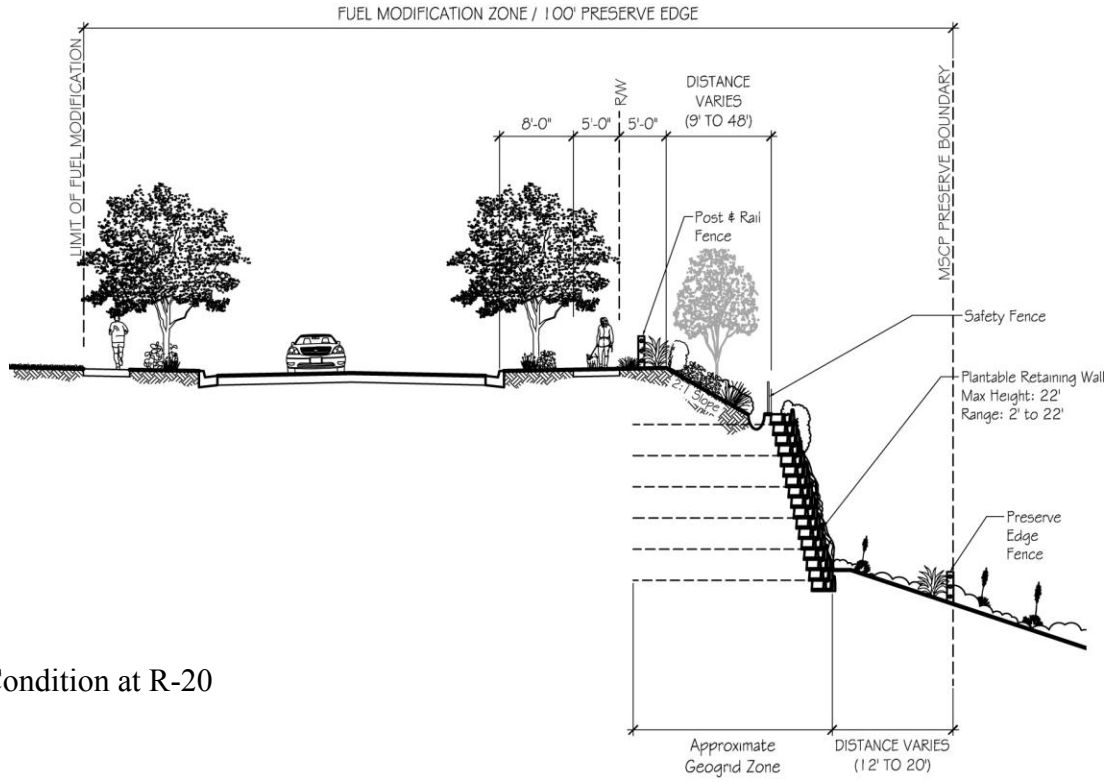
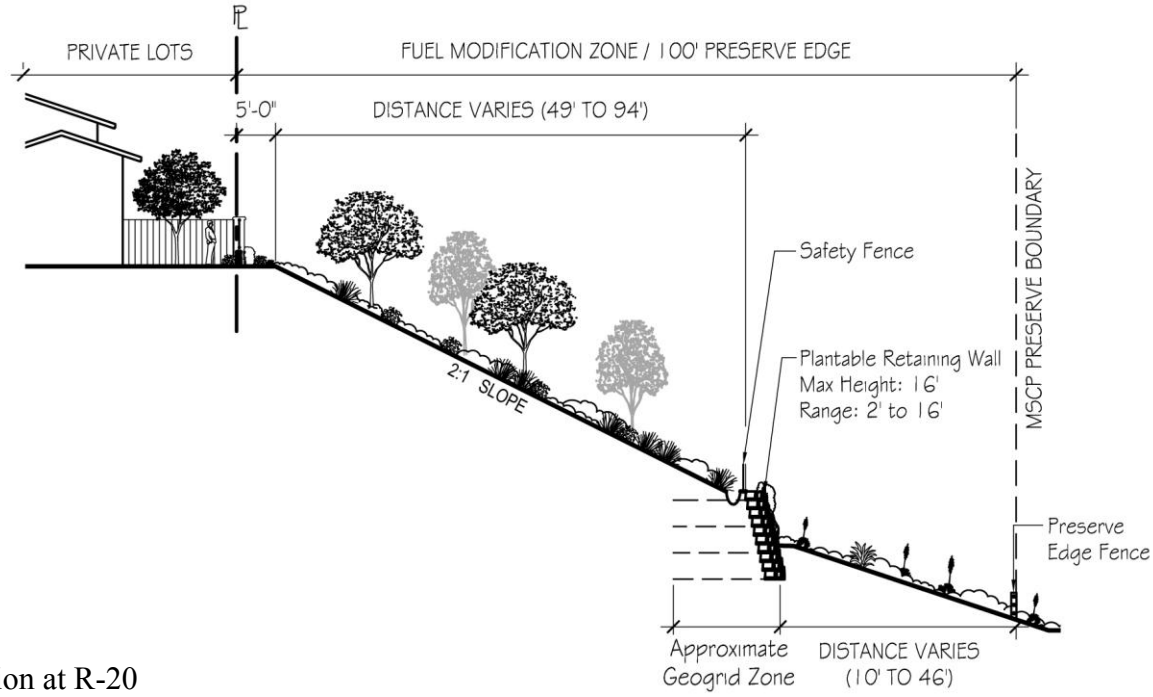


Condition at R-20



Condition at R-20

Exhibit 6

Plantable Retaining Wall Conditions within 100' Preserve Edge

Note: Plantable wall location, height, setback and geogrid zone are conceptual, subject to final engineering design.

4. Canyon Subdrain

A series of canyon subdrains are proposed at the perimeter of Village 3 North. One 6" drain is proposed within the 100' Preserve Edge. See Exhibit 1 for the approximate location of the subdrain. The subdrain outlet is comprised of a concrete headwall, flow channel and a 15' x 5' to 10' wide percolation areas. The outlet pipe is a minimum of 20' from the Preserve Boundary and the system maintains a minimum 3' setback from the Preserve Boundary. Because the subdrain is located in the vicinity of proposed retaining walls, the pipe will extend through the wall at the base and then outlet per the detail provided in Exhibit7. Additional details are provided in the Village 3 North and Portion of Village 4 Geotechnical Study prepared by GEOCON.

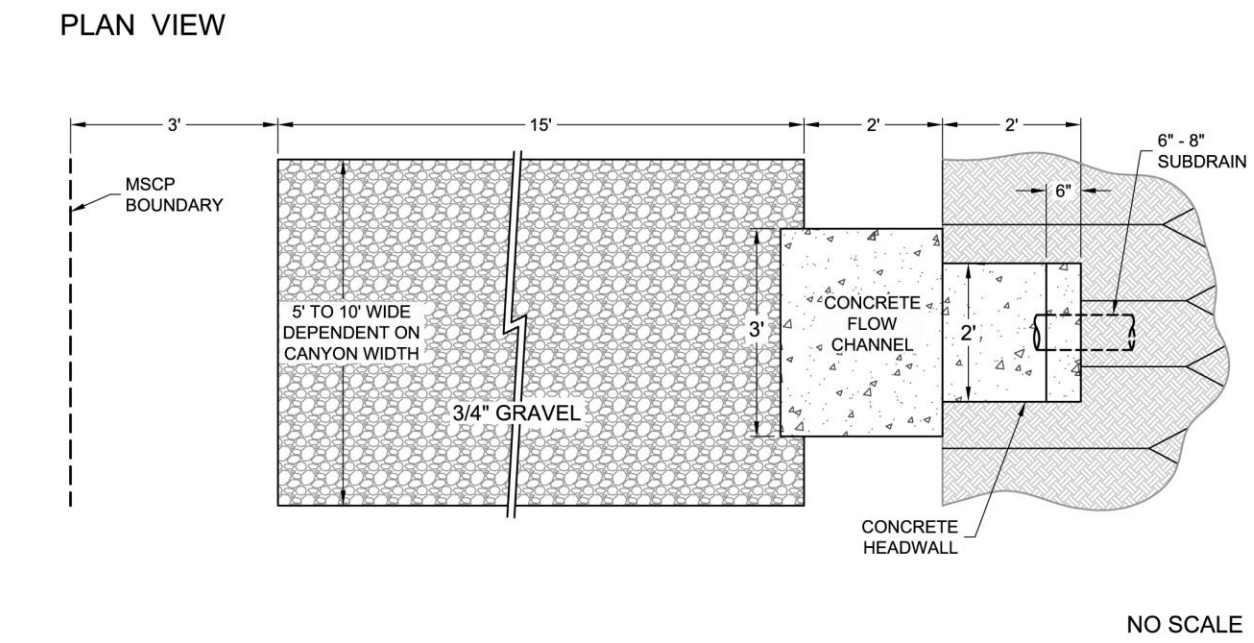


Exhibit 7
Typical Canyon Subdrain Detail

D. COMPLIANCE WITH RMP/MSCP SUBAREA PLAN POLICIES

The following discussion provides a description of policies identified in the Chula Vista MSCP Subarea Plan, which were developed in consideration of the requirements of the RMP, as well as compliance measures to be carried out by the various components of the SPA Plan. The discussion is divided into edge effect issue areas identified in the Subarea Plan

1. Drainage

MSCP Policy:

"All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the Preserve. This can be accomplished using a variety of methods including natural detention basins, grass swales or mechanical trapping devices. These systems should be maintained approximately once a year, or as often as needed, to ensure proper functioning. Maintenance should include dredging out sediments if needed, removing exotic plant materials, and adding chemical-neutralizing compounds (e.g., clay compounds) when necessary and appropriate." (Page 7-25)

Compliance:

The *Master Drainage Study* ("Drainage Plan") and *Water Quality Technical Report* ("Water Quality Plan") prepared by Hunsaker and Associates assessed the existing and developed drainage and water quality conditions in the SPA Plan area. In conformance with the GDP and SPA requirements, the Drainage Plan provides the necessary hydrological studies, analysis and design solutions to provide appropriate urban runoff and water quality for the SPA Plan Area. Key elements of the Drainage Plan and Water Quality Plan are described below. See Exhibit 8 for Water Quality/Bioretention Basin locations.

a. **Drainage**

Village 3 North

- All pre development and post development runoff from the Project is within the Otay River Valley watershed.

- Portions of the pre-development runoff from Village 3 North flow directly to Wolf Canyon (which in turn is tributary to the Otay River Valley) and portions of the pre-development runoff flow directly to the Otay River Valley.

- Due to the impact of Savage Dam at the Otay Reservoir, studies have determined that development of the Project site will not

increase the 100 year frequency peak flows in the Otay River. Therefore, no detention basins are required to mitigate 100 year peak flows.

- The storm drain and associated outlet serving Village 3 North is located west of Heritage Road. This facility conveys treated runoff from Village 3 North and outlets directly to the Otay River.

Village 4 Portion (Community Park)

- All pre development and post development runoff from Village 4 is within the Otay River Valley watershed.

- Community Park development is not expected to significantly impact peak flows to Wolf Canyon. Any peak flow mitigation required will be constructed on site through LIDs such as utilizing on-site permeable surfaces (grass fields, planters, etc.) to clean on-site flows through an ongoing filtration process. The storm drain system ties into an off-site Water Quality/Hydromodification Basin located within Village 8 West that outlets to Wolf Canyon. The P-2 Park and Village 8 West facilities are co-located to minimize impacts to the Preserve.

- A storm drain outfall will be extended to Wolf Canyon and will be designed to attenuate flows to non-erosive velocities through the use of energy dissipating devices.

b. **Urban Runoff/Water Quality**

Village 3 North

- The development of the SPA Plan area will implement all necessary requirements for water quality as specified by the State and local agencies.

- The development will meet the requirements of the City's Standard Urban Storm Water Mitigation Plan (SUSMP), the Jurisdictional Urban Runoff Management Plan and the Storm Water Management and Discharge Ordinance (as specified in the City of Chula Vista Development and Redevelopment Storm Water Management Standards/Requirements Manual).

- The Otay River is a USGS blue line stream, which makes it a waterway of the United States under the Clean Water Act (CWA). All development in excess of five acres must incorporate urban runoff planning, which will be detailed at the Tentative Tract Map level. The conceptual grading and storm water control plan for the SPA Plan area provides for water quality control facilities to ensure protection for the Otay River.

- The Otay River is listed in the County of San Diego *Hydromodification Management Plan* as an exempt facility. Since all runoff from the developed area within Village 3 North are proposed to drain directly to the Otay River, hydromodification basins are not required for this development. The Biological Resources Technical Report further discusses the potential for erosion/scouring, habitat removal, habitat conversion, flooding and washing out existing/future facilities and the cumulative effects as a result of increased discharge volumes and the rate of discharge into the Otay River.

- Runoff from the development portion of Village 3 North is treated in a Bio-Retention Basin north of Main Street and West of Heritage Road. Flows from the basin will outlet directly to the Otay River.

- Bioretention basin regular maintenance activities are anticipated four times a year (February, May, September and December). Rainy Season (February and December) and Pre-Rainy Season (September) maintenance activities include removal of trash, debris and excess sediment, clear clogged riser orifices and perform basin area repairs. Post-Rainy Season maintenance includes full silt removal from the dry weather storage area, vegetation removal, annual inspections by a registered civil engineer, removal of trash, debris and excess sediment above the dry weather zone, clear clogged riser orifices and perform basin area repairs. Additional maintenance may be required following major rainfall events unless the next regularly scheduled maintenance dates are within one month of the rain event. Access to the bioretention basin that serves Village 3 North is provided via Main Street.

- No runoff from developed or impervious portions of Village 3 North outlet to Wolf Canyon. Some graded slopes along the southerly edge are tributary to Wolf Canyon and will be self-treating.

Village 4

- The development of the SPA Plan area will implement all necessary requirements for water quality as specified by the State and local agencies.
- The development will meet the requirements of the City's Standard Urban Storm Water Mitigation Plan (SUSMP), the Jurisdictional Urban Runoff Management Plan and the Storm Water Management and Discharge Ordinance (as specified in the City of Chula Vista Development and Redevelopment Storm Water Management Standards/Requirements Manual).
- The Otay River and are USGS blue line streams, which make them a waterway of the United States under the Clean Water Act (CWA). All development in excess of five acres must incorporate urban runoff planning, which will be detailed at the Tentative Tract Map level. The conceptual grading and storm water control plan for the SPA Plan area provides for water quality control facilities to ensure protection for Wolf Canyon.
- The proposed development in Village 4 is tributary to Wolf Canyon. Since Wolf Canyon is not listed as an exempt facility, Village 4 will be subject to hydromodification requirements as specified in the County of San Diego *Hydromodification Management Plan*. Hydromodification requirements will be met through the use of Bio-Retention Basins in conjunction with Low Impact Development measures.
- Village 4 is proposed to be developed as a park and will be developed with very little impervious area. The impervious areas will be self-treating through the use of LIDs for water quality.
- Graded slopes along the southerly and westerly edge of the P-2 Park are tributary to Wolf Canyon and will be self-treating.

In addition to the permanent drainage facilities, temporary desiltation basins to control construction related water quality impacts will be constructed within the SPA Plan area with each grading phase to control sedimentation during construction. The interim desiltation basins are designed to prevent discharge of sediment from the project grading operations into the natural drainage channel and will be detailed in the Storm Water Pollution Prevention Plan (SWPPP) as required by the Construction General Permit from the State Water Resources Control Board. The exact size, location and component elements of these interim basins will be identified on the grading plans and SWPPP. Temporary, interim measures will occur within the development area.

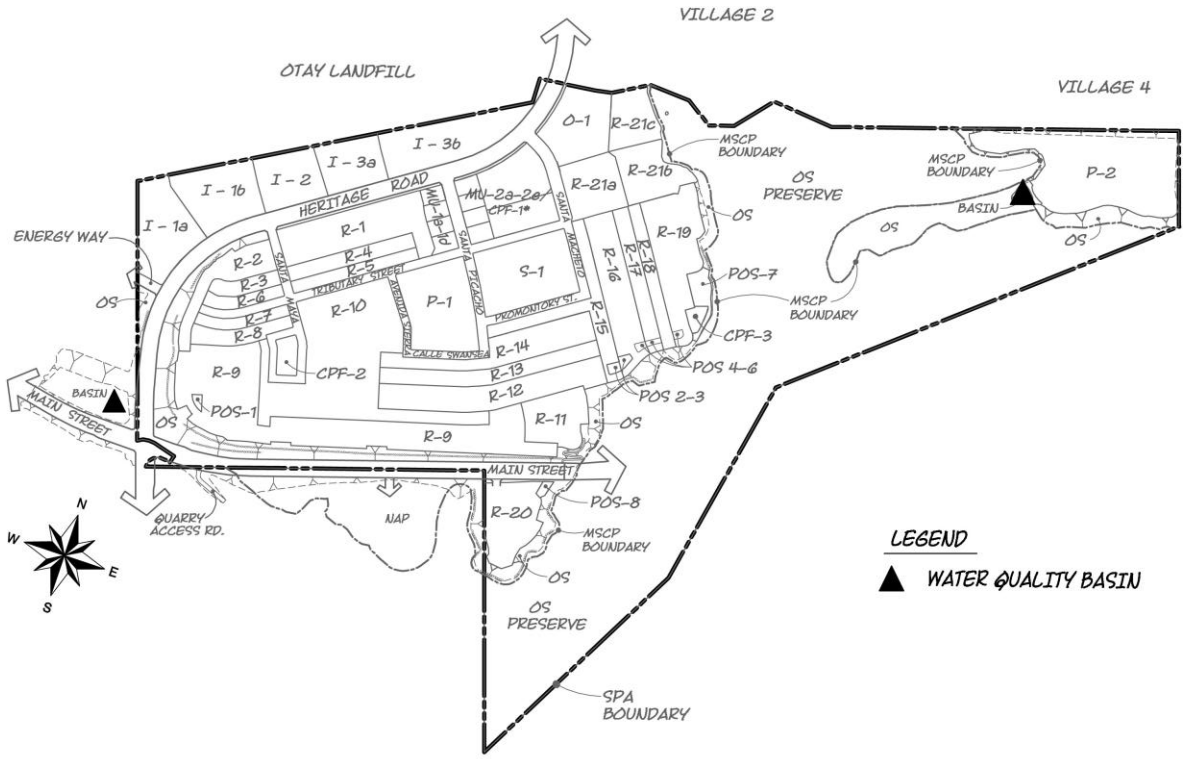


Exhibit 8
Water Quality/Bioretention Basin Facilities

2. Toxic Substances

MSCP Policy:

"All agricultural uses, including animal-keeping activities, and recreational uses that use chemicals or general by-products such as manure, potentially toxic or impactive to wildlife, sensitive species, habitat, or water quality need to incorporate methods on their site to reduce impacts caused by the application and/or drainage of such materials into the Preserve. Methods shall be consistent with requirements requested by the Regional Water Quality Control Board (RWQCB) and National Pollution Discharge Elimination System Permit (NPDES)." (Page 7-26)

Compliance:

The SPA Plan area would phase out agricultural uses adjacent to the Preserve, consistent with the Village 3 and a Portion of Village 4 Agricultural Plan. There are no agricultural activities currently occurring on the site. As described in greater detail in the Water Quality Technical Report for Village 3 North, prepared by Hunsaker & Associates, the combination of proposed construction and permanent BMPs will reduce, to the maximum extent possible, the expected project pollutants and will not adversely impact the beneficial uses of the receiving waters.

Anticipated pollutants from the project site may include sediments, nutrients, heavy metals, organic compounds, trash and debris, oxygen demanding substances, oil and grease, bacteria and viruses and pesticides. Runoff from Village 3 North will be transmitted via public storm drain to a bioretention basin located west of Village 3 North. Storm water pollutants are removed through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil. Treated water is released into the Otay River within 72 hours of capture. This system ensures that, to the greatest extent practicable, Preserve areas adjacent to Village 3 North and Village 4 will not be impacted from toxic substances that may be generated from the project site.

3. Lighting

MSCP Policy:

"Lighting of all developed areas adjacent to the Preserve should be directed away from the Preserve, wherever feasible and consistent with public safety. Where necessary, development should provide adequate shielding with non-invasive plant materials (preferably native), berming, and/or other methods to protect the Preserve and sensitive species from night lighting. Consideration should be given to the use of low-pressure sodium lighting." (Page 7-26)

Compliance:

The Village 3 North Design Plan includes criteria for the design of lighting for the village. Improvement plans for the areas within the 100' Preserve Edge will include shielded lighting designs that avoid spillover light in the Preserve. Lighting Plans and a photometric analysis shall be prepared in conjunction with improvement plans or the Design Review process to illustrate the location of proposed lighting standards and type of shielding measures. Lighting Plans and accompanying photometric analyses must be prepared in conjunction with street and other improvements proposed within the Preserve to demonstrate that light spillage into the Preserve is avoided to the greatest extent possible. City of Chula Vista updated street lighting standards require installation of energy saving LED lamps on all City streets.

4. Noise

MSCP Policy:

"Uses in or adjacent to the Preserve should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the Preserve. Excessively noisy uses or activities adjacent to breeding areas, including temporary grading activities, must incorporate noise reduction measures or be curtailed during the breeding

season of sensitive bird species."

Where noise associated with clearing, grading or grubbing will negatively impact an occupied nest for the least Bell's vireo during the breeding season from March 15 to September 15, noise levels should not exceed 60 CNEL. However, on a case by case basis, if warranted, a more restrictive standard may be used. If an occupied Least Bell's Vireo nest is identified in a pre-construction survey, noise reduction techniques, such as temporary noise walls or berms, shall be incorporated into the construction plans to reduce noise levels below 60 CNEL.

Where noise associated with clearing, grubbing or grading will negatively impact, an occupied nest for raptors between January 15-July 31 or the California gnatcatcher between February 15 and August 15 (during the breeding season), clearing, grubbing or grading activities will be modified if necessary, to prevent noise from negatively impacting the breeding success of the pair. If an occupied raptor or California gnatcatcher nest is identified in a pre-construction survey, noise reduction techniques shall be incorporated into the construction plans. Outside the bird breeding season(s) no restrictions shall be placed on temporary construction, noise." (Page 7-26)

Compliance:

The project includes Mitigation Measures requiring pre-grading surveys for gnatcatchers, vireos and nesting raptors. Based on those surveys and locations of nesting birds in the year of grading, if it is determined that the noise impact thresholds established in the Chula Vista MSCP Subarea Plan would be exceeded, the applicant would be required to reduce the impact below the designated threshold through either modification of construction activities (such as berming) or avoiding clearing, grubbing, grading or construction activities within 300 feet of an occupied nest site. Post-construction noise impacts associated with residential development will be minimized to the greatest extent possible through site layout. Single family lots backing onto the Preserve Edge have been minimized to the greatest extent possible to reduce impacts on the Preserve. Residential streets located within the 100' Preserve Edge buffer residential uses from the Preserve.

5. Invasive Plant Materials

MSCP Policy:

"No invasive non-native plant species shall be introduced into areas immediately adjacent to the Preserve. All slopes immediately adjacent to the Preserve should be planted with native species that reflect the adjacent native habitat. The plant list contained in the "Wildland / Urban Interface: Fuel Modification Standards," and provided as Appendix L of the Subarea Plan, must be reviewed and utilized to the maximum extent practicable when developing landscaping plans in areas adjacent to the Preserve." (Page 7-27)

Compliance:

Landscape plans within the 100' Preserve Edge will not contain invasive species, as determined by the City of Chula Vista and identified in the MSCP Subarea Plan, Appendices N, List of Invasive Species. Landscape areas within the 100' Preserve Edge including, but not limited to, manufactured slopes, street-adjacent landscaping, public parks, residential areas, CPF sites, private useable open space and schools must comply with the Approved Plant List provided as Attachment "A" to this document. This list also meets the requirements outlined in the Village 3 North and a Portion of 4 Fire Protection Plan as these areas are also within the 100' Brush Management Zone required by the MSCP Subarea Plan. Any changes to the Approved Plant List (Attachment A) must be approved by the Development Services Director. The area may be planted with container stock (liners) or a hydroseed mix. See the Fire Protection Plan for landscape planting and irrigation requirements.

6. Buffers

MSCP Policy:

"There shall be no requirements for buffers outside the Preserve, except as may be required for wetlands pursuant to Federal and/or State permits, or by local agency CEQA mitigation conditions. All open space requirements for the Preserve shall be incorporated into the Preserve. Fuel modification zones must be consistent with Section 7.4.4 of the Subarea Plan."

Compliance:

Brush Management Zones have been incorporated into the proposed development areas of the SPA Plan pursuant to the requirements of the Subarea Plan. Where appropriate, graded landscaped slope areas will be maintained pursuant to Fire Department requirements and will be outside of the Preserve. The Village 3 North and a Portion of 4 Fire Protection Plan has been prepared and provides specific fuel modification requirements for the entire SPA area. Consistent with the Chula Vista MSCP requirements, a 100' Brush Management Zone has been established and coincides with the 100' Preserve Edge. A description of the Brush Management Zone is provided below and shown in Exhibits 10 through 14.

a. **Brush Management Zones:**

Zone 1: All public and private areas located between a structure's edge and 50 feet outward. These areas may be located on publicly maintained slopes, private open space lots, public streets, and/or private yards

- Provide a permanent irrigation system within this irrigated wet zone.
- Plantable retaining walls shall be permanently irrigated.

- Only those trees on the Approved Plant List and those approved by the Development Services Director as not being invasive are permitted in this zone.

- All plant and seed material to be locally sourced to the greatest extent possible to avoid genetically compromising the existing Preserve Vegetation.

- Tree limbs shall not encroach within 10 feet of a structure or chimney, including outside barbecues or fireplaces.

- Provide a minimum of 10 feet between tree canopies.

- Additional trees (excluding prohibited or highly flammable species may be planted as parkway streets on single loaded streets.

- Limit 75% of all groundcovers and sprawling vine masses to a maximum height of 18 inches.

- 25% of all groundcover and sprawling vine masses may reach a maximum height of 24 inches.

- Ground covers must be of high-leaf moisture content.

- Shrubs shall be less than 2 feet tall and planted on 5-foot centers.

- Randomly placed approved succulent type plant material may exceed the height requirements, provided that they are spaced in groups of no more than three and a minimum of five feet away from described "clear access routes."

- Vegetation/Landscape Plans within this zone shall be in compliance with the Preserve Edge Plan, the Chula Vista MSCP Subarea Plan and the Fire Protection Plan

Zone 2: All public and private areas located between the outside edge of Zone 1 and 50 feet outward to 100 feet, per the Fire Protection Plan. These areas may be located on public slopes, private open space lots and public streets, and are subject to the criteria provided below:

- Utilize temporary irrigation to ensure the establishment of vegetation intended to stabilize the slopes and minimize erosion.

- Plantable retaining walls shall be permanently irrigated.

- Trees may be located within this zone, provided they are planted in clusters of no more than three. A minimum distance of no less than 20 feet shall be maintained between the tree cluster's mature canopies.

- Only those trees on the Approved Plant List and those approved by the Development Services Director as not being invasive are permitted in this zone.

- All plant and seed material to be locally sourced to the greatest extent possible to avoid genetically compromising the existing Preserve Vegetation.

- Limit 75% of all groundcover and sprawling vine masses to a maximum height of 36 inches.

- 25% of all groundcover and sprawling vine masses may reach a maximum height of 48 inches.

- Randomly placed approved succulent type plant material may exceed the height requirements, provided that they are spaced in groups of no more than three and a minimum of five feet away from described "clear access routes."

- Shrubs may be planted in clusters not exceeding a total of 400 sq. ft.

- Provide a distance of no less than the width of the largest shrub's mature spread between each shrub cluster.

- Provide "avenues" devoid of shrubs a minimum width of 6 feet and spaced a distance of 200 linear feet on center to provide a clear access route from toe of slope to top of slope.

- When shrubs or other plants are planted underneath trees, the tree canopy shall be maintained at a height no less than three times the shrub or other plant's mature height (break up any fire laddering effect).

- Hedging of shrubs is prohibited.

There are five unique conditions within the 100' Preserve Edge along the perimeter of the Project (see Exhibit 9 – Conditions within 100' Preserve Edge). The relationships between the proposed land uses and the 100' Preserve Edge are depicted on Exhibits 10 - 14. Site planning for the R-21 multi-family neighborhood (Condition 1) adjacent to the Preserve is subject to MSCP adjacency guidelines, this Preserve Edge Plan and Village 3 North and a Portion of Village 4 Fire Protection Plan. Any uses proposed within the 100' Preserve Edge will be reviewed in conjunction with the Major Design Review process and are subject to

review and approval of the Development Service Director.

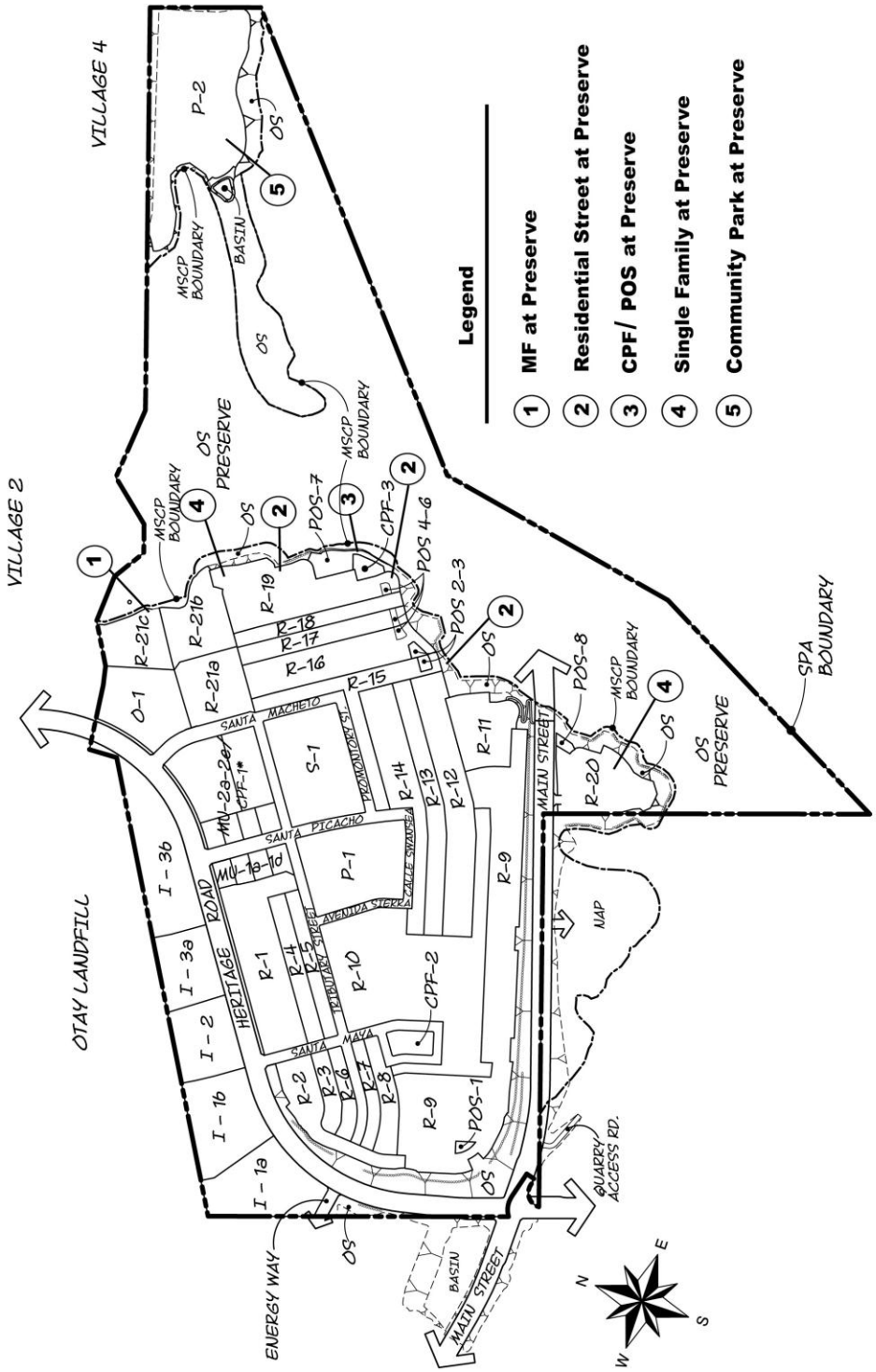


Exhibit 9
Slope Conditions within 100' Preserve Edge

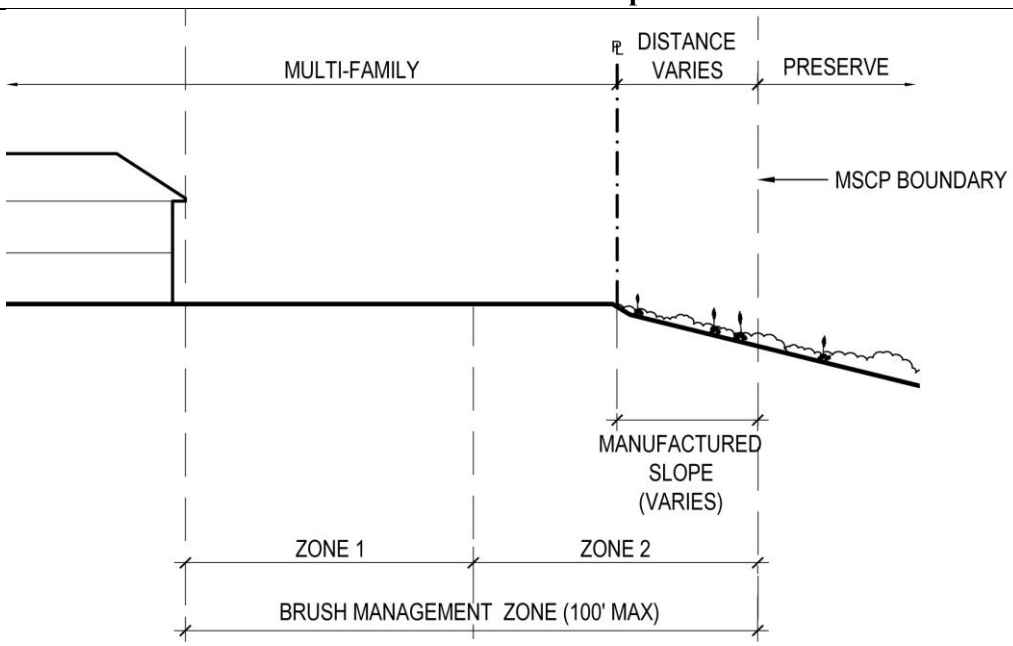


Exhibit 10
Condition 1 - Multi-Family (R-21) at Preserve

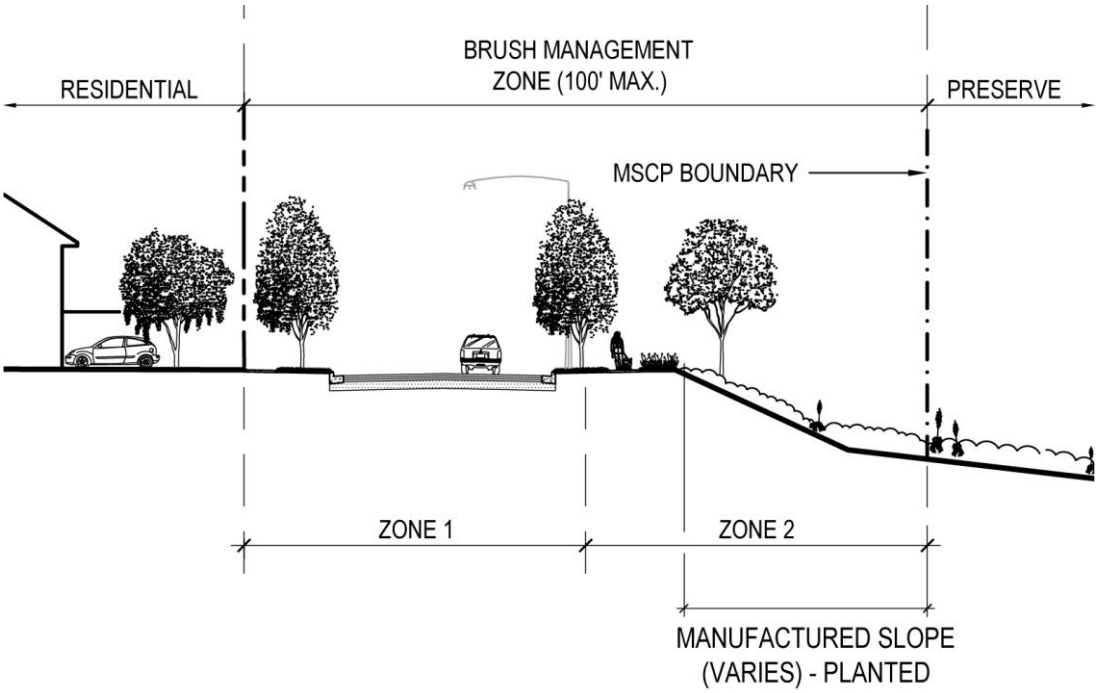


Exhibit 11

Condition 2 – Residential Street at Preserve

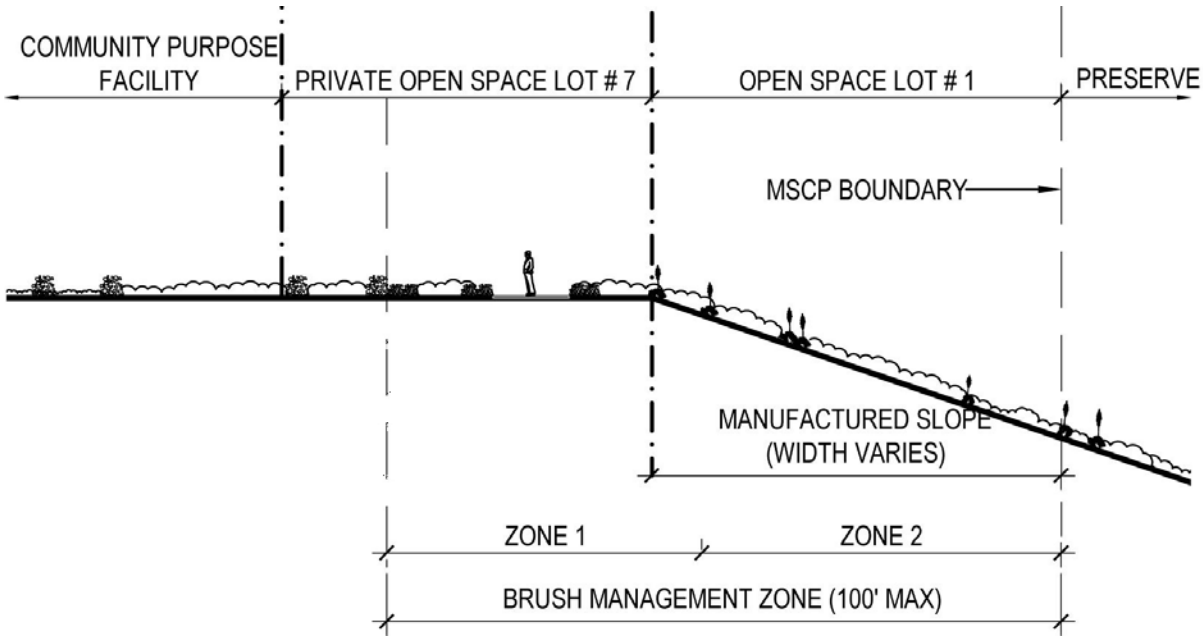


Exhibit 12

Condition 3 – CPF-3 /POS-7 at Preserve

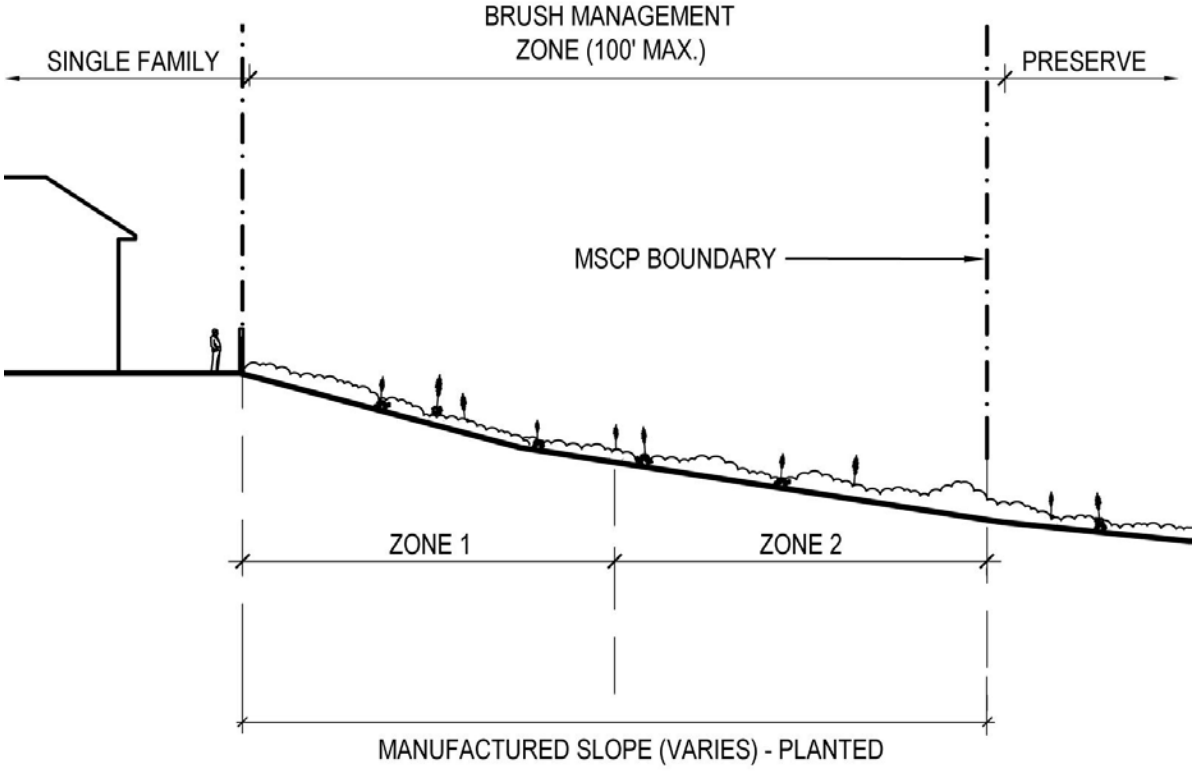


Exhibit 13

Condition 4 – Single Family at Preserve

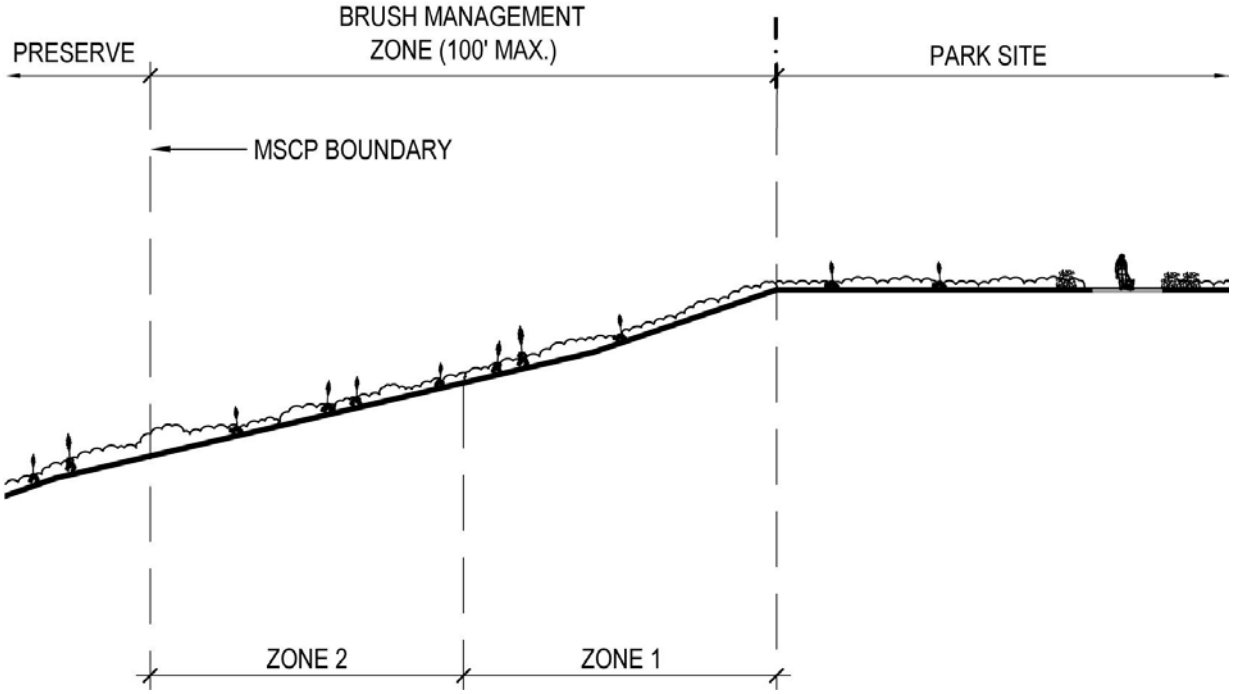


Exhibit 14

Condition 5 – Village 4 Community Park (P-2) at Preserve

A more detailed description of the Brush Management Zone, including maintenance activities, planting programs, etc. is provided in the University Villages Fire Protection Plan: Villages 3 North/4. A portion of Zone 1 may be incorporated into streets, CPF sites, private recreation areas, multi-family, schools, parks and other areas, as appropriate. Any proposed changes in the Brush Management Zone are subject to approval by the Chula Vista Development Services Director and the Chula Vista Fire Chief.

The 100' Preserve Edge coincides with the 100' Brush Management Zone. Where the edge condition involves streets adjacent to Preserve areas, hard surface and irrigated landscaped areas would serve as wildland fire buffers, in accordance with any specific requirements of the Fire Protection Plan. Plantable retaining walls are also included within Zone 2 of the 100' Brush Management Zone.

The irrigation design proposed for the Preserve Edge includes permanent irrigation within Brush Management Zone 1 (0-50 feet) and temporary irrigation in Zone 2 to ensure the establishment of vegetation intended to stabilize the slope and minimize erosion. Permanent irrigation is required on the plantable retaining walls within Zone 2. The temporary irrigation is described below:

Zone 2 (51 – 100 feet) would be irrigated with above ground irrigation lines utilized only during plant establishment using sprinkler heads that spray 360 degrees. When the plants have become established, the sprinkler heads will be adjusted to spray only 180 degrees toward the upper 50 feet of the slope.

Plantable Retaining Wall irrigation shall utilize low flow point drip irrigation emitters to minimize, to the greatest extent possible, run-off into the Preserve. Water saving devices shall also be utilized including; flow-sensing, rain-sensing devices and automatic control systems that either interface with CIMIS data or on-site weather sensors, in compliance with the City of Chula Vista Landscape Water Ordinance, Chapter 20.12 of the Municipal Code.

If properly managed, the temporary irrigation of brush management Zone 2 as described above, does not conflict with the Adjacency Management Issues found in Section 7.5.2 of the City of Chula Vista MSCP Subarea Plan.

Otay Ranch GDP Objective:

Identify allowable uses within appropriate land use designations for areas adjacent to the Preserve.

Policy: All development plans adjacent to the edge of the Preserve shall be subject to review and comment by the Preserve Owner/Manager, the City of Chula Vista, and the County of San Diego to assure consistency with resource protection objectives and policies.

Policy: "Edge Plans" shall be developed for all SPAs that contain areas adjacent to the Preserve. The "edge" of the Preserve is a strip of land 100 feet wide that surrounds the perimeter of the Preserve. It is not a part of the Preserve, it is a privately or publicly owned area included in lots within the urban portion of Otay Ranch immediately adjacent to the Preserve.

Compliance:

The preparation of this Village 3 North and a Portion of Village 4 Preserve Edge Plan fulfills the requirement to develop an “Edge Plan” for any SPA Plan Area adjacent to the Preserve and is subject to review and comment by the Preserve Owner/Manager, City of Chula Vista and County of San Diego. Uses within the 100’ Preserve Edge are either privately or publicly owned and maintained, including the CPF-3/POS-7 site at the eastern edge of Village 3 North. Exhibit 5 shows the portion of the CPF-3/POS-7 site within the 100’ Preserve Edge and what conceptual uses are proposed within that area.

MSCP Adjacency Guidelines

All new development must adhere to the Adjacency Guidelines for drainage found on Page 7-25 of the Subarea Plan. In summary, the guidelines state that:

1. All developed areas must prevent the release of toxins, chemicals, petroleum products, exotic plant materials and other elements that might degrade or harm the natural environment or ecosystem processes within the Preserve.

2. Develop and implement urban runoff and drainage plans which will create the least impact practicable for all development adjacent to the Preserve.
3. All development located within or directly adjacent to or discharging directly to an environmentally sensitive area are required to implement site design, source control, and treatment control Best Management Practices (BMPs).

Compliance:

To adhere to these MSCP guidelines, excessive runoff into the Preserve from adjacent irrigated slopes must be prevented. Erosion control BMPs must be installed prior to planting and watering to prevent siltation into the Preserve. The irrigation system installed on the slopes should have an automatic shutoff valve to prevent erosion in the event the pipes break. Irrigation schedules for the slopes adjacent to the Preserve must be evaluated and tested in the field to determine the appropriate water duration and adjusted, as necessary, to prevent excessive runoff.

The irrigation system proposed for the plantable retaining walls, utilizes the latest industry technology and application methods to maximize the efficiency of the water applied. The system is designed to ensure irrigation run-off never reaches the MSCP Preserve, even in emergency situations. This is accomplished by utilizing a number of the standards already approved by the City of Chula Vista. This includes

1. Weather based control systems, that limit the amount of water applied (based on the weather conditions), on a daily basis. These controllers are web based, with 2-way communication that downloads local weather conditions and applies the data to each irrigation system run-time.

2. Flow sensing valves in conjunction with master valves, sense when an emergency occurs (such as a pipe break) and shut the whole system down within seconds. The flow sensor also records the performance data to assist in system adjustments as seasons change.

The method proposed to irrigate the wall includes the use of low-volume (drip) systems that distribute water at a rate of less than 1 gallon per hour. The low rate ensures that the water infiltrates the soil at such a slow rate it eliminates the possibility of run-off. Systems are also designed with pressure compensating nozzles that distribute water consistently throughout the whole system, avoiding over saturating areas. Lastly, check valves are utilized that prevent low head drainage, as each system turns-off.

These individual measures are water conserving, however when combined, water efficiency is extremely high, and waste and run-off virtually eliminated. Detailed irrigation plans will be prepared in conjunction with slope improvement plans.

In addition, a manual weeding program or the focused application of glyphosate shall be implemented on the manufactured slopes adjacent to the Preserve to control weeds that are likely to be encouraged by irrigation. Weed control efforts should occur quarterly or as needed, to prevent weeds on the manufactured slopes from moving into the adjacent Preserve. A qualified monitor shall check the irrigated slopes during plant establishment to verify that excessive runoff does not occur and that any weed infestations are controlled.

7. Restrict Access

Both the Otay Ranch RMP and Chula Vista MSCP Subarea Plan contain policies that restrict or limit access into the Preserve. These policies are discussed below:

Otay Ranch RMP Policy 6.5:

"Identify restricted use areas within the Preserve."

> ***Standard***: Public access may be restricted within and adjacent to wetlands, vernal pools, restoration areas, and sensitive wildlife habitat (e.g., during breeding season) at the discretion of the Preserve Owner/Manager.
>
> ***Guidelines***:
>
> 1. The Preserve Owner/Manager shall be responsible for identifying and designating restricted areas based on biological sensitivity..."

MSCP Policy:

"The public access to finger canyons will be limited through subdivision design, fencing or other appropriate barriers, and signage."

"Install barriers (fencing, rocks/boulders, appropriate vegetation) and/or signage in new communities where necessary to direct public access to appropriate locations."

Compliance:

Pursuant to the requirements of the MSCP Subarea Plan and RMP, the land plan has been designed to provide access to the Preserve areas at designated locations, directing pedestrians to developed public trails within the Otay River Valley via designated public trails and roadways. The SPA Plan and Village Design Plan provide Wall and Fence Plans for Village 3 North and a Portion of Village 4. View fencing/walls along the Preserve Edge will be provided outside the Preserve, within the Brush Management Zone/100' Preserve Edge. This property will be maintained either by the Master HOA or City of Chula Vista, with maintenance funded through an open space maintenance district or the through the Homeowners Association.

Access to the Brush Management Zone for maintenance and fire protection

activities only will be provided via locked gates every 1,000' at the perimeter of the site. Interim access control measures, such as fencing, signage, etc. will be provided within the development area to restrict public access until trail improvements within the Preserve are complete. The conceptual location of perimeter fencing and walls at the Preserve Edge is depicted in Exhibit 11 and creates a barrier between development and the Preserve. See Village Design Plan, pages 88-90. The exact location and type of all proposed fencing and walls will be depicted on the overall Village 3 North Landscape Master Plan and will be subject to review and approval by the Development Service Director. Signage, identifying the MSCP Preserve and notifying the public of access restrictions, will be provided at key locations along the Preserve Edge. A detailed sign program for trails will be provided on the Village 3 North and a Portion of 4 Landscape Master Plan and will be subject to review and approval by the Development Services Director, and the Public Works Director or designee.

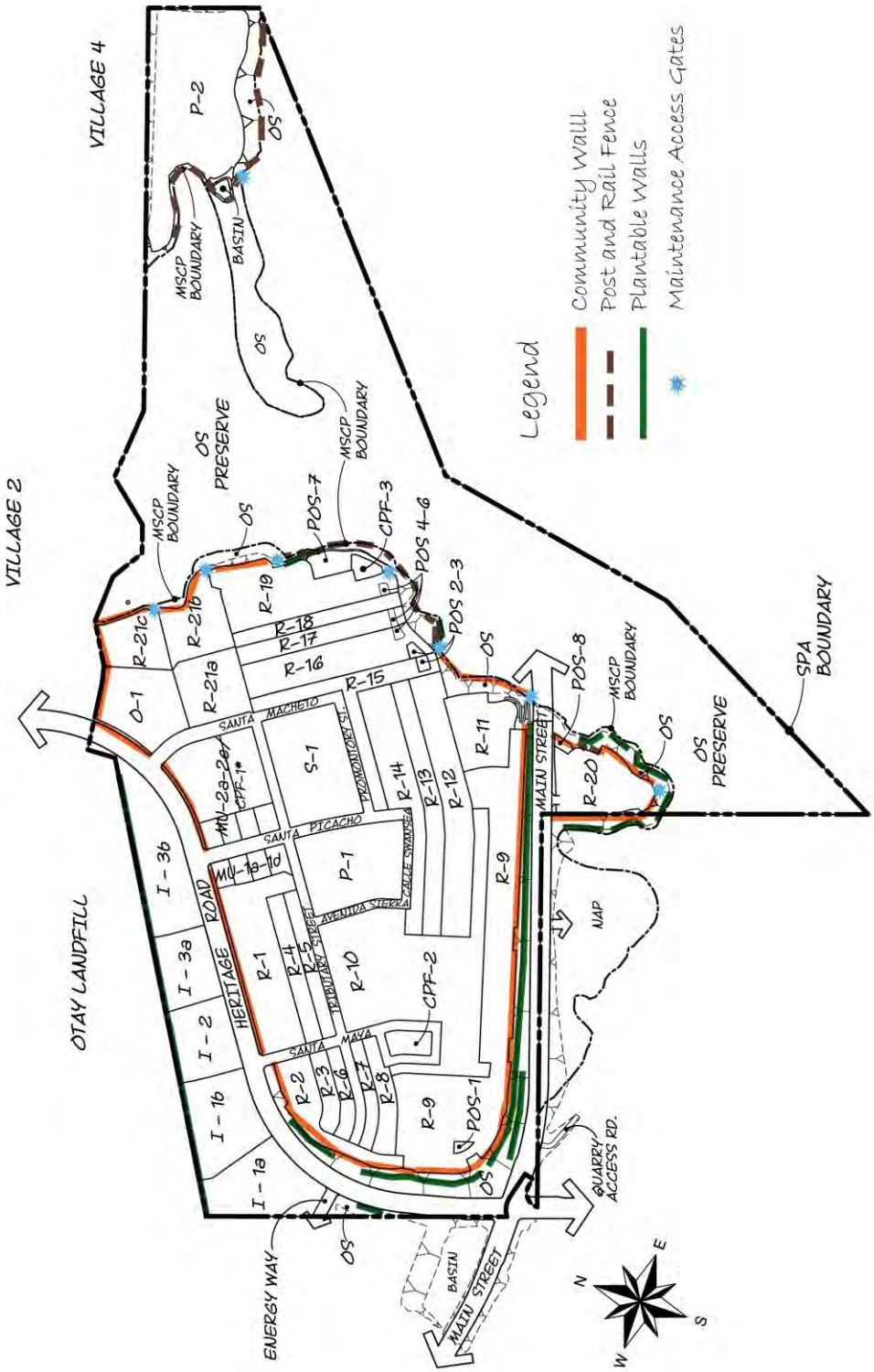


Exhibit 15
Perimeter Wall (Barrier) Plan

Attachment “A”
Approved Plant List

UNIVERSITY VILLAGES
VILLAGE 3 NORTH AND A PORTION OF VILLAGE 4
APPROVED MASTER PLANT LIST
JULY 2014

FUEL MODIFICATION ZONE 1

BOTANICAL NAME	COMMON NAME	NOTES

Plant and seed material should be locally sourced to the greatest extent possible to avoid genetically compromising existing Preserve vegetation. Notes provided below must be adhered to and planting must be implemented in accordance with the Chula Vista Fire Department's fuel modification guidelines summarized in the Village 3 North and a Portion of Village 4 Fire Protection Plan.

Trees:

Heteromeles arbutifolia	Toyon	May be planted within Fuel Management Zone 1 up to 10% of the plant palette mix. No single mass shall exceed 400 sf. These shall be spaced such that the nearest shrub is no closer than the tallest shrub height (at maturity)
Metrosideros exelsus (un-cut leader)	New Zealand Christmas Tree	
Plantanus racemosa	California Sycamore	
Quercus agrifolia	Coast Live Oak	
Rhus Iancea	African Sumac	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)

Shrubs, Cacti & Groundcovers:

Acalypha californica	California Copperleaf	
Agave Shawii	Coastal Agave	
Arctostphylos 'Emerald Carpet'	Emerald Carpet Mazanita	
Baccharis Pilularis	Coyote Brush	Only local native shrub species will be utilized. No cultivars shall be permitted.
Bloomeria Crocea	Common goldstar	
Ceanothus verrocosus	Wartystem Ceanothus	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Comarostaphylis diversifolia	Summer Holly	
Cotoneaster dammeri 'Lowfast'	Bearberry Cotoneaster	
Cotoneaster horizontalis	Rock Cottoneaster	
Cylindropuntia prolifera	Coast Cholla	
Dudleya pulverulenta	Chalk Lettuce	
Encielia californica	California Encelia	
Epilobium californicum	California Fushcia	
Euphorbia misera	Cliff Spurge	
Galvezia speciosa	Bush Snapdragon	
Helianthemum scoprium	Sun Rose	

BOTANICAL NAME	COMMON NAME	NOTES
Isomeris arborea	Bladder Pod	
Iva hayesiana	San Diego Marsh Elder	
Lupinus succulentus	Arroyo Lupine	
Lycium californicum	Box Thorn	
Malachothamnus fasciculatus	Chaparrel Bushmallow	
Malamosa laurina	Hollyleaf Cherry	
Nassella pulchra	Purple Needlegrass	
Opuntia littoralis	Coastal Prickly Pear Cactus	Plants must be locally sourced
Opuntia oricola	No Common Name	Plants must be locally sourced
Rhamnus crocea	Redberry	
Rhus Integrifolia	Lemonade Berry	
Ribes speciosum	Fuschia Flowering Gooseberry	
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera* is a prohibited species
Simmondsia chinesnsis	Jojoba	May be planted in limited quantities and must be properly spaced
Sisyrinchium bellum	Blue-Eyed Grass	
Thymus serphyllum 'Reiters'	Creeping Thyme	Restricted to 30% of area at time of planting. Use in irrigated areas only
Yucca schidigera	Mojave Yucca	
Yucca whipplei	Our Lord's Candle	

Hydroseed Mix:

Baccharis Pilularis	Coyote Brush	Only local native shrub species will be utilized. No cultivars shall be permitted.
Ceanothus verrocosus	Wartystem Ceanothus	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Encielia californica	California Encelia	
Hazardia squarrosa	Sawtooth Goldenfields	
Isomeris arborea	Bladder Pod	
Iva hayesiana	San Diego Marsh Elder	
Layia platyglossa	Tidy tips	
Lupinus succulentus	Arroyo Lupine	
Malachothamnus fasciculatus	Chaparrel Bushmallow	
Malamosa laurina	Hollyleaf Cherry	
Nassella pulchra	Purple Needlegrass	
Phacelia campanularia	California Blue Bells	
Rhamnus crocea	Redberry	

BOTANICAL NAME	COMMON NAME	NOTES
Rhus Integrifolia	Lemonade Berry	
Salvia apiana	White Sage	
Sisyrinchium bellum	Blue-Eyed Grass	
Viguiera laciniata	San Diego Sunflower	
Yucca whipplei	Our Lord's Candle	

Hydroseed Mix (Plantable Retaining Walls):

Baccharis Pilularis	Coyote Brush	Only local native shrub species will be utilized. No cultivars shall be permitted.
Camissonia cheiranthifolia	Beach Evening Primrose	
Ceanothus verrocosus	Wartystem Ceanothus	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Clarkia bottae	Botta's Clarkia	
Eriophyllum confertiflorum	Golden Yarrow	
Hazardia squarrosa	Sawtooth Goldenfields	
Lasthenia californica	California Gold Rush	
Mimulus aurantiacus	Sticky Monkey Flower	Plants must be locally sourced
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera is a prohibited species*
Sisyrinchium bellum	Western Blue-Eyed Grass	
Viguiera laciniata	San Diego Sunflower	
Yucca whipplei	Our Lord's Candle	

FUEL MODIFICATION ZONE 2

BOTANICAL NAME	COMMON NAME	NOTES

Plant and seed material should be locally sourced to the greatest extent possible to avoid genetically compromising existing Preserve vegetation

Trees:

Quercus agrifolia	Coast Live Oak

Shrubs, Cacti & Groundcovers:

Acalypha californica	California Copperleaf
Agave shawii	Coastal Agave
Aristida pupurea	Purple Three-Awn

BOTANICAL NAME	COMMON NAME	NOTES
Chlorogalum parviflorum	Smallflower Soap Plant	
Cotoneaster dammeri 'Lowfast'	Bearberry Cotoneaster	
Cylindropuntia prolifera	Coast Cholla	
Deinandra fasciculata	Fascicled Tarplant	
Dodonaea viscose	Hop Bush	Plant acceptable on a limited basis (Max. 30% of the area at the time of planting)
Dudleya pulverulenta	Chalk Lettuce	
Encelia californica	Coastal Sunflower	
Epilobium californicum	California Fushcia	
Euphorbia misera	Cliff Spurge	
Grindelia robusta	Gum Plant	
Helianthemum scoprium	Sun Rose	
Isomeris arborea	Bladderpod	
Lupinus succulentus	Arroyo Lupine	
Lycium californicum	Box Thorn	
Malachothamnus fasciculatus	Chaparrel Bushmallow	
Mirabilis californica	Wishbone Bush	
Nassella pulchera	Purple Needlegrass	
Opuntia littoralis	Coastal Prickly Pear Cactus	Plants must be locally sourced
Opuntia oricola	No Common Name	Plants must be locally sourced
Prunus ilicifolia	Hollyleaf Cherry	
Rhamnus crocea	Redberry	
Rhus integrefolia	Lemonade Berry	
Ribes speciosum	Fuschia Flowering Gooseberry	
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera is a prohibited species*
Simmondsia chinesnsis	Jojoba	
Sisyrinchium bellum	Western Blue-Eyed Grass	
Yucca schidigera	Mojave Yucca	
Yucca whipplei	Foothill Yucca	

Hydroseed Mix:

Bloomeria crocea	Common Goldstar
Encelia californica	Coastal Sunflower
Eriophyllum confertiflorum	Golden Yarrow
Gnaphalium bicolor	Bicolor Cudweed
Hazardia squarrosa	Sawtooth Goldenfields
Heteromeles arbutifolia	Toyon
Isomeris arborea	Bladderpod

BOTANICAL NAME	COMMON NAME	NOTES
Isocoma menziesii	Coast Goldenbush	
Lasthenia californica	Goldfields	
Layia platyglossa	Tidy tips	
Lupinus bicolor	Miniature Lupine	
Lupinus succulentus	Arroyo Lupine	
Nassella pulchera	Purple Needlegrass	
Phacelia campanularia	California Blue Bells	
Plantago erecta	Dot-Seed Plantain	
Rhamnus crocea	Redberry	
Rhus integrefolia	Lemonade Berry	
Salvia apiana	White Sage	May be planted in limited quantities and must be properly spaced. *S. mellifera is a prohibited species*
Sisyrinchium bellum	Blue-Eyed Grass	
Sphaeralcea ambigua	Desert Mallow	
Viguiera laciniata	San Diego Sunflower	
Yucca whipplei	Foothill Yucca	

Hydroseed Mix (Plantable Retaining Walls - irrigated):

Clarkia bottae	Botta's Clarkia
Eriophyllum confertiflorum	Golden Yarrow
Eschscholzia californica	California Poppy
Hazardia squarrosa	Sawtooth Goldenfields
Lasthenia californica	Goldfields
Mimulus aurantiacus[4]	Sticky Money Flower
Sisyrinchium bellum	Blue-Eyed Grass
Viguiera laciniata	San Diego Sunflower

UNIVERSITY VILLAGES

Otay Ranch Village 3 North and a Portion of Village 4

Air Quality Improvement Plan

Adopted December 2, 2014

By Resolution No. 2014-234

December 2, 2014

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I. Executive Summary

A. Intent of the AQIP

The City of Chula Vista has been progressive in advancing the practices of energy conservation and the reduction of greenhouse gas emissions. This is evident through the City's Growth Management Ordinance (CVMC 19.09), Carbon Dioxide (CO2) Reduction Plan, Climate Change Working Group (CCWG) Implementation Measures, and Green Building and Increased Energy Efficiency Ordinances (CVMC 15.12, and 15.26.030, respectively). These programs promote energy conservation and reduction of greenhouse gas emissions by requiring applicants to implement the best available community site design practices such as providing alternative modes of transportation, transit-friendly, walkable communities, and sustainable building design.

The AQIP provides an analysis of air pollution impacts which would result from a project and demonstrates the best available community design to reduce vehicle trips, maintain or improve traffic flow, reduce vehicle miles traveled, including implementation of appropriate traffic control measures, and other means of reducing emissions (direct or indirect) from the project. Through the AQIP, projects demonstrate how they have incorporated the best available design principles to improve energy efficiency and reduce greenhouse gas emissions and implement the action measures contained in the City's Carbon Dioxide (CO2) Reduction Plan. The AQIP includes a qualitative and quantitative analysis of the proposed project to demonstrate how the project has met the City's thresholds for reducing air quality impacts and improving energy conservation.

B. Community Site Design Goals

The Village 3 North SPA Plan Community Site Design Goals include the following:

- Foster development patterns which promote orderly growth and prevent urban sprawl.
- Establish an urban pedestrian-oriented village with a village core designed to reduce reliance on the automobile.
- Promote multi-modal transportation, including walking and the use of bicycles, buses and regional transit.
- Establish multi-use trail linkages to the Chula Vista Greenbelt and OVRP, consistent with the Greenbelt Master Plan and OVRP Concept Plan.
- Promote synergistic uses to balance activities, services and facilities with employment, housing, transit and commercial opportunities.

C. Planning Features

The Village 3 North SPA Plan includes the following planning features to achieve the community site design goals.

1. Village Core

Village 3 North concentrates multi-family housing, mixed-use commercial, office, school and neighborhood park uses in and around a centrally-located village core. A network of pedestrian and bicycle circulation throughout the village connect to the village core.

2. **Housing Intensity**
   The highest density homes are located in the village core which interfaces with planned employment areas (office and industrial) and future transit stops. Smaller detached homes and attached buildings use less energy for heating and cooling than larger, single-family detached homes. In addition, the small-lot single family homes have a smaller area of landscaping than typical single-family lots, which reduces the amount of water used for landscape irrigation.

3. **Street Widths, Pavement and Street Trees**
   Otay Ranch street sections are narrower than typical standards which reduces asphalt pavement and the "urban heat-island effect" by limiting the amount of reflective surfaces. Street trees provide shade which further reduces heat-gain.

4. **Public Transportation**
   Rapid Bus service is planned along Main Street, adjacent to Village 3 North, with a future stop at the Main Street/Heritage intersection. In addition, Local Bus service can be accommodated to serve Village 3 North along Heritage Road with a future transit stop at Heritage Road and Street V.

5. **Alternative Travel Modes**
   In Village 3 North, the Village Pathway and Promenade Trails allow for bicycle and pedestrian use throughout the village and connect to the regional trail network and adjacent communities. Regional Trails are provided on Heritage Road and Main Street, connecting Village 3 North to Village 2 to the north, and Villages 4 and 8 to the east.

In addition to these planning and site design features, other building features such as energy and water conservation measures will be implemented as part of the Village 3 North Energy Conservation Plan to further reduce greenhouse gas emission and limit air pollution. Those building and landscaping features are outlined in Section VII.

D. Modeled Effectiveness of Community Design

With implementation of the above listed site design features, the project is consistent with the City of Chula Vista's requirements for the CO2 Index Model. Table ES-1 depicts the results for the proposed project.

Table ES-1: Chula Vista CO2 Index Model Results – Village 3 North

Element	Indicator	Units	Threshold Score	SPA Plan Score	Compliance Status (Y/N)
Land Use	Use Mix	0-1 scale	0.1	0.25	Yes
	Use Balance	0-1 scale	0.6	0.77	Yes
	Neighborhood Completeness	% of key uses	60	60	Yes
Housing	School Proximity to Housing	avg walk ft to closest	3,200	1,459	Yes
	Transit Proximity to Housing	avg walk ft to closest stop	2,900	2,504	Yes
Employment	Transit Proximity to Employment	avg walk ft to closest stop	2,600	1,277	Yes
Recreation	Park Proximity to Housing	avg walk ft to closest park	1,700	1,582	Yes
Travel	Internal Street Connectivity	cul-de-	0.7	0.95	Yes
	Intersection Density	Intersections/sq mi	210	233	Yes
	Pedestrian Network Coverage	% of streets w/sidewalks	81	100.0	Yes
	Residential Multi-Modal Access	%DU w/3+ modes w/i 1/8mi	40	96.5	Yes
	Daily Auto Driving (3Ds Methodology)	VMT/capita/day	22	21.30	Yes
	Daily Auto Driving Inputs				
	Density		9,692	*21,122*	
	Diversity		.18	*0.87*	
	Design		3.57	*4.54*	
	Street Network Density		17.57	*25.70*	
	Pedestrian Network Coverage		96.00	*100.00*	
	Street Route Directness		1.73	*1.27*	
Climate Change	Residential Building Energy Use	MMBtu/yr/capita	29	26.5	Yes
	Non-Residential Building EnergyUse	MMBtu/yr/emp	19	11.0	Yes
	Residential Building CO2 Emissions	lbs/capita/yr	4,800	4,360	Yes
	Non-Residential Building CO2 Emissions	lbs/emp/yr	2,100	1,789	Yes

II. Introduction

A. AQIP Required

The City's Growth Management Ordinance requires an Air Quality Improvement Plan (AQIP) to be submitted with all Sectional Planning Area (SPA) Plans or major development projects consisting of 50 dwelling units or greater (or non-residential or mixed use projects with equivalent dwelling units (EDUs) to a residential project of 50 or more dwelling units). Because the Village 3 North SPA Plan proposes 1,597 residential units and up to 20,000 sq. ft. of commercial/retail space, an AQIP is required.

The AQIP has been prepared based on best available design practices which serve to implement several aspects of the City's CO2 Reduction Plan. Best available design practices, including the City's Green Building and Energy Efficiency Ordinance (CVMC 15.12 and 15.26.030 respectively) requirements, implemented by the Village3 North SPA Plan are described in detail further below. An assessment for how the project meets the requirements of the City's CO2 Reduction Plan is provided in Table 9.

B. Purpose and Goals of the AQIP

The AQIP provides an analysis of air pollution impacts which would result from a project and demonstrates the best available design to reduce vehicle trips, maintain or improve traffic flow, reduce vehicle miles traveled, including implementation of appropriate traffic control measures, and other means of reducing emissions (direct or indirect) from the project. Through the AQIP, projects demonstrate how they have incorporated the best available design principles to improve energy efficiency and reduce greenhouse gas emissions and implement the action measures contained in the City's Carbon Dioxide (CO2) Reduction Plan. The AQIP includes a qualitative and quantitative analysis of the proposed project to demonstrate how the project has met the City's thresholds for reducing air quality impacts and improving energy conservation.

C. Regulatory Framework

1. Federal

Clean Air Act: The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The Environmental Protection Agency (EPA) is responsible for implementing most aspects of the CAA, including the setting of National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. NAAQS are established for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current

scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan that demonstrates how those areas will attain the standards within mandated time frames.

Massachusetts vs. EPA: On April 2, 2007, in Massachusetts v. EPA, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The court held that the Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the Administrator is required to follow the language of Section 202(a) of the CAA. On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The Administrator found that elevated concentrations of GHGs—CO2, CH4, N2O, HFCs, PFCs, and SF6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.

- The Administrator further found the combined emissions of GHGs—CO2, CH4, N2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the cause or contribute finding.

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.

Energy Independence and Security Act: On December 19, 2007, President Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022

2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by Model Year 2020, directs National Highway Traffic Safety Administration to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks

3. Prescribe or revise standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

EPA and NHTSA Joint Final Rule for Vehicle Standards: On April 1, 2010, the U.S. EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016. The joint rule was intended to reduce GHG

emissions and improve fuel economy. EPA finalized the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (EPA 2010b). This final rule follows the EPA and Department of Transportation's (DOT) joint proposal on September 15, 2009, and is the result of the President Obama's May 2009 announcement of a national program to reduce greenhouse gases and improve fuel economy (EPA 2011). This final rule will become effective 60 days after publication in the Federal Register (EPA and NHTSA 2010).

The EPA GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of CO2 per mile in model year 2016, equivalent to 35.5 mpg if the automotive industry were to meet this CO2 level all through fuel economy improvements. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg. Together, these standards will cut greenhouse gas emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program. The rules will simultaneously reduce greenhouse gas emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers (EPA 2011).

2. State of California

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts (AQMDs) and air pollution control districts (APCDs) at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA) of 1988, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are more restrictive than the NAAQS, consistent with the CAA, which requires state regulations to be at least as restrictive as the federal requirements. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

<u>AB 1493:</u> In a response to the transportation sector accounting for more than half of California's CO2 emissions, AB 1493 (Pavley) was enacted on July 22, 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a

reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

Before these regulations could go into effect, the EPA had to grant California a waiver under the federal CAA, which ordinarily pre-empts state regulation of motor vehicle emission standards. The waiver was granted by Lisa Jackson, the EPA administrator, on June 30, 2009. On March 29, 2010, the CARB Executive Officer approved revisions to the motor vehicle GHG standards to harmonize the state program with the national program for 2012 to 2016 model years (see "EPA and NHTSA Joint Final Rule for Vehicle Standards" above). The revised regulations became effective on April 1, 2010.

Senate Bill 1078: Approved by former governor Gray Davis in September 2002, Senate Bill 1078 (SB 1078, Sher) established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107 and Executive Orders S-14-08 and S-21-09.)

Executive Order S-3-05: In June 2005, former governor Arnold Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The Secretary of CalEPA is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. Representatives from several state agencies comprise the Climate Action Team. The Climate Action Team is responsible for implementing global warming emissions reduction programs. The Climate Action Team fulfilled its report requirements through the March 2006 Climate Action Team Report to the governor and the legislature (CAT 2006).

A second biennial report, released in April 2010, expands on the policy orientation in the 2006 assessment(CAT 2010). The 2010 report provides new information and scientific findings regarding the development of new climate and sea-level projections using new information and tools that have recently become available and evaluates climate change within the context of broader soil changes, such as land use changes and demographics. The report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate change that were discussed that need future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

SB 107: Approved by former governor Arnold Schwarzenegger on September 26, 2006, SB 107 (Simitian) requires investor-owned utilities such as Pacific Gas and Electric, Southern California

Edison, and San Diego Gas and Electric, to generate 20% of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017 (see SB 1078).

AB 32: In furtherance of the goals established in Executive Order S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006, which former governor Arnold Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. The original three adopted early action regulations meeting the narrow legal definition of "discrete early action GHG reduction measures" consist of:

1. A low-carbon fuel standard to reduce the "carbon intensity" of California fuels

2. Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of "do-it-yourself" automotive refrigerants

3. Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations, which were also considered "discrete early action GHG reduction measures," consist of:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology

2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification

3. Reduction of perfluorocarbons from the semiconductor industry

4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)

5. Require that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency

6. Restriction on the use of SF6 from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons CO2E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources that fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit carbon dioxide in excess of specified thresholds.

On December 11, 2008, CARB approved the Climate Change Proposed Scoping Plan: A Framework for Change (Scoping Plan; CARB 2008) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations will occur over the next 2 years, becoming effective by January 1, 2012.

The key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards

- Achieving a statewide renewables energy mix of 33%

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions

- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets

- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State of California's long term commitment to AB 32 implementation.

SB 1368: In September 2006, former governor Arnold Schwarzenegger signed SB 1368, which requires the California Energy Commission (CEC) to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help to protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07: Issued on January 18, 2007, Executive Order S 1-07 sets a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in CO2-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The LCFS is anticipated to replace 20% of the fuel used in motor vehicles with alternative fuels by 2020.

SB 97: In August 2007, the legislature enacted SB 97 (Dutton), which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. OPR is to develop proposed guidelines by July 1, 2009, and the Natural Resources Agency is directed to adopt guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the State CEQA Guidelines.

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant level.

On April 13, 2009, OPR submitted to the Natural Resources Agency its proposed amendments to the state CEQA Guidelines relating to GHG emissions. On July 3, 2009, the Natural Resources

Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting the proposed amendments, starting the public comment period.

The Natural Resources Agency adopted CEQA Guidelines Amendments on December 30, 2009, and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative law completed its review and filed the amendments with the secretary of state. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to "make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project" (Section 15064(a))

- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of greenhouse gas emissions resulting from a particular project (Section 15064.4(a))

- Requiring a lead agency to consider the following factors when assessing the significant impacts from greenhouse gas emissions on the environment:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.

- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. (Section 15064.4(b))

- Allowing lead agencies to consider feasible means of mitigating the significant effects of greenhouse gas emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (Section 15126.4(c)).

The amended guidelines also establish two new guidance questions regarding GHG emissions in the Environmental Checklist set forth in CEQA Guidelines Appendix G:

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.

SB 375: In August 2008, the legislature passed and on September 30, 2008, former governor Arnold Schwarzenegger signed SB 375 (Steinberg), which addresses GHG emissions associated with the transportation section through regional transportation and sustainability plans. By September 30, 2010, CARB will assign regional GHG reduction targets for the automobile and light truck sector for 2020 and 2035. The targets are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy within the Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy. On September 23, 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations (MPOs). The targets for the San Diego Association of Governments are a 7% reduction in emissions per capita by 2020 and a 13% reduction by 2035. Achieving these goals through adoption of a Sustainable Communities Strategy will be the responsibility of the MPOs.

Executive Order S-13-08: Former governor Arnold Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the Resource Agency, in cooperation with the California Department of Water Resources, CEC, California's coastal management agencies, and the Ocean Protection Council to request the National Academy of Sciences to prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess the vulnerability of the state's transportation systems to sea level rise within 90 days of the order. The OPR and the Resources Agency are required to provide land use planning guidance related to sea level rise and other climate change impacts. The order also

requires the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final adaption strategies report was issued in December 2009. To assess the state's vulnerability, the report summaries key climate change impacts to the state for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Executive Order S-14-08: On November 17, 2008, former governor Arnold Schwarzenegger issued Executive Order S-14-08. This Executive Order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the order directs state agencies to take appropriate actions to facilitate reaching this target. The Resources Agency, through collaboration with the CEC and Department of Fish and Game, is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and Department of Fish and Game creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

Executive Order S-21-09: On September 15, 2009, former governor Arnold Schwarzenegger issued Executive Order S-21-09. This Executive Order directed CARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the Renewable Portfolio Standard program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and that can be developed most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB adopted regulations to implement a "Renewable Electricity Standard," which would achieve the goal of the executive order with the following intermediate and final goals: 20% for 2012–2014; 24% for 2015–2017; 28% for 2018–2019; 33% for 2020 and beyond. Under the regulation, wind; solar; geothermal; small hydroelectric; biomass; ocean wave, thermal, and tidal; landfill and digester gas; and biodiesel would be considered sources of renewable energy. The regulation would apply to investor-owned utilities and public (municipal) utilities.

SB X1 2: On April 12, 2011, Governor Jerry Brown signed SB X1 2 in the First Extraordinary Session, which would expand the RPS by establishing a goal of 20% of the total electricity sold to retail customers in California per year, by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste

conversion, landfill gas, ocean wave, ocean thermal, or tidal current and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB X1 2 adds local publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

3. Local

a. San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. The project is located within the SDAB and is subject to SDAPCD guidelines and regulations. In San Diego County, ozone and particulate matter are the pollutants of main concern, since exceedances of state ambient air quality standards for those pollutants are experienced here in most years. For this reason the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and ozone standards. The SDAB is also a federal ozone nonattainment area and a carbon monoxide maintenance area. The SDAB is currently in the process of being redesignated as a "serious" nonattainment area for ozone.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis (most recently in 2009). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the cities and San Diego County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the cities and San Diego County as part of the development of their general plans.

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD:

SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance. Prohibits the discharge from any source such quantities of air contaminants or other materials that cause or

have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.

SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.

SDAPCD Regulation IV: Prohibitions; Rule 67.0: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

b. City of Chula Vista

The Chula Vista City Council adopted the 2008 state Energy Code (Title 24) with an amendment requiring an increased energy efficiency standard. This amendment went into effect on February 26, 2010, as Section 15.26.030 of the Municipal Code. As required by this amendment, all building permits applied for and submitted on or after this date are subject to these increased energy efficiency standards. The increase in energy efficiency is a percentage above the new 2008 Energy Code and is dependent on climate zone and type of development proposed. The designation is as follows:

- New residential and nonresidential projects that fall within climate zone 7 must be at least 15% more energy efficient than the 2008 Energy Code. Climate zone 7 encompasses the western portion of the City Of Chula Vista (City of Chula Vista 2010).
- New low-rise residential projects (three-stories or less) that fall within climate zone 10 must be at least 20% more energy efficient than the 2008 Energy Code. New non-residential, high-rise residential or hotel/motel projects that fall within climate zone 10 must be at least 15% more energy efficient than the 2008 Energy Code. Climate zone 10 encompasses the easternmost portion of the City Of Chula Vista (City of Chula Vista 2010).

Additionally, per Section 15.12 of the City's Municipal Code, all new residential construction, remodels, additions, and alterations must provide a schedule of plumbing fixture fittings that will reduce the overall use of potable water by 20%.

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality. The City is a part of the Cities for Climate Protection Program, which is headed by the International Council of Local Environmental Initiatives (ICLEI). In November 2002, Chula Vista adopted the CO_2 Reduction Plan to lower the community's major greenhouse gas emissions, strengthen the local economy, and improve the global environment. The CO_2 Reduction Plan focuses on reducing fossil fuel consumption and decreasing reliance on

power generated by fossil fuels, which would have a corollary effect in the reduction of air pollutant emissions into the atmosphere. The following 20 action measures have been proposed within the plan in order to achieve this goal:

1. Municipal clean fuel vehicle purchases
2. Green power
3. Municipal clean fuel demonstration project
4. Telecommuting and telecenters
5. Municipal building upgrades and trip reduction
6. Enhanced pedestrian connections to transit
7. Increased housing density near transit
8. Site design with transit orientation
9. Increased land use mix
10. Green Power public education program
11. Site design with pedestrian/bicycle orientation
12. Bicycle integration with transit and employment
13. Bicycle lanes, paths, and routes
14. Energy efficient landscaping
15. Solar pool heating
16. Traffic signal and system upgrades
17. Student transit subsidy
18. Energy efficient building program
19. Municipal Life-Cycle purchasing standards
20. Increased employment density near transit.

III. Project Description

A. Project Description

Village 3 North Land Use Plan is anchored by the location of the Village Core. The Village Core is centrally located within the Project site and includes a neighborhood park, and an elementary school site and a mixed use commercial/office/residential uses. Each village-use is described further below. The Village 3 North Site Utilization Plan is shown in Exhibit 1 and the Village 3 North Land Use Summary is provided in Table 1.

1. Residential Uses

a. Multi-Family Residential:

10.8 acres of the total Project site would be designated as multi-family residential, which would accommodate 515 homes. This designation would allow for three multi-family residential neighborhoods, with an average density of 41.9 dwelling units per acre (du/acre).

b. Single-Family Residential:

115.2 acres of the total Project site would be designated as single-family residential, which would accommodate 1,002 single family homes. This designation would allow for twenty single-family residential neighborhoods, with an average density of 8.7 dwelling units per acre (du/acre).

2. Mixed-Use

The Project site includes a 2.1-acre Mixed Use Residential (MU-1) area located adjacent to the elementary school and neighborhood park. As shown in Table 1, the MU designation would allow for 80 attached homes and up to 20,000 square feet of neighborhood commercial, retail, and office uses.

A second mixed use site (MU-2) is also located in the Village Core. This site is anticipated as a mixed use office/commercial site with approximately 170,000 sq. ft. on 6.1 acres.

3. Office

The Village 3 SPA Plan land use plan includes a 5.2-acre office site (O-1) located adjacent to the MU Commercial/Retail site. This site provides for approximately 105,000 sq. ft. of job-generating office space within the village core.

4. Industrial

On the north side of Heritage Road, adjacent to the existing Otay Landfill, the Village 3 North SPA Plan proposes 33.8 acres of Industrial uses on three pads. The sites are anticipated to provide for approximately 265,000 sq. ft. of industrial buildings.

5. Parks and Recreation Uses

The Village 3 North SPA Plan includes a 7.9- acre neighborhood park located in the Village Core, adjacent to the elementary school site and the MU site.

6. Elementary School

To ensure a site for future school services is available, the Project proposes an elementary school site with the designation of an 8.3-acre elementary school site located in the Village Core, adjacent to the neighborhood park.

7. Community Purpose Facilities (CPF)

Community Purpose Facilities (CPF) means "a land use designation in a planned community intended for non-profit and certain for-profit land uses…" The SPA Land Use Plan distributes CPF sites throughout the Plan area as shown in Exhibit 1. CPF-1 is 2.6 acres located in the Village Core.

CPF-2 and CPF-3, 1.1 and 0.5 acres respectively, provide additional private recreation facilities within residential neighborhoods to create a series of open space focal points within the village.

8. Private Open Space

Private Open Space areas are small, neighborhood-scale recreational areas which fulfill the City's Private and Common Usable Open Space requirements for single-family homes. There are eight Private Open Space sites in Village 3 North totally 2.4 acres.

9. Otay Ranch Preserve

The Site Utilization Plan designates approximately 155.2 acres of the Project site as Preserve land, which will be offered for dedication to the Otay Ranch Preserve system. Preserve land is generally undisturbed land or restored habitats set aside for dedication to the public.

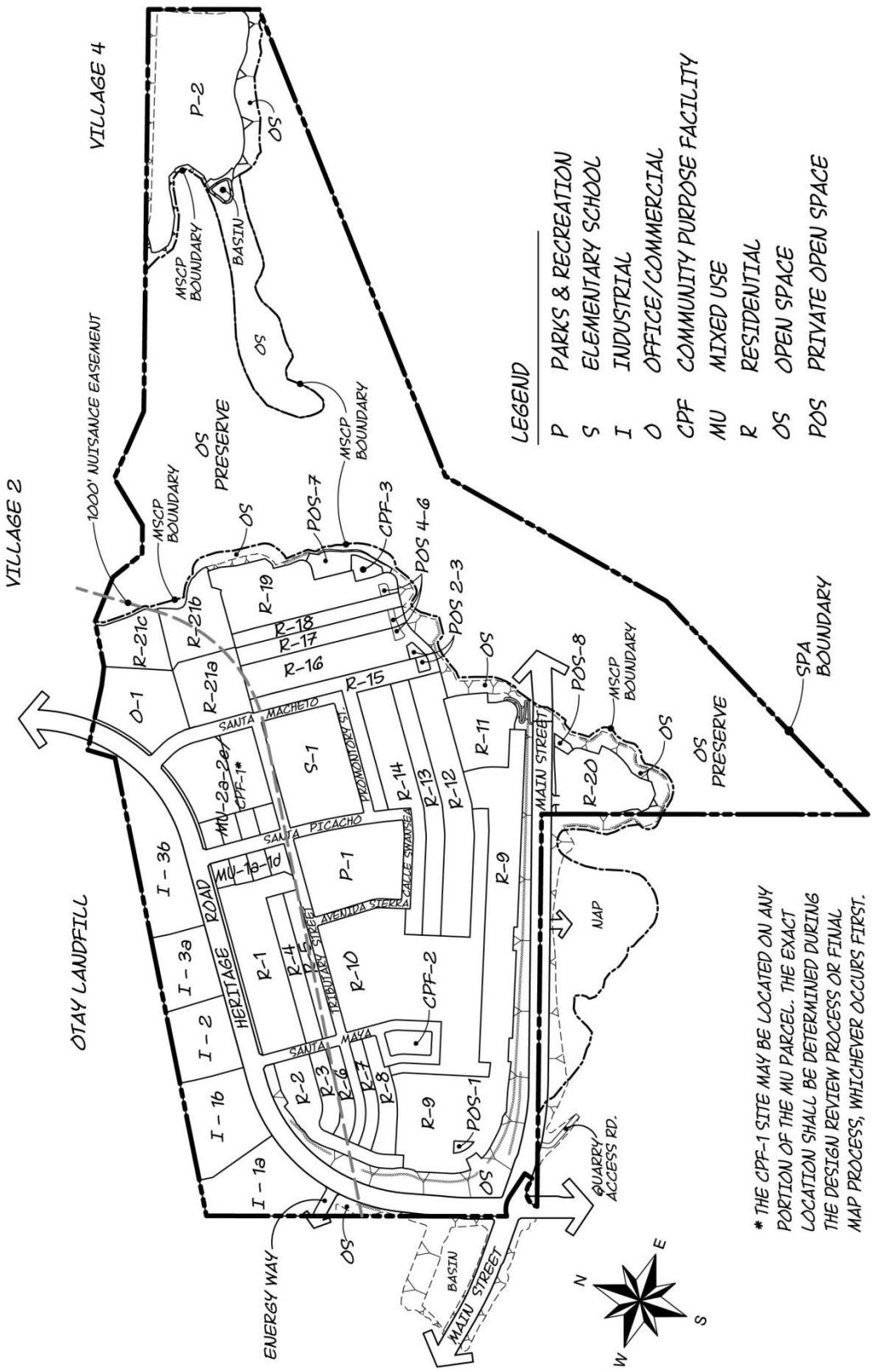

Exhibit 1 – Village 3 North Site Utilization Plan

Land Use Summary Neighborhood	Unit Type	Acres	Units	Target Density		Land Use Summary		Acres	Units
Single Family						**Other**			
R-1	SF	8.2	74	9.3		**Community Purpose Facilities**			
R-2	SF	3.8	34	9.2		CPF-1[2, 5]		2.6	
R-3	SF	1.4	14	10.0		CPF-2[4]		1.1	
R-4	SF	2.6	25	9.6		CPF-3[4]		0.5	
R-5	SF	2.1	25	11.9		**CPF Total**		**4.2**	
R-6	SF	1.4	16	11.4					
R-7	SF	1.4	19	13.6		**Private Open Space Total**		**2.4**	
R-8	SF	2.2	21	9.5					
R-9	SF	20.6	149	7.3		**Parks**			
R-10	SF	19.4	170	8.8		P-1		7.9	
R-11	SF	4.2	27	6.4		P-2 (V4)		17.8	
R-12	SF	7.7	70	9.1		**Parks Total**		**25.7**	
R-13	SF	4.7	46	9.8					
R-14	SF	6.0	67	11.2		**School**			
R-15	SF	4.7	51	10.9		S-1		8.3	
R-16	SF	5.9	54	9.2		**School Total**		**8.3**	
R-17	SF	3.0	26	8.7					
R-18	SF	2.5	19	7.6		**Office / Mixed Use**			
R-19	SF	7.9	51	6.5		O-1		5.2	
R-20	SF	5.5	44	8.0		MU-2 (a-e)[3, 5]		6.1	
Single Family Total		**115.2**	**1,002**	**8.7**		**Office/Mixed Use Total**		**11.3**	
Multi Family Res.						**Industrial**			
R-21a	MF	3.6	190	42.2		I-1a		6.4	
R-21b	MF	3.9	170	40.5		I-1b		6.1	
R-21c	MF	3.3	155	43.1		I-2		4.4	
Multi Family Total		**10.8**	**515**	**41.9**		I-3a		4.2	
						I-3b		7.5	
Mixed Use						**Industrial Total**		**28.6**	
MU-1a-d[1]	MU	2.1	80	38.1					
Mixed Use Total		**2.1**	**80**	**9.9**		**Open Space Total**		**35.6**	
						Preserve Total		**157.2**	
Residential Total		**128.1**	**1,597**	**12.5**		**Circulation**			
						External Circulation		17.6	
						Internal Circulation		17.0	
						Circulation Total		**34.6**	
						TOTAL		**436.0**	**1,597**

[1]Minimum 20,000 sf commercial on MU-1 Site.
[2]MU-2a-e Lot acreage excludes 2.6 ac CPF-1.
[3]MU-2 shall be comprised of 80% office uses and 20% commercial/retail uses.
[4] 0.2 acres of the CPF-2 and CPF-3 site may be used to satisfy all or a portion of the Common Useable Open Space requirement for neighborhoods within ¼ mile of the CPF-2 site.
[5]The CPF-1 site may be located on any portion of the MU-2 site or the O-1 site.
Note: MU-1 shall be comprised of a mix of multi-family residential above/behind retail/commercial uses.

Table 1 – Village 3 North Land Use Summary

B. Project Design Features

The proposed project would implement the following design features and conservation plans, including Otay Ranch GDP requirements, as part of the project design and long-term operation.

1. General Design Standards Related to GHG Emission Reduction

The village concept intensifies residential densities and commercial uses to enhance transit use, reduce automotive dependency, consolidate open space, promotes social interaction, and create a strong sense of community and identity within Otay Ranch. The land use pattern required by the Otay Ranch GDP for transit-oriented villages emphasizes high density residential and commercial land uses located near public transit.

Village urban design focuses on an integrated system of roads, pathways, bike lanes, trails and pedestrian walkways. The plan also considers non-vehicular transportation systems by making provisions to connect to local and regional trails systems that provide access between the village core, neighborhood park, elementary school, open space areas and residential areas. Additionally, regional Rapid Bus and local bus lines are planned to provide public transit service to the villages.

The circulation plan encourages pedestrian activity and the use of bicycles through the provision of the Village Pathway, an off-street paved path for bicycles. The design of all village streets includes sidewalks and landscaping to promote pedestrian circulation throughout the project site.

2. Conservation Plans

a. Water Conservation Plan

The purpose of the Water Conservation Plan (WCP) is to respond to the Growth Management policies of the City of Chula Vista, which are intended to address the long-term need to conserve water in new developments, to address short-term emergency measures, and to establish standards for water conservation.

b. Energy Conservation Plan

The Otay Ranch GDP requires all SPA Plans prepare a Non-Renewable Energy Conservation Plan. This Plan identifies measures to reduce the use of non-renewable energy resources through, but not limited to transportation, building design and use, lighting, recycling, and alternative energy sources.

3. Transit Planning Principles

Public transportation is an integral part of the Otay Ranch Community. The design of the Plan area promotes access to public transit and locates land uses in proximity to proposed transit stations. Chula Vista Transit (CVT) provides bus service through the Eastern Territories of the City that can be extended to serve the SPA Plan areas. Regional transit plans also provide for commuter lines to serve villages in Otay Ranch.

Two future transit stops are located within or adjacent to the Village 3 North SPA Plan Area. Exhibit 2 shows the Transit Plan for Village 3 North. Transit stops location and design are based on the following principles:

- Locate transit stops where there are a number of major pedestrian generators.
- Locate transit stops and pedestrian walkways to provide access while respecting the privacy of residential areas.
- At the intersection of two or more transit routes, locate bus stops to minimize walking distance between transfer stations.
- Locate bus turn-outs on the far side of the intersections to avoid conflicts between transit vehicles and automobile traffic, permitting right-turning vehicles to continue turning movements.
- Transit stops should be provided with adequate walkway lighting and well designated shelters.
- Walkway ramps should be provided at transit stops to ensure accessibility.

4. Bicycle Routes and Pedestrian Trails

The Village 3 North Trails Plan and Bicycle Route Plan are shown on Exhibits 3 and 4. A description of the different facilities is provided below.

a. Regional Trails

Chula Vista Regional Trails are located on the south side of Main Street and east side of Heritage Road. These trails are located adjacent to the roadways within landscape buffers. The decomposed granite trails are 10-feet wide to accommodate both pedestrians and bicycles.

b. Otay Ranch Village Pathway

The Otay Ranch GDP provides for a Village Pathway to be located through Otay Ranch, specifically through the villages to connect open spaces. The Village 3 North SPA Plan locates a Village Pathway on Street V, connecting from Heritage Road through the Village Core and connecting.

c. Promenade Streets

Residential Promenade Streets are the primary circulation streets through residential neighborhoods. The street design promotes the pedestrian-oriented urban village by providing a "Promenade," a 6-foot wide, tree-shaded walkway (Promenade Trail) on one side of the street.

d. Village Streets

Village streets are designed to promote pedestrian, bicycle and low-speed electric vehicle travel. Sidewalks are provided on all village streets. The preferred design for all village streets provides for minimum 5-foot wide sidewalks separated from the roadway by landscaped parkways.

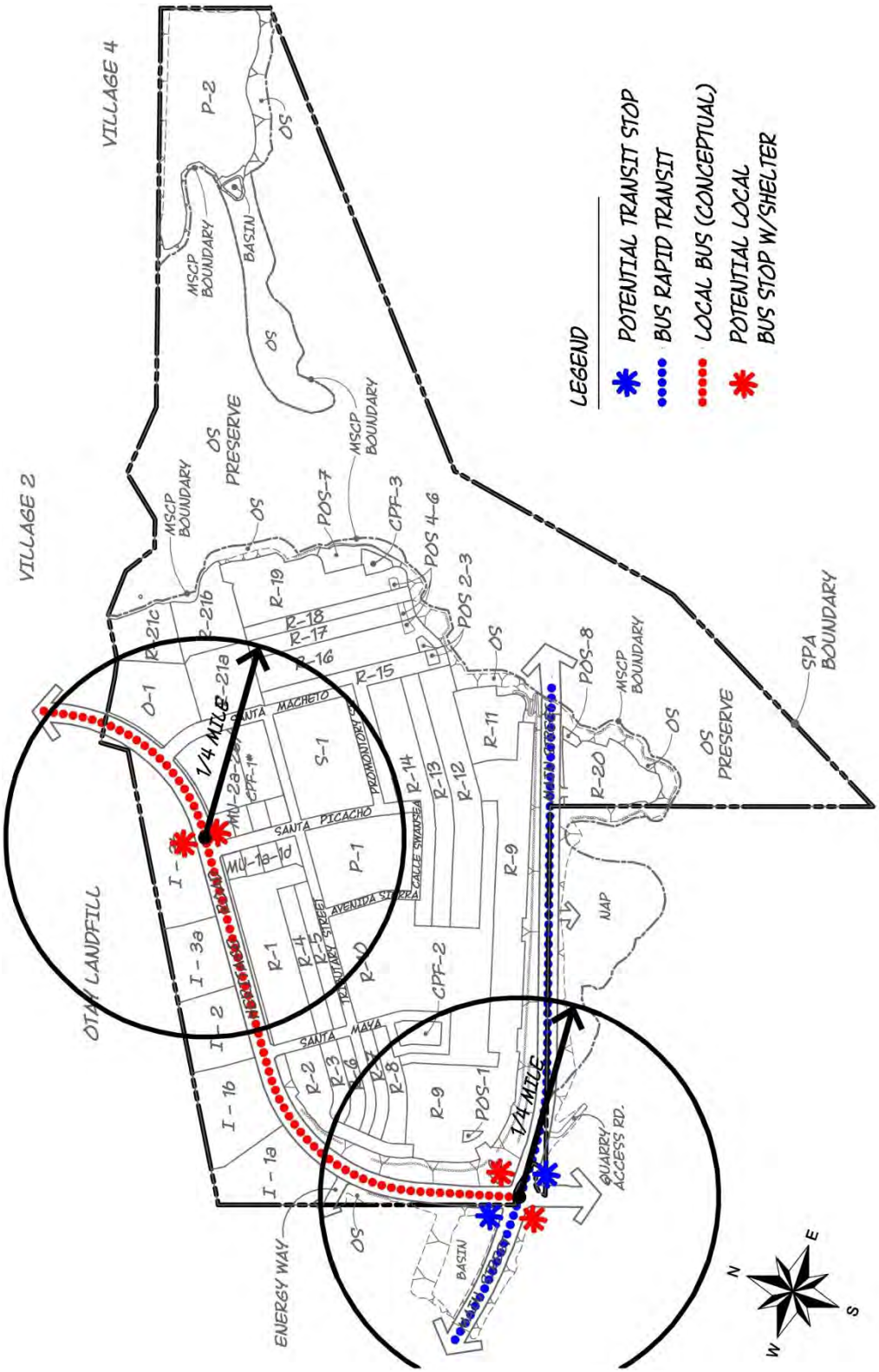

Exhibit 2 – Village 3 North Transit Plan

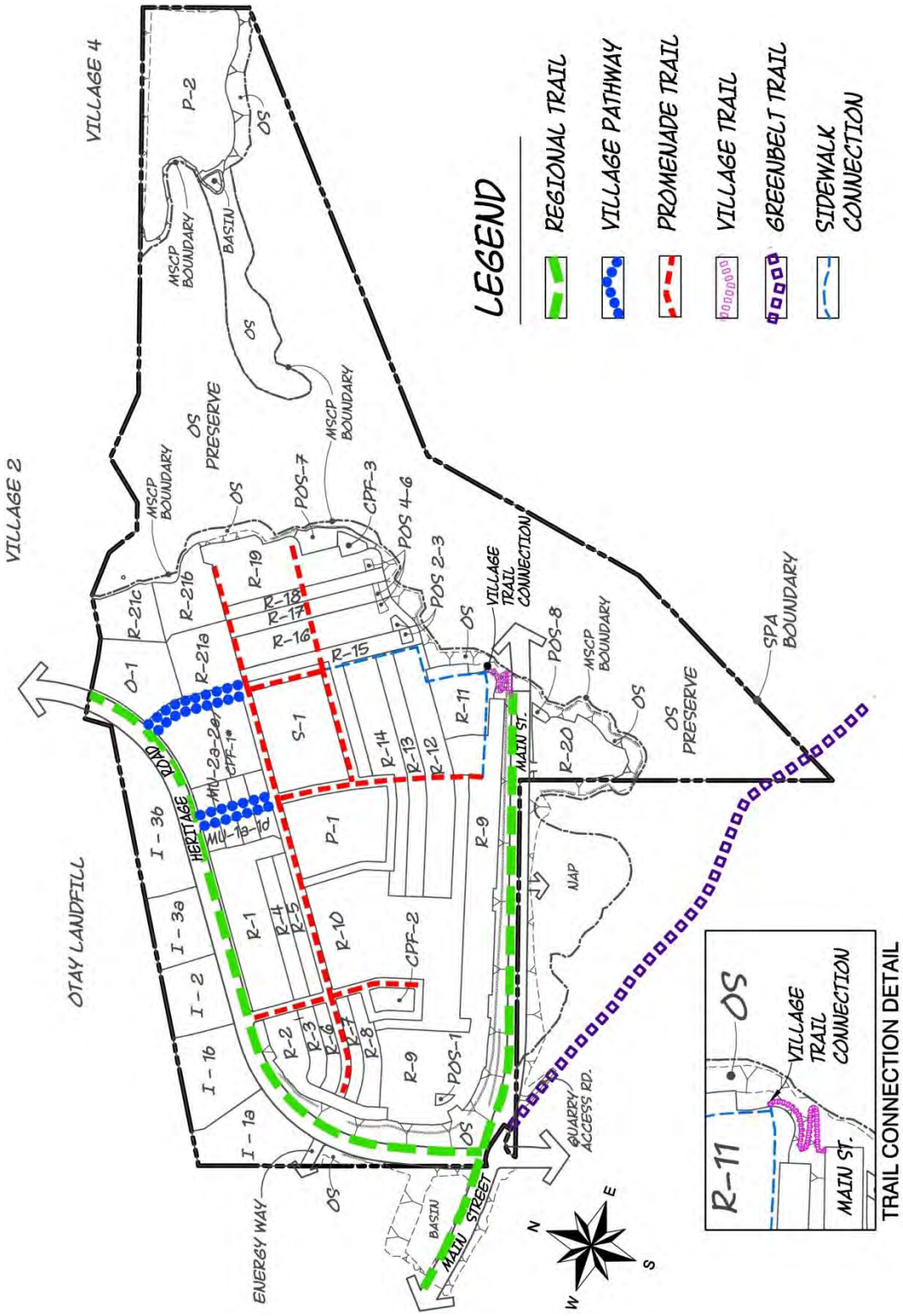

Exhibit 3 - Village 3 North Trails Plan

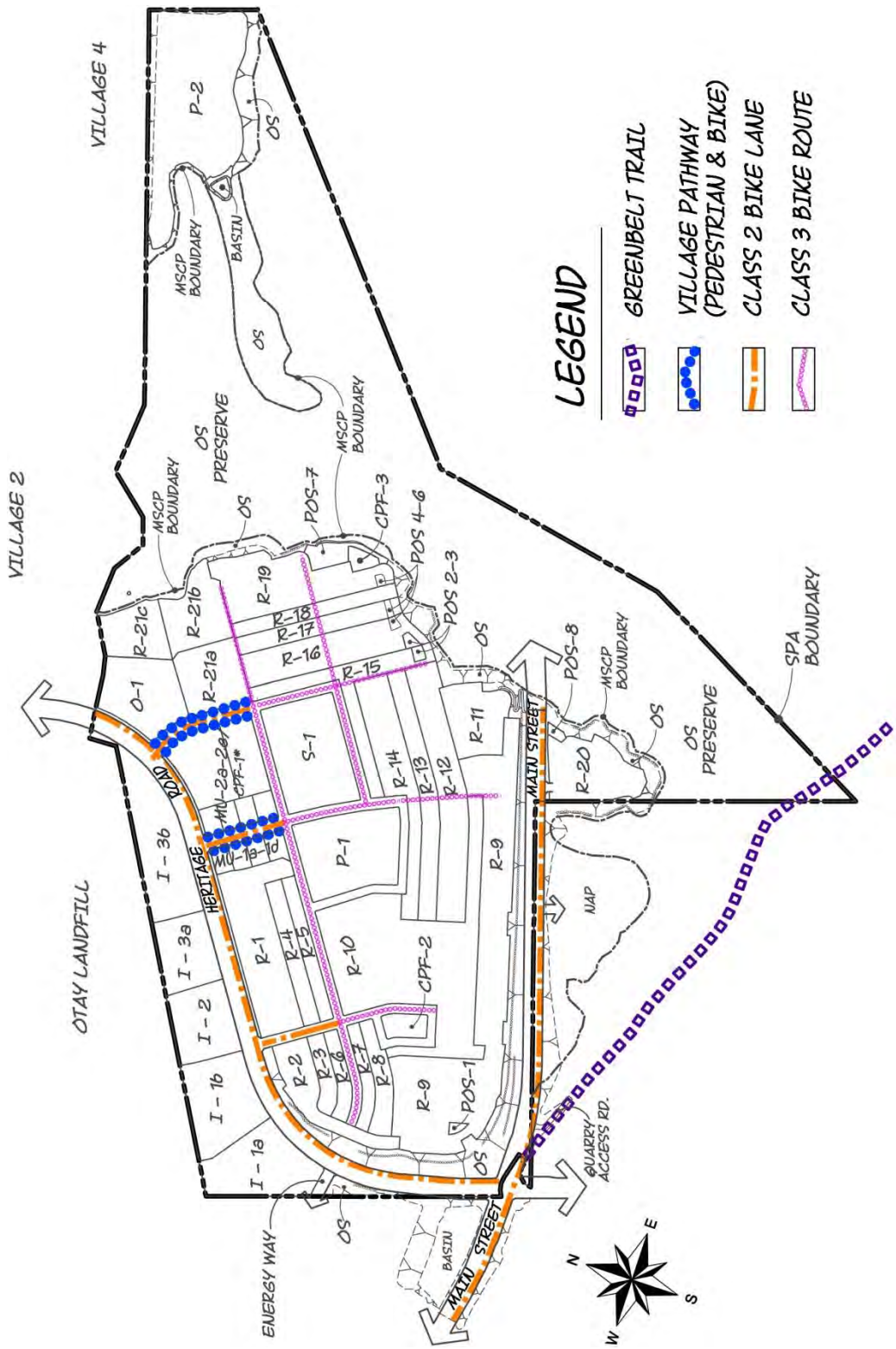

Exhibit 4 – Village 3 North Bicycle Route Plan

e. Greenbelt and OVRP Trails

The Chula Vista Greenbelt Master Plan provides for a Greenbelt to be located through Otay Ranch. The Greenbelt Trail is located south of Village 3 North through the Otay River Valley. The OVRP Concept Plan identifies a multi-use trail system through the Otay River Valley. The portion of the Greenbelt Trail described above coincides with the OVRP trail. General Development Plan (GDP) Goals and Policies

f. Class 2 Bike Lanes

Class 2 Bike Lanes are planned along Main Street, Heritage Road and Village Entry streets. These signed and striped lanes within the street right-of-way connect to a larger bike circulation network within the City of Chula Vista.

5. General Development Plan (GDP) Goals and Policies

The adopted Otay Ranch GDP establishes goals and objectives for land use mobility as they relate to air quality and greenhouse gas emissions reduction throughout the project site.

Land Use

Goal: Reduce reliance on the automobile and promote alternative modes of transportation.

Objective: Develop villages which integrate residential and commercial uses with a mobility system that accommodates alternative modes of transportation, including pedestrian, bicycle, bus, light rail, and other modes of transportation.

Objective: Develop residential land uses which encourage the use of alternative modes of transportation through the provision of bus and light rail right-of-way, and the inclusion of a bicycle and pedestrian network.

Goal: Organize land uses based upon a village concept to produce a cohesive, pedestrian friendly community, encourage non-vehicular trips, and foster interaction amongst residents.

Mobility

Goal: Provide a safe and efficient transportation system within Otay Ranch with convenient linkages to regional transportation elements abutting the Otay Ranch.

Goal: Achieve a balanced transportation system which emphasizes alternatives to automobile use and is responsive to the needs of residents.

Objective: Study, identify, and designate corridors, if appropriate, for light rail and transit facilities.

Objective: Promote alternative forms of transportation, such as bicycle and car paths, riding and hiking trails, and pedestrian walkways as an integral part of the circulation system.

Commuter Trip Management

Goal: Create a safe and efficient multi-modal transportation network which minimizes the number and length of single passenger vehicle trips.

Objective: Minimize the number and length of single passenger vehicle trips to and from employment and commercial centers to achieve an average of 1.5 persons per passenger vehicle during weekday commute hours.

Bicycle System Design

Objective: Provide a safe, thorough and comprehensive bicycle network which includes bicycle paths between major destinations within, and adjacent to, Otay Ranch.

Objective: Encourage mixed use development to promote linking of trips, reduce trip length and encourage alternative mode usage.

Transit Route and Facility Design

Objective: Facilitate access to public transit.

Pedestrian Design

Objective: Encourage pedestrian traffic as an alternative to single vehicle passenger travel.

Building Design

Objective: Locate and design buildings within village cores to facilitate transit and pedestrian access.

Parking Management

Objective: Manage parking facilities to facilitate transit, ridesharing and pedestrian access.

Objective: Manage parking facilities to encourage a reduction in the number of single vehicle trips.

Street Configuration

Objective: Configure internal village streets to give pedestrian traffic a priority.

Energy Conservation

Objective: Minimize fossil fuel emission by conserving energy.

Water Conservation

Goal: Conserve water during and after construction of Otay Ranch.

Objective: Reduce CWA water use within Otay Ranch to a level that is 75% of County-wide, 1989 per capita levels.

Objective: Create a comprehensive framework for the design implementation and maintenance of water conserving measures, both indoor and outdoor.

IV. Effect of Project on Local/Regional Air Quality

A. Potential Short and Long Term Effects on Local and Regional Air Quality

1. Construction Emissions

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust (PM10 and PM2.5) emissions would primarily result from grading and site preparation activities. NOx and CO emissions would primarily result from the use of construction equipment and motor vehicles.

Emissions from the construction phase of the project were estimated through the use of emission factors from the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007). Construction of the proposed project is anticipated to begin with Village 3 North in 2014[1]. Project construction would end with buildout of Village 10, which is anticipated to occur in 2029. A detailed description of construction subphases (mass grading, fine grading, trenching, paving, building construction, and architectural coatings), as well as other assumptions made for the purposes of modeling, is included in Appendix A. Total construction is expected to take approximately 15 years. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction. URBEMIS model assumptions for construction equipment were used in calculating construction emissions as equipment and machinery mix would be typical of residential development. Additional project-specific assumptions regarding vehicle trips, construction schedule, soil import/export, and architectural coatings are included in Appendix A. The equipment mix is meant to represent a reasonably conservative estimate of construction activity.

The proposed project is subject to SDAPCD Rule 55 – Fugitive Dust Control. This requires that the project take steps to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit any fugitive dust (PM10 and PM2.5) that may be generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter.

[1] The original construction schedule beginning in May 2014 is analyzed for the Proposed Project; however, construction would start at a later date. The construction scenario and schedule analyzed as part of the Proposed Project analysis is considered conservative because over time, emissions for both the construction and operational scenario would decrease due to more stringent air quality standards implemented over time, vehicle fleet turnover to more efficient engines, fuel mix, etc. As the duration of construction would not change (i.e. construction would occur over a 16-year period regardless of start date), the scenario analyzed as part of this analysis is considered conservative for the purposes of quantitatively analyzing air quality impacts.

The proposed project is also subject to SDAPCD Rule 67: Architectural Coatings which requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Table 2, Estimated Maximum Daily Construction Emissions, shows the estimated maximum daily construction emissions associated with the construction phase of the proposed project before and after compliance with Rule 55 and Rule 67. Because the project phasing overlaps with other villages, Table 2 includes emissions for Village Three North and portion of Village Four, Village Eight East and Village Ten.

Table 2: Estimated Maximum Daily Construction Emissions (pounds/day)
Villages Three North/Portion of Four, Eight East and Ten

	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Proposed Project Emissions (not compliant with SDAPCD Rules 55 and 67Unmitigated)						
2014	14.99	94.29	108.02	0.10	603.75	128.74
2015	64.44	86.18	107.19	0.11	305.47	67.40
2016	103.46	155.79	202.89	0.20	908.02	195.04
2017	101.83	141.79	194.88	0.20	608.89	132.94
2018	91.99	80.71	145.21	0.19	304.55	67.14
2019	37.55	58.04	89.20	0.10	303.62	65.62
2020	36.83	52.86	86.18	0.10	303.34	65.46
2021	36.46	51.57	76.23	0.10	303.31	65.44
2022	36.46	51.57	76.23	0.10	303.31	65.44
2023	62.99	94.48	130.40	0.16	905.29	192.55
2024	58.65	62.29	104.74	0.16	304.29	66.17
2025	28.75	51.33	68.63	0.07	303.12	65.33
2026	28.59	50.83	64.86	0.07	303.11	65.33
2027	28.59	50.83	64.86	0.07	303.11	65.33
2028	28.59	50.83	64.86	0.07	303.11	65.33
2029	21.88	12.18	25.06	0.06	0.97	0.72
Maximum Daily Emissions (Unmitigated)	*103.46*	*155.79*	*202.89*	*0.20*	*908.02*	*195.04*
Proposed Project Emissions (compliant with SDAPCD Rules 55 and 67)						
2014	14.99	94.29	108.02	0.10	273.75	59.82
2015	47.65	86.18	107.19	0.11	140.47	32.94
2016	77.50	155.79	202.89	0.20	413.02	91.66
2017	75.87	141.79	194.88	0.20	278.89	64.02
2018	66.03	80.71	145.21	0.19	140.44	32.69
2019	28.38	58.04	89.20	0.10	138.62	31.26
2020	27.66	52.86	86.18	0.10	138.34	31.01
2021	27.29	51.57	76.23	0.10	138.31	30.98
2022	27.29	51.57	76.23	0.10	138.31	30.98

2023	47.22	94.48	130.40	0.16	410.29	89.17
2024	42.88	62.29	104.74	0.16	139.29	31.71
2025	22.15	51.33	68.63	0.07	138.12	30.88
2026	21.99	50.83	64.86	0.07	138.11	30.87
2027	21.99	50.83	64.86	0.07	138.11	30.87
2028	21.99	50.83	64.86	0.07	138.11	30.87
2029	15.28	12.18	25.06	0.06	0.97	0.72
Maximum Daily Emissions (Mitigated)	*77.50*	*155.79*	*202.89*	*0.20*	*413.02*	*91.66*
City of Chula Vista Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**

Source: URBEMIS 2007 Version 9.2.4. See Appendix A of Air Quality and Global Climate Change Technical Report for the Otay Ranch University Villages Project for complete results.

Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a Portion of Village Four, Village Eight East, and Village Ten.

[1] Construction emissions that would be generated under the Village Eight East Alternative Development Scenario would be essentially the same as construction equipment fleet, daily equipment and construction crew operations, and daily construction trips to and from the site would be the same as those analyzed under the proposed project. A pounds/per day daily threshold is the only threshold numerically considered for criteria pollutants; therefore, the quantitative analysis under both the proposed project and alternative scenario would be essentially the same.

[2] "Unmitigated" PM_{10} and $PM_{2.5}$ emissions as shown do not reflect compliance with SDAPCD Rule 55, which restricts visible fugitive dust emissions beyond the property line. Similarly, "Unmitigated" VOC emissions as shown do not reflect compliance with SDAPCD Rule 67 which restricts the VOC content in architectural coatings. "Mitigated" emissions as shown, account for compliance with these rules.

As shown, daily construction emissions would not exceed the City's significance thresholds for CO and SOx. However, the VOC, NOx, PM10 and PM2.5 emissions associated with project construction would exceed the City of Chula Vista's emission threshold. Mitigation Measure AQ-1 – AQ-2 (below) would reduce construction-related NOx emissions. Note that mitigation available for the reduction of NOx emissions (as described in mitigation measure AQ-1) is not quantifiable; therefore, emission reductions for NOx are not shown in Table 2.

MM AQ-1: Prior to approval of any grading permits, the project applicant or its designee shall place the following requirements on all grading plans, and shall be implemented during grading of each phase of the project to minimize NOx emissions:

- Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall turn their engines off when not in use to reduce vehicle emissions;
    - All construction equipment shall be outfitted with best available control technology (BACT) devices certified by CARB. A copy of each unit's BACT documentation shall be provided at the time of mobilization of each applicable unit of equipment;

- All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications;
- All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used, or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible;
- The effectiveness of the latest diesel emission controls is highly dependent on the sulfur content of the fuel. Therefore, diesel fuel used by on- and off-road construction equipment shall be low sulfur (less than 15 ppm) or other alternative, low-polluting diesel fuel formulation.
- The use of electrical construction equipment shall be employed where feasible;
- The use of catalytic reduction for gasoline-powered equipment shall be employed where feasible;
- The use of injection timing retard for diesel-powered equipment shall be employed where feasible.

MM AQ-2: Prior to approval of any grading permits, and during project construction, the project applicant or its designee shall require implementation of the City's Standard Construction Best Mmanagement Practices (BMPs), including:

- Water, or utilize another acceptable SDAPCD dust control agent on, the grading areas at least twice daily to minimize fugitive dust;
- Stabilize grading areas as quickly as possible to minimize fugitive dust;
- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Remove any visible track-out into traveled public streets within 30 minutes of occurrence;
- Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;

- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 miles per hour (mph);
- Cover/water on-site stockpiles of excavated material; and
- Enforce a 20 mph speed limit on unpaved surfaces.
- Pave permanent roads as quickly as possible to minimize dust;
- During construction, site grading activities within 500 feet of a school in operation shall be discontinued or all exposed surfaces shall be discontinued or all exposed surfaces shall be watered to minimize dust transport off site to the maximum degree feasible, when the wind velocity is greater than 15mph in the direction of the school;
- During blasting, utilize control measures to minimize fugitive dust. Control measures may include, but are not limited to, blast enclosures, vacuum blasters, drapes, water curtains or wet blasting.

MM AQ-3: Prior to approval of the building permit for any uses that are regulated for TACs by the SDAPCD, the project applicant shall demonstrate to the satisfaction of the Development Services Director (or their designee) that the use complies with established criteria (such as those established by SDAPCD Rule 1200 and CARB). Also, gas stations shall not be located within 50 feet of a sensitive receptor, in accordance with CARB's siting recommendations.

2. Operational Emissions

Following the completion of construction activities, the proposed project would generate VOC, NOx, CO, SOx, PM10, and PM2.5 emissions from project land uses, as well as mobile and stationary sources including vehicular traffic from residents, space heating and cooling, water heating, and fireplace (hearth) use.

The proposed project would impact air quality through the vehicular traffic generated by project residents. According to the project's Traffic Impact Analysis (Chen Ryan 2014), total project-generated daily traffic is estimated to be 77,748 trips per day at full buildout (2030) which includes Village Three North and portion of Village Four, Village Eight East and Village Ten. The URBEMIS 2007 model was utilized to estimate daily emissions from proposed vehicular sources. URBEMIS 2007 default data, including temperature, trip characteristics, variable start information, emissions factors, and trip distances, were conservatively used for the model inputs. Project-related traffic was assumed to be comprised of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2030 (full buildout) were used to estimate emissions.

In addition to estimating mobile source emissions, the URBEMIS 2007 model was also used to estimate emissions from the project area stationary sources, which include natural gas

appliances, hearths, landscaping (which would not produce winter emissions), consumer products, and architectural coatings. All residential units would be constructed with natural gas fireplaces.

The present estimation of proposed operational emissions is based upon typical residential, retail, and industrial uses, and the analysis is considered a reliable estimate of the project's likely emissions. Table 3, Estimated Daily Maximum Operational Emissions, presents the maximum daily emissions associated with the operation of the proposed project after all phases of construction have been completed. Because the project phasing overlaps with other villages, Table 3 includes emissions for Village Three North and portion of Village Four, Village Eight East and Village Ten. The values shown are the maximum summer and winter daily emissions results from URBEMIS 2007. Complete details of the emissions calculations are provided in Appendix A of the Air Quality and Global Climate Change Technical Report for the Otay Ranch University Village Project.

As shown, daily operational emissions would not exceed the City's significance thresholds for SOx. However, the VOC, NOx, CO, SOx, PM10, and PM2.5 emissions associated with operation of the project would exceed the City of Chula Vista's significance thresholds.

Table 3: Estimated Daily Maximum Operational Emissions – 2030 (pounds/day)

Villages Three North/Portion of Four, Eight East and Ten

Proposed Project Emissions	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer						
Motor Vehicles	248.06	242.40	2,753.76	8.32	1,349.61	261.83
Area Sources	396.82	87.52	168.02	0.01	0.52	0.52
Total	644.88	329.92	2,921.78	8.33	1,350.13	262.35
City of Chula Vista Threshold	55	55	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Winter						
Motor Vehicles	266.89	291.97	2,576.56	6.92	1,349.61	261.83
Area Sources	377.07	131.50	56.44	0.29	3.84	3.80
Total	643.96	423.47	2,633	7.21	1,353.45	265.63
City of Chula Vista Threshold	55	55	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Source: URBEMIS 2007 Version 9.2.4. See Appendix A for complete results.

Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a Portion of Village Four, Village Eight East, and Village Ten.

"Summer" emissions are representative of the conditions that may occur during the ozone season (May 1 to October 31) and "Winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30)

As shown, daily operational emissions would not exceed the City's significance thresholds for SOx. However, the VOC, NOx, CO, SOx, PM10, and PM2.5 emissions associated with operation of the project would exceed the City of Chula Vista's significance thresholds. Project design features would help to reduce operational emissions; however, significant reductions in VOC, NOx, CO, PM10, and PM2.5 emissions would be required to reduce emissions of these pollutants to less than significant, and feasible mitigation measures are not available to achieve these reductions. Therefore, even with incorporation of these design features, criteria pollutant emissions are anticipated to be above the thresholds for VOC, NOx, CO, SOx, PM10, and PM2.5.

B. Potential Short-term and Long-term Effects on Global Climate Change

1. Construction Emissions

GHG emissions would be associated with the construction phase of the proposed project through use of construction equipment and vehicle trips. Emissions of CO_2 were estimated using the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007). The model results were adjusted to estimate CH_4 and N_2O emissions in addition to CO_2. The CO_2 emissions from off-road equipment and vehicles and delivery trucks, which are assumed by URBEMIS 2007 to be diesel fueled, were adjusted by a factor derived from the relative CO_2, CH_4, and N_2O for diesel fuel as reported in the California Climate Action Registry's (CCAR) *General Reporting Protocol* (CCAR 2009) for transportation fuels and the global warming potential for each GHG to estimate the emissions in units of CO_2E. The CO_2 emissions associated with construction worker trips were multiplied by a factor based on the assumption that CO_2

represents 95% of the CO_2E emissions associated with passenger vehicles (EPA 2005). The results were then converted from annual tons per year to metric tons per year. Table 4, Estimated Construction GHG Emissions, shows the estimated annual GHG construction emissions associated with the proposed project. Because the project phasing overlaps with other villages, Table 4 includes emissions for Village Three North and portion of Village Four, Village Eight East and Village Ten.

Table 4: Estimated Construction GHG Emissions (metric tons/year) Villages Three North/Portion of Four, Eight East and Ten

Construction Year	CO_2E Emissions
2014	1,117.58
2015	2,396.80
2016	3,867.28
2017	4,544.40
2018	3,085.30
2019	2,382.27
2020	2,391.37
2021	2,382.19
2022	2,373.07
2023	3,303.83
2024	2,753.49
2025	2,073.77
2026	2,073.80
2027	2,073.80
2028	1,773.19
2029	513.36
Total Construction Emissions	39,105.53
Amortized Annual Construction Emissions	1,303.52

Source: URBEMIS 2007 Version 9.2.4. See Appendix B for complete results.
Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a Portion of Village Four, Village Eight East, and Village Ten.

2. Operational Emissions

Operation of the proposed project would result in GHG emissions from vehicular traffic generated by residents, area sources (natural gas appliances, hearth combustion, and landscape maintenance), electrical generation, and water supply. Emissions associated with vehicular traffic, electrical generation, and water supply would be reduced by implementing GHG reduction measures, as indicated below.

a. Vehicular Traffic

Annual CO_2 emissions from motor vehicle trips for full project buildout were quantified using the URBEMIS 2007 model (refer to Appendix A for additional details and model assumptions). As described earlier, CH_4 and N_2O emissions were accounted for by multiplying the URBEMIS 2007 CO_2 emissions by a factor based on the assumption that

CO_2 represents 95% of the CO_2E emissions associated with passenger vehicles (EPA 2005).

Several regulatory initiatives have been passed to reduce on-road vehicle emissions. These initiatives (Pavley and EPA/NHTSA standards for light-duty vehicles and the LCFS) have been estimated to reduce emissions from motor vehicles by approximately 32% by the year 2020, according to the SDCGHGI (University of San Diego 2008).

b. Area Sources

Annual CO_2 emissions from natural gas combustion for space and water heating, hearth combustion, and gas-powered landscape maintenance equipment were estimated using URBEMIS 2007. The CO_2 emissions from natural gas combustion were adjusted by a factor derived from the relative CO_2, CH_4, and N_2O for natural gas as reported in the CCAR's *General Reporting Protocol* (CCAR 2009) for stationary combustion fuels and their GWPs.

The proposed project would be required to comply with Section 15.26.030 of the City's Municipal Code, which requires that new residential projects that fall within climate zone 7 be at least 15% more energy efficient than the 2008 Energy Code. As such, building design would employ energy efficient measures beyond that required by the Energy Code, resulting in a 15% reduction in emissions generated by natural gas use.

c. Electrical Generation

Annual electricity use for the proposed project was based upon estimated generation rates for land uses in the San Diego Gas & Electric service area. The proposed project would consume approximately 65,521,407 kilowatt-hours per year (see Appendix B for calculations). The generation of electricity through combustion of fossil fuels typically results in emissions of CO_2 and to a smaller extent CH_4 and N_2O. Annual electricity emissions were estimated using the reported CO_2 emissions per kilowatt-hour for San Diego Gas & Electric, which would provide electricity for the project. The contributions of CH_4 and N_2O for power plants in California were obtained from the CCAR's *General Reporting Protocol (*CCAR 2009), which were adjusted for their GWPs.

Again, the proposed project would be required to comply with Section 15.26.030 of the City's Municipal Code, which would result in a 15% reduction in emissions generated by electricity use.

d. Water Supply

Water supplied to the proposed project requires the use of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through use of electricity. Water usage rates were obtained from the Overview of Water Service completed for the proposed project (Dexter Wilson Engineering 2014). The estimated electrical usage associated with supply, conveyance,

treatment, and distribution of water was obtained from a California Energy Commission report on electricity associated with water supply in California (CEC 2006).

Per Section 15.12 of the City's Municipal Code, all new residential construction, remodels, additions, and alterations must provide a schedule of plumbing fixture fittings that will reduce the overall use of potable water by 20%, which would result in a 20% reduction in the GHG emissions from electricity generated for supply, conveyance, treatment, and distribution of water. The 20% reduction in the overall use of potable water is substantiated in the proposed project's Water Conservation Plan; in fact, the Water Conservation Plans for Villages Three North and Portion of Village Four, Village Eight East and Village Ten identify a 29.2% reduction in the overall use of potable water. As such, a 29.2% reduction is applied in this analysis.

3. Summary of Operational Emissions

The estimated GHG emissions associated with vehicular traffic, area sources, electrical generation, and water supply are shown below in Table 5. Because the project phasing overlaps with other villages, Table 5 includes emissions for Village Three North and portion of Village Four, Village Eight East and Village Ten. Additional detail regarding these calculations can be found in Appendix B of the Air Quality and Global Climate Change Technical Report for the Otay Ranch University Villages Project. The estimated emissions of CO_2E would be 203,688 metric tons per year without the GHG reduction measures ("business as usual"), and 144,520 metric tons per year with the GHG reduction measures. As indicated in Table 5, the GHG reduction measures would reduce GHG emissions by approximately 29%.

Table 5: Estimated Operational GHG Emissions (metric tons/year)
Villages Three North/Portion of Four, Eight East and Ten

Source	CO_2E Emissions	CO_2E Emissions w/ GHG Reduction Measures	Percent Reduction
Motor Vehicles	138,188	93,968	32%
Area Sources			
Natural Gas Combustion	18,213	12,749	30%
Hearth Combustion	26	26	0%
Landscaping	39	39	0%
Electrical Generation	22,031	15,422	30%
Water Supply	9,844	6,970	29%
Solid Waste	14,043	14,043	0%
Amortized Annual Construction Emissions	1,304	1,304	0%
Total	203,688	144,520	29.0%

Source: See Appendix B of the Air Quality and Global Climate Change Technical Report for the Otay Ranch University Villages Project for complete results.
Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a Portion of Village Four, Village Eight East, and Village Ten.

4. Assessment of GHG Impacts

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality while also addressing global climate change. In November 2002, Chula Vista adopted the Carbon Dioxide Reduction Plan in order to lower the community's major greenhouse gas emissions, strengthen the local economy, and improve the global environment. In addition, as a part of its Growth Management Ordinance and Growth Management Program, the City of Chula Vista requires that an Air Quality Improvement Plan (AQIP) be prepared for all major development projects with air quality impacts equivalent to that of a residential project of 50 or more dwelling units.

As shown in Table 5, with implementation of GHG reduction measures the proposed project would reduce GHG emissions by 29%. The proposed project would therefore exceed the target of 20% below business as usual that has been established for the purposes of assessing operational GHG emissions of projects in the City of Chula Vista, and this reduction would be consistent with the goals of AB 32. Furthermore, the proposed project would be consistent with Section 15.26.030 of the City's Municipal Code by employing energy efficient measures beyond that required by the Energy Code, resulting in a 15% reduction in emissions generated by energy use. Additionally, the proposed project would reduce the overall use of potable water by 29%, consistent with the City's Municipal Code. Lastly, the project design features would help to further reduce GHG emissions. The project would therefore have a less than significant impact on global climate change.

V. Quantitative Project Evaluation

A. INDEX PlanBuilder (INDEX) Modeling Results

Table 6 provides the modeling results from the INDEX Model for the Village 3 North SPA Plan.

Table 6: Chula Vista CO2 Index Model Results – Village 3 North

Element	Indicator	Units	Threshold Score	SPA Plan Score	Complies (Y/N)
Land Use	Use Mix	0-1 scale	> 0.1	0.25	Yes
	Use Balance	0-1 scale	> 0.6	0.77	Yes
	Neighborhood Completeness	% of key uses	> 60	60	Yes
Housing	School Proximity to Housing	avg walk ft to closest	< 3,200	1,459	Yes
	Transit Proximity to Housing	avg walk ft to closest stop	< 2,900	2,504	Yes
Employment	Transit Proximity to Employment	avg walk ft to closest stop	< 2,600	1,277	Yes
Recreation	Park Proximity to Housing	avg walk ft to closest park	< 1,700	1,582	Yes
Travel	Internal Street Connectivity	cul-de-	> 0.7	0.95	Yes
	Intersection Density	Intersections/sq mi	> 210	233	Yes
	Pedestrian Network Coverage	% of streets w/sidewalks	> 81	100.0	Yes
	Residential Multi-Modal Access	%DU w/3+ modes w/i 1/8mi	> 40	96.5	Yes
	Daily Auto Driving (3Ds Methodology)	VMT/capita/day	< 22	21.30	Yes
	Daily Auto Driving Inputs				
	Density		9,692	*21,122*	
	Diversity		.18	*0.87*	
	Design		3.57	*4.54*	
	Street Network Density		17.57	*25.70*	
	Pedestrian Network Coverage		96.00	*100.00*	
	Street Route Directness		1.73	*1.27*	
Climate Change	Residential Building Energy Use	MMBtu/yr/capita	< 29	26.5	Yes
	Non-Residential Building Energy Use	MMBtu/yr/emp	< 19	11.0	Yes
	Residential Building CO2 Emissions	lbs/capita/yr	< 4,800	4,360	Yes
	Non-Residential Building CO2 Emissions	lbs/emp/yr	< 2,100	1,789	Yes

The Village 3 North plan complies with the City's requirements related to all Elements.

B. Project Attributes Effects on Model Results

Table 7 provides a description of the project attributes that were considered in the modeling and the effect each of them had in terms of improving air quality, and reducing energy consumption and CO2 emissions.

Table 7: Project Attributes Effects on Model Results

Element	Indicator	Project Attribute	Effect on Modeling Result
Land Use	Use Mix		
	Use Balance		
	Neighborhood Completeness	Village Core	The Village Core area includes a neighborhood park, elementary school and employment opportunities in the office and retail/commercial areas which provides three of the five uses identified for neighborhood completeness. The remaining uses, a library and police/fire station, are planned in other portions of Otay Ranch. The Village 3 North SPA Plan will contribute its "Fair Share" towards the construction and operation of these facilities as outlined in the Village 3 North Public Facilities Financing Plan (PFFP).
Housing	School Proximity to Housing	Elementary School (S-1)	The Village 3 North SPA Plan locates an elementary school in the center of the Village such that it is within walking distance of a majority of the residents. This is aided by the provision of an interconnected sidewalk and trail system.
	Transit Proximity to Housing	Village Core Planned Transit Stops	The Village 3 North SPA Plan is planned to have local bus service near the village core with a possible stop at the intersection of Street "V" and Heritage Road. In addition, a planned Rapid Bus stop is located at the intersection of Heritage Road and Main Street, in the southwest corner of Village 3 North.
Employment	Transit Proximity to Employment	Village Core/MU, Office and Industrial uses	The Village Core includes centrally located Mixed Use Commercial/Retail and Mixed Use Retail/Office sites which are adjacent to a potential transit stop at the intersection of Street "V" and Heritage Road. In addition, the Industrial uses are adjacent to the potential local bus stop on the north side of Heritage Road.
Recreation	Park Proximity to Housing	Neighborhood Park P-1, CPF-1, CPF-2, P-OS-1 and P-OS02	Five parks are planned internal to Village 3 North, each distributed throughout the SPA Plan Area such that most residents are within a short walk. P-1 is the centrally located 7.9-acre neighborhood park in the Village Core adjacent to the highest-intensity MF site (R-22) and the Mixed Use Residential (MU-1) site.
Travel	Internal Street Connectivity	Grid Circulation System	The Village 3 North SPA Plan Circulation Plan establishes a grid system which connects streets and limits the number of cul-de-sacs.
	Intersection Density	Grid Circulation System	The Village 3 North SPA Plan Circulation Plan establishes a grid system which connects streets and limits the number of cul-de-sacs.
	Pedestrian Network Coverage	Otay Ranch Village Pathway Chula Vista Regional Trail Promenade Streets	All public streets in the Village 3 North SPA Plan Area are served by a pedestrian feature. Major arterials are part of the Regional Trails system, Street "V" includes 10' Village Pathway on both sides, Residential Promenade Streets provide expanded 6', tree-lined sidewalks connecting residential neighborhoods and all other public streets have 5' sidewalks separated from the street by landscaped parkways.
	Residential Multi-Modal Access	Village Core	The mixed use village core which provides for residents to shop, go to school and

		Otay Ranch Village Pathway Chula Vista Regional Trail Promenade Streets	recreate within the village, combined with a connected street and pedestrian/bicycle circulation system and the proximity to transit, limits the overall need for external vehicle trips which reduces average VMT.
	Daily Auto Driving (3Ds Methodology)		
Climate Change	Residential Building Energy Use	Small lot, single family homes Chula Vista Energy Efficiency Ordinance	The Chula Vista Energy Efficiency Ordinance requires homes within Climate Zone #7 to be 15% more energy efficient than applicable 2008 CA Energy Code Title 24-6 requirements. Small-lot homes are proposed throughout the single-family residential neighborhoods. These homes are smaller than traditional SF homes. When combined with energy efficiency requirements, they use much less energy than traditional SF homes. They also have smaller yards which require less water and therefore less energy to pump water to the project site.
	Non-Residential Building Energy Use	Chula Vista Energy Efficiency Ordinance	The non-residential buildings are required to meet Chula Vista energy efficiency requirements will result in less energy usage.
	Residential Building CO2 Emissions	Small lot, single family homes Chula Vista Energy Efficiency Ordinance	When combined with energy efficiency requirements, residences in Village 3 North will use much less energy than traditional SF homes.
	Non-Residential Building CO2 Emissions	Chula Vista Energy Efficiency Ordinance	The non-residential buildings are required to meet Chula Vista energy efficiency requirements will result in less energy usage.

VI. Community Design and Site Planning Features

A. Overview

Table 8 below provides an overview of the Community Design and Site Planning Features, as well as building and landscape features, which have been integrated into the Village 3 North SPA Plan to create a sustainable community. Exhibit 5 depicts several of the strategies.

Table 8: Community Design and Site Planning Features

Strategy to Reduce GHG Emissions	Description	Emission Reduction	Basis for Emission Reduction
Mixed-Use Development	The Village 3 North SPA land use plan locates a school, parks, and commercial and office land uses in a mixed use village core area.	1% to 10% (vehicle emissions)	CAPCOA White Paper, Appendix B
Developing Concentrated Activity Centers	Village 3 North is part of the overall Otay Ranch GDP which created concentrated activity centers surrounded by supporting land uses. Village 3 North includes high density multi-family in proximity to the village core and future transit stop.	1% to 10% (vehicle emissions)	CAPCOA White Paper, Appendix B
Pedestrian Oriented Development	The Village 3 North SPA land use plan locates a school, parks, and commercial land uses in proximity to residential areas to encourage pedestrian and bicycle travel as an alternative to the automobile. In addition, the Village 3 North Trail and Pathway system provides alternate routes to these destinations.	1% to 10% (vehicle emissions)	CAPCOA White Paper, Appendix B
Street Widths, Pavement and Street Trees	The Village 3 North land use plan includes narrow streets and reduced paving, which reduces heat buildup and the demand for air conditioning. Street trees are also included to provide shade and further reduce ambient air temperatures.	Unknown	CAPCOA White Paper, Appendix B
Public Transportation	The Village 3 North provides for future local bus services through the Village Core. In addition, there is a planned Rapid Bus transit stop in the southwestern corner of the Village 3 North SPA Plan area at the intersection of Main Street and Heritage Road.	1% to 2% (vehicle emissions)	CAPCOA White Paper, Appendix B
Alternative Travel Modes	Village 3 North SPA streets will provide for a maximum travel speed which allows residential streets to be also used by bicycles.	1% to 10% (vehicle emissions)	CAPCOA White Paper, Appendix B
Alternative Travel Modes	Off-street pathways and trails in Village 3 North will accommodate pedestrian and bicycle travel.	1% to 10% (vehicle emissions)	CAPCOA White Paper, Appendix B
Improved Construction Standards	All residential buildings will be designed and constructed to achieve the California Green Building Code Tier 1 standards (CalGREEN).	15% reduction in energy use (electricity and natural gas)	CALBO Model Green Building Ordnance
Improved Construction Standards	Project-wide recycling for single-family, multi-family, school, commercial, and retail establishments will be required as required under the County's recycling ordinance.	Unknown	N/A

Improved Construction Standards	Electric car plug-in facilities/stations will be provided in all residential garages.	Unknown	CAPCOA White Paper, Appendix B
Energy Efficiency	All private residential and commercial structures will be designed and constructed to improve energy conservation 15% above the 2008 Building Energy Efficiency Standards in Title 24 of the California Code of Regulations.	20% (energy use emissions)	URBEMIS Model; Green Building Standards
Energy Efficiency	Indoor residential appliances will carry the Environmental Protection Agency's (EPA) ENERGYSTAR® certification, as applicable and feasible.	Embodied in Title 24 Energy Efficiency Standards.	CAPCOA White Paper, Appendix B
Energy Efficiency	All residential units will be part of the local utility demand response program to limit peak energy usage for cooling.	Unknown	N/A
Water Conservation	Indoor residential plumbing products will carry the EPA's WaterSense certification.	The CalGREEN Code requires a 20% reduction in water use	Green Building Standards
Water Conservation	High-efficiency irrigation equipment, such as evapotranspiration controllers, soil moisture sensors and drip emitters, will be required for all projects that install separate irrigation water meters.	Unknown	N/A
Water Conservation	Drought tolerant, low-water usage native vegetation will be planted in public and private landscaped areas.	Unknown	CAPCOA White Paper, Appendix B
Water Conservation	Natural turf in residential development will be limited to no more than 30% of the outdoor open space.	Unknown	N/A
Solar Access – Hot Water	All single-family structures will be designed and constructed to allow for installation of solar hot water heaters.	Unknown	N/A
Solar Access - Energy	All single family structures will be designed and constructed to facilitate the installation or retrofit of photovoltaic systems.	1% to 3% (energy use emissions)	CAPCOA White Paper, Appendix B
Lighting	Energy efficient lighting for streets, parks, and other public spaces will be required. Private developers will use energy efficient lighting and design.	Unknown	CAPCOA White Paper, Appendix B

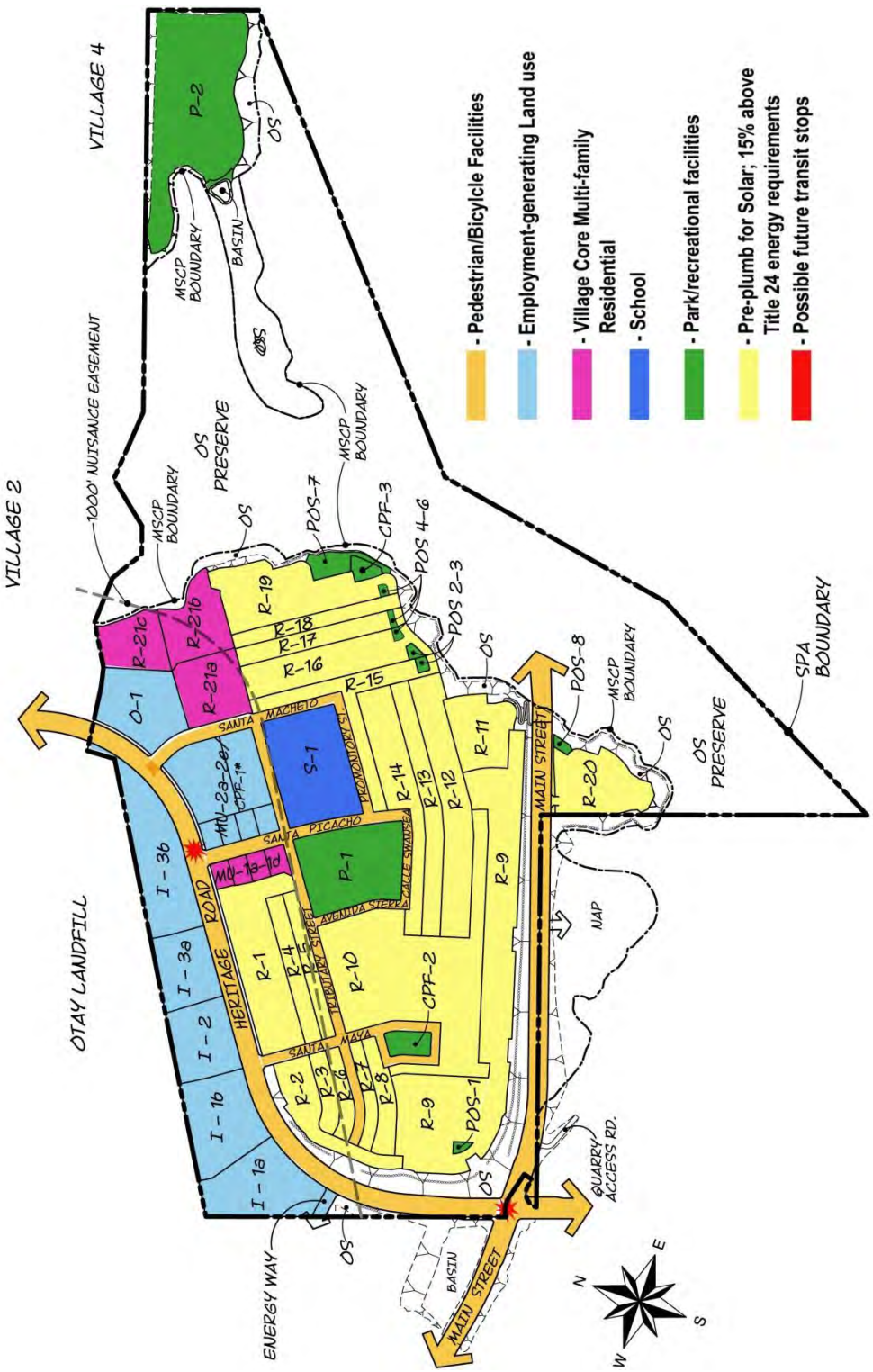

Exhibit 5 – Village 3 North AQIP Design Features

VII. Chula Vista CO2 Reduction Plan

Table 9: Summary Project Consistency with CO2 Reduction Action Measures

Action Measure	Project/Community Design Features	Describe How Project Design Will Implement CO2 Reduction Action Measures
Measure 6 (Enhanced Pedestrian connections to Transit): Installation of walkways and crossings between bus stops and surrounding land uses.	Village Pathway on Street "V" connecting to local bus stop and Promenade Streets/Trails; Intersection neck-downs; Regional Trails on Main Street and Heritage Road connected to Rapid Bus stop at Heritage and Main Street intersection	The Project will implement the design features which will enhance the pedestrian connection to transit stops located with the SPA Plan area and the planned local and Rapid Bus stops on Main Street and Heritage Road.
Measure 7 (Increased Housing Density near Transit): General increase in land use and zoning designations to reach an average of at least 14-18 dwelling units per net acre within ¼ mile of major transit facilities.	High Density MF in village core neighborhoods; Small lot single family and alley development in neighborhoods adjacent to the village core.	The increased density in the north-central portion of the project is within ¼ mile of the Village Core and planned local bus stop.
Measure 8 (Site Design with Transit Orientation): Placement of buildings and circulation routes to emphasize transit rather than auto access; also includes bus turn-outs and other transit stop amenities.	Village 3 North SPA Transit Plan / Centrally-located local bus stop at Village Core; P.C. District Regulations – building setbacks;	The Village 3 North SPA land use plan site design accommodates a centrally located mixed use core with a transit stop which is within ¼ mile of most residents. The building setback requirements in the PC District Regulations and Village Design Plan policies will provide for pedestrian-scaled building frontages to encourage walking. The local bus stop shelter will be all-weather and provide seating.
Measure 9 (Increased Land Use Mix): Provide a greater dispersion/variety of land uses such as siting of neighborhood commercial uses in residential areas and inclusion of housing in commercial and light industrial areas.	Mixed Use Village Core	The Village Core provides a mix of uses including office, commercial and park uses in a residential area, consistent with Measure 9.
Measure 10 (Reduced Commercial Parking Requirements): Lower parking space requirements; allowance for shared lots and shared parking; allowance for on-street spaces.	On Street Parking.	The project includes on-street parking spaces throughout the Village Core which reduces the need for large, paved parking lots.
Measure 11 (Site Design with Pedestrian/bicycle Orientation): Placement of buildings and circulation routes to emphasize pedestrian and bicycle access without excluding autos; includes pedestrian benches, bike paths, and bike racks.	P.C. District Regulations – building setbacks	The building setback requirements in the PC District Regulations and Village Design Plan policies will provide for pedestrian-scaled building frontages to encourage walking and bicycling. Bike racks will be provided at parks, the elementary school and the mixed use commercial/retail center in

		the village core. Garages are discouraged in fronts of homes.
Measure 12 (Bicycle Integration with Transit and Employment): Provide storage at major transit stops and employment areas. Encourage employers to provide showers at the place of employment near major transit nodes.	P.C. District Regulations – Bicycle storage	The P.C. District Regulations include requirements for bicycle storage and shower/changing facilities in businesses such that future employees may bike to work.
Measure 13 (Bike Lanes, paths, and Routes): Continued implementation of the City's bicycle master plan. Emphasis is to be given to separate bike paths as opposed to striping bike lanes on streets.	Village Pathway on Street "V" Promenade Streets/Trails; Regional Trails on Main Street and Heritage Road Class II bike lanes Greenbelt/OVRP Trails	The Village 3 North SPA Circulation and Trail Plans provide for off-street bike travel on the Village Pathway, Regional Trails, and Promenade Streets and within the OVRP.
Measure 14 (Energy Efficient Landscaping): Installation of shade trees for new single-family homes as part of an overall city-wide tree planting effort to reduce ambient temperatures, smog formation, energy use, and CO2.	Otay Ranch Street Tree Program; Promenade Streets;	The Village 3 North street sections provide for landscaped parkways with street trees. The Water Conservation Plan identifies appropriate tree which are water efficient.
Measure 15 (Solar Pool Heating): Mandatory building code requirement for solar heating of new pools or optional motorized insulated pool cover.	Compliance with Municipal Code	Any installation of a pool will comply with the City's Municipal Code.
Measure 16 (Traffic Signal & System Upgrades): Provide high-efficiency LED lamps or similar as approved by the City Engineer.	Compliance with City Program	All traffic signals will comply with the requirements of the City's Traffic Signal Program.
Measure 18 (Energy Efficient Building Recognition Program): Reducing CO2 emissions by applying building standards that exceed current Title 24 Energy Code requirements.	Compliance with Municipal Code	All new construction will comply with the Municipal Code requirement to exceed Title 24 by 15%.
Measure 20 (Increased Employment Density Near Transit): General increase in land-use and zoning designations to focus employment-generating land-uses within ¼ mile of major transit stops throughout the City.	Mixed-use Commercial/Retail and Office adjacent to local bus stop.	The Village 3 North SPA land use plan locates a commercial/retail and office center in the Village Core near the planned future local bus stop.

VIII. Compliance Monitoring

TABLE 10: Village 3 North Compliance Monitoring Checklist

Village 3 North SPA Plan Air Quality Improvement Plan Compliance Monitoring Checklist							
	Method of Verification[1]	Timing of Verification				Responsible Party[2]	Project Consistency & Compliance Documentation[3]
		TM	Pre Cons	Cons	Post Cons		
Planning							
AQIP Project Design Features/Principles							
Mixed Use Village Core	SPA Plan	X				City of Chula Vista	
• Elementary School	SPA Plan	X				City of Chula Vista	
• Neighborhood Park	SPA Plan	X				City of Chula Vista	
• Commercial/ Retail Center	SPA Plan	X				City of Chula Vista	
• Office (O-1)	SPA Plan	X				City of Chula Vista	
Local Bus Stop	SPA Plan	X				City of Chula Vista	
Rapid Bust Stop	SANDAG RTP				X	SANDAG	
CPF-1	SPA Plan	X				City of Chula Vista	
CPF-2	SPA Plan	X				City of Chula Vista	
P-OS-1	SPA Plan	X				City of Chula Vista	
P-OS-2	SPA Plan	X				City of Chula Vista	
Village Pathway – Street V	SPA Plan	X				City of Chula Vista	
Promenade Trails	SPA Plan	X				City of Chula Vista	

Regional Trail – Main Street	SPA Plan	X				City of Chula Vista	
Regional Trail – Heritage Road	SPA Plan	X				City of Chula Vista	
Small-lot Single Family Homes	SPA Plan	X				City of Chula Vista	
Alley-loaded single family homes	SPA Plan	X				City of Chula Vista	
Narrower Streets	SPA Plan	X				City of Chula Vista	
Building							
Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall turn their engines off when not in use to reduce vehicle emissions	MMRP		X			City of Chula Vista	
All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications	MMRP		X			City of Chula Vista	
All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible.	MMRP		X			City of Chula Vista	
Diesel fuel used by on- and off-road construction equipment shall be low sulfur (less than 15 ppm) or other alternative, low-polluting diesel fuel formulation.	MMRP		X			City of Chula Vista	
Green Building Standards							
CalGreen Tier 1 Standards	Building Permit		X			City of Chula Vista	
Electric car plug in outlets in residential garages	Building Permit		X			City of Chula Vista	
EPA WaterSense certification on	Building Permit		X			City of Chula Vista	

indoor plumbing							
Evapotranspiration controllers	Building Permit		X			City of Chula Vista	
Soil moisture sensors / drip emitters	Building Permit		X			City of Chula Vista	
Water Conservation Plan	SPA Plan	X				City of Chula Vista	
Limit natural turf to 30% SF yards	Building Permit		X			City of Chula Vista	
Pre-plumb for solar hot water	Building Permit		X			City of Chula Vista	
Pre-plumb for photovoltaic system	Building Permit		X			City of Chula Vista	
Energy Efficiency Standards							
Exceed T-24 (2008) by 15%	Building Permit		X			City of Chula Vista	
EPA EnergyStar certified residential appliances	Building Permit		X			City of Chula Vista	

Notes:

1. Method of verification may include, but is not limited to, plan check, permit review, site inspection.

2. Identify the party responsible for ensuring compliance (City of Chula Vista, San Diego APCD, Other)

3. This column shall include all pertinent information necessary to confirm compliance including document type, date of completion, plan/permit number, special notes/comments, and contact information.

OTAY RANCH
VILLAGE 3 NORTH AND PORTION OF 4
II.8 WATER CONSERVATION PLAN

December 2, 2014

Prepared By:

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Job Number 605-820

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FIGURE 2 VILLAGE 3 NORTH RECYCLED WATER USE AREAS 10

ABBREVIATIONS

ac -	acre
ac-ft -	acre-foot
cfd -	community facilities district
cfs -	cubic feet per second
gpd -	gallons per day
gpf -	gallons per flush
gpm -	gallons per minute
HOA -	homeowner's association
mgd -	million gallons per day

USEFUL CONVERSIONS

1 acre-foot	=	325,829 gallons
1 mgd	=	1,000,000 gallons/day
1 cfs	=	448.8 gpm
1 cubic foot	=	7.48 gallons
1 mgd	=	694.4 gpm

II-8.1 EXECUTIVE SUMMARY

The City of Chula Vista's Growth Management Ordinance (CVMC 19.09.050C) requires all development projects with 50 or more dwelling units to prepare a Water Conservation Plan at the time of the Sectional Planning Area (SPA) Plan preparation. This Water Conservation Plan presents a review of presently available technologies and practices which result in water conservation in primarily residential development. This report presents water conservation measures that will be incorporated into the planning and design of the Otay Ranch Village 3 North (including a portion of Village 4 project), including the requirements outlined in the Landscape Water Conservation Ordinance.

Proposed development within Village 3 North and a Portion of Village 4 includes 1,597 mixed density residential dwelling units, community purpose/private recreation facilities, school, commercial, office, industrial, parks, and open space.

The Otay Water District is the local water agency that will supply potable water and recycled water to Villages 3 North and a portion of Village 4. The total estimated average potable and recycled water use for the project is 0.56 mgd and 0.17 mgd, respectively, as analyzed by the Overview of Water Service for Otay Ranch Village 3 North, a portion of 4, 8 East, and 10 (October 2014).

The State and local government mandate a number of water conservation measures. The focus of this study is on the implementation of non-mandated water conservation measures. The project will install hot water pipe insulation, pressure reducing valves, and water efficient dishwashers in all single family and multi-family residential units. Additionally, the developer will install water efficient landscaping and dual flush toilets in the single and multi-family residential units and utilize water efficient irrigation systems and dual finish toilets for the non-residential sites. The project will be designed in compliance with the Landscape Water Conservation Ordinance. At buildout of the project, implementation of the above measures along with the use of recycled water would result in an estimated water savings of 236,444 gallons per day for the project, reducing overall potable water demand to 0.50 mgd.

II-8.2 INTRODUCTION

In recent years, the subject of water conservation received given increased attention. The growing awareness of the need and value of water conservation was sparked by local and regional water purveyors concerned about meeting the future water demands of their customers, particularly during drought conditions. Water conservation provides an alternative approach to the problem of finding new water sources to meet the water demand for a proposed community. The intent of water conservation is to manage water demand so the customers receive adequate service but use less water.

Much has been done to educate consumers about limitations of water supply, the serious implications of a long-term drought and the need for water conservation, but there is a practical limit to the percentage reduction of water use in established communities. This limit is a result of the types of plumbing fixtures installed in existing homes, as well as the difficulty in altering consumers' established patterns of water use. Any water conservation effort, voluntary or mandatory, requires the cooperation of the public. Public information should be utilized to inform and convince the consumer that a change in personal water use habits is in everyone's best interest.

In recent years, the private development sector has become more attuned to the concerns of water availability and has recognized the value of addressing water conservation issues throughout planned development projects. By incorporating low water use plumbing fixtures, promoting drought tolerant landscaping, and providing educational materials to homeowners within the development project, private developments can cultivate an interest in water conservation and establish new patterns of water use. These efforts can have significant impacts with regard to reducing the need for securing and importing larger quantities of water for use in San Diego County. The City of Chula Vista similarly recognized these benefits and developed the Landscaping Water Conservation Ordinance which went into effect on January 1, 2010 and requires homeowners to be efficient with the landscape systems and plant selection.

In 2006, the State repealed the Water Conservation in Landscaping Act and adopted a new Water Conservation in Landscaping Act, Government Code Sections 65591 et seq. The new Act requires the Department of Water Resources to update the previously adopted model efficient landscape ordinance that provides for greater efforts at water conservation and more efficient use of water in landscaping. Government Code Section 65595 required that on or before January 1, 2010 a local agency had to adopt a water efficient landscape ordinance that was at least as effective in conserving water as the updated model ordinance or adopt the model ordinance.

The Chula Vista City Council adopted an ordinance that complies with the findings and declaration's of the State's Water Conservation in Landscaping Act and is as effective as the State's updated model water efficient landscape ordinance. This Water Conservation Plan incorporates the requirements of the City ordinance.

The Otay Ranch University Villages project is part of the Otay Ranch General Development Plan (GDP). The Otay Ranch GDP was adopted in 1993 and included objectives for water conservation to be incorporated into the development of Otay Ranch. These objectives included the implementation of water efficient fixtures, increased use of drought tolerant landscaping, and use of recycled water for irrigation. The objective of these measures is to reduce the per capita water use within Otay Ranch by 25 percent as compared to 1989 County wide per capita levels. This report will demonstrate how the project applicant, in partnership with the Otay Water District and the City are meeting these objectives.

II-8.3 PURPOSE

The State Legislature determined in the Water Conservation in Landscaping Act that the State's water resources are in limited supply. The Legislature also recognized that while landscaping is essential to the quality of life in California, landscape maintenance and design must be water efficient. The City of Chula Vista's Growth Management Ordinance requires all major development projects (50 dwelling units or greater) to prepare a Water Conservation Plan at the time of SPA Plan preparation. The City has adopted guidelines for the preparation and implementation of required water conservation plans.

This report presents water conservation measures which will be incorporated into the planning and design of the project, including an estimate of the anticipated water savings. Approximately half of the water used by residences in California is used outdoors. For this reason, the City's Landscape Water Conservation Ordinance will be an important component of reduced water usage.

Although not covered in detail, there are several secondary benefits to conserving water that should be kept in mind when reviewing material in this report. These benefits include reduced sewage flows, reduced natural gas use, and reduced electricity use. Using less water in the shower, for example, reduces the amount of water input into the sewer system and reduces the amount of energy required to heat the water.

II - 8.4 PROJECT DESCRIPTION

Proposed development within the Village 3 North and a portion of 4 boundary includes 1,597 mixed density residential dwelling units, community purpose facilities, a school, commercial, industrial, parks, and open space.

Village 3 North and a Portion of Village 4

The proposed Village 3 North land plan seeks to create a pedestrian and transit oriented village containing 1,597 homes arranged around a mixed use village core with up to 20,000 square feet of commercial retail. The plan includes 1,002 single family homes and 595 multi-family units. Village 3 North also includes an elementary school and park sites. The proposed mix of residential land use designations for Village 3 North includes Residential Low Medium, Residential Medium (M), and Mixed Use Residential (MU-R). A Rapid Bus or local bus transit stop/station is planned within the village core mixed use area. Small private recreation sites (CPF) extend recreational opportunities into residential neighborhoods, enhancing the walk ability of the village.

Land surrounding the landfill remains Limited Industrial, providing job-producing uses in close proximity to Village 3 North neighborhoods.

Non-residential land use designations include Parks & Recreation (P), Open Space (OS), Open Space Preserve (OSP), Mixed Use (MU) Office/Commercial, and Light Industrial (I). The other land uses include circulation element roadways and infrastructure. The portion of Village 4 also includes the designation of 17.8 acres of Community Park.

The private open space lots are not calculated in the potable water demand because it is anticipated that recycled water will be used in these areas similar to recreational CPF sites.

Figure 1 provides the proposed land use plan for the project and Table 1 provides a land use summary.

TABLE 1
VILLAGE 3 NORTH SITE UTILIZATION SUMMARY

Planning Area	Gross Acres	Maximum Residential Units	Maximum Commercial Square Footage
VILLAGE 3 NORTH AND A PORTION OF VILLAGE 4			
Single Family			
R-1	8.2	74	0
R-2	3.8	34	0
R-3	1.4	14	0
R-4	2.6	25	0
R-5	2.1	25	0
R-6	1.4	16	0
R-7	1.4	19	0
R-8	2.2	21	0
R-9	20.6	149	0
R-10	19.4	170	0
R-11	4.2	27	0
R-12	7.7	70	0
R-13	4.7	46	0
R-14	6.0	67	0
R-15	4.7	51	0
R-16	5.9	54	0
R-17	3.0	26	0
R-18	2.5	19	0
R-19	7.9	51	0
R-20	5.5	44	0
Subtotal	**115.2**	**1,002**	**0**
Multi-Family			
R-21a	3.6	190	0
R-21b	3.9	170	0
R-21c	3.3	155	0
Subtotal	**10.8**	**515**	**0**
Mixed Use/Office			
MU-1a-d	2.1	80	0
MU-2a-e	6.1	0	20,000
O-1	5.2	0	0
Subtotal	**13.4**	**80**	**20,000**
Industrial			
IND-1a,b	12.5	0	0
IND-2	4.4	0	0
IND-3a,b	11.7	0	0
Subtotal	**27.6**	**0**	**0**
Park P-1	7.9	0	0
Park P-2 (Village 4)	17.8	0	0
CPF-1	2.6	0	0
CPF-2	1.1	0	0
CPF-3	0.5	0	0

TABLE 1 VILLAGE 3 NORTH SITE UTILIZATION SUMMARY			
Planning Area	**Gross Acres**	**Maximum Residential Units**	**Maximum Commercial Square Footage**
Private OS	2.4	0	0
S-1	8.3	0	0
Internal Circulation	17.0	0	0
External Circulation	19.8	0	0
Manufactured OS	35.4	0	0
Preserve OS	155.2	0	0
TOTAL	**436.0**	**1,597**	**20,000**

Source: Village 3 North and portion of Village 4 SPA Plan (July 2014), prepared by Meadow Lane, LLC.

FIGURE 1

VILLAGE 3 NORTH
PROPOSED LAND USE PLAN

II-8.5 WATER SERVICE AND SUPPLY

The Otay Water District is the local water agency that will supply potable water and recycled water to Village 3 North. The Otay Water District relies solely on the San Diego County Water Authority (SDCWA) for its potable water supply. The SDCWA is the largest of 27 member agencies of the Metropolitan Water District of Southern California (MWD), which is the primary importer of domestic water in Southern California.

II-8.6 PROJECTED WATER USE

II-8.6a Potable Water Demand

Water use is affected by, among other things, climate and the type of development. In California, recent trends towards the construction of more multi-unit housing, the general reduction in residential lot size, and a number of local agency water conservation programs are all tending to reduce per capita water consumption.

Potable water demands were projected by taking the total development for each land use and multiplying by water use factors. Table 2 provides the projected potable water demand for Village 3 North. The total estimated potable water use is 0.56 mgd. The potable water usage will be reduced by the use of recycled water within common landscaped areas of the project and implementation of water conservation measures (see Table 7). Potable water use factors were taken from the April 2013 Otay Water District Water Resources Master Plan Amendment.

TABLE 2
PROJECTED POTABLE WATER DEMANDS
FOR OTAY RANCH VILLAGE 3 NORTH

Land Use	Quantity	Unit Demand	Average Day Demands, gpd
SF Residential (3-8 Du/Ac)	290 units	500 gpd/unit	145,000
SF Residential (> 8 Du/Ac)	712 units	300 gpd/unit	213,600
MF Residential	595 units	255 gpd/unit	151,725
Commercial/Office	12.6 ac	1,607 gpd/ac	20,248
Industrial	15.6 ac	848 gpd/ac	13,229
School	8.3 ac	1,428 gpd/ac	11,852
CPF	2.6 ac	714 gpd/ac	1,856
Parks	25.7 ac	0 gpd/ac[1]	2,160
TOTAL			**559,670**

[1] To be irrigated with recycled water. Nominal potable water use has been estimated for standard fixtures

(lavatories, drinking fountains, etc.).

II-8.6b Recycled Water Demand

In accordance with Section 26 of the Otay Water District Code of Ordinances, Village 3 North and a portion of Village 4 will utilize recycled water for the irrigation of open space slopes, parks, parkway and median landscaping, and the common areas of school, commercial, industrial, and multi-family residential sites. Table 3 provides the estimated recycled water demand. The total estimated recycled water demand is 0.17 mgd. Figures 2 provides the potential recycled water use areas for Village 3 North and a portion of Village 4.

TABLE 3
OTAY RANCH VILLAGE 3 NORTH
PROJECTED RECYCLED WATER DEMANDS

Land Use	Quantity	Percentage to be Irrigated	Irrigated Acreage	Recycled Water Irrigation Factor, gpd/ac	Average Recycled Water Demand, gpd
Open Space	37.8 ac	100	32.8	2,155	81,459
Parks	25.7 ac	100	25.7	2,155	55,385
Commercial (MU-2)	11.3 ac	10	1.1	2,155	2,371
Industrial	27.6 ac	5	1.4	2,155	3,071
MF Residential/MU	595 units	15	---	45	26,775
School	8.3 ac	20	1.7	2,155	3,660
TOTAL					**172,667**

FIGURE 2

VILLAGE 3 NORTH RECYCLED WATER USE AREAS

II-8.7 MANDATED WATER CONSERVATION MEASURES

The State and many local governments have mandated a number of water conservation measures. Table 4 summarizes the conservation measures that are were mandated by the State of California and also provides the requirements of the 2010 California Green Building Standards Code that went into effect January 1, 2011.

TABLE 4
MANDATED WATER CONSERVATION DEVICES

Device	Baseline Requirement	2010 Green Building Code Requirement
Showerheads	2.5 gpm	2.0 gpm
Lavatory Faucets	2.2 gpm	1.5 gpm
Sink Faucets	2.2 gpm	1.8 gpm
Metering Faucets in Public Restrooms	0.25-0.75 gal/cycle	0.25 gal/cycle
Residential Water Closets	1.6 gpf	1.28 gpf
Flushometer Valves	1.6 gpf	1.28 gpf
Commercial Water Closets	1.6 gpf	1.28 gpf
Urinals	1.0 gpf	0.5 gpf

II-8.8 LOCAL WATER CONSERVATION REQUIREMENTS

There are a number of water conserving measures required by the Otay Water District and City of Chula Vista Landscape Manual. These include the use of recycled water for the irrigation of parks, median landscaping, open space slopes, and common landscaped areas where feasible. The Landscape Manual also requires some drought tolerant plant selection in the landscaping plan and the use of evapotranspiration controllers for parks and common landscaped areas. Additionally, the Landscape Water Conservation Ordinance that went into effect January 1, 2010 is expected to reduce outdoor water usage, particularly in single family residential lots.

The City of Chula Vista Water Conservation Plan Guidelines requires the following three indoor water conservation measures for residential units and non-residential units. These measures are mandatory.

Residential Measures - Mandatory

1. Hot Water Pipe Insulation. This measure involves the insulation of hot water pipes with 1-inch walled pipe insulation and separation of hot and cold water piping. This measure is estimated to cost an additional $50 during initial construction and result in annual savings of 2,400 gallons per residential unit.

2. Pressure Reducing Valves. Setting the maximum service pressure to 60 psi reduces any leakage present and prevents excessive flow of water from all appliances and fixtures. This measure is estimated to cost $100 during initial construction and result in annual water savings of 1,800 gallons per residential unit.

3. Water Efficient Dishwashers. There are a number of water efficient dishwashers available that carry the Energy Star label. These units cost an additional $500 on average and result in an estimated yearly water savings of 650 gallons per residential unit.

Non-Residential Measures - Mandatory

1. Hot water pipe insulation with 1-inch walled pipe insulation.

2. Compliance with Division 5.3 of the California Green Building Standards Code in effect at the time of plan submittal.

3. Pressure reducing valves.

Non-Mandatory Measures

In addition, to comply with the City's current water conservation requirements, the developer must select at least one outdoor measure and one additional indoor or outdoor water conservation measure for residential development and non-residential development. Water conservation measures not included in the City's Residential Water Conservation Measures list may be proposed by the developer. The developer will implement, from the City's list of approved measures, the following two additional non-mandatory measures in single family residential units, multi-family residential units, and non-residential units.

1. Dual Flush Toilets. The developer will install dual flush toilets within the project. This measure is estimated to cost $200 per household and result in annual water savings of 4,000 gallons per year per residential unit.

2. Water Efficient Landscaping. The developer will comply with the City's Landscape Water Conservation Ordinance to reduce outdoor water use. This will include a more drought tolerant plant selection including less turf area as well as installation of water efficient irrigation systems. While the estimated savings from this measure is difficult to quantify at this stage of planning, it is estimated that outdoor water usage at single family residences will be reduced by a minimum of 10 percent, or approximately 25 gpd per home.

Additionally, the City has recently adopted an ordinance requiring new residential development to provide a stub-out for a clothes washer gray water outlet and a stub-out for a gray water irrigation system. These stubs will allow the future homeowners to more easily connect a gray water system in the future. Since the gray water system is not actually being installed by the developer and there is no way to quantify how many homeowners will put these systems into use, no credit has been taken for this measure in this report.

II-8.9 WATER CONSERVATION ESTIMATED SAVINGS

The estimated water savings for water conservation measures are based on the estimates provided in Section II-8.8 of this report. The potential water savings varies widely based on land use types. Multi-family residential units, for example, have much less opportunity to implement additional water saving measures than low density single family residential units. This is primarily because the common landscaped areas of multi-family units are required to be irrigated with recycled water and, thus, there are no outdoor water conservation measures that can directly offset potable water usage in these areas.

Tables 5 and 6 summarize the total estimated water savings for Village 3 North based on the proposed required measures and non-mandatory measures described above.

TABLE 5 VILLAGE 3 NORTH MULTI-FAMILY PROPOSED WATER CONSERVATION MEASURES					
Measure	**Location**	**Yearly Water Savings, gal/unit**	**Daily Water Savings, gpd/unit**	**Percentage of Total Usage[1]**	**Project Total Water Savings[2], gpd**
Hot Water Pipe Insulation	Indoor	2,400	6.58	2.6	3,915
Pressure Reducing Valves	Indoor	1,800	4.93	1.9	2,933
Water Efficient Dishwashers	Indoor	650	1.78	0.7	1,059
Dual Flush Toilets	Indoor	4,000	10.96	4.3	6,521
Water Efficient Landscaping	Outdoor	---[3]	---	---	---[3]
TOTAL			**24.25**	**9.5**	**14,428**

[1] Based on 255 gpd/unit average usage.
[2] Based on 595 Multi-Family Residential Units.
[3] This measure will reduce the amount of recycled water used for irrigation and has, therefore, not been included in the total potable water savings.

TABLE 6 VILLAGE 3 NORTH SINGLE FAMILY RESIDENTIAL WATER CONSERVATION MEASURES						
Measure	**Location**	**Yearly Water Savings, gal/unit**	**Daily Water Savings, gpd/unit**	**Percentage of Total Usage[1] (3-8 DU/AC)**	**Percentage of Total Usage[2] (>8 DU/AC)**	**Project Total Water Savings[3], gpd**
Hot Water Pipe Insulation	Indoor	2,400	6.58	1.3	2.2	6,593
Pressure Reducing Valves	Indoor	1,800	4.93	1.0	1.6	4,940
Water Efficient Dishwashers	Indoor	650	1.78	0.4	0.6	1,784
Dual Flush Toilets	Indoor	4,000	10.96	2.2	3.6	10,982
Water Efficient Landscaping	Outdoor	9,125	25.0	5.0	8.3	25,050
TOTAL		**17,975**	**49.25**	**9.9**	**16.4**	**49,349**

[1] Based on 500 gpd/unit average usage with 250 gpd used outdoors.
[2] Based on 300 gpd/unit average usage with 150 gpd used outdoors.
[3] Based on 1,002 Single Family Residential Units.

Water Conservation Summary

As detailed in this report, the project is committed to being water efficient through the use of recycled water for irrigation and utilizing other water conservation devices and measures. Table 7 summarizes the baseline potable water use if recycled water and water conservation measures were not utilized and provides the anticipated water savings outlined in this report. As shown, the use of recycled water and other water conservation measures is expected to reduce potable water usage by 236,444 gpd, or 32 percent.

As evidenced by the information contained in this study, the objectives of the Otay Ranch GDP to incorporate water saving fixtures, drought tolerant landscaping, and recycled water usage into the development are being met. Based on information contained in the 1989 San Diego County Water Authority Annual Report, average water use within the Otay Water District was 220 gallons per day per capita (20,469.7 AF for a population of 83,000). Using 2010 Census data, the average persons per household in Chula Vista is 3.21. This equates to a total population of 22,139 residents in Village 3 North, a portion of Village 4, Village 8 East, and Village 10. The per capita net potable water usage based on the water conservation measures identified in this Water Conservation Plan is approximately 85 gpd. Based on 2007 data from the OWD 2008 Master Plan, per capita water usage has dropped to approximately 189 gpd (33.26 mgd for a population of 186,000). These per capita numbers include non-residential demands, but clearly indicate the effectiveness that the above measures are having and this trend is expected to continue as adopted guidelines are increasingly focused on reducing per capita water use.

TABLE 7
VILLAGE 3 NORTH VILLAGE WATER CONSERVATION SUMMARY

Description	Average Use, gpd
Total Water Use	
Potable Water Use (Table 2)	559,670
Recycled Water Use (Table 3)	172,667
TOTAL BASELINE WATER USE	**732,237**
Water Conservation Savings	
Recycled Water (Table 3)	172,667
Multi Family Measures (Table 5)	14,428
Single Family Measures (Table 6)	49,349
TOTAL CONSERVATION SAVINGS	**236,444**
Net Potable Water Usage[1]	495,793

Reduction from Baseline Usage, %	32.3

[1]Potable water use (Table 2) minus water conservation savings (Tables 5 and 6).

II-8.10 IMPLEMENTATION MEASURES

The non-mandated water conservation measures included in the residential component of the project are listed in Tables 5 and 6. The non-residential development within the project will utilize hot water pipe insulation, pressure reducing valves, water efficient landscape systems, and evapotranspiration controllers as well as meeting all requirements of Division 5.3 of the California Green Building Standards Code in effect at the time of plan submittal.

II-8.11 MONITORING

For the water conservation measures proposed to be incorporated into the project, Table 8 summarizes the implementation timing for each measure, as well as the responsibility for monitoring the implementation of the measures.

TABLE 8
VILLAGE 3 NORTH IMPLEMENTATION AND MONITORING PROGRAM

Water Conservation Measure	Responsibility for Implementation	Timing	Monitoring of the Implementation
Hot Water Pipe Insulation	Developer	Prior to Issuance of Building Permit	City Building Department
Pressure Reducing Valves	Developer	Prior to Issuance of Building Permit	City Building Department/Otay Water District
Water Efficient Dishwashers	Developer	Prior to Issuance of Building Permit	City Building Department
Dual Flush Toilets	Developer	Prior to Issuance of Building Permit	City Building Department
Water Efficient Landscape System	Developer	Prior to Issuance of Building Permit	City Building Department
Clothes Washer Gray Water Stub-Outs	Developer	Prior to Issuance of Building Permit	City Building Department

REFERENCES

1. Bahman Sheikh, Water Use Efficiency, Strategies for Proposed Residential Developments, September 2001.

2. City of Chula Vista Water Conservation Plan Guidelines, adopted May 27, 2003.

3. Chapter 20.12 Chula Vista Landscape Water Conservation Ordinance (Ord. 3146) December 8, 2009

4. Overview of Water Service for Otay Ranch University Villages, October 2014, Dexter Wilson Engineering, Inc.

5. Otay Water District Water Resources Master Plan, October 2008, PBS&J, Last Amended April 2013.

6. San Diego County Water Authority Annual Report, 1989.

7. California Green Building Standards Code, 2010.

8. Village 3 North and a Portion of 4 SPA Plan (July 2014), Meadow Lane, LLC.

UNIVERSITY VILLAGES

Otay Ranch Village 3 North and a Portion of Village 4

Energy Conservation Plan

Adopted December 2, 2014

By Resolution No. 2014-234

December 2, 2014

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I. INTRODUCTION

The Otay Ranch GDP requires the preparation of an Energy Conservation Plan to identify feasible methods to reduce the consumption of non-renewable energy sources, including but not limited to, transportation, building design and use, lighting, recycling, alternative energy sources and land use.

Fossil fuels provide the majority of non-renewable energy sources in the San Diego region. These fuels are directly consumed in the form of gasoline, diesel fuel and natural gas, and indirectly consumed as electricity generated from these fuels. The goals, objectives and policies of the GDP provide for the long-range increase in conservation and reduction of consumption of non-renewable energy sources.

On November 14, 2000, the City Council adopted the Carbon Dioxide (CO2) Reduction Plan, which included implementing measures regarding transportation and energy efficient land use planning and building construction measures for new development. In this Plan, it was recognized that the City's efforts to reduce carbon dioxide emissions from new development are directly related to energy conservation and air quality efforts. As a result, the City initiated a pilot study to develop a program to update the guidelines for preparation of required Air Quality Improvement Plans (AQIP). The pilot study involved the development of a computer model to evaluate the relative effectiveness of applying various site design and energy conservation features in new development projects. The results of the pilot study confirmed that the application of the Otay Ranch village design concept supports the City's energy conservation goals.

Opportunities for energy conservation in new development fall into three categories: the arrangement and intensity of land uses; mass transit and alternative transportation modes; and building siting, design and construction. The greatest opportunities for significant conservation are transportation related. The planning of Otay Ranch and its villages maximizes these opportunities by concentrating intensity of development around new transit facilities, providing for a regional transit-way and encouraging pedestrian, bicycle and electric cart travel as an alternative to the automobile. Village 3 North and a Portion of 4 ("Plan Area") has been designed in accordance with these energy conservation principles.

A. Land Use and Community Design

Land use and community design that encourages energy conservation include:

1. Multi-Modal Transportation Focused Development

Village 3 North concentrates housing, commercial, community purpose, school and neighborhood park land uses in and around a village core. A mixed use commercial development is provided within the centrally located village core. The southern portion of the Otay Ranch Business Park is within walking distance of the Village 3 North village core and residential neighborhoods. A network of pedestrian and bicycle circulation is provided throughout the village, connecting to the regional network and adjacent communities.

In addition, a Rapid Bus route is planned along Main Street, at the southern edge of Village 3 North. Local Bus service may be provided along Heritage Road, through the heart of the Business Park. A bus/transit stop may be provided on Heritage Road to serve both the Business Park and Village 3 North residents.

A 10' Regional Trail will connect Village 3 North to Village 2 along Heritage Road and Villages 4 and the Village 8 West Town Center along Main Street. The 10-ft. wide trail will be designed to accommodate both pedestrians and bicyclist who wish to utilize this unique system of pedestrian/bikeway pathways, and other regional trails. A Class 2 Bike Lane is planned along both Heritage Road and Main Street, providing a strong connection from Village 3 North to the City of Chula Vista Bikeway system.

2. Community Solar Orientation

Village 3 North is designed such that single family homes may benefit from the future installation and use of photovoltaic (PV) panels are oriented north/south which improves the efficiency of solar panels.

3. Housing Intensity

Village 3 North is comprised of smaller detached homes and attached buildings which use less energy for heating and cooling than larger, single-family detached homes. In addition,

the small-lot single family homes have a smaller area of landscaping than typical single-family lots, which reduces the amount of water used for irrigation.

4. <u>Street Widths, Pavement and Street Trees</u>

Otay Ranch street sections are narrower than typical standards. Narrow streets and a reduction in asphalt pavement reduce the "urban heat-island effect" by limiting the amount of reflective surfaces and the demand for air conditioning. Street trees provide shade which further reduces heat-gain. Street and parking lot tree planting shall comply with the City of Chula Vista Shade Tree Policy Number 576-19 (May 22, 2012). The objective is to maximize shade cover to the greatest extent possible. Shade trees shall be provided for all new parking lots that will achieve 50% canopy cover over the parking stall areas five to 15 years after planting.

B. Transit Facilities and Alternative Transportation Modes

Village 3 North is designed to accommodate public transportation and alternative travel modes to reduce energy consumption:

1. <u>Public Transportation</u>

Rapid Bus service is planned along Main Street, adjacent to Village 3 North. In addition, Local Bus service may be provided along Heritage Road, through the heart of the Otay Ranch Business Park. A bus/transit stop may be provided along Heritage Road to serve both the Otay Ranch Business Park and Village 3 North residents.

2. <u>Alternative Travel Modes</u>

Alternative travel modes include pedestrians and bicycles. Village 3 North includes an integrated network of pedestrian trails and pathways, including the Chula Vista Regional Trail, Village Pathway and Promenade Trail. These pedestrian facilities provide multiple routes through the village and strong linkages to the regional pedestrian network. Bicycle facilities include Class 2 Bike Lanes along Main Street and Heritage Road, as well as Class 3 Bike Routes on key internal village streets.

C. Building Siting and Construction

The City of Chula Vista adopted the 2010 California Green Building Code Divisions 4.3 and 5.3 which address the following:

- Energy efficiency
- Pollutant control
- Interior moisture control
- Improved indoor air quality and exhaust
- Indoor Water conservation
- Storm water management
- Construction waste reduction, disposal and recycling.

These standards apply to all new residential and non-residential construction.

1. Energy Efficiency

- New homes within Village 3 North will be constructed to exceed the energy efficiency requirements in the California Building Code in compliance with Chula Vista's Energy Code (CVMC 15.26). Specifically, new homes in Climate Zone 7 (CZ-7) will be a minimum of 15% more energy efficient than required by the 2008 Energy Code (Title 24-Part 6).

2. Solar Access

Passive solar design and building orientation can take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during the summer. See the discussion above regarding community. Village 3 North and a portion of Village 4 will also comply with the City of Chula Vista's "Solar Ready" Ordinance which requires solar hot water pre-plumbing (CVMC Section 15.28.015) and photovoltaic pre-wiring requirements (CVMC 15.24.065). These requirements facilitate future installation of solar hot water systems and roof top photovoltaic panels.

3. Lighting

Energy efficient lighting will be used to light streets, parks and other public spaces. Builders will be encouraged to use energy efficient lighting in commercial and residential development.

4. Water Efficiency

The Village 3 North and a Portion of Village 4 SPA Plan includes a Water Conservation Plan which outlines strategies to reduce water use inside and outside of the built environment. These strategies include the following requirements:

Indoor Water Conservation

- Plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by at least 20 percent shall be provided.

Outdoor Water Use

- Controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:
    - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
    - Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

5. Construction Waste Reduction, Disposal And Recycling.

Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent.

UNIVERSITY VILLAGES

Otay Ranch Village 3 North and a Portion of Village 4

Affordable Housing Program

Adopted December 2, 2014

By Resolution No.2014-234

December 2, 2014

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I. INTRODUCTION

A. Purpose and Content

The purpose and intent of this Affordable Housing Program (AHP) is to encourage the development of diverse and balanced neighborhoods with a range of housing opportunities for all identifiable economic segments of the population, including households of lower and moderate income consistent with the City's housing policies and needs as specified in its General Plan Housing Element. The intent is to ensure that when developing the limited supply of developable land, housing opportunities for persons of all income levels are provided. The provisions of this AHP establish standards and procedures that will encourage the development of housing affordable to low and moderate income households within the Sectional Planning Area (SPA).

The AHP identifies the type and location of affordable housing units to be provided, potential subsidies or incentive programs, income restrictions and methods to verify compliance. The program may be implemented through various mechanisms including development agreements, tentative map conditions, and specific housing project agreements that may include additional terms and conditions, consistent with this program.

B. Needs Assessment

According to San Diego Association of Government's (SANDAG) Preliminary 2050 Cities/Counties Forecast, Chula Vista is expected to gain 92,454 new residents and 28,755 new households. Furthermore, SANDAG, through its Regional Housing Needs Allocation, estimated that based on anticipated economic growth for the period beginning January 1, 2010 to December 31, 2020, the City would experience a demand for 12,125 new housing units, of which 6,303 new housing units affordable to low and very low income households and 2,220 new housing units for moderate income households.

To encourage the development of adequate housing to meet the needs of low and moderate-income households and to further geographic and community balance, the City's adopted Housing Element provides for a Balanced Communities Policy, requiring ten percent (10%) affordable housing for low and moderate income households within developments of fifty (50) or more residential units. This inclusionary housing program will serve as only one component of the City's overall housing strategy and will complement other affordable housing efforts, including preservation of existing assisted housing, development of new assisted housing with public subsidies, first-time homebuyer assistance, and rehabilitation loans for low income homeowners. The City does find that such an inclusionary housing policy is beneficial to increasing the supply of housing affordable to households of lower and moderate income incomes and to meet the City's regional share of housing needs given the demographics of the community and its needs,

past housing production performance, and the existing opportunities and constraints as detailed in its Housing Element.

The current characteristics of the City's population, housing, employment, land inventory, and economic conditions, that affect its housing goals, policies and programs include:

- The population has more diversity in race/ethnicity than the region, in that 20% of the population is white (non-Hispanic) and 60% is Hispanic (all races). This compares to - percent and - percent, respectively, for the region as a whole.
- Chula Vista residents have household income characteristics that nearly match the regional median.
- There is a disparity in household median income for those households living west of Interstate-805 ($47,969) and east of Interstate-805 ($86,032).
- One in every 4 households earn less than $35,000 per year.
- Household size is slightly larger than the region, at 3.21 persons per household compared to 2.75 per household for the region.
- Seniors, aged 65 years or older, comprise 10% of the total households.
- Housing west of Interstate-805 was built primarily before 1980 (32% before 1960 and 50% between 1960-1980). Housing east of Interstate-805 was built after 1980, with 41% built between 1980-2000, and 50% built after 2000.
- Housing types are diverse west of I-805, with 41% multifamily housing and 41% single family housing. Single family homes comprise the majority of housing available east of I-805 (82% of housing).
- A home ownership rate of 58.1 percent is slightly above as the region's rate of 54 percent.
- The median housing cost (resale) in 2011 of $305,000 is $15,000 less than the region's median cost of $320,000.
- The well-established neighborhoods and master planned neighborhoods create different opportunities and require a different set of policies and programs to address housing needs.
- The amount of land in the City available for new residential development is severely limited by geography and size. The largest supply of vacant developable land is planned for master planned communities.
- A high rate of new home construction is anticipated due to the many approved master planned communities in the City.
- Reinvestment in the well-established neighborhoods of Chula Vista continues to be needed.

- The City's diverse employment base will grow by more than 73% between 2008 and 2050, with the majority of growth in the retail, service and governmental sectors.
- Based upon past production of housing, sufficient housing opportunities for households with incomes at or below the Area Median Income have not been provided.
- Despite substantial investments of Federal HOME funds and funding from the Redevelopment Agency's Low and Moderate Income Housing Fund (prior to the dissolution of Redevelopment), the City has not been able to produce all the units called for in the Regional Housing Needs Allocation.

Chula Vista faces a growing shortage of housing that is affordable to a wide range of our population and needed for a healthy functioning housing market. This lack of affordable housing is detrimental to the health, safety and welfare of the City's residents. Employees may be forced to live in less than adequate housing within the City, pay a disproportionate share of their incomes to live in adequate housing within the City or commute increasing distances to their jobs from housing located outside the City. The City's Balanced Communities Policy can enhance the public welfare by increasing the supply of housing affordable to households of lower and moderate income incomes in a balanced manner and thereby combating the adverse effects to the City due to an insufficient supply of affordable housing.

II. VILLAGE 3/4 AFFORDABLE HOUSING OBLIGATION, LOCATION, PHASING, DESIGN AND UNIT MIX

A. Obligation

The City of Chula Vista Housing Element, Guidelines to the Balanced Communities Policy, and the Otay Ranch GDP provide that ten percent of the total units will be affordable to low and moderate income households. Of the ten percent, five percent must be affordable to low income households and five percent must be affordable to moderate income households. In calculating the required number of affordable units, fractional units may result and may either be provided as one additional affordable unit or paid as a partial in-lieu fee equal to the resulting fraction.

The estimated Village 3/4 affordable housing unit obligation is based on the Village 3/4 SPA entitlement authorization of 1,597 units within the Village. The affordable units required for Village 3/4 are 80 low income and 80 moderate-income affordable units.

B. Types of Affordable Housing

The housing policies established in the City of Chula Vista Housing Element advocate a broad variety and diversity of housing types. The affordable housing obligations of Village 3/4 will be met through a combination of housing types

including rental and "for-sale" housing. In general, low-income housing needs will be satisfied through the provision of rental units. Depending upon the availability of adequate subsidies, incentives or other financing assistance, a limited number of "for-sale" multi-family housing units affordable to low income households may be available as well.

Housing opportunities to meet the needs of moderate income households will be provided through a combination of market-rate rental units as well as "for-sale" housing in medium-high to higher density developments.

C. Location

The location of affordable housing developments shall take into consideration proximity to and availability of the following:

- Existing or proposed public transit facilities or transportation routes;
- Existing or proposed community facilities and services, such as shopping, medical, child care, recreation areas and schools; and
- Existing or future employment opportunities.

Affordable housing sites within Village 3/4 are designated as multifamily and/or mixed use development sites, as depicted in Exhibit 1. These sites are in close proximity to parks, schools, public transportation, retail commercial and community purpose facilities.

Identification of potential target sites in this Affordable Housing Program describes one way in which the Village 3/4 affordable housing obligation might be met, and is not meant to require that affordable units be constructed on any specific sites or to preclude other alternatives. A final determination as to the location and type of the affordable housing sites will occur with subsequent entitlements, approvals and agreements and shall be in compliance with the Citys goals, policies and programs contained within the General Plan, the Balanced Communities Policy Guidelines and the Otay Ranch General Development Plan (GDP).

D. Phasing

Development of Village 3/4 will be completed in multiple phases to ensure construction of necessary infrastructure and amenities for each phase as the project progresses. The Phasing Plan is non-sequential. This recognizes that sequential phasing is frequently inaccurate due to unforeseen market changes or regulatory constraints. Therefore, the Village 3/4 SPA Plan and Public Facilities Finance Plan (PFFP) permits non-sequential phasing by imposing specific facilities requirements for each phase to ensure that Village 3/4 is adequately served and City threshold standards are met.

A phased approach will also be used to ensure the implementation and production of low and moderate-income housing units commensurate with the phasing of market rate residential units within Village 3/4. Phasing of the low and moderate income units in Village 3/4 is designed to link progress toward the production of such housing to the continued entitlement and development process for the Village 3/4 SPA Area. The first or "Initial Phase" for construction of the low and moderate-income housing units shall be comprised of 60% of the total number of qualified low and moderate-income housing units and shall commence construction prior to the issuance by the City of the 798th production building permit within Village 3/4 ("Initial Phase"). Construction of the remaining number of required low and moderate-income housing units shall commence prior to the City's issuance of the 1,197th production building permit ("Final Phase"). A detailed implementation schedule and building permit stipulations for the construction and delivery of affordable units in relation to other market rate units will be established through an Affordable Housing Agreement. Such Agreement will be executed prior to the issuance of the first Final Subdivision Map and recorded against the entire Village.

E. Design

Affordable housing shall be compatible with the design and use of the market rate units, in terms of appearance, materials, and finish quality. The Developer shall have the option of reducing the interior amenities, levels and square footage of the affordable units.

F. Unit Mix by Bedroom Count

The affordable units shall have an overall unit mix by bedroom count which reflects the appropriate community need and shall be comparable to the unit mix by bedroom count of the market rate units in the residential development. Given that 21 percent of the households in Chula Vista (according to the 2010 Census) are large families of five persons or more and a desire on the part of the City to provide housing opportunities for these families throughout the City, a minimum of twenty percent (20%) of the affordable units shall have three or more bedrooms. Affordable housing to be sold and occupied by income eligible households (for sale units) shall also provide a minimum of two bedrooms.

G. Senior Housing

Satisfaction of the affordable housing obligation through the provision of housing for senior citizens as defined by Section 51.3 of the California Civil Code, is at the sole discretion of the City of Chula Vista. The City shall consider such housing in relation to the priority needs of the City's low income housing population and should such provide advantages as to location, diversity of housing types, and/or affordability levels. Senior housing is exempt from requirements to provide three or more bedroom units.

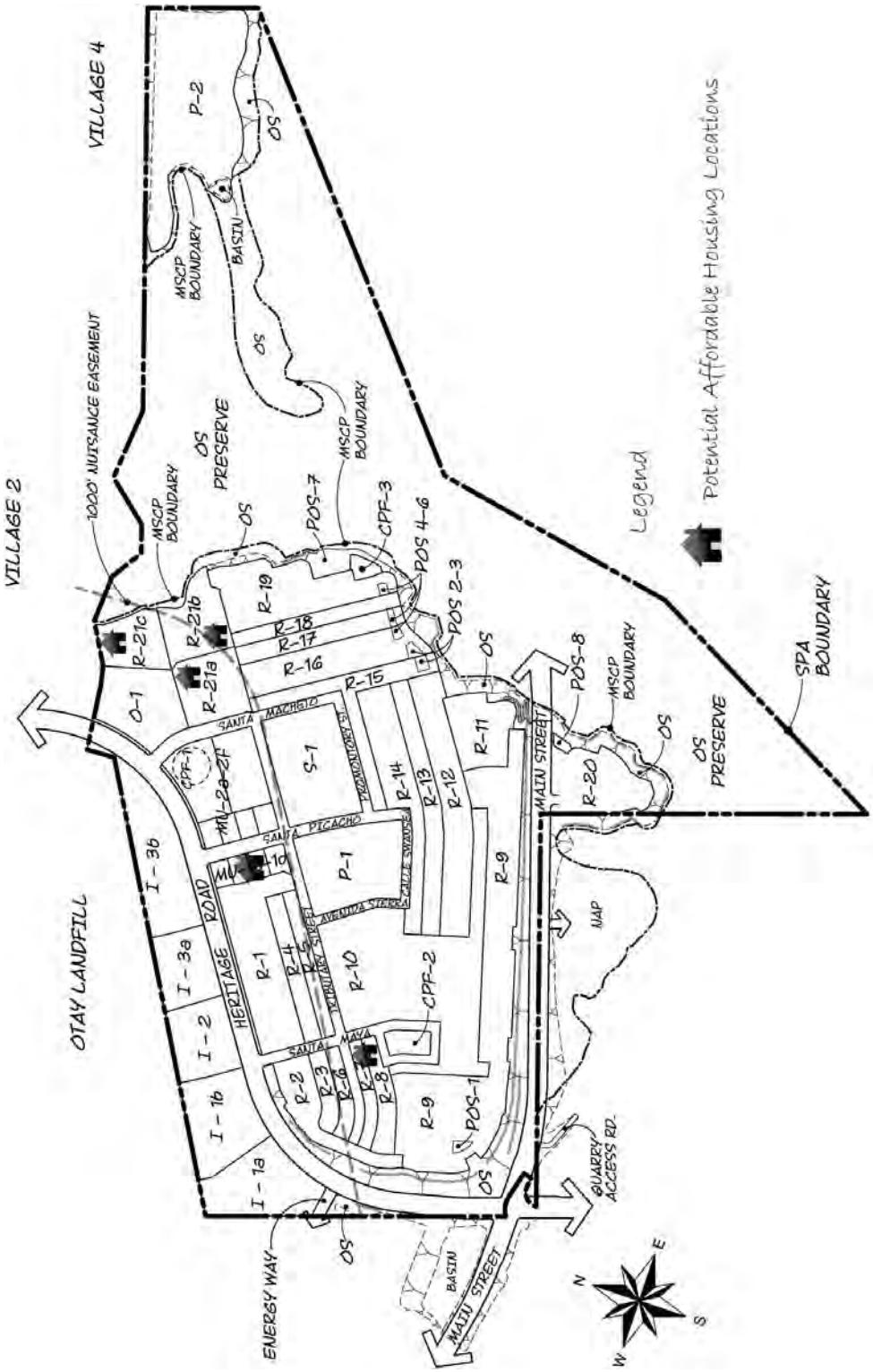


Exhibit 1
Affordable Housing Potential Location Map

III. AFFORDABLE HOUSING RESTRICTIONS

A. Income Eligibility

To determine the eligibility of a household for the low and/or moderate income housing unit, the household purchasing or renting the affordable unit must qualify as a lower income/moderate income household, as established by and amended from time to time pursuant to Section 8 of the United States Housing Act of 1937, as published by the U.S. Department of Housing and Urban Development (HUD), and as also provided in California Health and Safety Code Sections 50079.5 and 50105.

B. Affordable Housing Costs

The allowable housing expense paid by a qualifying household shall not exceed a specified fraction of the gross monthly income, adjusted for household size, for the following classes of housing:

1. Very low-income, rental and for-sale units: 30 percent of the gross monthly income, adjusted for household size, at 50 percent of the Area Median Income (AMI) for San Diego County, or as provided in Section 50053 (b)(2) and 50052.5 (b)(2) of the California Health and Safety Code.
2. Lower-income, rental units: 30 percent of the gross monthly income, adjusted for household size, at 60 percent of the Area Median Income (AMI) for San Diego County, or as provided in Section 50053 (b)(3) of the California Health and Safety Code.
3. Lower-income, for-sale units: 30 percent of the gross monthly income, adjusted for household size, at 70 percent of the Area Median Income (AMI) for San Diego County or as provided in Section 50052.5 (b) (3) of the California Health and Safety Code.
4. Moderate-income, rental units: 30 percent of the gross monthly income, adjusted for household size, at 110 percent of the Area Median Income (AMI) for San Diego County or as provided in Section 50053 (b)(4) of the California Health and Safety Code.
5. Moderate-income, for-sale units: 35 percent of the gross monthly income, adjusted for household size, at 110 percent of the Area Median Income (AMI) for San Diego County or as provided in Section 50052.5 (b)(4) of the California Health and Safety Code.

To determine the "Allowable housing expense" include all of the actual or projected monthly or annual recurring expenses required of a household to obtain shelter.

1. For a for-sale unit, allowable housing expenses include payments for principal and interest on a mortgage loan, including any loan insurance fees,

property taxes and assessments, fire and casualty insurance, homeowner association fees, and a reasonable allowance for utilities, or as defined in 25 California Code of Regulations Section 6920.

2. For a rental unit, allowable housing expenses include payments for rent and a reasonable allowance for utilities, or as defined in 25 California Code of Regulations Section 6918.

C. Underwriting Requirements

To ensure the preservation of affordability of proposed low and moderate-income housing and financial viability of program participants, the City shall encourage the following policies:

- Fixed rate mortgages only. No adjustable rate mortgages;
- Affordable monthly housing payments no more than 33 percent of household income ("Front End Ratio").
- Total debt payments no more than 45 percent of household income ("Back End Ratio").
- No "teaser" rates; and,
- No non-occupant co-borrowers.

D. Resale Provisions of Owner Occupied Housing

In order to ensure the continued affordability of the units, resale of the units must be restricted for the required term of thirty (30) years. After initial sale of the affordable units to a low-income household, all subsequent buyers of such units must also be income eligible and the unit must be sold at an affordable price. A developer may opt to have no income or sales price restriction for subsequent buyers, provided however that restrictions to the satisfaction of the City are in place that would result in the recapture by the City or its designee of a financial interest in the units equal to the amount of subsidy necessary to make the unit affordable to a low income household and a proportionate share of any equity. Funds recaptured by the City shall be used to provide assistance to other identified affordable housing production or contributions to a special needs housing project or program. To the extent possible, projects using for-sale units to satisfy the obligations of developers under the City's Affordable Housing Program shall be designed to be compatible with conventional mortgage financing programs including secondary market requirements.

E. Term of Affordability Restrictions

The term of the affordability restrictions shall be thirty years (30) years from issuance of the Certificate of Occupancy for the first structure providing income and rent restricted units, or the longest period of time if required by the construction or mortgage financing assistance program, mortgage insurance program, or rental

financing subsidy or incentive program. The term of affordability and resale restrictions for affordable for-sale units are more appropriately described above in "Resale Provisions of Owner Occupied Housing."

IV. SUBSIDIES, INCENTIVES AND FINANCING MECHANISMS

The obligation to provide affordable housing shall not be dependent upon the availability of subsidies, incentives or financing mechanisms. The City shall consider providing incentives, assistance, and subsidies to those qualifying projects and supporting any applications for assistance that requires approvals from, or allocations by other agencies, to the extent feasible, in a manner that offsets the cost of providing for affordable units. Offsets will be offered by the City to the extent that resources and programs for this purpose are available to the City and to the extent that the qualifying projects, with the use of the offsets, assists in achieving the City's housing goals. To the degree such offsets are available, the Developer may make application to the City. The City agrees to use its reasonable best efforts to assist the Developer in pursuing the benefit of certain financing mechanisms, subsidies and other incentives to facilitate provision of affordable housing for Village 3/4. These mechanisms include, but are not limited to, local, state and federal subsidies and City density bonuses, planning, and design and development techniques and standards, and City fee waivers or deferrals which reduce the cost of providing affordable housing (collectively, the "Cost Reducing Mechanisms").

The parties acknowledge that the City is not hereby committing, directly or through implication, a right to receive any offsets from City or any other party or agency to enable the Developer to meet the obligations and cannot guarantee the availability of any Cost Reducing Mechanisms to the Developer for Village 3/4. The City reserves the right to approve, approve with conditions or disapprove, in its sole discretion, any Developer request for subsidized financing sponsored by the City.

A. Density Bonus

Projects that meet the applicable requirements of State law (Government Code Section 65915) as a result of affordable housing units, are entitled to a density bonus or other incentives in accordance with the provisions of such law.

V. COMPLIANCE

Terms related to occupancy and affordability restrictions shall be recorded as a separate deed restriction or regulatory agreement on the property designated for the affordable units and shall bind all future owners and successors in interest for the term of years specified therein.

The City shall monitor affordable units for compliance with those terms and conditions of all relevant Affordable Housing Agreements or other restrictions. The Developer shall submit compliance reports in the frequency and manner prescribed by the City of Chula Vista Development Services Department.

VI. AFFIRMATIVE MARKETING PLAN

The Developer shall provide a marketing plan acceptable to the City, in the City's reasonable discretion, for proactively marketing the low and moderate income housing units to low and moderate income tenants and purchasers. Developer shall use good faith and reasonable best efforts to market the low and moderate income housing units to low and moderate income tenants and purchasers according to the affirmative marketing plan. The City will use good faith and reasonable best efforts to assist the Developer in marketing low and moderate income housing units to low and moderate income tenants and purchasers obtaining the services of a third-party organization in connection with such marketing efforts, processing the applications of prospective tenants and purchasers of low and moderate income housing units, and complying with the reporting requirements as required herein.

VII. IMPLEMENTING AGREEMENTS AND CONDITIONS

This AHP may be implemented through various mechanisms including development agreements, tentative map conditions, and specific housing project agreements that may impose additional terms and conditions consistent herewith.

VIII. DEFINITIONS

Affirmative Marketing Plan
An outline that details actions the Developer will take to provide information and otherwise attract eligible persons in the housing market area to the available housing without regard to race, sex, sexual orientation, marital status, familiar status, color, religion, national origin, ancestry, handicap, age, or any other category which may be defined by the law now or in the future.

Low Income Household
A household of persons who claim primary residency at the same unit with combined incomes that are greater than 50%, but not more than 80% of the Area Median Income for the San Diego area based on household size as determined annually by the U.S. Department of Housing and Urban Development (HUD). Household size is calculated by the number of persons residing at the same unit as their primary residency.

Moderate Income Household
A household of persons who claim primary residency at the same unit with combined incomes between 80% to 120% of the Area Median Income for the San Diego area based on household size as determined annually by the U.S. Department of Housing and Urban Development (HUD). Household size is calculated by the number of persons residing at the same unit as their primary residency.

San Diego Area Median Income
The San Diego County area median income level as determined from time to time by HUD, based on household size.

Subsidized Financing

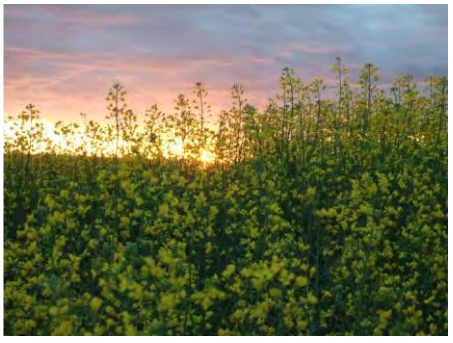
Any financing provided by any public agency specifically for the development and construction of low or moderate income housing units, including but not limited to the following:

- Low Income Housing Tax Credits (LIHTC) – statewide competition;
- Housing Bonds – State;
- Housing Bonds – City of Chula Vista;
- HOME – City of Chula Vista and County of San Diego;
- Community Development Block Grants – City of Chula Vista; and,
- Other Public Financing – State and Federal.

UNIVERSITY VILLAGES

Otay Ranch Village 3 North and a Portion of Village 4

Agricultural Plan



Adopted December 2, 2014

By Resolution No. 2014-234

December 2, 2014

I. INTRODUCTION

The 1993 Otay Ranch Program EIR requires the preparation of an Agriculture Plan concurrent with the approval of any SPA affecting onsite agricultural resources. The Findings of Fact state that the Agricultural Plan shall indicate the type of agriculture activity being allowed as an interim use including buffering guidelines designed to prevent potential land use interface impacts related to noise, odors, dust, insects, rodents and chemicals that may accompany agricultural activities and operations.

Historical agricultural uses in the Village 3 and portion of Village 4 "Project Area," include dry farming, as well as cattle and sheep raising. Crop production was limited to “dry farming” of hay and grains due to limited water availability. Cultivation and cattle grazing activities are permitted in the SPA Plan Area. Cattle grazing, cultivation and dry farming no longer occur on the property.

II. PHASED ELIMINATION OF AGRICULTURAL USES

Farming

Land utilized for agricultural activities in properties surrounding the SPA Plan Area has decreased in recent years. Factors that have led to the decrease in agricultural use include the conversion of farmland into urban uses as a result of increases in property taxes and the high cost of importing water. The phased development of the SPA Plan Area incrementally converts agriculture uses to urban development. Consistent with the Otay Ranch GDP, the following agricultural standards will be employed should the property owner or subsequent owner(s) desire to farm on-site prior to development:

- A 200-foot distance buffer shall be maintained between developed property and ongoing agricultural operations. Use of pesticides shall comply with federal, state and local regulations.

- In those areas where pesticides are to be applied, vegetation shall be utilized to shield adjacent urban development (within 400 feet) from agricultural activities.

- The applicant shall notify adjacent property owners of potential pesticide application through advertisements in newspapers of general circulation.

- Where necessary to ensure the safety of area residents, appropriate fencing shall be utilized.

Grazing

The Otay Ranch RMP includes a Range Management Plan and is administered by the Preserve Owner/Manager. The purpose of the Range Management Plan is to provide a framework for the coordinated control of grazing within the Otay Ranch Preserve. Grazing no longer occurs within the Project Area.